

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

Diameter Communication Details in MTAS

Contents

1	Introduction	2
1.1	Revision history.....	2
1.2	Purpose.....	2
1.3	Scope	2
2	General Information	4
2.1	Introduction	4
2.2	Syntax Notation.....	4
3	Procedures.....	5
4	Message Format.....	6
4.1	General.....	6
4.2	Diameter Accounting Messages.....	6
4.3	Attribute Value Pairs	7
5	Information Elements	10
5.1	Diameter AVPs.....	10
6	Communication Details Message Examples	23
6.1	MCID (Permanent Mode).....	23
6.2	MCID (Temporary Mode)	24
6.3	Dynamic Black List.....	25
6.4	Malicious Communication Rejection.....	26
7	Error Handling.....	28
8	Security Considerations.....	29
9	Standard Compliance Statement	29
9.1	Exceptions.....	29
10	Terminology.....	29
10.1	Abbreviations	29
11	References.....	30

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

1 Introduction

1.1 Revision history

REVISION	RELEASE DATE	REVISED BY	REASON FOR REVISION
A	2013-04-19	estukar	Clone of 4/155 19-CRA 119 2107 rev D Added UHTZ-Offset AVP Reference list updated
B	2014-04-23	ekorrssa	MTAS 14B - 802 SSI added
C	2014-12-04	edinjia	Update for the ST AS MCID implementation. Generalized version that is platform agnostic. Added AS-Type AVP. Update for Session-Id AVP.
D	2015-07-06	edmmdda	MTAS 15B: <ul style="list-style-type: none"> - AVPs clean up - Corrected the format of request and answer type in Table 1. - From-Header and To-Header description updated, to align with the code.
E	2015-11-04	evitkav	MTAS 4.0.0 <ul style="list-style-type: none"> - Deprecated CM names replaced.
F	2016-03-23	xaliraa	Updated Reference section , CBA link to MOM
G	2016-04-20	edandwe	MTAS 4.2.0 Editorial correction: Deleted erroneous listings of preliminary revisions.
H	2018-03-26	eandlev	MTAS 4.10.0/MTAS 1.10.0 References updated.

1.2 Purpose

The purpose of this document is to specify the Diameter based Communication Details protocol used by MTAS. The document defines the proprietary interface used between MTAS and a Communication Details Server (CDS) to enable the transfer of information about communication sessions required for certain supplementary services.

1.3 Scope

The Communication Details protocol is based on the Diameter Accounting Application. Communication Details messages are described in the document in terms of Attribute Value Pairs (AVPs) as defined in the Diameter Base Protocol [1] and in the 3GPP Technical Specification for Diameter Charging Applications [2].

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

The information in this document supports the transfer of information for the following supplementary services:

- a) Malicious Communication Identification (Permanent Mode)
- b) Malicious Communication Identification (Temporary Mode)
- c) Dynamic Black List
- d) Malicious Communication Rejection

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

2 General Information

2.1 Introduction

The Diameter Base Protocol provides the minimum requirements needed for an AAA transport protocol. However, the base protocol is not intended to be used as is, and must be used with a Diameter application. Every specific application defines a number of commands and AVPs that are required for a specific use of the protocol.

MTAS uses the Diameter Accounting Application for the transfer of communication details to the CDS.

The Accounting-Request (ACR) and Accounting-Answer (ACA) messages are used for the transfer of communication details.

2.1.1 Prerequisites

The peer node has to be properly configured to be able to interact with the MTAS node.

Parameter	Value
Application-id	3
Vendor-Id	193 (Ericsson), 10415 (3GPP)

2.2 Syntax Notation

ABNF grammar is used to describe an AVP of data type "Grouped". A grouped AVP implies that the Data field is actually a sequence of AVPs. It is possible to include an AVP with a Grouped type within a grouped type, i.e. nested groups.

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

3 Procedures

The Communication Details interface uses Diameter Accounting Request messages to transfer communication details to the CDS. All messages sent on this interface convey information using an Accounting Event Record as described in [1].

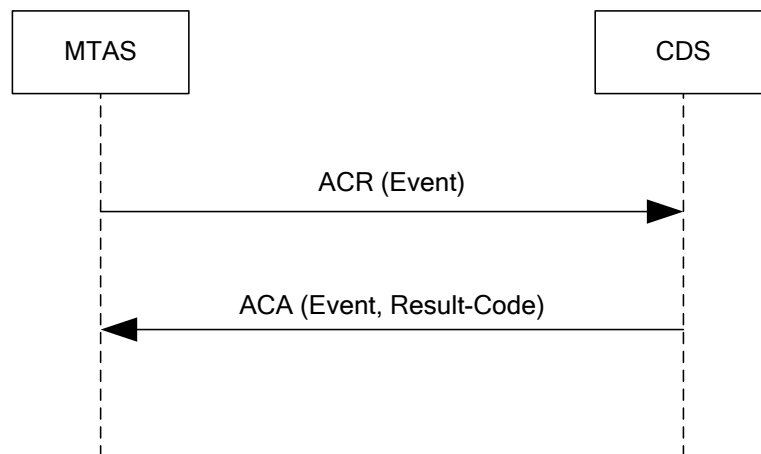


Figure 1 Transfer of Communication Details

Communication details are only sent to the CDS when required as a part of the operation of a supplementary service, e.g. Malicious Communication Identification (MCID).

The ACR is sent using a CDS realm address configured within MTAS. MTAS supports the configuration of two CDS realm addresses. If MTAS is unable to communicate with the primary CDS, the ACR is sent to the secondary CDS instead.

If no CDS realm addresses have been configured, MTAS sends the ACR using the Charging Data Function(s) identified by the CCF parameter(s) received in the P-Charging-Function-Addresses header, or by the MTAS configured 'Default CDF Address' in the absence of any CCF parameters.

The result code received in the ACA is used to indicate whether the request has been successfully processed.

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

4 Message Format

4.1 General

The following symbols used in the tables are according to [1]:

- <AVP> indicates a mandatory AVP with a fixed position in the message.
- {AVP} indicates a mandatory AVP in the message.
- [AVP] indicates an optional AVP in the message.
- *AVP indicates that multiple occurrences of an AVP are possible.

4.2 Diameter Accounting Messages

The two Diameter messages that are used in MTAS for the transfer of communication details have the command codes defined below:

Name	Code	Command Flags
Accounting-Request	271	R bit set
Accounting-Answer	271	R bit cleared

The purpose and content of these two Diameter Accounting messages are described in the following sections.

4.2.1 Accounting-Request (ACR) Message

The Accounting-Request Message is used between MTAS and the CDS to report details of a communication session.

The format of ACR (event) messages is as follows:

```
<ACR> ::= < Diameter Header: 271, REQ, PXY >
< Session-Id >
{ Origin-Host }
{ Origin-Realm }
{ Destination-Realm }
{ Accounting-Record-Type }
{ Accounting-Record-Number }
{ Acct-Application-Id }
{ Event-Timestamp }
{ Service-Context-Id }
{ Service-Information }
  { IMS-Information }
    { Node-Functionality }
    [ Called-Party-Address ]
[ Ericsson-Service-Information ]
  [ MMT-Information ]
    [ Served-User-Address ]
  * [ Supplementary-Service-Information ]
    [ Supplementary-Service-Identity ]
    [ Supplementary-Service-Action ]
  [ Communication-Details ]
    [ Communication-Timestamp ]
  * [ P-Asserted-Identity-Header ]
    [ Request-URI ]
    [ From-Header ]
    [ To-Header ]
```

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

[Contact-Header]
* [History-Info-Header]
[Privacy-Header]
[Referred-By-Header]
[UHTZ-Offset]
[AS-Type]

4.2.2 Accounting-Answer (ACA) Message

The Accounting-Answer Message is used between the CDS and MTAS to respond to an Accounting-Request Message containing details of a communication session.

All Accounting-Answer messages must contain either a Result-Code AVP or an Experimental-Result AVP.

The format of ACA (event) messages supported by MTAS is as follows:

```
<ACA> ::= < Diameter Header: 271, PXY >  
          < Session-Id >  
          [ Result-Code ]  
          [ Experimental-Result ]  
            { Vendor-Id }  
            { Experimental-Result-Code }  
          { Origin-Host }  
          { Origin-Realm }  
          { Accounting-Record-Type }  
          { Accounting-Record-Number }  
          [ Acct-Application-Id ]  
  
          [ Event-Timestamp ]
```

4.3 Attribute Value Pairs

This section describes the AVPs applicable in ACR and ACA messages, indicating how the AVPs are used by MTAS for the transfer of communication details.

Table 1 lists all AVPs applicable in ACR and/or ACA messages and identifies the AVP codes and types.

The Vendor IDs for Ericsson and 3GPP are 193 and 10415 respectively. The table also indicates the use of AVPs in ACR messages generated by MTAS.

The 'ACR Types' column indicates whether the AVP is used in ACR messages with Accounting-Record-Type of Start Record, Interim Record, Stop Record and Event Record. Although the four different Accounting Record Types are shown in table, only Event Record is used for CDS.

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

The 'ACR Flags' column indicates how MTAS sets the Vendor Specific, Mandatory and Protected flags in the AVP header (see reference [2]). Note that CDS will parse the data correctly however the M-bits are set, it's only when it doesn't understand the AVP or AVP-value when it looks at the M-bit to see whether it shall reject the message or silently discard the AVP.

The 'ACR Config' column indicates whether the inclusion of the AVP in ACR messages is operator configurable. For 'operator configurable' AVPs, the details in the following sub-sections regarding the inclusion of an AVP in requests generated by MTAS are based on MTAS being configured to include the AVP. When MTAS is configured to omit an AVP, the AVP will not be included in any requests. In the case of a grouped AVP, when MTAS is configured to omit the AVP, all constituent AVPs are also omitted.

The 'ACA Types' column indicates whether the AVP is used in ACA messages received with Accounting-Record-Type of Start Record, Interim Record, Stop Record and Event Record.

Table 1: AVP Codes and Types, and their use by MTAS in ACR/ACA (event) messages to CDS

AVP	Vendor ID	AVP Code	Type	ACR			ACA
				Types	Flags	Config	Types
Accounting-Record-Number	-	485	Unsigned32	E	-M-	N	E
Accounting-Record-Type	-	480	Enumerated	E	-M-	N	E
Acct-Application-Id	-	259	Unsigned32	E	-M-	N	E
AS-Type	Ericsson	1433	Enumerated	E	V--	N	-
Called-Party-Address	3GPP	832	UTF8String	E	VM-	Y	-
Communication-Details	Ericsson	1184	Grouped	E	V--	N	-
Communication-Timestamp	Ericsson	1185	Time	E	V--	N	-
Contact-Header	Ericsson	1148	UTF8String	E	V--	N	-
Destination-Realm	-	283	DiameterIdentity	E	-M-	N	-
Ericsson-Service-Information	Ericsson	285	Grouped	E	V--	Y	-
Event-Timestamp	-	55	Time	E	-M-	Y	E
Experimental-Result	-	297	Grouped	-	-	-	E
Experimental-Result-Code	-	298	Unsigned32	-	-	-	E
From-Header	Ericsson	1153	UTF8String	E	V--	Y	-
History-Info-Header	Ericsson	1150	UTF8String	E	V--	N	-
IMS-Information	3GPP	876	Grouped	E	VM-	Y	-
MMT-Information	Ericsson	1061	Grouped	E	V--	Y	-
Node-Functionality	3GPP	862	Enumerated	E	VM-	N	-
Origin-Host	-	264	DiameterIdentity	E	-M-	N	E
Origin-Realm	-	296	DiameterIdentity	E	-M-	N	E
P-Asserted-Identity-Header	Ericsson	1186	UTF8String	E	V--	N	-
Privacy-Header	Ericsson	1188	UTF8String	E	V--	N	-
Referred-By-Header	Ericsson	1151	UTF8String	E	V--	N	-
Request-URI	Ericsson	1187	UTF8String	E	V--	N	-
Result-Code	-	268	Unsigned32	-	-	-	E
Served-User-Address	Ericsson	1183	UTF8String	E	V--	N	-
Service-Context-Id	-	461	UTF8String	E	-M-	Y	-
Service-Information	3GPP	873	Grouped	E	VM-	Y	-
Session-Id	-	263	UTF8String	E	-M-	N	E
Supplementary-Service-Action	Ericsson	1131	Enumerated	E	V--	N	-
Supplementary-Service-Identity	Ericsson	1130	Enumerated	E	V--	N	-
Supplementary-Service-Information	Ericsson	1129	Grouped	E	V--	Y	-
To-Header	Ericsson	1149	UTF8String	E	V--	N	-

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

AVP	Vendor ID	AVP Code	Type	ACR			ACA
				Types	Flags	Config	Types
UHTZ-Offset	Ericsson	1388	UTF8String	E	V-	N	-
Vendor-Id	-	266	Unsigned32	-	-	-	E

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

5 Information Elements

5.1 Diameter AVPs

This section describes the AVPs applicable in ACR and ACA messages, indicating how the AVPs are used by MTAS for reporting communication details. The descriptions of AVPs defined by standards bodies are derived from the descriptions in [1] and [2].

The following Diameter header bits, see [1], are specified within the AVP descriptions:

V – Vendor Specific Bit
M – Mandatory Bit
P – Encryption Bit

5.1.1 Accounting-Record-Number

The Accounting-Record-Number AVP identifies this record within one session. The Accounting-Record-Number is set to the value 0 in all cases.

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	485	12	Unsigned32

5.1.2 Accounting-Record-Type

The Accounting-Record-Type AVP contains the type of accounting record being sent. The only value used on this interface is:

- EVENT_RECORD 1

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	480	12	Enumerated

5.1.3 Acct-Application-Id

The Acct-Application-Id AVP is used in order to advertise support of the Accounting portion of an application.

The value is set to 3 which is the application ID, see Ref [2].

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	259	12	Unsigned32

5.1.4 AS-Type

The AS-Type AVP contains information about which AS-Type that generated the charging message.

The following values are defined:

- MMTel Telephony AS 0
- Redirection AS 1
- Scheduled Conference AS 2
- SCC AS 3
- Parlay X AS 4
- ST AS 5

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1433	16	Enumerated	193

5.1.5 Called-Party-Address

The Called-Party-Address AVP holds the address (SIP URI or TEL URI) received in the Request URI of the initial INVITE request. It is included when communication details are reported as a result of user activation / invocation of a supplementary service using a supplementary service command code.

Where the command code URI contains PIN digits, each PIN digit will be replaced by a digit '0' in the Called-Party-Address AVP.

It may be set in requests, depending on the supplementary service.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	1	0	832	>12	UTF8String	10415

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

5.1.6 Communication-Details

The Communication-Details AVP is a grouped AVP and holds information about a communication session.

For MCID (Permanent Mode) - the information relates to a received communication request.

For MCID (Temporary Mode), Dynamic Black List (DBL) or Malicious Communication Rejection (MCR) - the information relates to either the last or the 'last but one' received communication request.

It has the following ABNF grammar:

```

Communication-Details ::= < AVP Header: 1184 >
    [ Communication-Timestamp ]
    * [ P-Asserted-Identity-Header ]
    [ Request-URI ]
    [ From-Header ]
    [ To-Header ]
    [ Contact-Header ]
    * [ History-Info-Header ]
    [ Privacy-Header ]
    [ Referred-By-Header ]
    * [ AVP ]

```

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1184	>76	Grouped	193

5.1.7 Communication-Timestamp

The Communication-Timestamp AVP contains the time of the communication being reported. The value represents the number of seconds since January 1, 1900 00:00 UTC.

For MCID (Permanent Mode) - this holds the time when the initial INVITE was received.

For MCID (Temporary Mode), DBL and MCR - the information relates to either the last or the 'last but one' received communication request, and holds the time of the 180 Ringing response (if available) or of the 200 OK (INVITE) response.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1185	16	Time	193

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

5.1.8 Contact-Header

The Contact-Header AVP contains a copy of the Contact header field value from the initial INVITE request received by MTAS.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1148	>12	UTF8String	193

5.1.9 Destination-Realm

The Destination-Realm AVP contains the realm the message is to be routed to. The Destination-Realm AVP is used to perform message routing decisions.

The address is defined by the locally configured 'CDS Address'.

If the 'CDS Address' has not been configured, the identity is copied from the fully qualified host name in the "ccf" (charging collection function) address parameter of the P-Charging-Function-Addresses header received in the incoming INVITE request. In cases that the incoming INVITE request does not contain any charging collection function addresses, the locally configured 'Default CDF Address' is used instead.

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	283	>8	DiameterIdentity

5.1.10 Ericsson-Service-Information

The Ericsson-Service-Information AVP is a grouped AVP and holds information about the requested service and details of the communication session being reported.

It has the following ABNF grammar:

```
Ericsson-Service-Information ::= < AVP Header: 285 >
    [ MMT-Information ]
    [ Communication-Details ]
    [ UHTZ-Offset ]
    [ AS-Type ]
    *[ AVP ]
```

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	285	>24	Grouped	193

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

5.1.11 Event-Timestamp

The Event-Timestamp AVP contains a timestamp indicating the time that the ACR message is generated by MTAS. The value represents the number of seconds since January 1, 1900 00:00 UTC.

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	55	12	Time

5.1.12 Experimental-Result

The Experimental-Result AVP is a grouped AVP and holds information about specific CDS failures.

It has the following ABNF grammar:

```
Experimental-Result ::= < AVP Header: 297 >
                        { Vendor-Id }
                        { Experimental-Result-Code }
```

It may be present in answers. All answers must contain either an Experimental-Result AVP or a Result-Code AVP (see section 5.1.25).

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	297	32	Grouped

5.1.13 Experimental-Result-Code

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

The Experimental-Result-Code AVP indicates the specific reason that the CDS could not complete the requested action.

The following result codes are defined:

4013 – User Data Limit Reached

This result code indicates that the CDS could not perform the requested action due to a limit in the user's supplementary service data being reached.

5050 – Valid Service Information Missing

This result code indicates that the CDS could not perform the requested action because the information provided in the request was inadequate.

5051 – Unspecified Error

This result code indicates that the CDS could not perform the requested action due to an unspecified reason.

An answer containing an Experimental-Result AVP with an Experimental-Result-Code AVP set to any other value is treated as if the message had contained a Result-Code AVP (see section 5.1.25) set to 5012 (Unable to Comply).

It is present in all answers that contain an Experimental-Result AVP (see section 5.1.12).

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	298	12	Unsigned32

5.1.14

From-Header

The From-Header AVP contains a copy of the From Header URI (without any URI parameters and/or headers) from the initial INVITE request received by MTAS.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1153	>12	UTF8String	193

5.1.15

History-Info-Header

The History-Info-Header AVP contains a copy of the History-Info header field value from the initial INVITE request received by MTAS.

This AVP may appear several times when there are multiple History-Info headers.

When interworking with non-3GPP compliant application servers, MTAS may

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

convert Diversion headers received in the initial INVITE request into History-Info headers. The conversion attempts to mimic the information that would have been received if the diverting application server had been 3GPP compliant. When this conversion is performed, the History-Info-Header AVPs contain copies of the resultant History-Info headers.

It is set in ACR (event) if a History-Info header is available.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1150	>12	UTF8String	193

5.1.16 IMS-Information

The IMS-Information is a grouped AVP that holds detailed information about the service.

It has the following ABNF grammar:

```
IMS-Information ::= < AVP Header: 876 >
                    { Node-Functionality }
                    [ Called-Party-Address ]
```

It is set in all requests. The Called-Party-Address AVP is included when an INVITE containing a supplementary service command code is used to invoke the service.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	1	0	876	>=24	Grouped	10415

5.1.17 MMT-Information

The MMT-Information AVP is a grouped AVP and holds information about the served user and the requested service.

It has the following ABNF grammar:

```
MMT-Information ::= < AVP Header: 1061 >
                    [ Served-User-Address ]
                    [ Supplementary-Service-Information ]
                    * [ AVP ]
```

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1061	>24	Grouped	193

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

5.1.18 Node-Functionality

The Node-Functionality AVP specifies the functionality of the node generating the message.

The functionality identifier used by MTAS is:

- AS 6

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	1	0	862	16	Enumerated	10415

5.1.19 Origin-Host

The Origin-Host AVP identifies the endpoint that originated the Diameter message, and must be present in all Diameter messages.

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	264	>8	DiameterIdentity

5.1.20 Origin-Realm

The Origin-Realm AVP contains the realm of the originator of any Diameter message and must be present in all messages.

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	296	>8	DiameterIdentity

5.1.21 P-Asserted-Identity-Header

The P-Asserted-Identity-Header contains a copy of the P-Asserted-Identity header field value (including any URI parameters and/or headers) from the initial INVITE request received by MTAS.

This AVP may appear several times when there are multiple P-Asserted-Identity headers.

It is set in ACR (event) if a P-Asserted-Identity header is available.

Prepared (also subject responsible if other) EANDLEV Anders Levén		No. 14/155 19-AVA 901 18 Uen		
Approved BDGSEACJ [Sture Karlsson]	Checked	Date 2018-03-26	Rev H	Reference

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1186	>24	UTF8String	193

5.1.22 Privacy-Header

The Privacy-Header AVP contains a copy of the Privacy header field value from the initial INVITE request received by MTAS.

It is set in ACR (event) if a Privacy header is available.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1188	>12	UTF8String	193

5.1.23 Referred-By-Header

The Referred-By-Header AVP contains a copy of the Referred-By header field value from the initial INVITE request received by MTAS.

It is set in ACR (event) if a Referred-By header is available.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1151	>12	UTF8String	193

5.1.24 Request-URI

The Request-URI AVP contains a copy of the Request-URI (including any URI parameters) from the initial INVITE request received by MTAS.

When interworking with non-3GPP compliant application servers, MTAS may convert Diversion headers received in the initial INVITE request into History-Info headers. When this conversion is performed, MTAS also modifies the Request-URI to include a cause-param URI parameter. The modification attempts to mimic the information that would have been received if the diverting application server had been 3GPP compliant. When this modification occurs, the Request-URI AVP contains a copy of the resultant Request-URI.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1187	>12	UTF8String	193

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5.1.25 Result-Code

The Result-Code AVP indicates whether a particular request was completed successfully or whether an error occurred.

Result-Code values are specified in [1].

It may be present in answers. All answers must contain either a Result-Code AVP or an Experimental-Result AVP (see section 5.1.12).

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	268	12	Unsigned32

5.1.26 Served-User-Address

The Served-User-Address AVP holds the primary Public User Identity (PUI) of the served user. The primary PUI is a SIP URI.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1183	>12	UTF8String	193

5.1.27 Service-Context-Id

The Service-Context-Id AVP contains a unique identifier for the MTAS Communication Details reporting.

The Service-Context-Id has a format defined by [2].

The Service-Context-Id for MMTel is:

1.<service-context>@<domain>

The <service-context>@<domain> component may be configured by the operator. It is controlled by the mtasComDetailsServContext parameter in the MtasComDetails Managed Object, see [5]. The default parameter setting is:

CommDetails-IMS@ericsson.com

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	461	>8	UTF8String

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5.1.28 Service-Information

The Service-Information AVP is a grouped AVP that holds IMS-Information AVPs.

It has the following ABNF grammar:

```
Service-Information ::= < AVP Header: 873 >
                        { IMS-Information }
```

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	1	0	873	>=40	Grouped	10415

5.1.29 Session-Id

The Session-Id AVP is used to identify a specific session. A new Session-Id is allocated to each session.

The MTAS session id consists of the following parts:

```
<origin-host>;<mtime>;<ltime>;<process id>;<dialog id>;<charging-
case>;<impu>
```

Where

- <origin-host> is the MTAS host.
- <mtime>, <ltime> is the number of milliseconds since 1990-01-01:00:00 (including "leap seconds").
- <process id> is the process identity.
- <dialog id> is the MTAS dialog identity
- <charging-case> is set to 2, indicating the transfer of communications details to the CDS. It is always one character long.
- <impu> is the default IMPU of the served user. Has no limitation on its length.

See Ref [1] for more details.

It is set in all requests.

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	263	>8	UTF8String

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5.1.30 Supplementary-Service-Action

The Supplementary-Service-Action AVP contains the type of action performed on a supplementary service.

The following values are defined:

Use of Service	0
SSC Invocation	107

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1131	16	Enumerated	193

5.1.31 Supplementary-Service-Identity

The Supplementary-Service-Identity AVP contains the identity of the supplementary service being invoked or used.

The following values are used:

Barring

Dynamic Black List	130
Malicious Communication Rejection	131

Malicious Communication Identification (MCID)

Permanent MCID	800
Temporary MCID	801
Originating Permanent MCID	802

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1130	16	Enumerated	193

5.1.32 Supplementary-Service-Information

The Supplementary-Service-Information AVP is a grouped AVP and holds information relating to the relevant supplementary service.

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It has the following ABNF grammar:

```
Supplementary-Service-Information ::= < AVP Header: 1129 >
    [ Supplementary-Service-Identity ]
    [ Supplementary-Service-Action ]
    * [ AVP ]
```

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1129	>=44	Grouped	193

5.1.33

To-Header

The To-Header AVP contains a copy of the To Header URI (without any URI parameters and/or headers) from the initial INVITE request received by MTAS.

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1149	>12	UTF8String	193

5.1.34

UHTZ-Offset

The UHTZ-Offset AVP indicates the home time zone with compensation for DST for the user. The AVP is coded as a text string as follows:

Starting with "UTC", "+" or "-", 2 digits (from 00 to 14), ":", 2 digits (from 00 to 45).

V	M	P	AVP Code	AVP Length	AVP Data Type	Vendor Id
1	0	0	1388	>12	UTF8String	193

5.1.35

Vendor-Id

The Vendor-Id is used within the Experimental-Result AVP to identify the vendor to which the Experimental-Result-Code AVP relates. The only value supported on this interface is 193 (Ericsson).

An answer containing an Experimental-Result AVP with a Vendor-Id AVP set to any other value is treated as if the message had contained a Result-Code AVP (see section 5.1.25) set to 5012 (Unable to Comply).

It is present in all answers that contain an Experimental-Result AVP (see section 5.1.12).

V	M	P	AVP Code	AVP Length	AVP Data Type
0	1	0	266	12	Unsigned32

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6 Communication Details Message Examples

The following sections contain examples of the ACR/ACA message content for various supplementary services.

Notes in [blue](#) are explanatory comments only and are not part of the messages.

6.1 MCID (Permanent Mode)

6.1.1 ACR

A Communication Details ACR is generated automatically when a terminating MMTel or ST communication session is attempted to a user with the MCID service provisioned in permanent mode.

The Communication-Details AVP contains information that relates to the information received in the initial INVITE request.

```
<ACR> ::= < Diameter Header: 271, REQ, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;354;1;2;
sip:user12345@ericsson.com
Origin-Host = mtas123.mtas.ericsson.com
Origin-Realm = mtas.ericsson.com
Destination-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3
Event-Timestamp = 3436507983
Service-Context-Id = 1.CommDetails-IMS@ericsson.com
Service-Information
    IMS-Information
        Node-Functionality = 6 (AS)
Ericsson-Service-Information
    MMT-Information
        Served-User-Address = sip:user12345@ericsson.com
        Supplementary-Service-Information
            Supplementary-Service-Identity = 800 (Permanent MCID)
            Supplementary-Service-Action = 0 (Use)
Communication-Details
    Communication-Timestamp = 3436507980
    P-Asserted-Identity-Header = tel:+4424123456
    P-Asserted-Identity-Header = sip:user00001@ericsson.com
    Request-URI = tel:+4424987654
    From-Header = "Alice" <sip:user00001@ericsson.com>;tag=1234
    To-Header = "Bob" <sip:user12345@ericsson.com>
    Contact-Header = "Support" <sip:user00001@ericsson.com>
    Privacy-Header = none
```

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6.1.2 ACA

This example illustrates a successful response.

```
<ACA> ::= < Diameter Header: 271, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;354;1;2;
sip:user12345@ericsson.com
Result-Code = 2001 (Success)
Origin-Host = cds99.cds.ericsson.com
Origin-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3
```

6.2 MCID (Temporary Mode)

6.2.1 ACR

A Communication Details ACR is generated when an INVITE request containing an MCID SSC code is received from the served user.

The Communication-Details AVP contains information stored from the last or the previous to last incoming communication. The example below illustrates the use of SSC code *782*1234# to register the previous to last incoming communication as malicious with PIN (1234).

```
<ACR> ::= < Diameter Header: 271, REQ, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;400;1;2;
sip:user12345@ericsson.com
Origin-Host = mtas123.mtas.ericsson.com
Origin-Realm = mtas.ericsson.com
Destination-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3
Event-Timestamp = 3436507983
Service-Context-Id = 1.CommDetails-IMS@ericsson.com
Service-Information
  IMS-Information
    Node-Functionality = 6 (AS)
    Called-Party-Address = tel:*782*0000#
Ericsson-Service-Information
  MMT-Information
    Served-User-Address = sip:user12345@ericsson.com
  Supplementary-Service-Information
    Supplementary-Service-Identity = 801 (Temporary MCID)
    Supplementary-Service-Action = 107 (SSC Invocation)
Communication-Details
  Communication-Timestamp = 3436507000
  P-Asserted-Identity-Header = tel:+4424123456
  P-Asserted-Identity-Header = sip:user00001@ericsson.com
  Request-URI = tel:+4424987654
  From-Header = "Alice" <sip:user00001@ericsson.com>;tag=1234
  To-Header = "Bob" <sip:user12345@ericsson.com>
  Contact-Header = "Support" <sip:user00001@ericsson.com>
```


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Privacy-Header = user;id

6.2.2 ACA

This example illustrates a successful response.

```
<ACA> ::= < Diameter Header: 271, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;400;1;2;
sip:user12345@ericsson.com
Result-Code = 2001 (Success)
Origin-Host = cds99.cds.ericsson.com
Origin-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3
```

6.3 Dynamic Black List

6.3.1 ACR

A Communication Details ACR is generated when an INVITE request containing a DBL SSC code is received from the served user, and the MtasSscDbl.mtasSscDblUpdateMethodattribute indicates that the CDS should perform the necessary updates of the dynamic black list and the incoming communication barring list in HSS.

The Communication-Details AVP contains information stored from the last or the previous to last incoming communication. The example below illustrates the use of SSC code *661# to add the last incoming communication to the black list.

```
<ACR> ::= < Diameter Header: 271, REQ, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;554;1;2;
sip:user12345@ericsson.com
Origin-Host = mtas123.mtas.ericsson.com
Origin-Realm = mtas.ericsson.com
Destination-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3
Event-Timestamp = 3436507983
Service-Context-Id = 1.CommDetails-IMS@ericsson.com
Service-Information
  IMS-Information
    Node-Functionality = 6 (AS)
    Called-Party-Address = tel:*661#
Ericsson-Service-Information
  MMT-Information
    Served-User-Address = sip:user12345@ericsson.com
  Supplementary-Service-Information
    Supplementary-Service-Identity = 130 (DBL)
    Supplementary-Service-Action = 107 (SSC Invocation)
Communication-Details
```

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```

Communication-Timestamp = 3436507450
P-Asserted-Identity-Header = tel:+4424123456
P-Asserted-Identity-Header = sip:user00001@ericsson.com
Request-URI = tel:+4424987654
From-Header = "Alice" <sip:user00001@ericsson.com>;tag=1234
To-Header = "Bob" <sip:user12345@ericsson.com>
Contact-Header = "Support" <sip:user00001@ericsson.com>
Privacy-Header = user

```

6.3.2 ACA

This example illustrates a response indicating that the black list is full.

```

<ACA> ::= < Diameter Header: 271, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;554;1;2;
sip:user12345@ericsson.com
Experimental-Result
  Vendor-Id = 193 (Ericsson)
  Experimental-Result-Code = 4013 (User Data Limit Reached)
Origin-Host = cds99.cds.ericsson.com
Origin-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3

```

6.4 Malicious Communication Rejection

6.4.1 ACR

A Communication Details ACR is generated when an INVITE request containing a MCR SSC code is received from the served user.

The Communication-Details AVP contains information stored from the last or the previous to last incoming communication. The example below illustrates the ACR sent from MTAS to CDS as a result of using the SSC code *681*1234# to register the last incoming communication as malicious with PIN (1234) and to add it to the black list.

Depending on the deployment (see `MtasSscDbl.mtasSscDblUpdateMethodattribute`) the CDS may then take the action of updating the dynamic black list and incoming communication barring list HSS (indirect mode).

```

<ACR> ::= < Diameter Header: 271, REQ, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;554;1;2;
sip:user12345@ericsson.com
Origin-Host = mtas123.mtas.ericsson.com
Origin-Realm = mtas.ericsson.com
Destination-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3

```

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```
Event-Timestamp = 3436507983
Service-Context-Id = 1.CommDetails-IMS@ericsson.com
Service-Information
  IMS-Information
    Node-Functionality = 6 (AS)
    Called-Party-Address = tel:*681*0000#
Ericsson-Service-Information
  MMT-Information
    Served-User-Address = sip:user12345@ericsson.com
  Supplementary-Service-Information
    Supplementary-Service-Identity = 131 (MCR)
    Supplementary-Service-Action = 107 (SSC Invocation)
Communication-Details
  Communication-Timestamp = 3436507450
  P-Asserted-Identity-Header = tel:+4424123456
  P-Asserted-Identity-Header = sip:user00001@ericsson.com
  Request-URI = tel:+4424987654
  From-Header = "Alice" <sip:user00001@ericsson.com>;tag=1234
  To-Header = "Bob" <sip:user12345@ericsson.com>
  Contact-Header = "Support" <sip:user00001@ericsson.com>
  Privacy-Header = user
```

6.4.2 ACA

This example illustrates a response indicating that the black list is full.

```
<ACA> ::= < Diameter Header: 271, PXY >
Session-Id = mtas123.mtas.ericsson.com;9099841;599793627;554;1;2;
sip:user12345@ericsson.com
Experimental-Result
  Vendor-Id = 193 (Ericsson)
  Experimental-Result-Code = 4013 (User Data Limit Reached)
Origin-Host = cds99.cds.ericsson.com
Origin-Realm = cds.ericsson.com
Accounting-Record-Type = 1 (Event Record)
Accounting-Record-Number = 0
Acct-Application-Id = 3
```

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7 Error Handling

The example below describes the behavior in MTAS when sending a Communication Details ACR and something goes wrong.

1. The appropriate supplementary service requests the sending of an ACR to the CDS.
2. In cases that the CDS doesn't respond within maximum pending request time (Diameter stack configuration parameter maxRequestPendingTime see [4]), the message is resent (maximum number of resends are configured in the Diameter stack, maxNumberOfRetries, see [4]) to the CDS.
3. After the maximum number of retries, if an answer has still not been received from the primary CDS then a failover to the secondary CDS is performed. A fail-over to a secondary CDS does not affect the operation of the supplementary service, although it may take a longer time for the response.
4. A fail-over to the secondary CDS is also performed on receipt of an ACA from the primary CDS containing a Result-Code AVP with any non-2xxx (success) value. Fail-over to the secondary CDS is not performed when an ACA containing an Experimental-Result AVP is received.
5. In cases that the secondary CDS hasn't responded after the maximum number of retries and in cases that the secondary CDS has responded with an ACA containing a Result-Code AVP with any non-2xxx (success) value, MTAS may store the ACR on the local file system for resending at a later time.

The ACR is only stored in the case of MCID (Permanent Mode) and only when either (a) no reply was received from the primary CDS, or (b) one of the following errors has been received from either the primary CDS or the secondary CDS:

3002 – Unable to Deliver
3004 – Too Busy
4002 – Out of Space
4003 – Election Lost

6. If the file system is full, the ACR is discarded.
7. MTAS resends the ACRs that have been stored on the local node file system. The stored ACRs are handled in a FIFO (First In First Out) manner.
8. If the ACR is successfully sent then MTAS removes the corresponding ACR from the file. If a transient error is received then the stored ACR is scheduled for resending. If a permanent error is received then the stored ACR is discarded.

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8 Security Considerations

End to end encryption is not supported.

9 Standard Compliance Statement

The communication details reporting implementation is compliant with:

- 1 RFC3588 [1]
- 2 Diameter stack [3]

9.1 Exceptions

9.1.1 RFC3588

Redirection notification is not supported.

10 Terminology

10.1 Abbreviations

Abbreviation	Explanation
AAA	Authentication, Authorization and Accounting
ACA	Accounting Answer
ACR	Accounting Request
AS	Application Server
AVP	Attribute-Value Pair
CDS	Communication Details Server
DBL	Dynamic Black List
DST	Daylight Saving Time
MCID	Malicious Communication Identification
MCR	Malicious Communication Rejection
MMTel	Multimedia Telephony
SIP	Session Initiation Protocol
SSC	Supplementary Service Code

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Abbreviation	Explanation
ST	Sip Trunking

11

References

- [1] RFC3588, Diameter Base Protocol, <http://www.ietf.org/rfc/rfc3588.txt>
- [2] 3GPP TS 32.299 V7.7.0, Diameter charging applications
- [3] TSP: Diameter stack Statement of Compliance,
1/174 02-CRA 119 0019/n**
CBA: Diameter Base Protocol Statement of Compliance,
1/174 02-CXP 904 0375
- [4] MTAS Charging Management, 3/1553-AVA 901 09/n**
- [5] TSP: MTAS Parameter Description,
2/190 84-AVA 901 09/9-x**
CBA: Managed Object Model vMTAS,
155 54-LZN 765 0163/9-V1

** See the Customer or Support library for the Application System in question