3GPP TSG CN Plenary Meeting #26 **NP-040523**
8th – 10th December 2004 Athens, Greece.

Source: TSG CN WG4

Title: Corrections on IMS Cx-interface

Agenda item: 8.1

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level N4-040	Phase	Subject	Cat	Ver_C
29.228	149		1341	Rel-5	Regular Expressions	F	5.9.0
29.228	150		1342	Rel-6	Regular Expressions	A	6.4.0
29.229	069		1343	Rel-5	Cx ABNF corrections	F	5.8.0
29.229	070		1344	Rel-6	Cx ABNF corrections	A	6.2.0
29.228	137	1	1561	Rel-5	HSS initiated deregistration with "not registered" registration state	F	5.9.0
29.228	138	1	1562	Rel-6	HSS initiated deregistration with "not registered" registration state	A	6.4.0
29.228	160	2	1565	Rel-5	Handling of Information Element marked as (M), (C) or (O)	F	5.9.0
29.228	159	2	1566	Rel-6	Handling of Information Element marked as (M), (C) or (O)	A	6.4.0
29.228	141	2	1647	Rel-5	HSS initiated deregistration using the network initiated de-registration procedure	F	5.9.0
29.228	142	2	1648	Rel-6	HSS initiated deregistration using the network initiated de-registration procedure	A	6.4.0

3GPP TSG-CN WG4 Meeting #25 ***N4-041341***

Seoul, KOREA. 15th to 19th November 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.228** **CR** **149** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*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:	⌘	Regular Expressions
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	05/11/2004
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:	⌘	Essential correction Basic Regular Expressions (BRE) are considered obsolete and useful mainly for backward compatibility in old programs. Extended Regular Expressions (ERE) should be used instead of BREs.
Summary of change:	⌘	EREs instead of BREs are used in SPTs.
Consequences if not approved:	⌘	Usage of BREs make creation of triggers more complex. For example, it is not possible to create a single SPT that matches both the compact and long form of SIP header with BRE.

Clauses affected:	⌘	Annex F			
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.

Annex F (normative): Definition of parameters for service point trigger matching

Table F.1 defines the parameters that are transported in the user profile XML.

Table F.1: Definition of parameters in the user profile XML

Tag	Description
SIPHeader	A SIP Header SPT shall be evaluated separately against each header instance within the SIP message. The SIP Header SPT matches if at least one header occurrence matches the SPT.
Header (of SIPHeader)	Header tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [12]. The regular expression shall be matched against the header-name of the SIP header. For definition of header and header-name, see IETF RFC 3261 [10]. Before matching the header-name to the pattern, all SWSs shall be removed from the header-name and all LWSs in the header-name shall be reduced to a single white space character (SP). For definition of SWS and LWS, see IETF RFC 3261 [10].
Content (of SIPHeader)	Content tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [12]. The regular expression shall be matched against the header-value of the SIP header. For definition of header and header-value, see IETF RFC 3261 [10]. If the SIP header contains several header-values in a comma-separated list, each of the header-value shall be matched against the pattern for the Content separately. Before matching the header-value to the pattern, all SWSs shall be removed from the header-value and all LWSs in the header-value shall be reduced to a single white space character (SP). For definition of SWS and LWS, see IETF RFC 3261 [10].
SessionDescription	A Session Description SPT shall be evaluated separately against each SDP field instance within the SIP message. The Session Description SPT matches if at least one field occurrence matches the SPT.
Line (of SessionDescription)	Line tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [12]. The regular expression shall be matched against the type of the field inside the session description. For definition of type, see chapter 6 in IETF RFC 2327 [11].
Content (of SessionDescription)	Content tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [12]. The regular expression shall be matched against the value of the field inside the session description. For definition of value, see chapter 6 in IETF RFC 2327 [11].

3GPP TSG-CN WG4 Meeting #25 ***N4-041342***

Seoul, KOREA. 15th to 19th November 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.228** **CR** **150** ⌘ **rev** **-** ⌘ Current version: **6.4.0** ⌘

*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:	⌘	Regular Expressions
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	05/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one of the following categories:
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Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Basic Regular Expressions (BRE) are considered obsolete and useful mainly for backward compatibility in old programs. Extended Regular Expressions (ERE) should be used instead of BREs.
Summary of change:	⌘	EREs instead of BREs are used in SPTs.
Consequences if not approved:	⌘	Usage of BREs make creation of triggers more complex. For example, it is not possible to create a single SPT that matches both the compact and long form of SIP header with BRE.

Clauses affected:	⌘	Annex F			
Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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Content (of SIPHeader)	Content tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [13]. The regular expression shall be matched against the header-value of the SIP header. For definition of header and header-value, see IETF RFC 3261 [11]. If the SIP header contains several header-values in a comma-separated list, each of the header-value shall be matched against the pattern for the Content separately. Before matching the header-value to the pattern, all SWSs shall be removed from the header-value and all LWSs in the header-value shall be reduced to a single white space character (SP). For definition of SWS and LWS, see IETF RFC 3261 [11].
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Line (of SessionDescription)	Line tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [13]. The regular expression shall be matched against the type of the field inside the session description. For definition of type, see chapter 6 in IETF RFC 2327 [12].
Content (of SessionDescription)	Content tag shall include a regular expression in a form of ~~Basic~~ Extended Regular Expressions (~~B~~ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [13]. The regular expression shall be matched against the value of the field inside the session description. For definition of value, see chapter 6 in IETF RFC 2327 [12].

3GPP TSG-CN WG4 Meeting #25 ***N4-041343***

Seoul, KOREA. 15th to 19th November 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.229** **CR** **069** ⌘ **rev** **-** ⌘ Current version: **5.8.0** ⌘

*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:	⌘	Cx ABNF corrections
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	05/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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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:	⌘	Essential correction Cx command-code ABNF definitions are incorrect. 'P' bits are missing in RTR and PPR commands and from all answer-messages. According to RFC 3588 application-id should be the last part of the header of the command. UAR contains erroneus application-id.
Summary of change:	⌘	Missing 'P' bits are added to the ABNF definitions. Application-Id is moved to the correct part of the header. Application-id used in UAR is corrected.
Consequences if not approved:	⌘	Interoperability problems. Problems with Diameter proxies and relays.

Clauses affected:	⌘	6.1

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

Other comments: ⌘

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6.1 Command-Code values

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

Every command is defined by means of the ABNF syntax IETF RFC 2234 [7], according to the rules in IETF RFC 3588 [6]. Whenever the definition and use of an AVP is not specified in this document, what is stated in IETF RFC 3588 [6] shall apply.

The command codes for the Cx/Dx interface application are taken from the range allocated by IANA in IETF RFC 3589 [12] as assigned in this specification. For these commands, the Application-ID field shall be set to 16777216 (application identifier of the Cx/Dx interface application, allocated by IANA).

The following Command Codes are defined in this specification:

Table 6.1.1: Command-Code values

Command-Name	Abbreviation	Code	Section
User-Authorization-Request	UAR	300	6.1.1
User-Authorization-Answer	UAA	300	6.1.2
Server-Assignment-Request	SAR	301	6.1.3
Server-Assignment-Answer	SAA	301	6.1.4
Location-Info-Request	LIR	302	6.1.5
Location-Info-Answer	LIA	302	6.1.6
Multimedia-Auth-Request	MAR	303	6.1.7
Multimedia-Auth-Answer	MAA	303	6.1.8
Registration-Termination-Request	RTR	304	6.1.9
Registration-Termination-Answer	RTA	304	6.1.10
Push-Profile-Request	PPR	305	6.1.11
Push-Profile-Answer	PPA	305	6.1.12

6.1.1 User-Authorization-Request (UAR) Command

The User-Authorization-Request (UAR) command, indicated by the Command-Code field set to 300 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request the authorization of the registration of a multimedia user.

Message Format

< User-Authorization-Request> ::= < Diameter Header: 300, ~~16777216~~16777216, ~~REQ~~, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Destination-Host]
{ Destination-Realm }

{ User-Name }
{ Public-Identity }
{ Visited-Network-Identifier }
[User-Authorization-Type]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.2 User-Authorization-Answer (UAA) Command

The User-Authorization-Answer (UAA) command, indicated by the Command-Code field set to 300 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the User-Authorization-Request command. The Result-Code AVP or Experimental-Result AVP may contain one of the values defined in section 6.2 in addition to the values defined in IETF RFC 3588 [6].

Message Format

< User-Authorization-Answer> ::= < Diameter Header: 300, PXY, 16777216~~16777216~~ >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Server-Name]
[Server-Capabilities]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.3 Server-Assignment-Request (SAR) Command

The Server-Assignment-Request (SAR) command, indicated by the Command-Code field set to 301 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request it to store the name of the server that is currently serving the user.

Message Format

<Server-Assignment-Request> ::= < Diameter Header: 301, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Destination-Host]
{ Destination-Realm }
[User-Name]
***[Public-Identity]**
{ Server-Name }
{ Server-Assignment-Type }
{ User-Data-Already-Available }
*[AVP]
*[Proxy-Info]
*[Route-Record]

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 IETF RFC 3588 [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, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[User-Name]
[User-Data]
[Charging-Information]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.5 Location-Info-Request (LIR) Command

The Location-Info-Request (LIR) command, indicated by the Command-Code field set to 302 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request name of the server that is currently serving the user.

Message Format

<Location-Info-Request> ::= < Diameter Header: 302, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Destination-Host]
{ Destination-Realm }
{ Public-Identity }
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.6 Location-Info-Answer (LIA) Command

The Location-Info-Answer (LIA) command, indicated by the Command-Code field set to 302 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the Location-Info-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 IETF RFC 3588 [6].

Message Format

<Location-Info-Answer> ::= < Diameter Header: 302, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }

{ Origin-Realm }
[Server-Name]
[Server-Capabilities]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.7 Multimedia-Auth-Request (MAR) Command

The Multimedia-Auth-Request (MAR) command, indicated by the Command-Code field set to 303 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request security information.

Message Format

< Multimedia-Auth-Request > ::= < Diameter Header: 303, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
{ Destination-Realm }
[Destination-Host]
{ User-Name }
{ Public-Identity }
[SIP-Auth-Data-Item]
[SIP-Number-Auth-Items]
{ Server-Name }
* [AVP]
* [Proxy-Info]
* [Route-Record]

6.1.8 Multimedia-Auth-Answer (MAA) Command

The Multimedia-Auth-Answer (MAA) command, indicated by the Command-Code field set to 303 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the Multimedia-Auth-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 IETF RFC 3588 [6].

Message Format

< Multimedia-Auth-Answer > ::= < Diameter Header: 303, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[User-Name]
[Public-Identity]
[SIP-Number-Auth-Items]
*** [SIP-Auth-Data-Item]**
* [AVP]
* [Proxy-Info]
* [Route-Record]

6.1.9 Registration-Termination-Request (RTR) Command

The Registration-Termination-Request (RTR) command, indicated by the Command-Code field set to 304 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia server to a Diameter Multimedia client in order to request the de-registration of a user.

Message Format

<Registration-Termination-Request> ::= < Diameter Header: 304, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
{ Destination-Host }
{ Destination-Realm }
{ User-Name }
***[Public-Identity]**
{ DeRegistration-Reason }
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.10 Registration-Termination-Answer (RTA) Command

The Registration-Termination-Answer (RTA) command, indicated by the Command-Code field set to 304 and the 'R' bit cleared in the Command Flags field, is sent by a client in response to the Registration-Termination-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 IETF RFC 3588 [6].

Message Format

<Registration-Termination-Answer> ::= < Diameter Header: 304, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.11 Push-Profile-Request (PPR) Command

The Push-Profile-Request (PPR) command, indicated by the Command-Code field set to 305 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia server to a Diameter Multimedia client in order to update the subscription data of a multimedia user in the Diameter Multimedia client whenever a modification has occurred in the subscription data that constitutes the data used by the client.

Message Format

< Push-Profile-Request > ::= < Diameter Header: 305, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
{ Destination-Host }
{ Destination-Realm }
{ User-Name }
[User-Data]
[Charging-Information]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.12 Push-Profile-Answer (PPA) Command

The Push-Profile-Answer (PPA) command, indicated by the Command-Code field set to 305 and the 'R' bit cleared in the Command Flags field, is sent by a client in response to the Push-Profile-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 IETF RFC 3588 [6].

Message Format

< Push-Profile-Answer > ::=< Diameter Header: 305, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
*[AVP]
*[Proxy-Info]
*[Route-Record]

3GPP TSG-CN WG4 Meeting #25 ***N4-041344***

Seoul, KOREA. 15th to 19th November 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.229** **CR** **070** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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:	⌘	Cx ABNF corrections
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	05/11/2004
Category:	⌘	**A**
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Use one of the following categories:
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Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Cx command-code ABNF definitions are incorrect. 'P' bits are missing in RTR and PPR commands and from all answer-messages. According to RFC 3588 application-id should be the last part of the header of the command.
Summary of change:	⌘	Missing 'P' bits are added to the ABNF definitions. Application-Id is moved to the correct part of the header.
Consequences if not approved:	⌘	Interoperability problems. Problems with Diameter proxies and relays.

Clauses affected:	⌘	6.1

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

Other comments: ⌘

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

6.1 Command-Code values

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

Every command is defined by means of the ABNF syntax IETF RFC 2234 [7], according to the rules in IETF RFC 3588 [6]. Whenever the definition and use of an AVP is not specified in this document, what is stated in IETF RFC 3588 [6] shall apply.

The command codes for the Cx/Dx interface application are taken from the range allocated by IANA in IETF RFC 3589 [12] as assigned in this specification. For these commands, the Application-ID field shall be set to 16777216 (application identifier of the Cx/Dx interface application, allocated by IANA).

The following Command Codes are defined in this specification:

Table 6.1.1: Command-Code values

Command-Name	Abbreviation	Code	Section
User-Authorization-Request	UAR	300	6.1.1
User-Authorization-Answer	UAA	300	6.1.2
Server-Assignment-Request	SAR	301	6.1.3
Server-Assignment-Answer	SAA	301	6.1.4
Location-Info-Request	LIR	302	6.1.5
Location-Info-Answer	LIA	302	6.1.6
Multimedia-Auth-Request	MAR	303	6.1.7
Multimedia-Auth-Answer	MAA	303	6.1.8
Registration-Termination-Request	RTR	304	6.1.9
Registration-Termination-Answer	RTA	304	6.1.10
Push-Profile-Request	PPR	305	6.1.11
Push-Profile-Answer	PPA	305	6.1.12

6.1.1 User-Authorization-Request (UAR) Command

The User-Authorization-Request (UAR) command, indicated by the Command-Code field set to 300 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request the authorization of the registration of a multimedia user.

Message Format

< User-Authorization-Request> ::= < Diameter Header: 300, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Destination-Host]
{ Destination-Realm }
{ User-Name }

***[Supported-Features]**
{ Public-Identity }
{ Visited-Network-Identifier }
[User-Authorization-Type]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.2 User-Authorization-Answer (UAA) Command

The User-Authorization-Answer (UAA) command, indicated by the Command-Code field set to 300 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the User-Authorization-Request command. The Result-Code AVP or Experimental-Result AVP may contain one of the values defined in section 6.2 in addition to the values defined in IETF RFC 3588 [6].

Message Format

< User-Authorization-Answer> ::= < Diameter Header: 300, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
***[Supported-Features]**
[Server-Name]
[Server-Capabilities]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.3 Server-Assignment-Request (SAR) Command

The Server-Assignment-Request (SAR) command, indicated by the Command-Code field set to 301 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request it to store the name of the server that is currently serving the user.

Message Format

<Server-Assignment-Request> ::= < Diameter Header: 301, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Destination-Host]
{ Destination-Realm }
[User-Name]
***[Supported-Features]**
***[Public-Identity]**
{ Server-Name }
{ Server-Assignment-Type }
{ User-Data-Already-Available }
*[AVP]
*[Proxy-Info]
*[Route-Record]

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 IETF RFC 3588 [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, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[User-Name]
***[Supported-Features]**
[User-Data]
[Charging-Information]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.5 Location-Info-Request (LIR) Command

The Location-Info-Request (LIR) command, indicated by the Command-Code field set to 302 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request name of the server that is currently serving the user.

Message Format

<Location-Info-Request> ::= < Diameter Header: 302, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[Destination-Host]
{ Destination-Realm }
***[Supported-Features]**
{ Public-Identity }
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.6 Location-Info-Answer (LIA) Command

The Location-Info-Answer (LIA) command, indicated by the Command-Code field set to 302 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the Location-Info-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 IETF RFC 3588 [6].

Message Format

<Location-Info-Answer> ::= < Diameter Header: 302, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]

{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
***[Supported-Features]**
[Server-Name]
[Server-Capabilities]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.7 Multimedia-Auth-Request (MAR) Command

The Multimedia-Auth-Request (MAR) command, indicated by the Command-Code field set to 303 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia client to a Diameter Multimedia server in order to request security information.

Message Format

< Multimedia-Auth-Request > ::= < Diameter Header: 303, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
{ Destination-Realm }
[Destination-Host]
{ User-Name }
***[Supported-Features]**
{ Public-Identity }
[SIP-Auth-Data-Item]
[SIP-Number-Auth-Items]
{ Server-Name }
* [AVP]
* [Proxy-Info]
* [Route-Record]

6.1.8 Multimedia-Auth-Answer (MAA) Command

The Multimedia-Auth-Answer (MAA) command, indicated by the Command-Code field set to 303 and the 'R' bit cleared in the Command Flags field, is sent by a server in response to the Multimedia-Auth-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 IETF RFC 3588 [6].

Message Format

< Multimedia-Auth-Answer > ::= < Diameter Header: 303, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
[User-Name]
***[Supported-Features]**
[Public-Identity]
[SIP-Number-Auth-Items]
*** [SIP-Auth-Data-Item]**
* [AVP]
* [Proxy-Info]
* [Route-Record]

6.1.9 Registration-Termination-Request (RTR) Command

The Registration-Termination-Request (RTR) command, indicated by the Command-Code field set to 304 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia server to a Diameter Multimedia client in order to request the de-registration of a user.

Message Format

<Registration-Termination-Request> ::= < Diameter Header: 304, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
{ Destination-Host }
{ Destination-Realm }
{ User-Name }
***[Supported-Features]**
***[Public-Identity]**
{ DeRegistration-Reason }
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.10 Registration-Termination-Answer (RTA) Command

The Registration-Termination-Answer (RTA) command, indicated by the Command-Code field set to 304 and the 'R' bit cleared in the Command Flags field, is sent by a client in response to the Registration-Termination-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 IETF RFC 3588 [6].

Message Format

<Registration-Termination-Answer> ::= < Diameter Header: 304, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
***[Supported-Features]**
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.11 Push-Profile-Request (PPR) Command

The Push-Profile-Request (PPR) command, indicated by the Command-Code field set to 305 and the 'R' bit set in the Command Flags field, is sent by a Diameter Multimedia server to a Diameter Multimedia client in order to update the subscription data of a multimedia user in the Diameter Multimedia client whenever a modification has occurred in the subscription data that constitutes the data used by the client.

Message Format

< Push-Profile-Request > ::= < Diameter Header: 305, ~~16777216,~~ REQ, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
{ Destination-Host }
{ Destination-Realm }

{ User-Name }
***[Supported-Features]**
[User-Data]
[Charging-Information]
*[AVP]
*[Proxy-Info]
*[Route-Record]

6.1.12 Push-Profile-Answer (PPA) Command

The Push-Profile-Answer (PPA) command, indicated by the Command-Code field set to 305 and the 'R' bit cleared in the Command Flags field, is sent by a client in response to the Push-Profile-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 IETF RFC 3588 [6].

Message Format

< Push-Profile-Answer > ::=< Diameter Header: 305, PXY, 16777216 >
< Session-Id >
{ Vendor-Specific-Application-Id }
[Result-Code]
[Experimental-Result]
{ Auth-Session-State }
{ Origin-Host }
{ Origin-Realm }
***[Supported-Features]**
*[AVP]
*[Proxy-Info]
*[Route-Record]

3GPP TSG–CN4 Meeting #25
Seoul, Korea, 15th to 19th November 2004

***Tdoc* ⌘N4-041561**

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **137** **1** ⌘ Current version: **5.9.0** ⌘

*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:	⌘	HSS initiated deregistration with "not registered" registration state
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	21/09/2004
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:
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: ⌘ **It is an essential correction.**

Currently, in TS 29.228, the HSS initiated deregistration does not mention the registration state at the end of the procedure for the public identities of the user being deregistered.

In case the de-registration occurs due to a server change or a server removal, the HSS should update the registration state with the "not registered" value. This action should be the last step of the procedure after the S-CSCF responds to the HSS.

Note: This is not necessary when a new server is assigned because the user is still registered or when the subscription is closed because the user profile is deleted.

Summary of change: ⌘ In section 6.1.3.1 detailing the process for HSS initiated deregistration for "SERVER_CHANGE" and "REMOVE_S-CSCF" reason codes, it is added that the HSS shall set the registration state to "not registered".

Consequences if not approved: ⌘ The registration state is not correct after deregistration (still "registered" or "unregistered" instead of "not registered") for "SERVER_CHANGE" and "REMOVE_S-CSCF" reason codes.

Clauses affected: ⌘ 6.1.3

Y **N**

Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Mirror CR in R6			

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 co

*** FIRST MODIFICATION ***

6.1.3 Network initiated de-registration by the HSS, administrative

In case of network initiated de-registration of the user initiated by the HSS, the HSS shall de-register the user and send a notification to the S-CSCF indicating the identities that shall be de-registered. The procedure is invoked by the HSS, corresponds to the functional level operation Cx-Deregister (see 3GPP TS 23.228 [1]).

HSS may decide to de-register:

- Only one public identity or a list of public identities
- All the public identities of a user.

This procedure is mapped to the commands Registration-Termination-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.3.1 and 6.1.3.2 describe the involved information elements.

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.

Table 6.1.3.2 : Network Initiated Deregistration by HSS response

Information element name	Mapping to Diameter AVP	Cat.	Description
Result (See 7.6)	Result-Code / Experimental-Result	M	This information element indicates the result of de-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.

6.1.3.1 Detailed behaviour

The HSS shall de-register the affected identities and invoke this procedure to inform the S-CSCF. The HSS can determine in different cases that the user (only one public identity, one or more public identities or all the public identities registered) has to be de-registered.

The HSS may de-register:

- Only one public identity or a list of public identities. In this case the S-CSCF shall remove all the information stored in the S-CSCF for those public identities.

- The user with all his/her public identities (no public identity sent in the Cx-Deregister request). In this case the S-CSCF shall remove all the information stored for that user.

The HSS shall send in the Deregistration-Reason AVP the reason for the de-registration, composed by a textual message (if available) aimed for the user and a reason code that determines the action the S-CSCF has to perform. The possible reason codes are:

- PERMANENT_TERMINATION: The IMS subscription or service profile(s) has been permanently terminated. The S-CSCF should start the network initiated de-registration towards the user.

- NEW_SERVER_ASSIGNED: A new S-CSCF has been allocated to the user due to some reason, e.g. an error case, where the SIP registration is terminated in a new S-CSCF. The S-CSCF shall not start the network initiated de-registration towards the user but only clears its registration state and information regarding the user, i.e. all service profiles are cleared.

- SERVER_CHANGE: A new S-CSCF shall be allocated to the user when the user's S-CSCF capabilities are changed in the HSS or when the S-CSCF indicates that it has not enough memory for the updated User Profile. The S-CSCF should start the network initiated de-registration towards the user, i.e. all registrations are de-registered and the user is asked to re-register to all existing registrations. Then, the HSS shall set the registration state to "Not Registered" for the de-registered and implicitly de-registered Public User Identity(ies).

- REMOVE_S-CSCF: The HSS indicates to the S-CSCF that the S-CSCF should no longer be used for a given user. The S-CSCF shall not start the network initiated de-registration towards the user when the user is not currently registered but clears all information regarding the user and responds to the HSS. The HSS then removes the S-CSCF for that user. Then, the HSS shall set the registration state to "Not Registered" for the de-registered and implicitly de-registered Public User Identity(ies).

*** END OF MODIFICATION ***

3GPP TSG–CN4 Meeting #25
Seoul, Korea, 15th to 19th November 2004

***Tdoc* ⌘N4-041562**

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **138** **1** ⌘ Current version: **6.4.0** ⌘

*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:	⌘	HSS initiated deregistration with "not registered" registration state
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	21/09/2004
Category:	⌘	**A**
Release:	⌘	REL-6

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
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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: ⌘ **It is an essential correction.**

Currently, in TS 29.228, the HSS initiated deregistration does not mention the registration state at the end of the procedure for the public identities of the user being deregistered.

In case the de-registration occurs due to a server change or a server removal, the HSS should update the registration state with the "not registered" value. This action should be the last step of the procedure after the S-CSCF responds to the HSS.

Note: This is not necessary when a new server is assigned because the user is still registered or when the subscription is closed because the user profile is deleted.

Summary of change: ⌘ In section 6.1.3.1 detailing the process for HSS initiated deregistration for "SERVER_CHANGE" and "REMOVE_S-CSCF" reason codes, it is added that the HSS shall set the registration state to "not registered".

Consequences if not approved: ⌘ The registration state is not correct after deregistration (still "registered" or "unregistered" instead of "not registered") for "SERVER_CHANGE" and "REMOVE_S-CSCF" reason codes.

Clauses affected: ⌘ 6.1.3

Y **N**

Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Mirror CR in R6			

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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 co

*** FIRST MODIFICATION ***

6.1.3 Network initiated de-registration by the HSS, administrative

In case of network initiated de-registration of the user initiated by the HSS, the HSS shall de-register the user and send a notification to the S-CSCF indicating the identities that shall be de-registered. The procedure is invoked by the HSS, corresponds to the functional level operation Cx-Deregister (see 3GPP TS 23.228 [1]).

HSS may decide to de-register:

- Only one public identity or a list of public identities
- All the public identities of a user.

This procedure is mapped to the commands Registration-Termination-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.3.1 and 6.1.3.2 describe the involved information elements.

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.

Table 6.1.3.2 : Network Initiated Deregistration by HSS response

Information element name	Mapping to Diameter AVP	Cat.	Description
Result (See 7.6)	Result-Code / Experimental-Result	M	This information element indicates the result of de-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.

6.1.3.1 Detailed behaviour

The HSS shall de-register the affected identities and invoke this procedure to inform the S-CSCF. The HSS can determine in different cases that one or more public identities or all the public identities related to the private identity has to be de-registered.

The HSS may de-register:

- Only one public identity or a list of public identities. In this case the S-CSCF shall remove all the information that is related to the private identity received in the request and stored in the S-CSCF for those public identities.

- The private identity with all related public identities (no public identity sent in the Cx-Deregister request). In this case the S-CSCF shall remove all the information stored for that private identity.

The HSS shall send in the Deregistration-Reason AVP the reason for the de-registration, composed by a textual message (if available) aimed for the user and a reason code that determines the action the S-CSCF has to perform. The possible reason codes are:

- PERMANENT_TERMINATION: The IMS subscription or service profile(s) has been permanently terminated. The S-CSCF should start the network initiated de-registration towards the user.

- NEW_SERVER_ASSIGNED: A new S-CSCF has been allocated to the user due to some reason, e.g. an error case, where the SIP registration is terminated in a new S-CSCF. The S-CSCF shall not start the network initiated de-registration towards the user but only clears its registration state and information regarding the user, i.e. all service profiles are cleared.

- SERVER_CHANGE: A new S-CSCF shall be allocated to the user when the user's S-CSCF capabilities are changed in the HSS or when the S-CSCF indicates that it has not enough memory for the updated User Profile. The S-CSCF should start the network initiated de-registration towards the user, i.e. all registrations are de-registered and the user is asked to re-register to all existing registrations. Then, the HSS shall set the registration state to "Not Registered" for the de-registered and implicitly de-registered Public User Identity(ies).

- REMOVE_S-CSCF: The HSS indicates to the S-CSCF that the S-CSCF should no longer be used for a given user. The S-CSCF shall not start the network initiated de-registration towards the user when the user is not currently registered but clears all information regarding the user and responds to the HSS. The HSS then removes the S-CSCF for that user. Then, the HSS shall set the registration state to "Not Registered" for the de-registered and implicitly de-registered Public User Identity(ies).

*** END OF MODIFICATION ***

3GPP TSG-CN WG4 Meeting #25 ***N4-041565***

Seoul, KOREA. 15th to 19th November 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.228** **CR** **160** ⌘ **rev** **2** ⌘ Current version: **5.9.0** ⌘

*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:	⌘	Handling of Information Element marked as (M), (C) or (O)
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	15/11/2004
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:	⌘	In the tables describing the Information Elements transported in the various Cx commands specified in the TS 29.228, the current description of the terms "Mandatory", "Conditional" and "Optional". Moreover, it is not described the correct handling when one of those information elements are missing in received request
Summary of change:	⌘	**It is an essential correction** It is proposed to add a descriptive text that clarifies the use of the terms "Mandatory", "Conditional" and "Optional" in the table. Moreover, the text states that a missing mandatory information element in a command shall cause an application error and an answer message shall be sent back to the originator of the request with a Result-Code set to DIAMETER_MISSING_AVP and the Failed-AVP AVP containing an example of the expected AVP. The appropriate handling is also detailled for Conditional and Optional information elements
Consequences if not approved:	⌘	Possibility of wrong implementation due to an unclear specification on the meaning as well as on the correct handling of missing IE marked as mandatory, conditional or optional

Clauses affected:	⌘	6			
Other specs	⌘	Y: ☐ N: ☒	Other core specifications	⌘	

affected:	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 the modified section

6 Procedure Descriptions

In the tables that describe the ~~i~~Information ~~e~~Elements transported by each command, each Information Element is marked as (M) Mandatory, (C) Conditional or (O) Optional.

- A mandatory ~~i~~Information ~~e~~Element (marked as (M) in the table) shall always be present in the command. If this Information Element is absent, an application error occurs at the receiver and an answer message shall be sent back to the originator of the request with the Result-Code set to DIAMETER_MISSING_AVP. This message shall also include a Failed-AVP AVP containing the missing Information Element i.e. the corresponding Diameter AVP defined by the AVP Code and the other fields set as expected for this Information Element..

- A conditional ~~i~~Information Element (marked as (C) in the table) shall be present in the command if certain conditions are fulfilled.

  - If the receiver detects that those conditions are fulfilled and the Information Element is absent, an application error occurs and an answer message shall be sent back to the originator of the request with the Result-Code set to DIAMETER_MISSING_AVP. This answer message shall also include a Failed-AVP AVP containing the missing Information Element i.e. the corresponding Diameter AVP defined by the AVP Code and the other fields set as expected for this Information Element..~~:~~

  - ~~i~~If those conditions are not fulfilled, ~~it~~ the Information Element shall be absent. If however this Information Element appears in the message, it shall not cause an application error and it may be ignored by the receiver if this is not explicitly defined as an error case. Otherwise, an application error occurs at the receiver and an answer message with the Result-Code set to DIAMETER_AVP_NOT_ALLOWED shall be sent back to the originator of the request. A Failed-AVP AVP containing a copy of the corresponding Diameter AVP shall be included in this message.

- An optional ~~information~~ Information ~~element~~ Element (marked as (O) in the table) may be present or absent in the command, at the discretion of the application at the sending entity. Absence or presence of this Information Element shall not cause an application error and may be ignored by the receiver.

When a procedure is required to determine whether two S-CSCF names are equal, the rules for SIP URI comparison specified in RFC 3261 chapter 19.1.4 shall apply

End of the modified section

3GPP TSG-CN WG4 Meeting #25 ***N4-041566***

Seoul, KOREA. 15th to 19th November 2004.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.228** **CR** **159** ⌘ **rev** **2** ⌘ Current version: **6.4.0** ⌘

*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:	⌘	Handling of Information Element marked as (M), (C) or (O)
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	15/11/2004
Category:	⌘	**A**
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:	⌘	In the tables describing the Information Elements transported in the various Cx commands specified in the TS 29.228, the current description of the terms "Mandatory", "Conditional" and "Optional". Moreover, it is not described the correct handling when one of those information elements are missing in received request.
Summary of change:	⌘	It is proposed to add a descriptive text that clarifies the use of the terms "Mandatory", "Conditional" and "Optional" in the table. Moreover, the text states that a missing mandatory information element in a command shall cause an application error and an answer message shall be sent back to the originator of the request with a Result-Code set to DIAMETER_MISSING_AVP and the Failed-AVP AVP containing an example of the expected AVP. The appropriate handling is also detailled for Conditional and Optional information elements
Consequences if not approved:	⌘	Possibility of wrong implementation due to an unclear specification on the meaning as well as on the correct handling of missing IE marked as mandatory, conditional or optional

Clauses affected:	⌘	6				
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 the modified section

6 Procedure Descriptions

In the tables that describe the ~~i~~Information ~~e~~Elements transported by each command, each Information Element is marked as (M) Mandatory, (C) Conditional or (O) Optional.

- A mandatory ~~i~~Information ~~e~~Element (marked as (M) in the table) shall always be present in the command. If this Information Element is absent, an application error occurs at the receiver and an answer message shall be sent back to the originator of the request with the Result-Code set to DIAMETER_MISSING_AVP. This message shall also include a Failed-AVP AVP containing the missing Information Element i.e. the corresponding Diameter AVP defined by the AVP Code and the other fields set as expected for this Information Element..

- A conditional ~~i~~Information Element (marked as (C) in the table) shall be present in the command if certain conditions are fulfilled.

  - If the receiver detects that those conditions are fulfilled and the Information Element is absent, an application error occurs and an answer message shall be sent back to the originator of the request with the Result-Code set to DIAMETER_MISSING_AVP. This message shall also include a Failed-AVP AVP containing the missing Information Element i.e. the corresponding Diameter AVP defined by the AVP Code and the other fields set as expected for this Information Element..~~;~~

  - ~~i~~If those conditions are not fulfilled, ~~it~~ the Information Element shall be absent. If however this Information Element appears in the message, it shall not cause an application error and it may be ignored by the receiver if this is not explicitly defined as an error case. Otherwise, an application error occurs at the receiver and an answer message with the Result-Code set to DIAMETER_AVP_NOT_ALLOWED shall be sent back to the originator of the request. A Failed-AVP AVP containing a copy of the corresponding Diameter AVP shall be included in this message.

- An optional ~~information~~ Information ~~element~~ Element (marked as (O) in the table) may be present or absent in the command, at the discretion of the application at the sending entity. Absence or presence of this Information Element shall not cause an application error and may be ignored by the receiver.

When a procedure is required to determine whether two S-CSCF names are equal, the rules for SIP URI comparison specified in RFC 3261 chapter 19.1.4 shall apply

End of the modified section

3GPP TSG–CN4 Meeting #25
Seoul, Korea, 15th to 19th November 2004

***Tdoc* ⌘N4-041647**

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **141** **2** ⌘ Current version: **5.9.0** ⌘

*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:	⌘	HSS initiated deregistration using the network initiated de-registration procedure
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	17/11/2004
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:
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: ⌘ **This is an essential correction**

Currently, in TS 29.228, the HSS initiated deregistration mentions according to the reason code that the S-CSCF should or shall not "start the network initiated de-registration towards the user".

This reference to the Network-initiated deregistration procedure specified in TS 24.229 section 5.4.1.5 is confusing. It seems to refer only to one step of the procedure, i.e. the notification of the user (described with NOTIFY request sent from the S-CSCF to the UE in TS 24.229) although the procedure includes other actions such as the sessions release or the registration information removal.

It should be clearly stated in TS 29.228 that the S-CSCF shall perform the network initiated deregistration procedure as described in TS 24.229 because this procedure is automatically triggered at the S-CSCF whatever the reason code received from the HSS when "a network initiated deregistration event occurs for one or more public user identity".

Summary of change: ⌘ In section 6.1.3.1 detailing the process for HSS initiated deregistration, it is mentioned for each reason code that the S-CSCF shall perform the network initiated de-registration procedure as described in TS 24.229. Details about the actions performed by the S-CSCF are removed and replace by an explicit reference to the TS 24.229.

Futhermore, the definition of the different reason codes are clarified.

Consequences if ⌘ Misalignment withTS 24.229 concerning the triggering of network initiated de-

not approved:	registation procedure

Clauses affected:	⌘	6.1.3				
Other specs affected:	⌘	**Y**	**N**		⌘	TS 24.229 CR-758, CR-760
		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 co

*** FIRST MODIFICATION ***

6.1.3 Network initiated de-registration by the HSS, administrative

In case of network initiated de-registration of the user initiated by the HSS, the HSS shall de-register the user and send a notification to the S-CSCF indicating the identities that shall be de-registered. The procedure is invoked by the HSS, corresponds to the functional level operation Cx-Deregister (see 3GPP TS 23.228 [1]).

HSS may decide to de-register:

- Only one public identity or a list of public identities
- All the public identities of a user.

This procedure is mapped to the commands Registration-Termination-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.3.1 and 6.1.3.2 describe the involved information elements.

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.

Table 6.1.3.2 : Network Initiated Deregistration by HSS response

Information element name	Mapping to Diameter AVP	Cat.	Description
Result (See 7.6)	Result-Code / Experimental-Result	M	This information element indicates the result of de-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.

6.1.3.1 Detailed behaviour

The HSS shall de-register the affected identities and invoke this procedure to inform the S-CSCF. The HSS can determine in different cases that the user (only one public identity, one or more public identities or all the public identities registered) has to be de-registered.

The HSS may de-register:

- Only one public identity or a list of public identities. In this case the S-CSCF shall remove all the information stored in the S-CSCF for those public identities.

- The user with all his/her public identities (no public identity sent in the Cx-Deregister request). In this case the S-CSCF shall remove all the information stored for that user.

The HSS shall send in the Deregistration-Reason AVP the reason for the de-registration, composed by a textual message (if available) aimed for the user and a reason code that determines the action the S-CSCF has to perform. The possible reason codes are:

- PERMANENT_TERMINATION: the HSS indicates to the S-CSCF that the S-CSCF will no longer be assigned to the Public User Identity and associated implicitly registered Public User Identities for a given user (e.g. due IMS subscription cancellation). ~~The IMS subscription or service profile(s) has been permanently terminated.~~ In this case, t~~T~~he S-CSCF ~~should start~~ initiates the de-registration of the user's Public User Identities~~the network initiated de-registration towards the user~~.

- NEW_SERVER_ASSIGNED: The HSS indicates to the S-CSCF that a new S-CSCF has been allocated to the user e.g. because the previous assigned S-CSCF was unavailable during a registration procedure. ~~due to some reason, e.g. an error case, where the SIP registration is terminated in a new S-CSCF.~~ In this case, t~~T~~he S-CSCF ~~shall not~~ initiates the de-registration of the Public User Identity and the associated implicitly registered Public User Identities for that user~~start the network initiated de-registration towards the user but only clears its registration state and all information regarding the user, i.e. all service profiles are cleared~~.

- SERVER_CHANGE: The HSS indicates to the S-CSCF that the de-registration is requested to force the selection of new S-CSCF to assign to the user (e.g. ~~A new S-CSCF shall be allocated to the user~~ when the user's S-CSCF capabilities are changed in the HSS ~~-~~or when the S-CSCF indicates that it has not enough memory for the updated User Profile). In this case, ~~The~~ the S-CSCF initiates the de-registration of the registered Public User Identity and the associated implicitly registered Public User Identities. ~~should start the network initiated de-registration towards the user, i.e. all registrations are de-registered and the user is asked to re-register to all existing registrations.~~

- REMOVE_S-CSCF: The HSS indicates to the S-CSCF that the S-CSCF ~~should~~ will no longer be assigned to an unregistered Public User Identity(ies) (i.e registered as a consequence of a terminating call or there is a S-CSCF keeping the user profile stored) ~~used~~ for a given user.~~-~~In this case, ~~T~~the S-CSCF ~~shall not~~ initiates the de-registration of this user's Public User Identity(ies).~~start the network initiated de-registration towards the user when the user is not currently registered but clears all information regarding the user and responds to the HSS. The HSS then removes the S-CSCF for that user.~~.

The detailed de-registration procedures performed by the S-CSCF for each reason code are described in the 3GPP TS 24.229 [8].

*** END OF MODIFICATION ***

3GPP TSG–CN4 Meeting #25
Seoul, Korea, 15th to 19th November 2004

***Tdoc* ⌘N4-041648**

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **142** **2** ⌘ Current version: **6.4.0** ⌘

*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:	⌘	HSS initiated deregistration using the network initiated de-registration procedure
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	17/11/2004
Category:	⌘	**A**
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:
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:	⌘	Currently, in TS 29.228, the HSS initiated deregistration mentions according to the reason code that the S-CSCF should or shall not "start the network initiated de-registration towards the user". This reference to the Network-initiated deregistration procedure specified in TS 24.229 section 5.4.1.5 is confusing. It seems to refer only to one step of the procedure, i.e. the notification of the user (described with NOTIFY request sent from the S-CSCF to the UE in TS 24.229) although the procedure includes other actions such as the sessions release or the registration information removal. It should be clearly stated in TS 29.228 that the S-CSCF shall perform the network initiated deregistration procedure as described in TS 24.229 because this procedure is automatically triggered at the S-CSCF whatever the reason code received from the HSS when "a network initiated deregistration event occurs for one or more public user identity".
Summary of change:	⌘	In section 6.1.3.1 detailing the process for HSS initiated deregistration, it is mentioned for each reason code that the S-CSCF shall perform the network initiated de-registration procedure as described in TS 24.229. Details about the actions performed by the S-CSCF are removed and replace by an explicit reference to the TS 24.229. Futhermore, the definition of the different reason codes are clarified.
Consequences if not approved:	⌘	Misalignment withTS 24.229 concerning the triggering of network initiated de-registation procedure

Clauses affected:	⌘	6.1.3			
Other specs affected:	⌘	Y: X Y: Y:	N: N: X N: X	Other core specifications Test specifications O&M Specifications	⌘ TS 24.229: CR-759, CR-761
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 co

*** FIRST MODIFICATION ***

6.1.3 Network initiated de-registration by the HSS, administrative

In case of network initiated de-registration of the user initiated by the HSS, the HSS shall de-register the user and send a notification to the S-CSCF indicating the identities that shall be de-registered. The procedure is invoked by the HSS, corresponds to the functional level operation Cx-Deregister (see 3GPP TS 23.228 [1]).

HSS may decide to de-register:

- Only one public identity or a list of public identities
- All the public identities of a user.

This procedure is mapped to the commands Registration-Termination-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.3.1 and 6.1.3.2 describe the involved information elements.

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.

Table 6.1.3.2 : Network Initiated Deregistration by HSS response

Information element name	Mapping to Diameter AVP	Cat.	Description
Result (See 7.6)	Result-Code / Experimental-Result	M	This information element indicates the result of de-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.

6.1.3.1 Detailed behaviour

The HSS shall de-register the affected identities and invoke this procedure to inform the S-CSCF. The HSS can determine in different cases that the user (only one public identity, one or more public identities or all the public identities registered) has to be de-registered.

The HSS may de-register:

- Only one public identity or a list of public identities. In this case the S-CSCF shall remove all the information stored in the S-CSCF for those public identities.

- The user with all his/her public identities (no public identity sent in the Cx-Deregister request). In this case the S-CSCF shall remove all the information stored for that user.

The HSS shall send in the Deregistration-Reason AVP the reason for the de-registration, composed by a textual message (if available) aimed for the user and a reason code that determines the action the S-CSCF has to perform. The possible reason codes are:

- PERMANENT_TERMINATION: the HSS indicates to the S-CSCF that the S-CSCF will no longer be assigned to the Public User Identity and associated implicitly registered Public User Identities for a given user (e.g. due IMS subscription cancellation). ~~The IMS subscription or service profile(s) has been permanently terminated.~~ In this case, ~~The~~ the S-CSCF ~~should start~~ initiates the de-registration of the user's Public User Identities~~the network initiated de-registration towards the user~~.

- NEW_SERVER_ASSIGNED: The HSS indicates to the S-CSCF that a new S-CSCF has been allocated to the user e.g.because the previous assigned S-CSCF was unavailable during a registration procedure. ~~due to some reason, e.g. an error case, where the SIP registration is terminated in a new S-CSCF.~~ In this case, ~~The~~ the S-CSCF ~~shall not~~ initiates the de-registration of the Public User Identity and the associated implicitly registered Public User Identities for that user.~~ start the network initiated de-registration towards the user but only clears its registration state and all information regarding the user, i.e. all service profiles are cleared.~~

- SERVER_CHANGE: The HSS indicates to the S-CSCF that the de-registration is requested to force the selection of new S-CSCF to assign to the user (e.g. ~~A new S-CSCF shall be allocated to the user~~ when the user's S-CSCF capabilities are changed in the HSS ~~-~~or when the S-CSCF indicates that it has not enough memory for the updated User Profile). In this case, ~~The~~ the S-CSCF initiates the de-registration of the registered Public User Identity and the associated implicitly registered Public User Identities. ~~should start the network initiated de-registration towards the user, i.e. all registrations are de-registered and the user is asked to re-register to all existing registrations.~~

- REMOVE_S-CSCF: The HSS indicates to the S-CSCF that the S-CSCF ~~should~~ will no longer be assigned to an unregistered Public User Identity(ies) (i.e registered as a consequence of a terminating call or there is a S-CSCF keeping the user profile stored) ~~used~~ for a given user.~~-~~In this case, ~~The~~ the S-CSCF ~~shall not~~ initiates the de-registration of this user's Public User Identity(ies).~~start the network initiated de-registration towards the user when the user is not currently registered but clears all information regarding the user and responds to the HSS. The HSS then removes the S-CSCF for that user.~~.

The detailed de-registration procedures performed by the S-CSCF for each reason code are described in the 3GPP TS 24.229 [8].

*** END OF MODIFICATION ***