3GPP TSG CN Plenary Meeting #25 **NP-040412**
8th – 10th August 2004 Palm Springs, US.

Source: TSG CN WG4

Title: Corrections on IMS Rel-5/Rel-6 AVP renumbering

Agenda item: 8.1

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level N4-04	Phase	Subject	Cat	Ver_C
29.230	004	1	1210	Rel-6	Re-numbering of 3GPP specific AVP codes	F	6.0.0
29.329	050	1	1212	Rel-5	Re-numbering of 3GPP specific AVP codes	F	5.6.0
29.329	051	1	1213	Rel-6	Re-numbering of 3GPP specific AVP codes	A	6.1.0
29.229	062	1	1214	Rel-5	Re-numbering of 3GPP specific AVP codes	F	5.7.0
29.229	063	1	1215	Rel-6	Re-numbering of 3GPP specific AVP codes	A	6.1.0

3GPP TSG-CN WG4 Meeting #24 ***N4-041210***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.230** **CR** **004** ⌘ **rev** **1** ⌘ 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 ☒

Title:	⌘	Re-numbering of 3GPP specific AVP codes.
Source:	⌘	CN4
Work item code:	⌘	TEI-6
Date:	⌘	17/08/2004
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:	⌘	3GPP specific AVP codes re-numbered to enable backwards compatability with other Diameter applications
Summary of change:	⌘	AVP numbers 1 to 299 which clash with RADIUS re-numbered into the range starting 600. IETF RADIUS RFC 2865 reference added to section 2.
Consequences if not approved:	⌘	Backwards compatability with other Diameter applications will not be possible.

Clauses affected:	⌘	7.1

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	29.229, 29.329, 32.225
			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 CHANGE**********

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 29.228: " IP Multimedia (IM) Subsystem Cx and Dx interfaces; Signalling flows and message contents".

[2] 3GPP TS 29.229: " Cx and Dx interfaces based on the Diameter protocol; Protocol details".

[3] 3GPP TS 29.328: " IP Multimedia (IM) Subsystem Sh interface; Signalling flows and message contents".

[4] 3GPP TS 29.329: " Sh Interface based on the Diameter protocol; Protocol details".

[5] 3GPP TS 32.225: " Telecommunication management; Charging management; Charging data description for the IP Multimedia Subsystem (IMS)".

[6] 3GPP TS 29.234: "3GPP System to WLAN Interworking; Stage 3 Description".

[7] 3GPP TS 29.109: " Generic Authentication Architecture (GAA); Zh and Zn Interfaces based on the Diameter protocol; Protocol details".

[8] 3GPP TS 29.209: " Technical Specification Group Core Network; Policy control over Gq interface".

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

[10] IETF RFC 3589: "Diameter Command Codes for Third Generation Partnership Project (3GPP) Release 5".

[11] IANA's Enterprise-Numbers: http://www.iana.org/assignments/enterprise-numbers

[12] IANA's AAA parameters register: ftp://ftp.iana.org/assignments/aaa-parameters/

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

**********END OF FIRST CHANGE**********

**********SECOND CHANGE**********

7 Attribute-Value-Pair codes

The AVP codes are used together with the vendor identifier to identify each attribute uniquely. There are multiple AVP namespaces. The IETF IANA namespace, that is, the AVPs with vendor identifier zero or without vendor identifier, is controlled by IANA. Each vendor controls the AVP codes within their AVP namespaces.

7.1 3GPP specific AVP codes

The 3GPP specific AVPs have the Vendor-Specific bit ('V' bit) set in the AVP header and they carry the 3GPP's vendor identifier in the Vendor-ID field of the AVP header. The 3GPP specific AVP codes are presented in the following table.

Table 7.1: 3GPP specific AVP codes

AVP Code	Attribute Name	Data Type	Specified in the 3GPP TS
Note: The AVP codes from 1 to 255 are reserved for backwards compatibility with 3GPP RADIUS Vendor Specific Attributes (See TS 29.061 [X])			
Note: The AVP codes from 256 to 299 are reserved for future use.			
			29.234 [6]
Note: The AVP codes from 300 to 399 are reserved for TS 29.234			
			29.109 [7]
Note: The AVP codes from 400 to 499 are reserved for TS 29.109			
			29.209 [8]
Note: The AVP codes from 500 to 599 are reserved for TS 29.209			
6001	Visited-Network-Identifier	OctetString	29.229 [2]
6012	Public-Identity	UTF8String	
6023	Server-Name	UTF8String	
6034	Server-Capabilities	Grouped	
6045	Mandatory-Capability	Unsigned32	
6056	Optional-Capability	Unsigned32	
6067	User-Data	OctetString	
6078	SIP-Number-Auth-Items	Unsigned32	
6089	SIP-Authentication-Scheme	UTF8String	
60910	SIP-Authenticate	OctetString	
6101	SIP-Authorization	OctetString	
6112	SIP-Authentication-Context	OctetString	
6123	SIP-Auth-Data-Item	Grouped	
6134	SIP-Item-Number	Unsigned32	
6145	Server-Assignment-Type	Enumerated	
6156	Deregistration-Reason	Grouped	
6167	Reason-Code	Enumerated	
6178	Reason-Info	UTF8String	
61819	Charging-Information	Grouped	
61920	Primary-Event-Charging-Function-Name	DiameterURI	
6201	Secondary-Event-Charging-Function-Name	DiameterURI	
6212	Primary-Charging-Collection-Function-Name	DiameterURI	
6223	Secondary-Charging-Collection-Function-Name	DiameterURI	
6234	User-Authorization-Type	Enumerated	
25	User-Data-Request-Type	Enumerated	
6246	User-Data-Already-Available	Enumerated	
6257	Confidentiality-Key	OctetString	
6268	Integrity-Key	OctetString	
627	User-Data-Request-Type	Enumerated	
Note: The AVP codes from 6289 to 699 are reserved for TS 29.229.			
7100	User-Identity	Grouped	29.329 [4]
7101	MSISDN	OctetString	
7102	User-Data	OctetString	
7103	Data-Reference	Enumerated	
7104	Service-Indication	OctetString	
7105	Subs-Req-Type	Enumerated	
7106	Requested-Domain	Enumerated	
7107	Current-Location	Enumerated	
7108	Identity-Set	Enumerated	
Note: The AVP codes from 7109 to7199 are reserved for TS 29.329.			
			32.225 [5]
Note: The AVP codes from 8200 to 8299 are reserved for TS 32.225			
			29.234 [6]
Note: The AVP codes from 300 to 399 are reserved for TS 29.234			
			29.109 [7]
Note: The AVP codes from 400 to 499 are reserved for TS 29.109			
			29.209 [8]
Note: The AVP codes from 500 to 599 are reserved for TS 29.209			

**********END OF SECOND CHANGE**********

3GPP TSG-CN WG4 Meeting #24 ***N4-041212***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.329** **CR** **050** ⌘ **rev** **1** ⌘ Current version: **5.6.0** ⌘

*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 ☒

Title:	⌘	Re-numbering of 3GPP specific AVP codes.
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	17/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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:	⌘	THIS IS AN ESSENTIAL CORRECTION. 3GPP specific AVP codes re-numbered to enable backwards compatability with other Diameter applications, so enabling future interoperability.
Summary of change:	⌘	Currently the 3GPP AVP numbers used in 23.329 overlap with AVP's used in other none 3GPP Diameter aplications. This affect the AVP's used in this specification so these are renumbered to align with 23.329, so as to enable backwards compatibility with none 3GPP specific Diameter applications. AVP numbers in brackets removed from sections 6.3.1 to 6.3.8 and 6.4.1 so as to prevent misalignment possibilities occuring between these sections and the table in section 6.3.
Consequences if not approved:	⌘	Backwards compatability with other Diameter applications will not be possible.

Clauses affected:	⌘	6.3, 6.3.1 to 6.3.8 and 6.4.1

Other specs affected:	Y	N			
⌘	X		Other core specifications	⌘	29.229, 29.230
		X	Test specifications		
		X	O&M Specifications		

Other comments:	⌘	

How to create CRs using this form:

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

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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.

6.3 AVPs

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

Table 6.3.1: Diameter Multimedia Application AVPs

				AVP Flag rules				
Attribute Name	**AVP Code**	**Section defined**	**Value Type**	**Must**	**May**	**Should not**	**Must not**	**May Encr.**
User-Identity	7~~1~~00	6.3.1	Grouped	M, V				N
MSISDN	7~~1~~01	6.3.2	OctetString	M, V				N
User-Data	7~~1~~02	6.3.3	OctetString	M, V				N
Data-Reference	7~~1~~03	6.3.4	Enumerated	M, V				
Service-Indication	7~~1~~04	6.3.5	OctetString	M, V				N
Subs-Req-Type	7~~1~~05	6.3.6	Enumerated	M, V				N
Requested-Domain	7~~1~~06	6.3.7	Enumerated	M, V				N
Current-Location	7~~1~~07	6.3.8	Enumerated	M, V				N
Server-Name	6023~~3~~	6.3.9	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 3GPP TS 29.229 [6]. NOTE 2: Depending on the concrete command.								

6.3.1 User-Identity AVP

The User-Identity AVP ~~(AVP Code 100)~~ is of type Grouped. This AVP contains a user public identity.

AVP format

User-Identity ::= <AVP header: 7~~1~~00 10415>

*[Public-Identity]

*[MSISDN]

*[AVP]

6.3.2 MSISDN AVP

The MSISDN AVP ~~(AVP Code 101)~~ is of type OctetString. This AVP contains an MSISDN, in international number format as described in ITU-T Rec E.164 [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.

6.3.3 User-Data AVP

The User-Data AVP ~~(AVP Code 102)~~ is of type OctetString. This AVP contains the user data requested in the UDR and SNR operations and the data to be modified in the UPR operation . The exact content and format of this AVP is described in 3GPP TS 29.328 [1].

6.3.4 Data-Reference AVP

The Data-Reference AVP ~~(AVP code 103)~~ is of type Enumerated, and indicates the type of the requested user data in the operation UDR and SNR. Its exact values and meaning is defined in 3GPP TS 29.328 [1]. The following values are defined (more details are given in 3GPP TS 29.328 [1]):

RepositoryData (0)

IMSPublicIdentity (10)

IMSUserState (11)

S-CSCFName (12)

InitialFilterCriteria (13)

This value is used to request initial filter criteria relevant to the requesting AS

LocationInformation (14)

UserState (15)

ChargingInformation (16)

MSISDN (17)

6.3.5 Service-Indication AVP

The Service-Indication AVP ~~(AVP code 104)~~ is of type OctetString. This AVP contains the Service Indication that identifies a service in an AS.

6.3.6 Subs-Req-Type AVP

The Subs-Req-Type AVP ~~(AVP code 105)~~ is of type Enumerated, and indicates the type of the subscription-to-notifications request. The following values are defined:

Subscribe (0)

This value is used by an AS to subscribe to notifications of changes in data.

Unsubscribe (1)

This value is used by an AS to unsubscribe to notifications of changes in data.

6.3.7 Requested-Domain AVP

The Requested-Domain AVP ~~(AVP code 106)~~ is of type Enumerated, and indicates the access domain for which certain data (e.g. user state) are requested. The following values are defined:

CS-Domain (0)

The requested data apply to the CS domain.

PS-Domain (1)

The requested data apply to the PS domain.

6.3.8 Current-Location AVP

The Current-Location AVP ~~(AVP code 107)~~ is of type Enumerated, and indicates whether an active location retrieval has to be initiated or not:

DoNotNeedInitiateActiveLocationRetrieval (0)

The request indicates that the initiation of an active location retrieval is not required.

InitiateActiveLocationRetrieval (1)

It is requested that an active location retrieval is initiated.

6.3.9 Server-Name AVP

The Server-Name AVP contains a SIP-URL used to identify an AS. See 3GPP TS 29.229 [6] for further description of this AVP.

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 AVP values ~~100-107~~ 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 has assigned Experimental-Result-Code AVP values 4100-4101 and 5100-5105. See section 6.2.

6.4.3 Command Code values

This specification assigns the values 306-309 from the range allocated by IANA to 3GPP in IETF RFC 3589 [7].

6.4.4 Application-ID value

IANA has allocated the value 167772152 for the 3GPP Sh interface application.

3GPP TSG-CN WG4 Meeting #24 ***N4-041213***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.329** **CR** **051** ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

*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 ☒

Title:	⌘	Re-numbering of 3GPP specific AVP codes.
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	17/08/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one of the following categories:
- ***F*** *(correction)*
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- ***B*** *(addition of feature),*
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Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	3GPP specific AVP codes re-numbered to enable backwards compatability with other Diameter applications, so enabling future interoperability.
Summary of change:	⌘	Currently the 3GPP AVP numbers used in 23.329 overlap with AVP's used in other none 3GPP Diameter aplications. This affect the AVP's used in this specification so these are renumbered to align with 23.329, so as to enable backwards compatibility with none 3GPP specific Diameter applications. AVP numbers in brackets removed from sections 6.3.1 to 6.3.8 and 6.4.1 so as to prevent misalignment possibilities occuring between these sections and the table in section 6.3.
Consequences if not approved:	⌘	Backwards compatability with other Diameter applications will not be possible.

Clauses affected:	⌘	6.3, 6.3.1 to6.3.8 and 6.4.1

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		29.229, 29.230
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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Table 6.3.1: Diameter Multimedia Application AVPs

				AVP Flag rules				
Attribute Name	**AVP Code**	**Section defined**	**Value Type**	**Must**	**May**	**Should not**	**Must not**	**May Encr.**
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MSISDN	7~~1~~01	6.3.2	OctetString	M, V				N
User-Data	7~~1~~02	6.3.3	OctetString	M, V				N
Data-Reference	7~~1~~03	6.3.4	Enumerated	M, V				
Service-Indication	7~~1~~04	6.3.5	OctetString	M, V				N
Subs-Req-Type	7~~1~~05	6.3.6	Enumerated	M, V				N
Requested-Domain	7~~1~~06	6.3.7	Enumerated	M, V				N
Current-Location	7~~1~~07	6.3.8	Enumerated	M, V				N
Identity-Set	7~~1~~08	6.3.10	Enumerated	V			M	N
Server-Name	602~~3~~	6.3.9	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 3GPP TS 29.229 [6]. NOTE 2: Depending on the concrete command.								

6.3.1 User-Identity AVP

The User-Identity AVP ~~(AVP Code 100)~~ is of type Grouped. This AVP contains a user public identity.

AVP format

User-Identity ::= <AVP header: 7~~1~~00 10415>

*[Public-Identity]

*[MSISDN]

*[AVP]

6.3.2 MSISDN AVP

The MSISDN AVP ~~(AVP Code 101)~~ is of type OctetString. This AVP contains an MSISDN, in international number format as described in ITU-T Rec E.164 [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.

6.3.3 User-Data AVP

The User-Data AVP ~~(AVP Code 102)~~ is of type OctetString. This AVP contains the user data requested in the UDR and SNR operations and the data to be modified in the UPR operation . The exact content and format of this AVP is described in 3GPP TS 29.328 [1].

6.3.4 Data-Reference AVP

The Data-Reference AVP ~~(AVP code 103)~~ is of type Enumerated, and indicates the type of the requested user data in the operation UDR and SNR. Its exact values and meaning is defined in 3GPP TS 29.328 [1]. The following values are defined (more details are given in 3GPP TS 29.328 [1]):

RepositoryData (0)

IMSPublicIdentity (10)

IMSUserState (11)

S-CSCFName (12)

InitialFilterCriteria (13)

This value is used to request initial filter criteria relevant to the requesting AS

LocationInformation (14)

UserState (15)

ChargingInformation (16)

MSISDN (17)

6.3.5 Service-Indication AVP

The Service-Indication AVP ~~(AVP code 104)~~ is of type OctetString. This AVP contains the Service Indication that identifies a service in an AS.

6.3.6 Subs-Req-Type AVP

The Subs-Req-Type AVP ~~(AVP code 105)~~ is of type Enumerated, and indicates the type of the subscription-to-notifications request. The following values are defined:

Subscribe (0)

This value is used by an AS to subscribe to notifications of changes in data.

Unsubscribe (1)

This value is used by an AS to unsubscribe to notifications of changes in data.

6.3.7 Requested-Domain AVP

The Requested-Domain AVP ~~(AVP code 106)~~ is of type Enumerated, and indicates the access domain for which certain data (e.g. user state) are requested. The following values are defined:

CS-Domain (0)

The requested data apply to the CS domain.

PS-Domain (1)

The requested data apply to the PS domain.

6.3.8 Current-Location AVP

The Current-Location AVP ~~(AVP code 107)~~ is of type Enumerated, and indicates whether an active location retrieval has to be initiated or not:

DoNotNeedInitiateActiveLocationRetrieval (0)

The request indicates that the initiation of an active location retrieval is not required.

InitiateActiveLocationRetrieval (1)

It is requested that an active location retrieval is initiated.

6.3.9 Server-Name AVP

The Server-Name AVP contains a SIP-URL used to identify an AS. See 3GPP TS 29.229 [6] for further description of this AVP.

6.3.10 Identity-Set AVP

The Identity-Set AVP ~~(AVP code 108)~~ is of type Enumerated and indicates the requested set of IMS Public Identities. The Following values are defined:

ALL_IDENTITIES (0)

REGISTERED_IDENTITIES (1)

IMPLICIT_IDENTITIES (2)

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 AVP values ~~100-107~~ 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 has assigned Experimental-Result-Code AVP values 4100-4101 and 5100-5105. See section 6.2.

6.4.3 Command Code values

This specification assigns the values 306-309 from the range allocated by IANA to 3GPP in IETF RFC 3589 [7].

6.4.4 Application-ID value

IANA has allocated the value 167772152 for the 3GPP Sh interface application.

3GPP TSG-CN WG4 Meeting #24 ***N4-041214***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.229** **CR** **062** ⌘ **rev** **1** ⌘ Current version: **5.7.0** ⌘

*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 ☒

Title:	⌘	Re-numbering of 3GPP specific AVP codes.
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	17/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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:	⌘	THIS IS AN ESSENTIAL CORRECTION. 3GPP specific AVP codes re-numbered to enable backwards compatability with other Diameter applications, so enabling future interoperability.
Summary of change:	⌘	Currently the 3GPP AVP numbers used in 23.329 overlap with AVP's used in other none 3GPP Diameter aplications. This affect the AVP's used in this specification so these are renumbered to align with 23.329, so as to enable backwards compatibility with none 3GPP specific Diameter applications. AVP numbers in brackets removed from sections 6.3.1 to 6.3.28 and 6.4.1 so as to prevent misalignment possibilities occuring between these sections and the table in section 6.3.
Consequences if not approved:	⌘	Backwards compatability with other Diameter applications will not be possible.

Clauses affected:	⌘	6.3, 6.3.1 to 6.3.28 and 6.4.1

Other specs affected:	Y	N			
⌘	X		Other core specifications	⌘	29.329, 29.230
		X	Test specifications		
		X	O&M Specifications		

Other comments:	⌘	

How to create CRs using this form:

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

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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.

6.3 AVPs

The following table describes the Diameter AVPs defined for the Cx interface protocol, their AVP Code values, types, possible flag values and whether or not the AVP may be encrypted. The Vendor-Id header of all AVPs defined in this specification shall be set to 3GPP (10415).

Table 6.3.1: Diameter Multimedia Application AVPs

				AVP Flag rules				
Attribute Name	**AVP Code**	**Section defined**	**Value Type**	**Must**	**May**	**Should not**	**Must not**	**May Encr.**
Visited-Network-Identifier	600~~1~~	6.3.1	OctetString	M, V				No
Public-Identity	601~~2~~	6.3.2	UTF8String	M, V				N
Server-Name	602~~3~~	6.3.3	UTF8String	M,V				No
Server-Capabilities	603~~4~~	6.3.4	Grouped	M, V				No
Mandatory-Capability	604~~5~~	6.3.5	Unsigned32	M, V				No
Optional-Capability	605~~6~~	6.3.6	Unsigned32	M, V				No
User-Data	606~~7~~	6.3.7	OctetString	M, V				No
SIP-Number-Auth-Items	607~~8~~	6.3.8	Unsigned32	M, V				No
SIP-Authentication-Scheme	608~~9~~	6.3.9	UTF8String	M, V				No
SIP-Authenticate	609~~10~~	6.3.10	OctetString	M, V				No
SIP-Authorization	610~~11~~	6.3.11	OctetString	M, V				No
SIP-Authentication-Context	611~~12~~	6.3.12	OctetString	M, V				No
SIP-Auth-Data-Item	612~~13~~	6.3.13	Grouped	M, V				No
SIP-Item-Number	613~~14~~	6.3.14	Unsigned32	M, V				No
Server-Assignment-Type	614~~15~~	6.3.15	Enumerated	M, V				No
Deregistration-Reason	615~~16~~	6.3.16	Grouped	M, V				No
Reason-Code	616~~17~~	6.3.17	Enumerated	M, V				No
Reason-Info	617~~18~~	6.3.18	UTF8String	M, V				No
Charging-Information	618~~19~~	6.3.19	Grouped	M, V				No
Primary-Event-Charging-Function-Name	619~~20~~	6.3.20	DiameterURI	M, V				No
Secondary-Event-Charging-Function-Name	620~~21~~	6.3.21	DiameterURI	M, V				No
Primary-Charging-Collection-Function-Name	621~~22~~	6.3.22	DiameterURI	M, V				No
Secondary-Charging-Collection-Function-Name	622~~23~~	6.3.23	DiameterURI	M, V				No

User-Authorization-Type	623~~24~~	6.3.24	Enumerated	M, V				No
~~User-Data-Request-Type~~	~~25~~	~~6.3.25~~	~~Enumerated~~	~~M, V~~				~~No~~
User-Data-Already-Available	624~~26~~	6.3.26	Enumerated	M, V				No
Confidentiality-Key	625~~27~~	6.3.27	OctetString	M, V				No
Integrity-Key	626~~28~~	6.3.28	OctetString	M, V				No
User-Data-Request-Type	627	6.3.25	Enumerated	M, V				No
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]. NOTE 2: Depending on the concrete command.								

6.3.1 Visited-Network-Identifier AVP

The Visited-Network-Identifier AVP ~~(AVP Code 1)~~ is of type OctetString. This AVP contains an identifier that helps the home network to identify the visited network (e.g. the visited network domain name).

6.3.2 Public-Identity AVP

The Public-Identity AVP ~~(AVP Code 2)~~ is of type UTF8String. This AVP contains the public identity of a user in the IMS. The syntax of this AVP corresponds either to a SIP URL (with the format defined in IETF RFC 3261 [3] and IETF RFC 2396 [4]) or a TEL URL (with the format defined in IETF RFC 2806 [8]).

6.3.3 Server-Name AVP

The Server-Name ~~3~~AVP ~~(AVP Code 3)~~ is of type UTF8String. This AVP contains a SIP-URL (as defined in IETF RFC 3261 [3] and IETF RFC 2396 [4]), used to identify a SIP server (e.g. S-CSCF name).

6.3.4 Server-Capabilities AVP

The Server-Capabilities AVP ~~(AVP Code 4)~~ is of type Grouped. This AVP contains information to assist the I-CSCF in the selection of an S-CSCF.

AVP format

Server-Capabilities ::= <AVP header: TBD>

*[Mandatory-Capability]

*[Optional-Capability]

*[Server-Name]

*[AVP]

6.3.5 Mandatory-Capability AVP

The Mandatory-Capability AVP ~~(AVP Code 5)~~ is of type Unsigned32. The value included in this AVP can be used to represent a single determined mandatory capability of an S-CSCF. Each mandatory capability available in an individual operator's network shall be allocated a unique value. The allocation of these values to individual capabilities is an operator issue.

6.3.6 Optional-Capability AVP

The Optional-Capability AVP ~~(AVP Code 6)~~ is of type Unsigned32. The value included in this AVP can be used to represent a single determined optional capability of an S-CSCF. Each optional capability available in an individual operator's network shall be allocated a unique value. The allocation of these values to individual capabilities is an operator issue.

6.3.7 User-Data AVP

The User-Data AVP ~~(AVP Code 7)~~ is of type OctetString. This AVP contains the user data required to give service to a user. The exact content and format of this AVP is described in 3GPP TS 29.228 [1].

6.3.8 SIP-Number-Auth-Items AVP

The SIP-Number-Auth-Items AVP ~~(AVP code 8)~~ is of type Unsigned32 and indicates the number of authentication vectors provided by the Diameter server.

When used in a request it indicates the number of SIP-Auth-Data-Item's the S-CSCF is requesting. This can be used, for instance, when the client is requesting several pre-calculated authentication vectors. In the answer message the SIP-Number-Auth-Items AVP indicates the actual number of items provided by the Diameter server.

6.3.9 SIP-Authentication-Scheme AVP

The Authentication-Scheme AVP ~~(AVP code 9)~~ is of type UTF8String and indicates the authentication scheme used in the authentication of SIP messages.

6.3.10 SIP-Authenticate AVP

The SIP-Authenticate AVP ~~(AVP code 10)~~ is of type OctetString and contains the data portion of the WWW-Authenticate or Proxy-Authenticate SIP headers that are to be present in a SIP response.

6.3.11 SIP-Authorization AVP

The SIP-Authorization AVP ~~(AVP code 11)~~ is of type OctetString and contains the data portion of the Authorization or Proxy-Authorization SIP headers suitable for inclusion in a SIP request.

6.3.12 SIP-Authentication-Context AVP

The SIP-Authentication-Context AVP ~~(AVP code 12)~~ is of type OctectString, and contains authentication-related information relevant for performing the authentication but that is not part of the SIP authentication headers.

Some mechanisms (e.g. PGP, digest with quality of protection set to auth-int defined in IETF RFC 2617, digest with predictive nonces or sip access digest) request that part or the whole SIP request is passed to the entity performing the authentication. In such cases the SIP-Authentication-Context AVP would be carrying such information.

6.3.13 SIP-Auth-Data-Item AVP

The SIP-Auth-Data-Item AVP ~~(AVP code 13)~~ is of type Grouped, and contains the authentication and/or authorization information for the Diameter client.

AVP format

SIP-Auth-Data-Item :: = < AVP Header : TBD >

[SIP-Item-Number]

[SIP-Authentication-Scheme]

[SIP-Authenticate]

[SIP-Authorization]

[SIP-Authentication-Context]

[Confidentiality-Key]

[Integrity-Key]

* [AVP]

6.3.14 SIP-Item-Number AVP

The SIP-Item-Number AVP ~~(AVP code 14)~~ is of type Unsigned32, and is included in a SIP-Auth-Data-Item grouped AVP in circumstances where there are multiple occurrences of SIP-Auth-Data-Item AVPs, and the order in which they should be processed is significant. In this scenario, SIP-Auth-Data-Item AVPs with a low SIP-Item-Number value should be processed before SIP-Auth-Data-Items AVPs with a high SIP-Item-Number value.

6.3.15 Server-Assignment-Type AVP

The Server-Assignment-Type AVP ~~(AVP code 15)~~ is of type Enumerated, and indicates the type of server update being performed in a Server-Assignment-Request operation. The following values are defined:

NO_ASSIGNMENT (0)

This value is used to request from HSS the user profile assigned to one or more public identities, without affecting the registration state of those identities.

REGISTRATION (1)

The request is generated as a consequence of a first registration of an identity.

RE_REGISTRATION (2)

The request corresponds to the re-registration of an identity.

UNREGISTERED_USER (3)

The request is generated because the S-CSCF received an INVITE for a public identity that is not registered.

TIMEOUT_DEREGISTRATION (4)

The SIP registration timer of an identity has expired.

USER_DEREGISTRATION (5)

The S-CSCF has received a user initiated de-registration request.

TIMEOUT_DEREGISTRATION_STORE_SERVER_NAME (6)

The SIP registration timer of an identity has expired. The S-CSCF keeps the user data stored in the S-CSCF and requests HSS to store the S-CSCF name.

USER_DEREGISTRATION_STORE_SERVER_NAME (7)

The S-CSCF has received a user initiated de-registration request. The S-CSCF keeps the user data stored in the S-CSCF and requests HSS to store the S-CSCF name.

ADMINISTRATIVE_DEREGISTRATION (8)

The S-CSCF, due to administrative reasons, has performed the de-registration of an identity.

AUTHENTICATION_FAILURE (9)

The authentication of a user has failed.

AUTHENTICATION_TIMEOUT (10)

The authentication timeout has expired.

DEREGISTRATION_TOO_MUCH_DATA (11)

The S-CSCF has requested user profile information from the HSS and has received a volume of data higher than it can accept.

6.3.16 Deregistration-Reason AVP

The Deregistration-Reason AVP ~~(AVP code 16)~~ is of type Grouped, and indicates the reason for a de-registration operation.

AVP format

Deregistration-Reason :: = < AVP Header : TBD >

{ Reason-Code }

[Reason-Info]

* [AVP]

6.3.17 Reason-Code AVP

The Reason-Code AVP ~~(AVP code 17)~~ is of type Enumerated, and defines the reason for the network initiated de-registration. The following values are defined:

PERMANENT_TERMINATION (0)

NEW_SERVER_ASSIGNED (1)

SERVER_CHANGE (2)

REMOVE_S-CSCF (3)

The detailed behaviour of the S-CSCF is defined in 3GPP TS 29.228 [1].

6.3.18 Reason-Info AVP

The Reason-Info AVP ~~(AVP code 18)~~ is of type UTF8String, and contains textual information to inform the user about the reason for a de-registration.

6.3.19 Charging-Information AVP

The Charging-Information AVP ~~(AVP code 19)~~ is of type Grouped, and contains the addresses of the charging functions.

AVP format

Charging-Information :: = < AVP Header : TBD >

[Primary-Event-Charging-Function-Name]

[Secondary-Event-Charging-Function-Name]

{ Primary-Charging-Collection-Function-Name }

[Secondary-Charging-Collection-Function-Name]

*[AVP]

6.3.20 Primary-Event-Charging-Function-Name AVP

The Primary-Event-Charging-Function-Name AVP ~~(AVP Code 20)~~ is of type DiameterURI. This AVP contains the address of the Primary Event Charging Function.

6.3.21 Secondary-Event-Charging-Function-Name AVP

The Secondary-Event-Charging-Function-Name AVP ~~(AVP Code 21)~~ is of type DiameterURI. This AVP contains the address of the Secondary Event Charging Function.

6.3.22 Primary-Charging-Collection-Function-Name AVP

The Primary-Charging-Collection-Function-Name AVP ~~(AVP Code 22)~~ is of type DiameterURI. This AVP contains the address of the Primary Charging Collection Function.

6.3.23 Secondary-Charging-Collection-Function-Name AVP

The Secondary-Charging-Collection-Function-Name AVP ~~(AVP Code 23)~~ is of type DiameterURI. This AVP contains the address of the Secondary Charging Collection Function.

6.3.24 User-Authorization-Type AVP

The User-Authorization-Type AVP ~~(AVP code 24)~~ is of type Enumerated, and indicates the type of user authorization being performed in a User Authorization operation, i.e. UAR command. The following values are defined:

REGISTRATION (0)

This value is used in case of the initial registration or re-registration. I-CSCF determines this from the Expires field or expires parameter in Contact field in the SIP REGISTER method if it is not equal to zero.

This is the default value.

DE_REGISTRATION (1)

This value is used in case of the de-registration. I-CSCF determines this from the Expires field or expires parameter in Contact field in the SIP REGISTER method if it is equal to zero.

REGISTRATION_AND_CAPABILITIES (2)

This value is used in case of initial registration or re-registration and when the I-CSCF explicitly requests S-CSCF capability information from the HSS. The I-CSCF shall use this value when the user's current S-CSCF, which is stored in the HSS, cannot be contacted and a new S-CSCF needs to be selected

6.3.25 User-Data-Request-Type AVP

The User-Data-Request-Type AVP ~~(AVP code 25)~~ is of type Enumerated, and indicates the type of user profile the S-CSCF is requesting from the HSS. The following values are defined:

COMPLETE_PROFILE (0)

This value is used to request from the HSS the complete user profile corresponding to one or more public identities.

REGISTERED_PROFILE (1)

This value is used to request from the HSS the registered part of the user profile corresponding to one or more public identities.

UNREGISTERED_PROFILE (2)

This value is used to request from the HSS the unregistered part of the user profile corresponding to one or more public identities.

6.3.26 User-Data-Already-Available AVP

The User-Data-Already-Available AVP ~~(AVP code 26)~~ is of type Enumerated, and indicates to the HSS whether or not the S-CSCF already has the part of the user profile that it needs to serve the user. The following values are defined:

USER_DATA_NOT_AVAILABLE (0)

The S-CSCF does not have the data that it needs to serve the user.

USER_DATA_ALREADY_AVAILABLE (1)

The S-CSCF already has the data that it needs to serve the user.

6.3.27 Confidentiality-Key AVP

The Confidentiality-Key AVP ~~(AVP code 27)~~ is of type OctetString, and contains the Confidentiality Key (CK).

6.3.28 Integrity-Key AVP

The Integrity-Key AVP ~~(AVP code 28)~~ is of type OctetString, and contains the Integrity Key (IK).

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 AVP values ~~1-28~~ 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 has assigned Experimental-Result-Code AVP values 2001-2005 and 5001-5009. See section 6.2.

6.4.3 Command Code values

This specification assigns the values 300-305 from the range allocated by IANA to 3GPP in IETF RFC 3589 [12].

6.4.4 Application-ID value

IANA has allocated the value 167772151 for the 3GPP Cx interface application.

3GPP TSG-CN WG4 Meeting #24 ***N4-041215***

Sophia Antipolis, France. 16th to 20th August 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.229** **CR** **063** ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

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

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Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	17/08/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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Rel-7	*(Release 7)*

Reason for change:	⌘	3GPP specific AVP codes re-numbered to enable backwards compatability with other Diameter applications, so enabling future interoperability.
Summary of change:	⌘	Currently the 3GPP AVP numbers used in 23.329 overlap with AVP's used in other none 3GPP Diameter aplications. This affect the AVP's used in this specification so these are renumbered to align with 23.329, so as to enable backwards compatibility with none 3GPP specific Diameter applications. AVP numbers in brackets removed from sections 6.3.1 to 6.3.28 and 6.4.1 so as to prevent misalignment possibilities occuring between these sections and the table in section 6.3.
Consequences if not approved:	⌘	Backwards compatability with other Diameter applications will not be possible.

Clauses affected:	⌘	6.3, 6.3.1 to 6.3.28 and 6.4.1

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		29.329, 29.230
			X	Test specifications		
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Other comments:	⌘	

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6.3 AVPs

The following table describes the Diameter AVPs defined for the Cx interface protocol, their AVP Code values, types, possible flag values and whether or not the AVP may be encrypted. The Vendor-Id header of all AVPs defined in this specification shall be set to 3GPP (10415).

Table 6.3.1: Diameter Multimedia Application AVPs

				AVP Flag rules				
Attribute Name	**AVP Code**	**Section defined**	**Value Type**	**Must**	**May**	**Should not**	**Must not**	**May Encr.**
Visited-Network-Identifier	600~~1~~	6.3.1	OctetString	M, V				No
Public-Identity	601~~2~~	6.3.2	UTF8String	M, V				N
Server-Name	602~~3~~	6.3.3	UTF8String	M,V				No
Server-Capabilities	603~~4~~	6.3.4	Grouped	M, V				No
Mandatory-Capability	604~~5~~	6.3.5	Unsigned32	M, V				No
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User-Data	606~~7~~	6.3.7	OctetString	M, V				No
SIP-Number-Auth-Items	607~~8~~	6.3.8	Unsigned32	M, V				No
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SIP-Authentication-Context	611~~12~~	6.3.12	OctetString	M, V				No
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Server-Assignment-Type	614~~15~~	6.3.15	Enumerated	M, V				No
Deregistration-Reason	615~~16~~	6.3.16	Grouped	M, V				No
Reason-Code	616~~17~~	6.3.17	Enumerated	M, V				No
Reason-Info	617~~18~~	6.3.18	UTF8String	M, V				No
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Secondary-Event-Charging-Function-Name	620~~21~~	6.3.21	DiameterURI	M, V				No
Primary-Charging-Collection-Function-Name	621~~22~~	6.3.22	DiameterURI	M, V				No
Secondary-Charging-Collection-Function-Name	622~~23~~	6.3.23	DiameterURI	M, V				No

User-Authorization-Type	623~~24~~	6.3.24	Enumerated	M, V				No
~~User-Data-Request-Type~~	~~25~~	~~6.3.25~~	~~Enumerated~~	~~M, V~~				~~No~~
User-Data-Already-Available	624~~26~~	6.3.26	Enumerated	M, V				No
Confidentiality-Key	625~~27~~	6.3.27	OctetString	M, V				No
Integrity-Key	626~~28~~	6.3.28	OctetString	M, V				No
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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]. NOTE 2: Depending on the concrete command.								

6.3.1 Visited-Network-Identifier AVP

The Visited-Network-Identifier AVP ~~(AVP Code 1)~~ is of type OctetString. This AVP contains an identifier that helps the home network to identify the visited network (e.g. the visited network domain name).

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The Public-Identity AVP ~~(AVP Code 2)~~ is of type UTF8String. This AVP contains the public identity of a user in the IMS. The syntax of this AVP corresponds either to a SIP URL (with the format defined in IETF RFC 3261 [3] and IETF RFC 2396 [4]) or a TEL URL (with the format defined in IETF RFC 2806 [8]).

6.3.3 Server-Name AVP

The Server-Name ~~3~~AVP ~~(AVP Code 3)~~ is of type UTF8String. This AVP contains a SIP-URL (as defined in IETF RFC 3261 [3] and IETF RFC 2396 [4]), used to identify a SIP server (e.g. S-CSCF name).

6.3.4 Server-Capabilities AVP

The Server-Capabilities AVP ~~(AVP Code 4)~~ is of type Grouped. This AVP contains information to assist the I-CSCF in the selection of an S-CSCF.

AVP format

Server-Capabilities ::= <AVP header: TBD>

*[Mandatory-Capability]

*[Optional-Capability]

*[Server-Name]

*[AVP]

6.3.5 Mandatory-Capability AVP

The Mandatory-Capability AVP ~~(AVP Code 5)~~ is of type Unsigned32. The value included in this AVP can be used to represent a single determined mandatory capability of an S-CSCF. Each mandatory capability available in an individual operator's network shall be allocated a unique value. The allocation of these values to individual capabilities is an operator issue.

6.3.6 Optional-Capability AVP

The Optional-Capability AVP ~~(AVP Code 6)~~ is of type Unsigned32. The value included in this AVP can be used to represent a single determined optional capability of an S-CSCF. Each optional capability available in an individual operator's network shall be allocated a unique value. The allocation of these values to individual capabilities is an operator issue.

6.3.7 User-Data AVP

The User-Data AVP ~~(AVP Code 7)~~ is of type OctetString. This AVP contains the user data required to give service to a user. The exact content and format of this AVP is described in 3GPP TS 29.228 [1].

6.3.8 SIP-Number-Auth-Items AVP

The SIP-Number-Auth-Items AVP ~~(AVP code 8)~~ is of type Unsigned32 and indicates the number of authentication vectors provided by the Diameter server.

When used in a request it indicates the number of SIP-Auth-Data-Item's the S-CSCF is requesting. This can be used, for instance, when the client is requesting several pre-calculated authentication vectors. In the answer message the SIP-Number-Auth-Items AVP indicates the actual number of items provided by the Diameter server.

6.3.9 SIP-Authentication-Scheme AVP

The Authentication-Scheme AVP ~~(AVP code 9)~~ is of type UTF8String and indicates the authentication scheme used in the authentication of SIP messages.

6.3.10 SIP-Authenticate AVP

The SIP-Authenticate AVP ~~(AVP code 10)~~ is of type OctetString and contains the data portion of the WWW-Authenticate or Proxy-Authenticate SIP headers that are to be present in a SIP response.

6.3.11 SIP-Authorization AVP

The SIP-Authorization AVP ~~(AVP code 11)~~ is of type OctetString and contains the data portion of the Authorization or Proxy-Authorization SIP headers suitable for inclusion in a SIP request.

6.3.12 SIP-Authentication-Context AVP

The SIP-Authentication-Context AVP ~~(AVP code 12)~~ is of type OctectString, and contains authentication-related information relevant for performing the authentication but that is not part of the SIP authentication headers.

Some mechanisms (e.g. PGP, digest with quality of protection set to auth-int defined in IETF RFC 2617, digest with predictive nonces or sip access digest) request that part or the whole SIP request is passed to the entity performing the authentication. In such cases the SIP-Authentication-Context AVP would be carrying such information.

6.3.13 SIP-Auth-Data-Item AVP

The SIP-Auth-Data-Item AVP ~~(AVP code 13)~~ is of type Grouped, and contains the authentication and/or authorization information for the Diameter client.

AVP format

SIP-Auth-Data-Item :: = < AVP Header : TBD >

[SIP-Item-Number]

[SIP-Authentication-Scheme]

[SIP-Authenticate]

[SIP-Authorization]

[SIP-Authentication-Context]

[Confidentiality-Key]

[Integrity-Key]

* [AVP]

6.3.14 SIP-Item-Number AVP

The SIP-Item-Number AVP ~~(AVP code 14)~~ is of type Unsigned32, and is included in a SIP-Auth-Data-Item grouped AVP in circumstances where there are multiple occurrences of SIP-Auth-Data-Item AVPs, and the order in which they should be processed is significant. In this scenario, SIP-Auth-Data-Item AVPs with a low SIP-Item-Number value should be processed before SIP-Auth-Data-Items AVPs with a high SIP-Item-Number value.

6.3.15 Server-Assignment-Type AVP

The Server-Assignment-Type AVP ~~(AVP code 15)~~ is of type Enumerated, and indicates the type of server update being performed in a Server-Assignment-Request operation. The following values are defined:

NO_ASSIGNMENT (0)

This value is used to request from HSS the user profile assigned to one or more public identities, without affecting the registration state of those identities.

REGISTRATION (1)

The request is generated as a consequence of a first registration of an identity.

RE_REGISTRATION (2)

The request corresponds to the re-registration of an identity.

UNREGISTERED_USER (3)

The request is generated because the S-CSCF received an INVITE for a public identity that is not registered.

TIMEOUT_DEREGISTRATION (4)

The SIP registration timer of an identity has expired.

USER_DEREGISTRATION (5)

The S-CSCF has received a user initiated de-registration request.

TIMEOUT_DEREGISTRATION_STORE_SERVER_NAME (6)

The SIP registration timer of an identity has expired. The S-CSCF keeps the user data stored in the S-CSCF and requests HSS to store the S-CSCF name.

USER_DEREGISTRATION_STORE_SERVER_NAME (7)

The S-CSCF has received a user initiated de-registration request. The S-CSCF keeps the user data stored in the S-CSCF and requests HSS to store the S-CSCF name.

ADMINISTRATIVE_DEREGISTRATION (8)

The S-CSCF, due to administrative reasons, has performed the de-registration of an identity.

AUTHENTICATION_FAILURE (9)

The authentication of a user has failed.

AUTHENTICATION_TIMEOUT (10)

The authentication timeout has expired.

DEREGISTRATION_TOO_MUCH_DATA (11)

The S-CSCF has requested user profile information from the HSS and has received a volume of data higher than it can accept.

6.3.16 Deregistration-Reason AVP

The Deregistration-Reason AVP ~~(AVP code 16)~~ is of type Grouped, and indicates the reason for a de-registration operation.

AVP format

Deregistration-Reason :: = < AVP Header : TBD >

{ Reason-Code }

[Reason-Info]

* [AVP]

6.3.17 Reason-Code AVP

The Reason-Code AVP ~~(AVP code 17)~~ is of type Enumerated, and defines the reason for the network initiated de-registration. The following values are defined:

PERMANENT_TERMINATION (0)

NEW_SERVER_ASSIGNED (1)

SERVER_CHANGE (2)

REMOVE_S-CSCF (3)

The detailed behaviour of the S-CSCF is defined in 3GPP TS 29.228 [1].

6.3.18 Reason-Info AVP

The Reason-Info AVP ~~(AVP code 18)~~ is of type UTF8String, and contains textual information to inform the user about the reason for a de-registration.

6.3.19 Charging-Information AVP

The Charging-Information AVP ~~(AVP code 19)~~ is of type Grouped, and contains the addresses of the charging functions.

AVP format

Charging-Information :: = < AVP Header : TBD >

[Primary-Event-Charging-Function-Name]

[Secondary-Event-Charging-Function-Name]

{ Primary-Charging-Collection-Function-Name }

[Secondary-Charging-Collection-Function-Name]

*[AVP]

6.3.20 Primary-Event-Charging-Function-Name AVP

The Primary-Event-Charging-Function-Name AVP ~~(AVP Code 20)~~ is of type DiameterURI. This AVP contains the address of the Primary Event Charging Function.

6.3.21 Secondary-Event-Charging-Function-Name AVP

The Secondary-Event-Charging-Function-Name AVP ~~(AVP Code 21)~~ is of type DiameterURI. This AVP contains the address of the Secondary Event Charging Function.

6.3.22 Primary-Charging-Collection-Function-Name AVP

The Primary-Charging-Collection-Function-Name AVP ~~(AVP Code 22)~~ is of type DiameterURI. This AVP contains the address of the Primary Charging Collection Function.

6.3.23 Secondary-Charging-Collection-Function-Name AVP

The Secondary-Charging-Collection-Function-Name AVP ~~(AVP Code 23)~~ is of type DiameterURI. This AVP contains the address of the Secondary Charging Collection Function.

6.3.24 User-Authorization-Type AVP

The User-Authorization-Type AVP ~~(AVP code 24)~~ is of type Enumerated, and indicates the type of user authorization being performed in a User Authorization operation, i.e. UAR command. The following values are defined:

REGISTRATION (0)

This value is used in case of the initial registration or re-registration. I-CSCF determines this from the Expires field or expires parameter in Contact field in the SIP REGISTER method if it is not equal to zero.

This is the default value.

DE_REGISTRATION (1)

This value is used in case of the de-registration. I-CSCF determines this from the Expires field or expires parameter in Contact field in the SIP REGISTER method if it is equal to zero.

REGISTRATION_AND_CAPABILITIES (2)

This value is used in case of initial registration or re-registration and when the I-CSCF explicitly requests S-CSCF capability information from the HSS. The I-CSCF shall use this value when the user's current S-CSCF, which is stored in the HSS, cannot be contacted and a new S-CSCF needs to be selected

6.3.25 User-Data-Request-Type AVP

The User-Data-Request-Type AVP ~~(AVP code 25)~~ is of type Enumerated, and indicates the type of user profile the S-CSCF is requesting from the HSS. The following values are defined:

COMPLETE_PROFILE (0)

This value is used to request from the HSS the complete user profile corresponding to one or more public identities.

REGISTERED_PROFILE (1)

This value is used to request from the HSS the registered part of the user profile corresponding to one or more public identities.

UNREGISTERED_PROFILE (2)

This value is used to request from the HSS the unregistered part of the user profile corresponding to one or more public identities.

6.3.26 User-Data-Already-Available AVP

The User-Data-Already-Available AVP ~~(AVP code 26)~~ is of type Enumerated, and indicates to the HSS whether or not the S-CSCF already has the part of the user profile that it needs to serve the user. The following values are defined:

USER_DATA_NOT_AVAILABLE (0)

The S-CSCF does not have the data that it needs to serve the user.

USER_DATA_ALREADY_AVAILABLE (1)

The S-CSCF already has the data that it needs to serve the user.

6.3.27 Confidentiality-Key AVP

The Confidentiality-Key AVP ~~(AVP code 27)~~ is of type OctetString, and contains the Confidentiality Key (CK).

6.3.28 Integrity-Key AVP

The Integrity-Key AVP ~~(AVP code 28)~~ is of type OctetString, and contains the Integrity Key (IK).

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 AVP values ~~1-28~~ 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 has assigned Experimental-Result-Code AVP values 2001-2005 and 5001-5010. See section 6.2.

6.4.3 Command Code values

This specification assigns the values 300-305 from the range allocated by IANA to 3GPP in IETF RFC 3589 [12].

6.4.4 Application-ID value

IANA has allocated the value 167772151 for the 3GPP Cx interface application.