3GPP TSG CT Plenary Meeting #28   **CP-050095**
1ˢᵗ – 3ʳᵈ June 2005 Quebec, Canada.

Source: TSG CT WG4

Title: Corrections on MMS

Agenda item: 9.21

Document for: APPROVAL

Doc-2nd-Level	Spec	CR #	Rev	Rel	Tdoc Title	CAT	C_Version
C4-050747	29.140	001		Rel-6	Allocation of Diameter Command Codes and AVP Codes	F	6.0.0

3GPP TSG-CT WG4 Meeting #27
Cancun, MEXICO. 25th to 29th April 2005.

C4-050747

CR-Form-v7.1

CHANGE REQUEST

| ⌘ | **29.140** CR **001** | ⌘rev | **-** | ⌘ | Current version: | **6.0.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐   ME ☐   Radio Access Network ☐   Core Network **X**

Title: ⌘	Allocation of Diameter Command Codes and AVP Codes	
Source: ⌘	Nortel	
Work item code:⌘	TEI6	***Date:*** ⌘ 25/04/2005

Category: ⌘	**F**	***Release:*** ⌘ Rel-6	

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2   *(GSM Phase 2)*
R96   *(Release 1996)*
R97   *(Release 1997)*
R98   *(Release 1998)*
R99   *(Release 1999)*
Rel-4   *(Release 4)*
Rel-5   *(Release 5)*
Rel-6   *(Release 6)*
Rel-7   *(Release 7)*

Reason for change: ⌘	The Diameter Command Codes and AVP codes are listed as TBD throughout the specification. These have now been allocated and therefore must be updated throughout this specification.
Summary of change:⌘	Update the specification with the allocated Diameter Command Codes and AVP codes.
Consequences if not approved: ⌘	Undetermined Diameter command codes and AVP codes will lead to interoperability issues.

Clauses affected: ⌘	2, 4.1.1, 6, 6.1, 6.3, 6.4

	Y	N		
Other specs affected: ⌘		X	Other core specifications ⌘	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

> ### *** First Modification ***

2 References

The following documents contain provisions, which through reference in this text constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TS 23.140: "Multimedia Messaging Service (MMS); Functional description; Stage 2".

[2]   3GPP TS 33.210: "3G Security; Network Domain Security; IP Network Layer Security".

[3]   IETF RFC 2960: "Stream Control Transmission Protocol".

[4]   IETF RFC 3588: "Diameter Base Protocol".

[5]   IETF RFC 2234: "Augmented BNF for syntax specifications".

[6]   Open Mobile Alliance; OMA-MMS-ENC-v1_2-20030915-C; Multimedia Messaging Service; Encapsulation Protocol, Version 1.2

[7]   3GPP TS 29.229: "Cx and Dx interfaces based on the Diameter protocol; Protocol details"

[8]   3GPP TS 23.003: "Numbering, addressing and identification"

[9]   IETF RFC 2960: "Stream Control Transmission Protocol".

[10]   IETF RFC 3309: "Stream Control Transmission Protocol (SCTP) Checksum Change".

[11]   3GPP TS 29.329: "Sh Interface based on the Diameter protocol; Protocol details".

[xx]   3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".

> ### *** Next Modification ***

4.1.   MM10 Interrogation Procedure

This procedure is used between the MMS Relay/Server and the MSCF. This procedure is invoked by the MMS Relay/Server and is used to request processing of addressing information related to a multimedia message (see 3GPP TS 23.140 [1]).

This procedure is mapped to the commands Message-Process-Request/Answer in the Diameter application specified in section 6.1. Tables 4.1.1.1 and 4.1.1.2 detail the involved information elements.

4.1.1   Information Elements

Table 4.1.1.1: MM10 Interrogation Request

Information element name	Mapping to Diameter AVP	Cat.	Description
Message Type	Diameter Command Code	M	Identification of the MM10 message.
Trigger Event	Trigger-Event	M	Identification of the event leading to invocation of the MM10 interrogation
Served User Identity	Served-User-Identity	M	This information element contains the identification of the served user.
Served User IMSI	~~Served-User~~3GPP-IMSI	C	This information element contains the identity of the mobile subscriber (IMSI). This element shall be present if received via the access.
Initial Recipient Address	Initial-Recipient-Address	M	This information element contains the recipients of a multimedia message as requested by the sender. In case of multiple recipients multiple occurrences of this information element shall apply.
Originating Interface	Origination Interface	M	This information element identifies the interface the multimedia message has been received on.
Service Key	Service-Key	C	This information element contains identification of the application on the MSCF. It shall be present if the MMS Relay/Server trigger configuration contains this information.
Sender Address	Sender-Address	C	This information element contains the identity of the sender to be presented to the recipient. This information element shall be available if contained in the multimedia message.
Delivery Report	Delivery-Report	C	This information contains information about the users request for delivery reports. This information element shall be present if the request has been received in the multimedia message.
Read Reply	Read-Reply	C	This information contains information about the users request for read reply reports. This information element shall be present if the request has been received in the multimedia message.
Sender Visibility	Sender-Visibility	C	This information element contains information about the users request to hide the own identity. This information element shall be present if the request has been received in the multimedia message.

Table 4.1.1.2: MM10 Interrogation Response

Information element name	Mapping to Diameter AVP	Cat.	Description
Message Type	Diameter Command Code	M	Identification of the MM10 message.
Result Code	Result-Code	M	This information element contains the result of the operation.
	Status	O	This information element contains message status information to notify the served user about the outcome of the message processing.
	Status-Text	O	This information element contains a response status text to qualify the outcome of the message processing.
Result Address	Result-Recipient-Address	C	This information element contains the recipient address information resulting from the MSCF processing. This information element shall be available if a success result code is contained.
Delivery Report	Delivery-Report	O	This information element contains the delivery report request information resulting from the MSCF processing.
Sender Visibility	Sender-Visibility	O	This information element contains the sender visibility request information resulting from the MSCF processing.
Read Reply	Read-Reply	O	This information element contains the read reply request information resulting from the MSCF processing.
CDR Information	Billing-Information	O	This information element contains transparent billing data resulting from the MSCF processing.

> *** Next Modification ***

6   Diameter application for MM10 interface

This clause specifies a Diameter application that allows a Diameter client and a Diameter server:

- to indicate that a submission or delivery request for a multimedia message has been received. The Diameter client provides the message data and additional data qualifying the messaging event to the server.

- to request in result to continue the processing of the multimedia message with the original or modified information or to reject the multimedia message.

The MM10 interface protocol is defined as an IETF vendor specific Diameter application, where the vendor is 3GPP. The vendor identifier assigned by IANA to 3GPP (http://www.iana.org/assignments/enterprise-numbers) is 10415.

The Diameter application identifier assigned to the MM10 interface application is ~~TBD~~ 16777226 (allocated by IANA).

6.1 Command-Code values

This section defines Command-Code values for this Diameter application.

Every command is defined by means of the ABNF syntax (as defined in RFC 2234 [5]), according to the rules in IETF RFC 3588 [4]. Whenever the definition and use of an AVP is not specified in this document, what is stated in IETF RFC 3588 [4] shall apply.

NOTE: AVP defined in this specification are highlighted bold in the ABNF syntax.

The command codes for the MM10 interface application are taken from the range allocated by IANA as assigned in this specification. For these commands, the Application-ID field shall be set to ~~TBD~~ 16777226 (application identifier of the MM10 interface application, allocated by IANA).

NOTE: Registration in IANA to be done; once assigned, value will need to be added.

The following Command Codes are defined in this specification:

Table 6.1.1: Command-Code values

Command-Name	Abbreviation	Code	Section
Message-Process-Request	MPR	~~tbd~~311	6.1.1
Message-Process-Answer	MPA	~~tbd~~311	6.1.2

6.1.1 Message-Process-Request (MPR) Command

The Message-Process-Request (MPR) command, indicated by the Command-Code field set to ~~TBD~~ 311 and the 'R' bit set in the Command Flags field, is sent by a Diameter client to a Diameter server in order to request the processing of a multimedia message.

Message Format

```
<Message-Process-Request> ::=   < Diameter Header: tbd311, TBD-REQ, PXY, 16777226 >
                                < Session-Id >
                                { Vendor-Specific-Application-Id }
                                { Auth-Session-State }
                                { Origin-Host }
                                { Origin-Realm }
                                { Destination-Host }
                                { Destination-Realm }
```

                                                    { Event-Timestamp }
                                                    { Trigger-Event }
                                                    { Served-User-Identity }
                                                    [3GPP~~Served-User~~-IMSI]
                                                    [Sender-Address]
                                                    *[Initial-Recipient-Address]
                                                    { Originating-Interface }
                                                    [Service-Key]
                                                    [Delivery-Report]
                                                    [Read-Reply]
                                                    [Sender-Visibility]
                                                    *[AVP]
                                                    *[Proxy-Info]
                                                    *[Route-Record]

6.1.2 Message-Process-Answer (MPA) Command

The Message-Process-Answer (MPA) command, indicated by the Command-Code field set to ~~TBD~~ 311 and the 'R' bit
cleared in the Command Flags field, is sent by the Diameter server in response to the Message-Process-Request
command. The Result-Code or Experimental-Result AVP may contain one of the values defined in section 6.2 in
addition to the values defined in RFC 3588 [4].

Message Format

        < User-Data-Answer > ::=   < Diameter Header: ~~tbd~~311~~:~~, PXY, ~~TBD~~ 16777226 >
                                                < Session-Id >
                                                { Vendor-Specific-Application-Id }
                                                 [Result-Code]
                                                [Experimental-Result]
                                                { Auth-Session-State }
                                                { Origin-Host }
                                                { Origin-Realm }
                                                [Status]
                                                *[Result-Recipient-Address]
                                                [Delivery-Report]
                                                [Read-Reply]
                                                [Billing-Information
                                                *[AVP]
                                                *[Proxy-Info]
                                                *[Route-Record]

*** Next Modification ***

6.3 AVPs

The following table describes the Diameter AVPs defined for the MM10 interface protocol, their AVP Code values,
types, possible flag values and whether the AVP may or not be encrypted.

Table 6.3.1: Diameter MM10 Application AVPs

Attribute Name	AVP Code	Section defined	Value Type	Must	May	Should not	Must not	May Encr.
Served-User-Identity	~~TBD~~1 100	6.3.1	Grouped	M, V				N
MSISDN	7~~1~~01	6.3.2	OctetString	M, V				N
VASP-ID	~~TBD~~1 101	6.3.3	UTF8String	M, V				N
VAS-ID	~~TBD~~1 102	6.3.4	UTF8String	M, V				N
Trigger-Event	~~TBD~~1 103	6.3.5	Enumerated	M, V				N
3GPP~~Served-User~~-IMSI	1~~TBD~~	6.3.6	UTF8~~Octet~~String	M, V				N
Sender-Address	1104~~T BD~~	6.3.7	UTF8String	M, V				N
Initial-Recipient-Address	1105~~T BD~~	6.3.8	Grouped	M,V				N
Result-Recipient-Address	1106~~T BD~~	6.3.9	Grouped	M,V				N
Sequence-Number	1107~~T BD~~	6.3.10	Unsigned32	M, V				N
Recipient-Address	1108~~T BD~~	6.3.11	UTF8String	M, V				N
Routeing-Address	1109~~T BD~~	6.3.12	UTF8String	M, V				N
Originating-Interface	1110~~T BD~~	6.3.13	Enumerated	M, V				N
Delivery-Report	1111~~T BD~~	6.3.14	Enumerated	M, V				N
Read-Reply	1112~~T BD~~	6.3.15	Enumerated	M, V				N
Sender-Visibility	1113~~T BD~~	6.3.16	Enumerated	M, V				N
Service-Key	1114~~T BD~~	6.3.17	UTF8String	M, V				N
Billing-Information	1115~~T BD~~	6.3.18	UTF8String	M, V				N
Status	1116~~T BD~~	6.3.19	Grouped	M, V				N
Status-Code	1117~~T BD~~	6.3.20	UTF8String	M, V				N
Status-Text	1118~~T BD~~	6.3.21	UTF8String	M, V				N
NOTE 1: The AVP header bit denoted as 'M', indicates whether support of the AVP is required. The AVP header bit denoted as 'V', indicates whether the optional Vendor-ID field is present in the AVP header. For further details, see IETF RFC 3588.								

6.3.1   Served-User-Identity AVP

The User-Identity AVP (AVP Code ~~TBD~~1100) is of type Grouped. This AVP contains identity of the served subscriber for whom a messaging processing is requested.

AVP format

    User-Identity ::= <AVP header: ~~TBD~~ 1100 10415>

        [MSISDN]

        [VASP-Code]

        [VAS-Code]

        *[AVP]

6.3.2 MSISDN AVP

The MSISDN AVP contains MSISDN. For is the definition of this AVP refer to 3GPP TS 29.329 [11].

6.3.3   VASP-ID AVP

The VASP-ID AVP (AVP Code ~~TBD~~1101) is of type UTF8String. This AVP contains the identification of a Value Added Service Provider.

6.3.4   VAS-ID AVP

The VAS-ID AVP (AVP Code ~~TBD~~1102) is of type UTF8String. This AVP contains the identification of a Value Added Service.

6.3.5   Trigger-Event AVP

The Trigger-Event AVP (AVP code ~~TBD~~1103) is of type Enumerated. It indicates the type of the event that triggered the Message-Process-Request.

MM1 Message Submission, Profile based (0)

MM1 Message Submission, Address based (1)

MM1 Message Delivery (2)

MM7 Message Submission, Profile based (3)

MM7 Message Submission, Address based (4)

6.3.6 3GPP~~Served-User~~-IMSI

The ~~Served-User~~3GPP-IMSI AVP contains an IMSI. For the definition of this AVP refer to ~~(AVP Code TBD) is of type OctetString. This AVP contains an IMSI as described in 3GPP TS 23.003 [8] encoded as a TBCD-string, i.e. digits from 0 through 9 are encoded 0000 to 1001; 1111 is used as a filler when there is an odd number of digits; bits 8 to 5 of octet n encode digit 2n; bits 4 to 1 of octet n encode digit 2(n-1)+1.~~3GPP TS 29.061 [xx].

6.3.7 Sender-Address AVP

The Sender-Address AVP (AVP code ~~TBD~~1104) is of type UTF8String. This AVP contains the identification of a multimedia message sender to be provided to the multimedia message recipient.

6.3.8   Initial-Recipient-Address AVP

The Initial-Recipient-Address AVP (AVP code ~~TBD~~1105) is of type Grouped. It contains recipient address information sent to the MSCF.

Result-Recipient-Address ::= <AVP header: ~~TBD~~1105 10415>

[Sequence-Number]

[Recipient-Address]

*[AVP]

6.3.9   Result-Recipient-Address AVP

The Result-Recipient-Address AVP (AVP code ~~TBD~~1106) is of type Grouped. It contains recipient address information as returned from the MSCF.

Result-Recipient-Address ::= <AVP header: ~~TBD~~1106 10415>

[Sequence-Number]

[Recipient-Address]

[Routeing-Address]

[Sender-Address]

[Sender-Visibility]

*[AVP]

6.3.10   Sequence-Number AVP

The Sequence-Number AVP (AVP code TBD1107) is of type Unsigned32. It contains the unique identification (counter) of a recipient address group.

6.3.11   Recipient-Address AVP

The Recipient-Address AVP (AVP code TBD1108) is of type UTF8String. It contains the Recipient address of a multimedia message. The UTF8String identifying the Recipient shall be represented according to the following ABNF definition:

Recipient-Address = {recipient type} {recipient}

Recipient Type = ("To:" / "Cc:" / "Bcc:")

Recipient = address ; address is coded according to the MMS addressing model defined in [6].

6.3.12   Routeing-Address AVP

The Routeing-Address AVP (AVP code TBD1109) is of type UTF8String. It contains the Recipient address for routeing of a multimedia message. The UTF8String identifying the Recipient shall be represented according to the following ABNF definition:

Routeing-Address = [Recipient-Type] [Recipient]

Recipient-Type = ("To:" / "Cc:" / "Bcc:")

Recipient = (Address / MM4-Address)

Address; it is coded according to the MMS addressing model defined in [6].

MM4-Address; it is coded according to the MM4 address encoding model on SMTP protocol level defined in [1]

6.3.13   Originating-Interface AVP

The Originating-Interface-AVP (AVP code TBD1110) is of type Enumerated. It indicates the interface a multimedia Message has been received on.

MM1 (0)

MM3 (1)

MM4 (2)

MM7 (3)

6.3.14   Delivery-Report AVP

The Delivery-Report AVP (AVP code TBD1111) is of type Enumerated. It indicates whether an delivery report is requested.

No Delivery Report Requested (0)

Delivery Report Requested (1)

If the Delivery-Report AVP is not present, then the default "No Delivery Report Requested" shall be assumed.

6.3.15   Read-Reply AVP

The Read-Reply AVP (AVP code ~~TBD~~1112) is of type Enumerated. It indicates whether a delivery report is requested.

No Read Reply Requested (0)

Read Reply Requested (1)

If the Read-Reply AVP is not present, then the default "No Read Reply Requested" shall be assumed.

6.3.16   Sender-Visibility AVP

The Sender-Visibility AVP (AVP code ~~TBD~~1113) is of type Enumerated. It indicates whether the sender identification is requested to be hidden or not.

Sender Identification requested not to be hidden (0)

Sender Identification requested to be hidden (1)

If the Sender-Visibility AVP is not present, then the default "Sender Identification requested not to be hidden" shall be assumed.

6.3.17   Service-Key AVP

The Service-Key AVP (AVP code ~~TBD~~1114) is of type UTF8String. It identifies an application of the target MSCF.

6.3.18   Billing-Information AVP

The Billing-Information AVP (AVP code ~~TBD~~1115) is of type UTF8String. It contains transparent information to be forwarded to the billing system.

6.3.19   Status AVP

The Status AVP (AVP code ~~TBD~~1116) is of type Grouped. It contains message status information to allow notification of the served user.

Result-Recipient-Address ::= <AVP header: ~~TBD~~1116 10415>

[Status-Code]

[Status-Text]

6.3.20   Status-Code AVP

The Status-Code AVP (AVP code ~~TBD~~1117) is of type UTF8String. It contains the trigger event specific response code to qualify the outcome of the message processing. The UTF8String identifying the Status-Code shall be represented according to the following ABNF definition:

Status-Code = (Response-status-value / Retrieve-status-value / StatusCode)

Response-status-value; it contains the numerical octet value of the M-send.conf X-Mms-Response-Status header defined in [6]. This Status-Code value shall be used by the MSCF if the Trigger-Event of the Message-Process-Request referred to MM1 Message Submission.

Retrieve-status-value; it contains the numerical octet value of the M-Retrieve.conf X-Mms-Retrieve-Status header defined in [6]. This Status-Code value shall be used by the MSCF if the Trigger-Event of the Message-Process-Request referred to MM1 Message Delivery.

StatusCode; it contains the numerical value of the MM7_submit.RES StatusCode element defined in [1]. This Status-Code value shall be used by the MSCF if the Trigger-Event of the Message-Process-Request referred to MM7 Message Submission.

6.3.21   Status-Text AVP

The Status-Text AVP (AVP code ~~TBD~~1118) is of type UTF8String. If contains a response status text to qualify the outcome of the message processing.

<div align="center">

*** Next Modification ***

</div>

6.4   Use of namespaces

This clause contains the namespaces that have either been created in this specification, or the values assigned to existing namespaces managed by IANA.

6.4.1   AVP codes

This specification assigns the values ~~TBD~~1100-1199~~TBD~~ from the AVP Code namespace managed by 3GPP for its Diameter vendor-specific applications. See section 6.3 for the assignment of the namespace in this specification.

6.4.2   Experimental-Result-Code AVP values

This specification assigns no Experimental-Result-Code AVP values in this release.

6.4.3   Command Code values

This specification assigns the value~~s~~ ~~tbd~~ 311 ~~and tbd~~ from the range allocated by IANA to 3GPP.

6.4.4   Application-ID value

IANA has allocated the value ~~TBD~~ 16777226 for the 3GPP MM10 interface application.