3GPP TSG CN Plenary Meeting #20 **NP-030215**
4th – 6th June 2003 Hämeenlinna, FINLAND.

Source: TSG CN WG4

Title: Corrections on IMS Cx/Dx interface

Agenda item: 8.1

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.228	043		N4-030455	Rel-5	Correct use of the Result-Code AVP		
29.229	019		N4-030470	Rel-5	Conditionality of User-Name AVP in Server-Assignment-Answer	F	5.3.0
29.228	047		N4-030473	Rel-5	Clarification on the Server-Assignment-Type NO_ASSIGNMENT	F	5.3.0
29.228	049	1	N4-030604	Rel-5	Misalignment in the Public-User-Identity IE	F	5.3.0
29.228	050	1	N4-030605	Rel-5	Duplicated Destination-Host AVP within MAR command code	F	5.3.0
29.228	044	1	N4-030624	Rel-5	Conditionality of User-Name AVP in Server-Assignment-Answer	F	5.3.0
29.228	046	1	N4-030626	Rel-5	Deregistration of implicitly registered public user identities	F	5.3.0
29.228	048	1	N4-030635	Rel-5	Incorrect use of result-code	F	5.3.0
29.228	045	1	N4-030711	Rel-5	Corrections to the base 64 encoding examples	F	5.3.0

3GPP TSG CN WG4 Meeting #19 **N4-030455**
San Diego, CALIFORNIA, 19th – 23th May 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **043** ⌘**rev** **-** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Correct use of the Result-Code AVP
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	30/04/2003
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:

2	*(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)*

Reason for change:	⌘	Result-Code AVP must be used for errors defined in the Diameter Base Protocol. Currently the spec includes Experimental-Result-Code for these errors in some places.
Summary of change:	⌘	Replace Experimental-Result-Code AVP by Result-Code for errors defined in the Diameter Base Protocol.
Consequences if not approved:	⌘	Misalignment with the Diameter Base Protocol.

Clauses affected:	⌘	6.1.1.1

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		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.

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.

Beginning of modified section

6.1.1.1 Detailed behaviour

The HSS shall, in the following order (if there is an error in any of the following steps the HSS shall stop processing and return the corresponding error code, see 3GPP TS 29.229 [5]):

1. Check that the user exists in the HSS. If not Experimental-Result-Code shall be set to DIAMETER_ERROR_USER_UNKNOWN.

2. Check that the private and public identities received in the request belong to the same user. If not Experimental-Result-Code shall be set to DIAMETER_ERROR _IDENTITIES_DONT_MATCH.

3. Check whether the public identity received in the request is barred for the establishment of multimedia sessions.

   - If it is, the HSS shall check whether there are other non-barred public identities to be implicitly registered with that one.

     - If so, continue to step 4.

     - If not, Result-Code shall be set to DIAMETER_AUTHORIZATION_REJECTED.

4. Check the User-Authorization-Type received in the request:

   - If it is REGISTRATION or if User-Authorization-Type is absent from the request, the HSS shall check that the user is allowed to roam in the visited network (if not Experimental-Result-Code shall be set to DIAMETER_ERROR _ROAMING_NOT_ALLOWED) and authorized to register (if not Result-Code shall be set to DIAMETER_AUTHORIZATION_REJECTED). Continue to step 5.

   - If it is DE_REGISTRATION, the HSS may not perform any check regarding roaming. Continue to step 5.

   - If it is REGISTRATION_AND_CAPABILITIES, the HSS shall check that the user is allowed to roam in the visited network (if not Experimental-Result-Code shall be set to DIAMETER_ERROR _ROAMING_NOT_ALLOWED) and authorized to register (if not Result-Code shall be set to DIAMETER_AUTHORIZATION_REJECTED). The HSS shall return the list of S-CSCF capabilities, which enables the I-CSCF to select an S-CSCF. The returned capabilities must satisfy the most restrictive service profile of the user. The list of capabilities may be empty, to indicate to the I-CSCF that it can select any available S-CSCF. Result-Code shall be set to DIAMETER_SUCCESS. The HSS shall not return any S-CSCF name. Stop processing.

5. Check the state of the public identity received in the request:

   - If it is registered, the HSS shall return the stored S-CSCF name. No S-CSCF capabilities shall be present in the response. If User-Authorization-Type is equal to REGISTRATION, Experimental-Result-Code shall be set to DIAMETER_SUBSEQUENT_REGISTRATION. If User-Authorization-Type is equal to DE-REGISTRATION, ~~Experimental~~ Result-Code shall be set to DIAMETER_SUCCESS.

   - If it is unregistered (i.e registered as a consequence of a terminating call or there is a S-CSCF keeping the user profile stored) and User-Authorization-Type is equal to DE-REGISTRATION, ~~Experimental~~ Result-Code shall be set to DIAMETER_SUCCESS. If the User-Authorization-Type is equal to REGISTRATION, then:

     - If the selection of a new S-CSCF is not necessary, the HSS shall return the stored S-CSCF name and the Experimental-Result-Code set to DIAMETER_SUBSEQUENT_REGISTRATION. The HSS shall not return any S-CSCF capabilities.

     - Otherwise, the HSS shall return the name of the S-CSCF assigned to the unregistered user, the S-CSCF capabilities and the Experimental-Result-Code set to DIAMETER_SERVER_SELECTION. Considering the information received from the HSS, the I-CSCF shall determine whether or not it has to select a new S-CSCF.

   - If it is not registered yet, the HSS shall check the value of User-Authorization-Type received in the request:

     - If the value of User-Authorization-Type is DE_REGISTRATION, then the HSS shall not return any S-CSCF name or S-CSCF capabilities. The HSS shall set the Experimental-Result-Code to DIAMETER_ERROR_IDENTITY_NOT_REGISTERED in the response.

- If the value of User-Authorization-Type is REGISTRATION, then the HSS shall check if there is at least one identity of the user with an S-CSCF name assigned.
  - If there is at least one identity of the user that is registered the HSS shall return the S-CSCF name assigned for the user and Experimental-Result-Code set to DIAMETER_SUBSEQUENT_REGISTRATION. The HSS shall not return any S-CSCF capabilities.
  - If there is at least one identity of the user that is unregistered (i.e registered as a consequence of a terminating call or there is an S-CSCF keeping the user profile stored), then:
    - If the selection of a new S-CSCF is not necessary, the HSS shall return the stored S-CSCF name and the Experimental-Result-Code set to DIAMETER_SUBSEQUENT_REGISTRATION. The HSS shall not return any S-CSCF capabilities.
    - Otherwise, the HSS shall return the name of the S-CSCF assigned to the unregistered user, the S-CSCF capabilities and the Experimental-Result-Code set to DIAMETER_SERVER_SELECTION. Considering the information received from the HSS, the I-CSCF shall determine whether or not it has to select a new S-CSCF.
  - If there is not any identity of the user with an S-CSCF name assigned, then the HSS shall return the list of S-CSCF capabilities, which enables the I-CSCF to select an S-CSCF. The returned capabilities shall satisfy the most restrictive service profile of the user. The list of S-CSCF capabilities may be empty, to indicate to the I-CSCF that it may select any available S-CSCF. Experimental-Result-Code shall be set to DIAMETER_FIRST_REGISTRATION. The HSS shall not return any S-CSCF name.

If the HSS cannot fulfil received request, e.g. due to database error, it shall set Result-Code to DIAMETER_UNABLE_TO_COMPLY. No S-CSCF name or S-CSCF capabilities shall be present in the response.

End of modified section

3GPP TSG CN WG4 Meeting #19
San Diego, CA, USA, 19th – 23rd May 2003

Tdoc N4-0300624

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CHANGE REQUEST

⌘ **29.228** **CR** **044** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Conditionality of User-Name AVP in Server-Assignment-Answer
Source:	⌘	NCN4
Work item code:	⌘	IMS-CCR
Date:	⌘	20/05/2003
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:

2	*(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)*

Reason for change:	⌘	The User-Name AVP, which contains the private identity of the user, is currently mandatory in the Server-Assignment-Answer (SAA) command. Because the User-Name AVP is not mandatory in the Server-Assignment-Request (SAR) command when the Server-Assingment-Type is UNREGISTERED_USER, it is possible that the HSS cannot determine the value of User-Name if the public identity included in the request is not known by HSS. In this case the User-Name AVP may be left out from the SAA.
Summary of change:	⌘	It is proposed to change the User-Name AVP conditional in SAA command.
Consequences if not approved:	⌘	There will occur SAA messages which do not have the correct format.

Clauses affected:	⌘	6.1.2

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	CR 29.229 - 019
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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6.1.2 S-CSCF registration/deregistration notification

This procedure is used between the S-CSCF and the HSS. The procedure is invoked by the S-CSCF, corresponds to the combination of the operations Cx-Put and Cx-Pull (see 3GPP TS 23.228 [1]) and is used:

- To assign an S-CSCF to a public identity, or to clear the name of the S-CSCF assigned to one or more public identities.
- To download from HSS the relevant user profile information that the S-CSCF needs to serve the user.

This procedure is mapped to the commands Server-Assignment-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.2.1 and 6.1.2.2 describe the involved information elements.

Table 6.1.2.1: S-CSCF registration/deregistration notification request

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.2)	Public-Identity	C	User public identity or list of user public identities. At least one public identity shall be present if User-Name is not present in the request.
S-CSCF Name (See 7.4)	Server-Name	M	Name of the S-CSCF.
Private User Identity (See 7.3)	User-Name	C	User private identity. It shall be present if it is available when the S-CSCF issues the request. It may be absent during the initiation of a session to an unregistered user. In such situation, Server-Assignment-Type shall contain the value UNREGISTERED_USER. In case of de-registration, Server-Assignment-Type equal to TIMEOUT_DEREGISTRATION, USER_DEREGISTRATION or ADMINISTRATIVE_DEREGISTRATION, if no Public-Identity AVPs are present then User-Name AVP shall be present. This indicates that all public identities shall be de-registered.
Server Assignment Type (See 7.8)	Server-Assignment-Type	M	Type of update the S-CSCF requests in the HSS (e.g: de-registration). See 3GPP TS 29.229 [5] for all the possible values.
User Data Request Type (See 7.15)	User-Data-Request-Type	M	Part of the user profile the S-CSCF requests from the HSS (e.g: complete profile). See 3GPP TS 29.229 [5] for all the possible values.
User Data Already Available (See 7.16)	User-Data-Already-Available	M	This indicates if the user profile is already available in the S-CSCF.

Routing Information (See 7.13)	Destination-Host	C	If the S-CSCF knows HSS name Destination-Host AVP shall be present in the command. This information is available if the request belongs to an already existing registration, e.g. in case of the re-registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command. This information may not be available if the command is sent as a consequence of a session termination for an unregistered user. In this case the Destination-Host AVP is not present and the command is routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the S-CSCF.

Table 6.1.2.2: S-CSCF registration/deregistration notification response

Information element name	Mapping to Diameter AVP	Cat.	Description
Private User Identity (See 7.3)	User-Name	~~M~~C	User private identity. It shall be present if it is available when the HSS sends the response. It may be absent in the following error case: when the Server-Assignment-Type of the request is UNREGISTERED_USER and the received public user identity is not known by the HSS.
Registration result (See 7.6)	Result-Code / Experimental-Result	M	Result of registration. Result-Code AVP shall be used for errors defined in the Diameter Base Protocol. Experimental-Result AVP shall be used for Cx/Dx errors. This is a grouped AVP which contains the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP.
User Profile (See 7.7)	User-Data	C	Relevant user profile. It shall be present when Server-Assignment-Type in the request is equal to NO_ASSIGNMENT. If the Server-Assignment-Type in the request is equal to REGISTRATION, RE_REGISTRATION or UNREGISTERED_USER the User-Data AVP shall be present according to the rules defined in the section 6.6. If the S-CSCF receives more data than it is prepared to accept, it shall perform the de-registration of the user with User-Authorization-Type set to DEREGISTRATION_TOO_MUCH_DATA and send back a SIP 3xx or 480 (Temporarily Unavailable) response, which shall trigger the selection of a new S-CSCF by the I-CSCF, as specified in 3GPP TS 24.229 [8].
Charging Information (See 7.12)	Charging-Information	O	Addresses of the charging functions.

3GPP TSG CN WG4 Meeting #19
San Diego, CA, USA, 19th – 23rd May 2003

Tdoc N4-030711

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CHANGE REQUEST

⌘ **29.228** **CR** **045** ⌘ **rev** **2** ⌘ Current version: **5.3.0** ⌘

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

Title:	⌘	Corrections to the base 64 encoding examples
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	23/05/2003
Category:	⌘	**F**
Release:	⌘	Rel-5

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F *(correction)*
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C *(functional modification of feature)*
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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The authentication information is currently defined as Base64 encoded. Some of these parameters are defined as Base64 also in CN1 and referenced RFCs, some of them are defined as hexadecimal and for some of them no clear quidance is given (although some examples in RFC 3310 point to Base64 encoding).
Summary of change:	⌘	Authentication parameters are carried as binary data in the Cx interface. This will give a uniform encoding in Cx interface.
Consequences if not approved:	⌘	Multiple encoding schemes applied on Cx parameters.

Clauses affected:	⌘	6.3

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

Other comments: ⌘

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6.3 Authentication procedures

This procedure is used between the S-CSCF and the HSS to exchange information to support the authentication between the end user and the home IMS network. The procedure is invoked by the S-CSCF, corresponds to the combination of the operations Cx-AV-Req and Cx-Put (see 3GPP TS 33.203 [3]) and is used:

- To retrieve authentication vectors from the HSS.

    - To resolve synchronization failures between the sequence numbers in the UE and the HSS.

This procedure is mapped to the commands Multimedia-Auth-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.3.1 – 6.3.5 detail the involved information elements.

Table 6.3.1: Authentication request

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.2)	Public-Identity	M	This information element contains the public identity of the user
Private User Identity (See 7.3)	User-Name	M	This information element contains the user private identity
Number Authentication Items (See 7.10)	SIP-Number-Auth-Items	M	This information element indicates the number of authentication vectors requested
Authentication Data (See 7.9)	SIP-Auth-Data-Item	M	See Tables 6.3.2 and 6.3.3 for the contents of this information element. The content shown in table 6.3.2 shall be used for a normal authentication request; the content shown in table 6.3.3 shall be used for an authentication request after synchronization failure.
S-CSCF Name (See 7.4)	Server-Name	M	This information element contains the name (SIP URL) of the S-CSCF.
Routing Information (See 7.13)	Destination-Host	C	If the S-CSCF knows the HSS name this AVP shall be present. This information is available if the MAR belongs to an already existing registration, e.g. in case of the re-registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command. This information may not be available if the command is sent in case of the initial registration. In this case the Destination-Host AVP is not present and the command is routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the client.

Table 6.3.2: Authentication Data content – request

Information element name	Mapping to Diameter AVP	Cat.	Description
Authentication Scheme (See 7.9.2)	SIP-Authentication-Scheme	M	This information element indicates the authentication scheme. For 3GPP R5 it shall contain “Digest-AKAv1-MD5”.

Table 6.3.3: Authentication Data content – request, synchronization failure

Information element name	Mapping to Diameter AVP	Cat.	Description
Authentication Scheme (See 7.9.2)	SIP-Authentication-Scheme	M	Authentication scheme. For 3GPP R5 it shall contain "Digest-AKAv1-MD5".
Authorization Information (See 7.9.4)	SIP-Authorization	M	It shall contain the concatenation of nonce and auts binary encoded. ~~AUTS, base 64 encoded. S-CSCF shall include the nonce sent to the terminal and the auts directive received from the terminal. See 3GPP TS 33.203 [3] for further details about RAND and AUTS. See [7] for further details about bBased 64 encoding.~~ ~~One example of content is:~~ ~~MTIzNDU2Nzg5MDEyMzQ1Njc4OTAxMjM0NTY3ODkwMTI=MTIzNDU2Nzg5MDEyMzQ= 'nonce="dcd98b7102dd2f0e8b11d0f600bfb0c06629fae49393a05397450978507c4ef1 ",~~ ~~auts="5ccc069c403ebaf9f0171e9517f40e41"'~~ ~~where nonce "MTIzNDU2Nzg5MDEyMzQ1Njc4OTAxMjM0NTY3ODkwMTI=dcd98b7102dd2f0e8b11d0f600bfb0c093" contains base Base64 encoded, concatenation of RAND (dcd98b7102dd2f0e8b11d0f600bfb0c0) and AUTN (123456789012345678901234567890l2, in ASCII characters) (6629fae49393a05397450978507c4ef1) and auts "MTIzNDU2Nzg5MDEyMzQ=5ccc069c403ebaf9f0171e9517f40e41" contains, base Base64 encoded, AUTS (12345678901234, in ASCII characters).~~
Routing Information (See 7.13)	Destination-Host	M	In this case the MAR belongs to an already existing registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command.

Table 6.3.4: Authentication answer

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.2)	Public-Identity	M	User public identity
Private User Identity (See 7.3)	User-Name	M	User private identity
Number Authentication Items (See 7.10)	SIP-Number-Auth-Items	M	Number of authentication vectors delivered in the Authentication Data information element
Authentication Data (See 7.9)	SIP-Auth-Data-Item	C	If the SIP-Number-Auth-Items AVP is equal to zero then this AVP shall not be present. See Table 6.3.5 for the contents of this information element.

Result (See 7.6)	Result-Code / Experimental-Result	M	Result of the operation. Result-Code AVP shall be used for errors defined in the Diameter Base Protocol. Experimental-Result AVP shall be used for Cx/Dx errors. This is a grouped AVP which contains the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP.

Table 6.3.5: Authentication Data content – response

Information element name	Mapping to Diameter AVP	Cat.	Description
Item Number (See 7.9.1)	SIP-Item-Number	C	This information element shall be present 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.
Authentication Scheme (See 7.9.2)	SIP-Authentication-Scheme	M	Authentication scheme. For 3GPP R5 it shall contain "Digest-AKAv1-MD5".
Authentication Information (See 7.9.3)	SIP-Authenticate	M	It shall contain, ~~Base 64~~ binary encoded, the concatenation of the authentication challenge RAND and the token AUTN. See 3GPP TS 33.203 [3] for further details about RAND and AUTN. ~~One example of the format of the SIP-Authenticate AVP is:~~ ~~MTIzNDU2Nzg5MDEyMzQ1Njc4OTAxMjM0NTY3ODkwMTI=~~ ~~(The "MTIzNDU2Nzg5MDEyMzQ1Njc4OTAxMjM0NTY3ODkwMTI=" is a result of the Base64 encoding of ASCII string 12345678901234567890123456789012.)~~ ~~'nonce="dcd98b7102dd2f0e8b11d0f600bfb0c06629fae49393a05397450978507c4ef1 "'~~ ~~where the nonce " dcd98b7102dd2f0e8b11d0f600bfb0c06629fae49393a05397450978507c4ef1 " contains, base 64 encoded, RAND (dcd98b7102dd2f0e8b11d0f600bfb0c0) and AUTN (6629fae49393a05397450978507c4ef1).~~
Authorization Information (See 7.9.4)	SIP-Authorization	M	It shall contain, ~~b~~Base 64 binary encoded, the expected response XRES. See 3GPP TS 33.203 [3] for further details about XRES. ~~One example of the format of the SIP-Authorization AVP is:~~ ~~MTIzNDU2Nzg5MDEyMzQ1Ng== 'response="6629fae49393a05397450978507c4ef1"'~~ ~~where response="MTIzNDU2Nzg5MDEyMzQ1Ng==6629fae49393a05397450978507c4ef1" which contains, base64 encoded, XRES (123456789012345, in ASCII characters).~~
Confidentiality Key (See 7.9.5)	Confidentiality-Key	O	- This information element, if present, shall contain the confidentiality key. It shall be ~~base 64 encoded~~ binary encoded.

Integrity Key (See 7.9.6)	Integrity-Key	M	- This information element shall contain the integrity key. It shall be ~~base 64 encoded~~ binary encoded.

3GPP TSG CN WG4 Meeting #19
San Diego, CA, USA, 19th – 23rd May 2003

Tdoc N4-030626

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **046** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Deregistration of implicitly registered public user identities
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	21/05/2003
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:
2 (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)

Reason for change:	⌘	In the current version of 29.228 it is required to send all corresponding implicitly registered public user identities in the deregistration request from S-CSCF to HSS, but because the deregistration of a single public user implies the deregistration of all corresponding implicitly registered public identities, it is enough to send only single public user identity in the deregistration request.
Summary of change:	⌘	It is proposed that the deregistration request shall contain only single public user identity to deregister all the corresponding implicitly registered public user identities.
Consequences if not approved:	⌘	Inefficient usage of Cx.

Clauses affected:	⌘	6.1.2, 6.5.1.2, 6.5.2.2

Other specs affected: ⌘	Y	N	
		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.

6.1.2 S-CSCF registration/deregistration notification

This procedure is used between the S-CSCF and the HSS. The procedure is invoked by the S-CSCF, corresponds to the combination of the operations Cx-Put and Cx-Pull (see 3GPP TS 23.228 [1]) and is used:

- To assign an S-CSCF to a public identity, or to clear the name of the S-CSCF assigned to one or more public identities.
- To download from HSS the relevant user profile information that the S-CSCF needs to serve the user.

This procedure is mapped to the commands Server-Assignment-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.2.1 and 6.1.2.2 describe the involved information elements.

Table 6.1.2.1: S-CSCF registration/deregistration notification request

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.2)	Public-Identity	C	User public identity or list of user public identities. At least one public identity shall be present if User-Name is not present in the request.
S-CSCF Name (See 7.4)	Server-Name	M	Name of the S-CSCF.
Private User Identity (See 7.3)	User-Name	C	User private identity. It shall be present if it is available when the S-CSCF issues the request. It may be absent during the initiation of a session to an unregistered user. In such situation, Server-Assignment-Type shall contain the value UNREGISTERED_USER. In case of de-registration, Server-Assignment-Type equal to TIMEOUT_DEREGISTRATION, USER_DEREGISTRATION or ADMINISTRATIVE_DEREGISTRATION, if no Public-Identity AVPs are present then User-Name AVP shall be present. ~~This indicates that all public identities shall be de-registered.~~
Server Assignment Type (See 7.8)	Server-Assignment-Type	M	Type of update the S-CSCF requests in the HSS (e.g: de-registration). See 3GPP TS 29.229 [5] for all the possible values.
User Data Request Type (See 7.15)	User-Data-Request-Type	M	Part of the user profile the S-CSCF requests from the HSS (e.g: complete profile). See 3GPP TS 29.229 [5] for all the possible values.
User Data Already Available (See 7.16)	User-Data-Already-Available	M	This indicates if the user profile is already available in the S-CSCF.

Routing Information (See 7.13)	Destination-Host	C	If the S-CSCF knows HSS name Destination-Host AVP shall be present in the command. This information is available if the request belongs to an already existing registration, e.g. in case of the re-registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command. This information may not be available if the command is sent as a consequence of a session termination for an unregistered user. In this case the Destination-Host AVP is not present and the command is routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the S-CSCF.

Table 6.1.2.2: S-CSCF registration/deregistration notification response

Information element name	Mapping to Diameter AVP	Cat.	Description
Private User Identity (See 7.3)	User-Name	M	User private identity.
Registration result (See 7.6)	Result-Code / Experimental-Result	M	Result of registration. Result-Code AVP shall be used for errors defined in the Diameter Base Protocol. Experimental-Result AVP shall be used for Cx/Dx errors. This is a grouped AVP which contains the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP.
User Profile (See 7.7)	User-Data	C	Relevant user profile. It shall be present when Server-Assignment-Type in the request is equal to NO_ASSIGNMENT. If the Server-Assignment-Type in the request is equal to REGISTRATION, RE_REGISTRATION or UNREGISTERED_USER the User-Data AVP shall be present according to the rules defined in the section 6.6. If the S-CSCF receives more data than it is prepared to accept, it shall perform the de-registration of the user with User-Authorization-Type set to DEREGISTRATION_TOO_MUCH_DATA and send back a SIP 3xx or 480 (Temporarily Unavailable) response, which shall trigger the selection of a new S-CSCF by the I-CSCF, as specified in 3GPP TS 24.229 [8].
Charging Information (See 7.12)	Charging-Information	O	Addresses of the charging functions.

*** The next modified section ***

6.5.1.2 De-registration

The de-registration of a public identity implies the de-registration of all the corresponding implicitly registered public identities, both in the HSS and in the S-CSCF. The S-CSCF shall include in the request single public identity for deregistering all the corresponding implicitly registered public identities in the implicitly registered public user ID set.

The de-registration of a private identity implies the de-registration of all the corresponding public identities, both in the HSS and in the S-CSCF.

*** The next modified section ***

6.5.2.2 De-registration

A request sent by the HSS to de-register a public identity shall include all the corresponding implicitly registered public identities.

The de-registration of a private identity implies the de-registration of all the corresponding public identities, both in the HSS and in the S-CSCF.

3GPP TSG CN WG4 Meeting #19
San Diego, CA, USA, 19th – 23rd May 2003

Tdoc N4-030473

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **047** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Clarification on the Server-Assignment-Type NO_ASSIGNMENT
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	07/05/2003
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:

2	*(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)*

Reason for change:	⌘	Current specification does not define how many public user identities the NO_ASSIGNMENT type of SAR shall contain. In order to align the behaviour of the HSS with other SAR cases, only single public identity shall be present in the request with Server-Assignment-Type NO_ASSIGNMENT and if there are corresponding implicitly registered public identities in the HSS, they are returned in the response (SAA).
Summary of change:	⌘	It is proposed to allow only single public identity in the NO_ASSIGNMENT type of SAR and the respective SAA shall contain the corresponding implicitly registered public identities with the associated service profiles.
Consequences if not approved:	⌘	Interoperability problems.

Clauses affected:	⌘	6.1.2.1, 6.5.1.4

	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:
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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.

6.1.2.1 Detailed behaviour

On registering/deregistering a public identity the S-CSCF shall inform the HSS. The same procedure is used by the S-CSCF to get the user profile. The relevant user profile downloaded is described in more detailed in the section 6.6. The HSS holds information about the state of registration of all the identities of the user. The S-CSCF uses this procedure to update such state. The HSS shall, in the following order (in case of an error in any of the steps the HSS shall stop processing and return the corresponding error code, see 3GPP TS 29.229 [5]):

1. Check that the user is known. If not Experimental-Result-Code shall be set to DIAMETER_ERROR_USER_UNKNOWN.

2. The HSS may check whether the private and public identities received in the request belong to the same user. If not Experimental-Result-Code shall be set to DIAMETER_ERROR_IDENTITIES_DONT_MATCH.

3. Check the Server Assignment Type value received in the request:

   - If it indicates REGISTRATION or RE_REGISTRATION, the HSS shall download the relevant user public identity information. If set, the flag that indicates that the identity is pending of the confirmation of the authentication shall be cleared. The Result-Code shall be set to DIAMETER_SUCCESS.

     Only one identity shall be present in the request. If more than one identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and no user information shall be returned.

   - If it indicates UNREGISTERED_USER, the HSS shall store the S-CSCF name, set the registration state of the public identity as unregistered, i.e. registered as a consequence of a terminating call and download the relevant user public identity information. The Result-Code shall be set to DIAMETER_SUCCESS.

     Only one identity shall be present in the request. If more than one identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and the modifications specified in the previous paragraph shall not be performed.

   - If it indicates TIMEOUT_DEREGISTRATION, USER_DEREGISTRATION, DEREGISTRATION_TOO_MUCH_DATA or ADMINISTRATIVE_DEREGISTRATION, the HSS shall clear the S-CSCF name for all the public identities that the S-CSCF indicated in the request and set the registration state of the identities as not registered. If no public identity is present in the request, the private identity shall be present; the HSS shall clear the S-CSCF name for all the identities of the user and set their registration state to not registered. The Result-Code shall be set to DIAMETER_SUCCESS.

   - If it indicates TIMEOUT_DEREGISTRATION_STORE_SERVER_NAME or USER_DEREGISTRATION_STORE_SERVER_NAME the HSS decides whether to keep the S-CSCF name stored or not for all the public identities that the S-CSCF indicated in the request and set the registration state of the identities as unregistered. If no public identity is present in the request, the private identity shall be present. If the HSS decided to keep the S-CSCF name stored the HSS keeps the S-CSCF name stored for all the identities of the user and set their registration state to unregistered.

     If the HSS decides to keep the S-CSCF name the Result-Code shall be set to DIAMETER_SUCCESS.

     If the HSS decides not to keep the S-CSCF name the Result-Code shall be set to DIAMETER_SUCCESS_SERVER_NAME_NOT_STORED.

   - If it indicates NO_ASSIGNMENT, the HSS checks whether the user is assigned for the S-CSCF requesting the data and download the user public identity information requested in the User-Data-Request-Type AVP. The Result-Code shall be set to DIAMETER_SUCCESS. If the requesting S-CSCF is not the same as the assigned S-CSCF, the Result-Code shall be set to DIAMETER_UNABLE_TO COMPLY.

     Only one public identity shall be present in the request. If more than one public identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and no user information shall be returned.

   - If it indicates AUTHENTICATION_FAILURE or AUTHENTICATION_TIMEOUT, the HSS shall clear the S-CSCF name for the public identity that the S-CSCF indicated in the request and set the registration state of the identity as not registered. The flag that indicates that the identity is pending of the confirmation of the authentication shall be cleared. The Result-Code shall be set to DIAMETER_SUCCESS.

Only one identity shall be present in the request. If more than one identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and the modifications specified in the previous paragraph shall not be performed.

See chapter 8.1.2 for the description of the handling of the error situations: reception of an S-CSCF name different from the one stored in the HSS and reception of a Server-Assignment-Type value not compatible with the registration state of the user.

********** Next change **********

6.5.1 S-CSCF initiated procedures

The result of the S-CSCF initiated procedures affects all the public identities that are configured in the HSS to be registered implicitly.

6.5.1.1 Registration

The notification of a registration of a public identity affects all the public identities that are configured in the HSS to be registered implicitly. The profile information downloaded in the response contains the list of implicitly registered public identities. This allows the S-CSCF to know the implicitly registered public identities. The S-CSCF shall take from the list of implicitly registered public user identities the first identity which has the syntax of a SIP URI and which is not barred, and use this as the default public user identity.

6.5.1.2 De-registration

The de-registration of a public identity implies the de-registration of all the corresponding implicitly registered public identities, both in the HSS and in the S-CSCF. The S-CSCF shall include in the request all the corresponding implicitly registered public identities.

6.5.1.3 Authentication

Setting the flag for a public identity that indicates a pending authentication implies setting the "authentication pending" flag for each corresponding implicitly registered public identity in the HSS.

6.5.1.4 Downloading the user profile

If the S-CSCF requests to download a user profile from HSS, the user profile information in the response shall contain the list of corresponding implicitly registered public identities with the associated service profiles.

3GPP TSG CN WG4 Meeting #19 ***N4-030635***
San Diego, USA, 19th – 23rd May 2003 **(Revision of *N4-030583*)**

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** 048 ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Incorrect use of result-code
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	14/05/2003
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:

2	*(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)*

Reason for change:	⌘	Result-Code AVP is not used correctly.
Summary of change:	⌘	The Result-Code AVP is replaced with Experimental-Result-Code AVP when a result-code defined in 3GPP TS 29.229 is used.
Consequences if not approved:	⌘	The Result-Code AVP will be incorrectly encoded.

Clauses affected:	⌘	6.1.2.1, 8.1.2

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		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.

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 modified section ******

6.1.2.1 Detailed behaviour

On registering/deregistering a public identity the S-CSCF shall inform the HSS. The same procedure is used by the S-CSCF to get the user profile. The relevant user profile downloaded is described in more detailed in the section 6.6. The HSS holds information about the state of registration of all the identities of the user. The S-CSCF uses this procedure to update such state. The HSS shall, in the following order (in case of an error in any of the steps the HSS shall stop processing and return the corresponding error code, see 3GPP TS 29.229 [5]):

1. Check that the user is known. If not Experimental-Result-Code shall be set to DIAMETER_ERROR_USER_UNKNOWN.

2. The HSS may check whether the private and public identities received in the request belong to the same user. If not Experimental-Result-Code shall be set to DIAMETER_ERROR_IDENTITIES_DONT_MATCH.

3. Check the Server Assignment Type value received in the request:

   - If it indicates REGISTRATION or RE_REGISTRATION, the HSS shall download the relevant user public identity information. If set, the flag that indicates that the identity is pending of the confirmation of the authentication shall be cleared. The Result-Code shall be set to DIAMETER_SUCCESS.

     Only one identity shall be present in the request. If more than one identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and no user information shall be returned.

   - If it indicates UNREGISTERED_USER, the HSS shall store the S-CSCF name, set the registration state of the public identity as unregistered, i.e. registered as a consequence of a terminating call and download the relevant user public identity information. The Result-Code shall be set to DIAMETER_SUCCESS.

     Only one identity shall be present in the request. If more than one identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and the modifications specified in the previous paragraph shall not be performed.

   - If it indicates TIMEOUT_DEREGISTRATION, USER_DEREGISTRATION, DEREGISTRATION_TOO_MUCH_DATA or ADMINISTRATIVE_DEREGISTRATION, the HSS shall clear the S-CSCF name for all the public identities that the S-CSCF indicated in the request and set the registration state of the identities as not registered. If no public identity is present in the request, the private identity shall be present; the HSS shall clear the S-CSCF name for all the identities of the user and set their registration state to not registered. The Result-Code shall be set to DIAMETER_SUCCESS.

   - If it indicates TIMEOUT_DEREGISTRATION_STORE_SERVER_NAME or USER_DEREGISTRATION_STORE_SERVER_NAME the HSS decides whether to keep the S-CSCF name stored or not for all the public identities that the S-CSCF indicated in the request and set the registration state of the identities as unregistered. If no public identity is present in the request, the private identity shall be present. If the HSS decided to keep the S-CSCF name stored the HSS keeps the S-CSCF name stored for all the identities of the user and set their registration state to unregistered.

     If the HSS decides to keep the S-CSCF name the Result-Code shall be set to DIAMETER_SUCCESS.

     If the HSS decides not to keep the S-CSCF name the Experimental-Result-Code shall be set to DIAMETER_SUCCESS_SERVER_NAME_NOT_STORED.

   - If it indicates NO_ASSIGNMENT, the HSS checks whether the user is assigned for the S-CSCF requesting the data and download the user public identity information requested in the User-Data-Request-Type AVP. The Result-Code shall be set to DIAMETER_SUCCESS. If the requesting S-CSCF is not the same as the assigned S-CSCF, the Result-Code shall be set to DIAMETER_UNABLE_TO COMPLY.

   - If it indicates AUTHENTICATION_FAILURE or AUTHENTICATION_TIMEOUT, the HSS shall clear the S-CSCF name for the public identity that the S-CSCF indicated in the request and set the registration state of the identity as not registered. The flag that indicates that the identity is pending of the confirmation of the authentication shall be cleared. The Result-Code shall be set to DIAMETER_SUCCESS.

Only one identity shall be present in the request. If more than one identity is present the Result-Code shall be set to DIAMETER_AVP_OCCURS_TOO_MANY_TIMES and the modifications specified in the previous paragraph shall not be performed.

See chapter 8.1.2 for the description of the handling of the error situations: reception of an S-CSCF name different from the one stored in the HSS and reception of a Server-Assignment-Type value not compatible with the registration state of the user.

3GPP TSG CN WG4 Meeting #19 **N4-030604**
San Diego, CALIFORNIA, 19th – 23th May 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **049** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Misalignment in the Public-User-Identity IE
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	19/05/2003
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:

2	*(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)*

Reason for change:	⌘	Public-Identity AVP is referred in the Cx interface as Public User Identity IE commands and as Public Identity IE in another commands.
Summary of change:	⌘	Align all IEs to Public User Identity IE
Consequences if not approved:	⌘	Inconsistency in Public User Identity IE and Public-Identity AVP mapping.

Clauses affected:	⌘	Tables 6.1.1.1, 6.1.2.1, 6.1.3.1, 6.3.1			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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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.

Beginning of modified section

Table 6.1.1.1 : User registration status query

Information element name	Mapping to Diameter AVP	Cat.	Description
Public User Identity (See 7.2)	Public-Identity	M	User public identity to be registered
Visited Network Identifier (See 7.1)	Visited-Network-Identifier	M	Identifier that allows the home network to identify the visited network
Type of Authorization (See 7.14)	User-Authorization-Type	C	Type of authorization requested by the I-CSCF. If the request corresponds to a de-registration, i.e. Expires field in the REGISTER method is equal to zero, this AVP shall be present in the command and the value shall be set to DE-REGISTRATION. If the request corresponds to an initial registration or a re-registration, i.e. Expires field in the REGISTER method is not equal to zero then this AVP may be absent from the command. If present its value shall be set to REGISTRATION. If the request corresponds to an initial registration or a re-registration, and the I-CSCF explicitly queries the S-CSCF capabilities, then this AVP shall be present in the command and the value shall be set to REGISTRATION_AND_CAPABILITIES. 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.
Private User Identity (See 7.3)	User-Name	M	User private identity
Routing Information (See 7.13)	Destination-Host, Destination-Realm	C	If the I-CSCF knows HSS name Destination-Host AVP shall be present in the command. Otherwise, only Destination-Realm AVP shall be present and the command shall be routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the I-CSCF.

End of modified section

Beginning of modified section

Table 6.1.2.1: S-CSCF registration/deregistration notification request

Information element name	Mapping to Diameter AVP	Cat.	Description
Public User Identity (See 7.2)	Public-Identity	C	User public identity or list of user public identities. At least one public identity shall be present if User-Name is not present in the request.
S-CSCF Name (See 7.4)	Server-Name	M	Name of the S-CSCF.

Private User Identity (See 7.3)	User-Name	C	User private identity. It shall be present if it is available when the S-CSCF issues the request. It may be absent during the initiation of a session to an unregistered user. In such situation, Server-Assignment-Type shall contain the value UNREGISTERED_USER. In case of de-registration, Server-Assignment-Type equal to TIMEOUT_DEREGISTRATION, USER_DEREGISTRATION or ADMINISTRATIVE_DEREGISTRATION, if no Public-Identity AVPs are present then User-Name AVP shall be present. This indicates that all public identities shall be de-registered.
Server Assignment Type (See 7.8)	Server-Assignment-Type	M	Type of update the S-CSCF requests in the HSS (e.g: de-registration). See 3GPP TS 29.229 [5] for all the possible values.
User Data Request Type (See 7.15)	User-Data-Request-Type	M	Part of the user profile the S-CSCF requests from the HSS (e.g: complete profile). See 3GPP TS 29.229 [5] for all the possible values.
User Data Already Available (See 7.16)	User-Data-Already-Available	M	This indicates if the user profile is already available in the S-CSCF.
Routing Information (See 7.13)	Destination-Host	C	If the S-CSCF knows HSS name Destination-Host AVP shall be present in the command. This information is available if the request belongs to an already existing registration, e.g. in case of the re-registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command. This information may not be available if the command is sent as a consequence of a session termination for an unregistered user. In this case the Destination-Host AVP is not present and the command is routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the S-CSCF.

End of modified section

Beginning of modified section

Table 6.1.3.1 : Network Initiated Deregistration by HSS request

Information element name	Mapping to Diameter AVP	Cat.	Description
Public User Identity (See 7.2)	Public-Identity	O	It contains the list of public user identities that are de-registered, in the form of SIP URL or TEL URL.
Private User Identity (See 7.3)	User-Name	M	It contains the private user identity in the form of a NAI.

Reason for de-registration (See 7.11)	Deregistration -Reason	M	The HSS shall send to the S-CSCF a reason for the de-registration. The de-registration reason is composed of two parts: one textual message (if available) that is intended to be forwarded to the user that is de-registered, and one reason code (see 3GPP TS 29.229 [5]) that determines the behaviour of the S-CSCF.
Routing Information (See 7.13)	Destination-Host	M	It contains the name of the S-CSCF which originated the last update of the name of the multimedia server stored in the HSS for a given multimedia user. The address of the S-CSCF is the same as the Origin-Host AVP in the message sent from the S-CSCF.

End of modified section

Beginning of modified section

Table 6.3.1: Authentication request

Information element name	Mapping to Diameter AVP	Cat.	Description
Public User Identity (See 7.2)	Public-Identity	M	This information element contains the public identity of the user
Private User Identity (See 7.3)	User-Name	M	This information element contains the user private identity
Number Authentication Items (See 7.10)	SIP-Number-Auth-Items	M	This information element indicates the number of authentication vectors requested
Authentication Data (See 7.9)	SIP-Auth-Data-Item	M	See Tables 6.3.2 and 6.3.3 for the contents of this information element. The content shown in table 6.3.2 shall be used for a normal authentication request; the content shown in table 6.3.3 shall be used for an authentication request after synchronization failure.
S-CSCF Name (See 7.4)	Server-Name	M	This information element contains the name (SIP URL) of the S-CSCF.
Routing Information (See 7.13)	Destination-Host	C	If the S-CSCF knows the HSS name this AVP shall be present. This information is available if the MAR belongs to an already existing registration, e.g. in case of the re-registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command. This information may not be available if the command is sent in case of the initial registration. In this case the Destination-Host AVP is not present and the command is routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the client.

End of modified section

3GPP TSG CN WG4 Meeting #19 **N4-030605**
San Diego, CALIFORNIA, 19th – 23th May 2003

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **050** ⌘ **rev** **1** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Duplicated Destination-Host AVP within MAR command code
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	19/05/2003
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:
2 (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)

Reason for change:	⌘	MAR (Multimedia-Auth-Request) command code includes twice the Destination-Host AVP: one as Routing Information IE within the Authentication Data IE (SIP-Auth-Data-Item AVP) for request and synchronization failure.
Summary of change:	⌘	Remove routing information (Destination-Host AVP)
Consequences if not approved:	⌘	Duplicated information whitin the same command code.

Clauses affected:	⌘	table 6.3.2

Other specs affected: ⌘	Y	N		⌘
		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.

Beginning of modified section

6.3 Authentication procedures

This procedure is used between the S-CSCF and the HSS to exchange information to support the authentication between the end user and the home IMS network. The procedure is invoked by the S-CSCF, corresponds to the combination of the operations Cx-AV-Req and Cx-Put (see 3GPP TS 33.203 [3]) and is used:

- To retrieve authentication vectors from the HSS.

    - To resolve synchronization failures between the sequence numbers in the UE and the HSS.

This procedure is mapped to the commands Multimedia-Auth-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.3.1 – 6.3.5 detail the involved information elements.

Table 6.3.1: Authentication request

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.2)	Public-Identity	M	This information element contains the public identity of the user
Private User Identity (See 7.3)	User-Name	M	This information element contains the user private identity
Number Authentication Items (See 7.10)	SIP-Number-Auth-Items	M	This information element indicates the number of authentication vectors requested
Authentication Data (See 7.9)	SIP-Auth-Data-Item	M	See Tables 6.3.2 and 6.3.3 for the contents of this information element. The content shown in table 6.3.2 shall be used for a normal authentication request; the content shown in table 6.3.3 shall be used for an authentication request after synchronization failure.
S-CSCF Name (See 7.4)	Server-Name	M	This information element contains the name (SIP URL) of the S-CSCF.
Routing Information (See 7.13)	Destination-Host	C	If the S-CSCF knows the HSS name this AVP shall be present. This information is available if the MAR belongs to an already existing registration, e.g. in case of the re-registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command. This information may not be available if the command is sent in case of the initial registration. In this case the Destination-Host AVP is not present and the command is routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the client.

Table 6.3.2: Authentication Data content – request

Information element name	Mapping to Diameter AVP	Cat.	Description
Authentication Scheme (See 7.9.2)	SIP-Authentication-Scheme	M	This information element indicates the authentication scheme. For 3GPP R5 it shall contain “Digest-AKAv1-MD5”.

Table 6.3.3: Authentication Data content – request, synchronization failure

Information element name	Mapping to Diameter AVP	Cat.	Description
Authentication Scheme (See 7.9.2)	SIP-Authentication-Scheme	M	Authentication scheme. For 3GPP R5 it shall contain "Digest-AKAv1-MD5".
Authorization Information (See 7.9.4)	SIP-Authorization	M	It shall contain the concatenation of nonce and AUTS, base 64 encoded. S-CSCF shall include the nonce sent to the terminal and the auts directive received from the terminal. See 3GPP TS 33.203 [3] for further details about RAND and AUTS. See [7] for further details about based 64 encoding. One example of content is: 'nonce=" dcd98b7102dd2f0e8b11d0f600bfb0c06629fae49393a05397450978507c4ef1 ", auts="5ccc069c403ebaf9f0171e9517f40e41"' where nonce "dcd98b7102dd2f0e8b11d0f600bfb0c093" contains, base 64 encoded, RAND (dcd98b7102dd2f0e8b11d0f600bfb0c0) and AUTN (6629fae49393a05397450978507c4ef1) and auts "5ccc069c403ebaf9f0171e9517f40e41" contains, base 64 encoded, AUTS.
~~Routing Information (See 7.13)~~	~~Destination-Host~~	~~M~~	~~In this case the MAR belongs to an already existing registration, where the HSS name is stored in the S-CSCF. The HSS name is obtained from the Origin-Host AVP, which is received from the HSS, e.g. included in the MAA command.~~

End of modified section

3GPP TSG CN WG4 Meeting #19
San Diego, CA, USA, 19th – 23rd May 2003

Tdoc N4-030470

CR-Form-v7

CHANGE REQUEST

⌘ **29.229** **CR** **019** ⌘**rev** **-** ⌘ Current version: **5.3.0** ⌘

*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:	⌘	Conditionality of User-Name AVP in Server-Assignment-Answer
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	07/05/2003
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:

2	*(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)*

Reason for change:	⌘	The User-Name AVP, which contains the private identity of the user, is currently mandatory in the Server-Assignment-Answer (SAA) command. Because the User-Name AVP is not mandatory in the Server-Assignment-Request (SAR) command when the Server-Assingment-Type is UNREGISTERED_USER, it is possible that the HSS cannot determine the value of User-Name if the public identity included in the request is not known by HSS. In this case the User-Name AVP may be left out from the SAA.
Summary of change:	⌘	It is proposed to change the User-Name AVP conditional in SAA command.
Consequences if not approved:	⌘	There will occur SAA messages which do not have the correct format.

Clauses affected:	⌘	6.1.4

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		CR 29.228 - 044
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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6.1.4 Server-Assignment-Answer (SAA) Command

The Server-Assignment-Answer (SAA) command, indicated by the Command-Code field set to 301 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the Server-Assignment-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 [6]. If Result-Code or Experimental-Result does not inform about an error, the User-Data AVP shall contain the information that the S-CSCF needs to give service to the user.

Message Format

<Server-Assignment-Answer> ::= < Diameter Header: 301, TBD >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
~~{ User-Name }~~[User-Name]
[User-Data]
[Charging-Information]
*[AVP]
*[Proxy-Info]
*[Route-Record]