3GPP TSG CN Plenary Meeting #25 **NP-040401**
8th – 10th August 2004 Palm Springs, US.

Source: TSG CN WG4

Title: Corrections on IMS2

Agenda item: 9.1

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level N4-04	Phase	Subject	Cat	Ver_C
29.229	056		0924	Rel-6	Optimization of User Profile Download	B	6.1.0
29.228	122	1	1122	Rel-6	Optimization of User Profile Download	B	6.3.0
29.230	001		0989	Rel-6	Correction of Charging application reference	F	6.0.0
29.230	002		1070	Rel-6	Correction of the Application-Id code	F	6.0.0
29.328	094	1	1100	Rel-6	Triggering initial REGISTER messages	B	6.2.0
29-228	121	2	1116	Rel-6	Triggering initial REGISTER messages	B	6.3.0
29.228	118	1	1120	Rel-6	XML versioning	C	6.3.0
29.328	088	1	1121	Rel-6	XML versioning	C	6.2.0
29.230	003		1126	Rel-6	Removal of User Data Request Type AVP	F	6.0.0

3GPP TSG CN WG4 Meeting #24 **N4-040924**
Sophia Antipolis, FRANCE, 16th – 20th AUGUST 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.229** **CR** **056** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

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

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

Title:	⌘	Optimization of User Profile Download
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	08/07/2004
Category:	⌘	**B**
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:	⌘	To optimize the user data download procedure with respect to signalling load on the Cx interface and memory capacity in HSS and S-CSCF.
Summary of change:	⌘	A subset of all Initial Filter Criteria (iFCs) belonging to a service profile may be defined to be a shared set of iFCs identified by a unique identifier. Instead of explicitly downloading iFCs belonging to a shared set, it is possible to simply download the identifier, and so save signalling capacity. Furthermore instead of storing the iFCs belonging to a shared set individually against each service profile that shares the set of iFCs, it is possible to simply store the identifier, and so save memory capacity. A locally administered database in the S-CSCF and the HSS provides the mapping between shared sets of iFCs and their identifiers. This optimization is an optional feature
Consequences if not approved:	⌘	No saving of signalling and memory capacity.

Clauses affected:	⌘	7.1.Y

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	29.228 CR 122
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	This CR is based on version 6.1.0 + CR 058r2 (N4-040837) approved by e-mail after CN4#23bis

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:

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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.

7.1.y Defining a new feature

The base functionality for the Cx is the 3GPP Rel-5 standard and a feature is an extension to that functionality. A feature is a functional entity that has a significant meaning to the operation of a Diameter application i.e. a single new parameter without a substantial meaning to the functionality of the Diameter endpoints should not be defined to be a new feature. If the support for a feature is defined mandatory in a post-Rel-5 versions of this specification, the feature concept enables interworking between Diameter endpoints regardless of whether they support all, some or none of the features of the application. Features should be defined so that they are independent from one another.

The content of a feature shall be defined as a part of the specification of the affected application messages. If new AVPs are added to the commands because of the new feature, the new AVPs shall have the 'M' bit cleared and the AVP shall not be defined mandatory in the command ABNF. The support for a feature may be defined to be mandatory behaviour of a node.

The following table of features shall apply to the Cx interface.

Table 7.1.x: Features of Feature-List-ID 1 used in Cx

Feature bit	Feature	M/O	Description
0	SiFC	O	Shared iFC sets This feature is applicable for the SAR/SAA and PPR/PPA command pairs. If both the HSS and the S-CSCF support this feature, subsets of Initial Filter Criteria may be shared by several service profiles and the HSS shall download the shared iFC sets implicitly by downloading the unique identifiers of the shared iFC sets to the S-CSCF. By means of a locally administered database the S-CSCF then maps the downloaded identifiers onto the shared iFC sets. If the S-CSCF does not support this feature, the HSS shall not download identifiers of shared iFC sets. Instead as a default behavior the HSS shall (by means of a locally administered database) download the iFCs of a shared iFC set explicitly. If the HSS does not support this feature, no special default behaviour is required for the S-CSCF. Note: In using this feature option, the network operator is responsible for keeping the local databases in the S-CSCFs and HSSs consistent. ~~[Editor's note: until now, no features has been defined for the Cx.]~~
Feature bit: The order number of the bit within the Supported-Features AVP, e.g. "1". Feature: A short name that can be used to refer to the bit and to the feature, e.g. "MOM". M/O: Defines if the implementation of the feature is mandatory ("M") or optional ("O"). Description: A clear textual description of the feature.			

The origin host may discover the supported features of the destination host with the dynamic discovery mechanism defined in 7.x or via local O&M interfaces.

3GPP TSG-CN WG4 Meeting #24 ***N4-040989***

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

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.230** **CR** **001** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

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

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

Title:	⌘	Correction of Charging application reference
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	02/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	LS on Assignment of the Diameter codes and identifiers from SA5 (S5-044356/N4-040919) lists the errors which SA5 has detected in the TS 29.230.
Summary of change:	⌘	References to TS 32.225 has been removed from the specification and replaced with the TS 32.299 (when required).
Consequences if not approved:	⌘	Misalignment between TS 29.230 and TS 32.299.

Clauses affected:	⌘	2, 4.1, 7.1, 8.1.3 and 8.1.4			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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.

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 29.228: " IP Multimedia (IM) Subsystem Cx and Dx interfaces; Signalling flows and message contents".

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

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

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

[5] 3GPP TS 32.299 "3GPP Diameter charging application"~~32.225: " Telecommunication management; Charging management; Charging data description for the IP Multimedia Subsystem (IMS)"~~.

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

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

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

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

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

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

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

-----next modified section -----

4.1 3GPP specific application identifiers

The 3GPP specific application identifiers allocated by IANA are listed in the following table.

Table 4.1: 3GPP specific application identifiers

Application identifier	Application	3GPP TS
167772151	3GPP Cx/Px	29.228 [1] and 29.229 [2]
167772152	3GPP Sh/Ph	29.328 [3] and 29.329 [4]
~~167772153~~	~~3GPP Rf/Ro~~	~~32.225 [5]~~

Editors note: The following applications are under development and they don’t have the application id yet.

	3GPP Wx	29.234 [6]
	3GPP Zn	29.109 [7]
	3GPP Zh	29.109 [7]
	3GPP Gq	29.209 [8]

-----next modified section -----

7.1 3GPP specific AVP codes

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

Table 7.1: 3GPP specific AVP codes

AVP Code	Attribute Name	Data Type	Specified in the TS
1	Visited-Network-Identifier	OctetString	29.229 [2]
2	Public-Identity	UTF8String	
3	Server-Name	UTF8String	
4	Server-Capabilities	Grouped	
5	Mandatory-Capability	Unsigned32	
6	Optional-Capability	Unsigned32	
7	User-Data	OctetString	
8	SIP-Number-Auth-Items	Unsigned32	
9	SIP-Authentication-Scheme	UTF8String	
10	SIP-Authenticate	OctetString	
11	SIP-Authorization	OctetString	
12	SIP-Authentication-Context	OctetString	
13	SIP-Auth-Data-Item	Grouped	
14	SIP-Item-Number	Unsigned32	
15	Server-Assignment-Type	Enumerated	
16	Deregistration-Reason	Grouped	
17	Reason-Code	Enumerated	
18	Reason-Info	UTF8String	
19	Charging-Information	Grouped	
20	Primary-Event-Charging-Function-Name	DiameterURI	
21	Secondary-Event-Charging-Function-Name	DiameterURI	
22	Primary-Charging-Collection-Function-Name	DiameterURI	
23	Secondary-Charging-Collection-Function-Name	DiameterURI	
24	User-Authorization-Type	Enumerated	
25	User-Data-Request-Type	Enumerated	
26	User-Data-Already-Available	Enumerated	
27	Confidentiality-Key	OctetString	
28	Integrity-Key	OctetString	
Note: The AVP codes from 29 to 99 are reserved for TS 29.229.			
100	User-Identity	Grouped	29.329 [4]
101	MSISDN	OctetString	
102	User-Data	OctetString	
103	Data-Reference	Enumerated	
104	Service-Indication	OctetString	
105	Subs-Req-Type	Enumerated	
106	Requested-Domain	Enumerated	
107	Current-Location	Enumerated	
108	Identity-Set	Enumerated	
Note: The AVP codes from 109 to199 are reserved for TS 29.329.			
			32.~~225~~ 299 [5]
Note: The AVP codes from 200 to 299 are reserved for TS 32.~~225~~299			
			29.234 [6]
Note: The AVP codes from 300 to 399 are reserved for TS 29.234			
			29.109 [7]
Note: The AVP codes from 400 to 499 are reserved for TS 29.109			
			29.209 [8]
Note: The AVP codes from 500 to 599 are reserved for TS 29.209			

-----next modified section -----

8.1.3 Transient Failures

The Transient Failure result codes shall use the values from 4001 to 4999 in the Experimental-Result-Code AVP. The reserved 3GPP specific Transient Failure result codes are presented in the following table.

Table 8.1.3: 3GPP specific Transient Failure result codes

Experimental Result Code	Result text	Specified in the TS
4100	DIAMETER_USER_DATA_NOT_AVAILABLE	29.329 [4]
4101	DIAMETER_PRIOR_UPDATE_IN_PROGRESS	
Note: The Experimental Result Codes from 4102 to 4120 are reserved for the TS 29.329.		
		32.~~225~~299 [5]
Note: The Experimental Result Codes from 41xx to 41yy are reserved for the TS 32.~~225~~299.		

8.1.4 Permanent Failures

The Permanent Failure result codes shall use the values from 5001 to 5999 in the Experimental-Result-Code AVP. The reserved 3GPP specific Permanent Failure result codes are presented in the following table.

Table 8.1.4: 3GPP specific Permanent Failure result codes

Experimental Result Code	Result text	Specified in the TS
5001	DIAMETER_ERROR_USER_UNKNOWN	29.229 [2]
5002	DIAMETER_ERROR_IDENTITIES_DONT_MATCH	
5003	DIAMETER_ERROR_IDENTITY_NOT_REGISTERED	
5004	DIAMETER_ERROR_ROAMING_NOT_ALLOWED	
5005	DIAMETER_ERROR_IDENTITY_ALREADY_REGISTERED	
5006	DIAMETER_ERROR_AUTH_SCHEME_NOT_SUPPORTED	
5007	DIAMETER_ERROR_IN_ASSIGNMENT_TYPE	
5008	DIAMETER_ERROR_TOO_MUCH_DATA	
5009	DIAMETER_ERROR_NOT_SUPPORTED_USER_DATA	
5010	DIAMETER_MISSING_USER_ID	
Note: The Experimental Result Codes from 5011 to 5020 are reserved for the TS 29.229.		
		32.~~225~~299 [5]
Note: The Experimental Result Codes from 5021 to 5040 are reserved for the TS 32.~~225~~299.		
		29.234 [6]
Note: The Experimental Result Codes from 5041 to 5060 are reserved for the TS 29.234.		
		29.209 [8]
Note: The Experimental Result Codes from 5061 to 5080 are reserved for the TS 29.209.		
5100	DIAMETER_ERROR_USER_DATA_NOT_RECOGNIZED	29.329 [4]
5101	DIAMETER_ERROR_OPERATION_NOT_ALLOWED	
5102	DIAMETER_ERROR_USER_DATA_CANNOT_BE_READ	
5103	DIAMETER_ERROR_USER_DATA_CANNOT_BE_MODIFIED	
5104	DIAMETER_ERROR_USER_DATA_CANNOT_BE_NOTIFIED	
5105	DIAMETER_ERROR_TRANSPARENT_DATA_OUT_OF_SYNC	
Note: The Experimental Result Codes from 5106 to 5119 are reserved for the TS 29.329.		
		29.109 [7]
Note: The Experimental Result Codes from 5400 to 5419 are reserved for the TS 29.109.		

3GPP TSG CN WG4 Meeting #24 ***N4-041070***
Sophia Antipolis, France, 16-20 August 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.230** **CR** **002** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

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

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

Title:	⌘	Correction of the Application-Id code
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	06/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
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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.

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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)*

Reason for change:	⌘	IANA wronly assigned an Application-Id to Cx/Px, Sh/Ph and Rf/Ro interfaces. Now IANA has assigned a new number, specification has to be modified accordingly.
Summary of change:	⌘	The new Application-Ids has replaced the wrong Application-Ids.
Consequences if not approved:	⌘	Wrongly Application-Id for to Cx/Px, Sh/Ph and Rf/Ro, not consistent with the IANA assigned number

Clauses affected:	⌘	4.1			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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First change

4.1 3GPP specific application identifiers

The 3GPP specific application identifiers allocated by IANA are listed in the following table.

Table 4.1: 3GPP specific application identifiers

Application identifier	Application	3GPP TS
16777216~~167772151~~	3GPP Cx/Px	29.228 [1] and 29.229 [2]
16777217~~167772152~~	3GPP Sh/Ph	29.328 [3] and 29.329 [4]
16777218~~167772153~~	3GPP Rf/Ro	32.225 [5]

3GPP TSG-CN WG4 Meeting #24 ***N4-041100***

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

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.328** **CR** **094** ⌘ **rev** **1** ⌘ 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:	⌘	Triggering initial REGISTER messages
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	06/08/2004
Category:	⌘	**B**
Release:	⌘	Rel-6

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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:	⌘	Allow flexibility on filtering REGISTER messages. For more infirmation, see reply LS on the flexibility of filtering of register request (N4-040835) and related CN1 CR (N1-041310) which was not accepted in CN1#34. This CR is a counter proposal to the solution suggested in N1-041310.
Summary of change:	⌘	Enable triggering REGISTER messages selectively to the AS based on if they are related to the initial registration, re-registration or deregistration.
Consequences if not approved:	⌘	The purpose (initial/re-/de-registration) of the REGISTER message can not be used as a condition for triggering.

Clauses affected:	⌘	Annex D			
Other specs affected:	⌘	**Y** / **N**		⌘	29.228 CR 121
		X /	Other core specifications		
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘	Corresponding CN1 CR 070 against 23.218 (N1-041441)			

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Annex D (normative): XML schema for the Sh interface user profile

The file ShDataType.xsd, attached to this specification, contains the XML schema for the Sh interface user profile. Such XML schema details all the data types on which XML documents containing Sh profile information shall be based. The XML schema file is intended to be used by an XML parser.

Tables D.1 and D.2 describe the data types and the dependencies among them that configure the XML schema.

Table D.1: XML schema for Sh interface: simple data types

Data type	Tag	Base type	Comments
tPriority	Priority	integer	>= 0
tGroupID	Group	integer	>= 0
tRegistrationType	RegistrationType	enumerated	Possible values: 0 (INITIAL_REGISTRATION) 1 (RE-REGISTRATION) 2 (DE-REGISTRATION)
tDefaultHandling	DefaultHandling	enumerated	Possible values: 0 (SESSION_CONTINUED) 1 (SESSION_TERMINATED)
tDirectionOfRequest	SessionCase	enumerated	Possible values: 0 (ORIGINATING_SESSION) 1 TERMINATING_SESSION 2 (TERMINATING_UNREGISTERED)
tIMSUserState	IMSUserState	Enumerated	Possible values: 0 (NOT_REGISTERED) 1 (REGISTERED) 2 (REGISTERED_UNREG_SERVICES) 3 (AUTHENTICATION_PENDING)
tCSUserState	CSUserState	Enumerated	Possible values (as defined in 3GPP TS 23.078 [14]): 0 (CAMELBusy) 1 (NetworkDeterminedNotReachable) 2 (AssumedIdle) 3 (NotProvidedfromVLR)
tPSUserState	PSUserState	Enumerated	Possible values (as defined in 3GPP TS 23.078 [14]): 0 (Detached) 1 (AttachedNotReachableForPaging) 2 (AttachedReachableForPaging)

			3 (ConnectedNotReachableForPaging) 4 (ConnectedReachableForPaging) 5 (NotProvidedFromSGSN)
tLocationNumber	LocationNumber	string	Syntax described in ITU-T Q.763 [9] (Base64 encoded according to RFC 2045 [15]). Lenght >=4 and <=16 (multiples of 4).
tCellGlobalId	CellGlobalId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 12.
tServiceAreaId	ServiceAreaId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 12.
tLocationAreaId	LocationAreaId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 8.
tRoutingAreaId	RoutingAreaId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 8.
tGeographicalInformation	GeographicalInformation	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 12.
tGeodeticInformation	GeodeticInformation	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 16.
tAgeOfLocationInformation	AgeOfLocationInformation	integer	>=0, <=32767
tAddressString	AddressString	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length >= 4 and <=28 (multiples of 4).
tMSISDN	MSISDN	string	Syntax described in 3GPP TS 23.003 [11].
tSIP_URL	PublicIdentity	anyURI	Syntax described in RFC 3261 [16]
tTEL_URL	PublicIdentity	anyURI	Syntax described in RFC 2806 [17]
tDiameterURI	DiameterURI	string	Syntax of a Diameter URI as described in IETF RFC 3588 [8]
tIMSPublicIdentity	IMSPublicIdentity	(union)	Union of tSIP_URL and tTEL_URL

tServiceInfo	ServiceInfo	string	
tString	RequestURI, Method, Header, Content, Line	string	
tBool	ConditionTypeCNF, ConditionNegated	boolean	Possible values: 0 (false) 1 (true)
tSequenceNumber	SequenceNumber	integer	>=0, <=65535

Table D.2: XML schema for Sh interface: complex data types

Data type	Tag	Compound of		
		Tag	Type	Cardinality
tSh-Data	Sh-Data	PublicIdentifiers	tPublicIdentity	0 to 1
		RepositoryData	tTransparentData	0 to 1
		Sh-IMS-Data	tShIMSData	0 to 1
		CSLocationInformation	tCSLocationInformation	0 to 1
		PSLocationInformation	tPSLocationInformation	0 to 1
		CSUserState	tCSUserState	0 to 1
		PSUserState	tPSUserState	0 to 1
tTransparentData	RepositoryData	ServiceIndication	string	1
		SequenceNumber	tSequenceNumber	1
		ServiceData	tServiceData	0 to 1
tServiceData	any	any	any	1
tShIMSData	Sh-IMS-Data	SCSCFName	tSIP_URL	0 to 1
		InitialFilterCriteria	tInitialFilterCriteria	0 to n
		IMSUserState	tIMSUserState	0 to 1
		ChargingInformation	tChargingInformation	0 to 1
tCSLocationInformation	CSLocationInformation	LocationNumber	tLocationNumber	0 to 1
		CellGlobalId	tCellGlobalId	0 to 1
		ServiceAreaId	tServiceAreaId	0 to 1
		LocationAreaId	tLocationAreaId	0 to 1
		GeographicalInformation	tGeographicalInformation	0 to 1

		GeodeticInformation	tGeodeticInformation	0 to 1
		VLRNumber	tISDNAddress	0 to 1
		MSCNumber	tISDNAddress	0 to 1
		CurrentLocationRetrieved	tBool	0 to 1
		AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1
tPSLocationInformation	PSLocationInformation	CellGlobalId	tCellGlobalId	0 to 1
		ServiceAreaId	tServiceAreaId	0 to 1
		LocationAreaId	tLocationAreaId	0 to 1
		RoutingAreaId	tRoutingAreaId	0 to 1
		GeographicalInformation	tGeographicalInformation	0 to 1
		GeodeticInformation	tGeodeticInformation	0 to 1
		SGSNNumber	tISDNAddress	0 to 1
		CurrentLocationRetrieved	tBool	0 to 1
		AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1
tPublicIdentity	PublicIdentity	IMSPublicIdentity	tIMSPublicIdentity	0 to n
		MSISDN	tMSISDN	0 to n
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1
		TriggerPoint	tTrigger	0 to 1
		ApplicationServer	tApplicationServer	1
tTrigger	TriggerPoint	ConditionTypeCNF	tBool	1

		SPT		tSePoTri	0 to n
tSePoTri	SPT	ConditionNegated		tBool	0 to 1
		Group		tGroupID	1 to n
		Choice of	RequestURI	tString	1
			Method	tMethod	1
			SIPHeader	tHeader	1
			SessionCase	tDirectionOfRequest	1
			SessionDescription	tSessionDescription	1
		RegistrationType		tRegistrationType	(0 to 2)
tHeader	SIPHeader	Header		tString	1
		Content		tString	0 to 1
tSessionDescription	SessionDescription	Line		tString	1
		Content		tString	0 to 1
tApplicationServer	ApplicationServer	ServerName		tSIP_URL	1
		DefaultHandling		tDefaultHandling	0 to 1
		ServiceInfo		tServiceInfo	0 to 1
tChargingInformation	ChargingInformation	PrimaryEventChargingFunctionName		tDiameterURI	0 to 1
		SecondaryEventChargingFunctionName		tDiameterURI	0 to 1
		PrimaryChargingCollectionFunctionName		tDiameterURI	1
		SecondaryChargingCollectionFunctionName		tDiameterURI	0 to 1
NOTE: “n” shall be interpreted as non-bounded.					

3GPP TSG-CN WG4 Meeting #24 ***N4-041116***

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

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.228** **CR** **121** ⌘ **rev** **2** ⌘ Current version: **6.3.0** ⌘

*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:	⌘	Triggering initial REGISTER messages
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	16/08/2004
Category:	⌘	**B**
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:	⌘	Allow flexibility on filtering REGISTER messages. For more infirmation, see reply LS on the flexibility of filtering of register request (N4-040835) and related CN1 CR (N1-041310) which was not accepted in CN1#34. This CR is a counter proposal to the solution suggested in N1-041310.
Summary of change:	⌘	Enable triggering REGISTER messages selectively to the AS based on if they are related to the initial registration, re-registration or deregistration.
Consequences if not approved:	⌘	The purpose (initial/re-/de-registration) of the REGISTER message can not be used as a condition for triggering.

Clauses affected:	⌘	B.2.3, Annex E, Cxdatatype.xsd			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	29.328 CR 094
		X /	Other core specifications		
		/ X	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘	Corresponding CN1 CR 070 against 23.218			

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.

B.2.3 Service Point Trigger

The following picture gives an outline of the UML model of Service Point Trigger class:

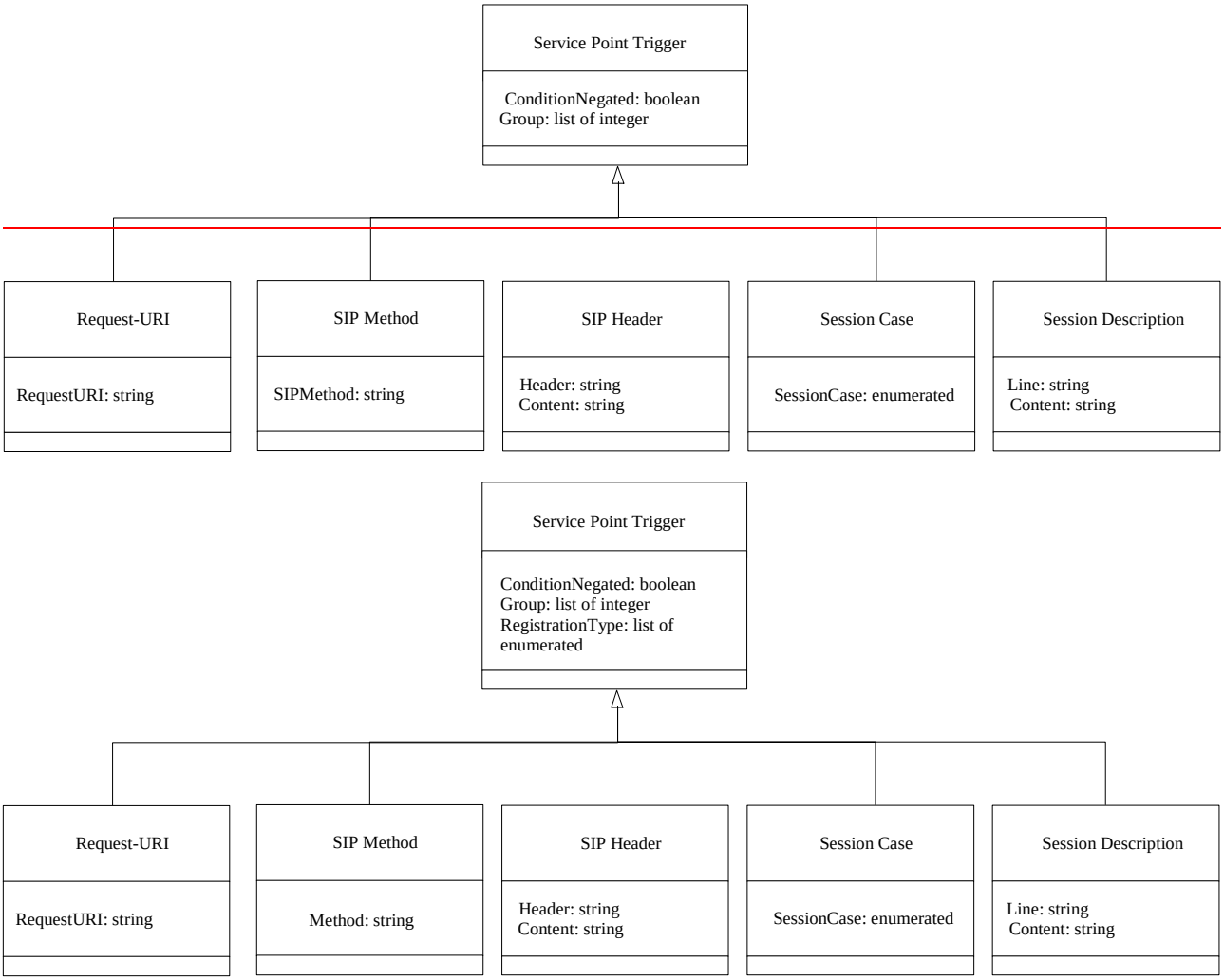

Figure B.2.3.1: Service Point Trigger

The attribute Group of the class Service Point Trigger allows the grouping of SPTs that will configure the sub-expressions inside a CNF or DNF expression. For instance, in the following CNF expression (A+B).(C+D), A+B and C+D would correspond to different groups.

In CNF, the attribute Group identifies the Ored sets of SPTinstances. If the SPTbelongs to different Ored sets, SPTcan have more than one Group values assigned. At least one Group must be assigned for each SPT.

In DNF, the attribute Group identifies the ANDed sets of SPTinstances. If the SPTbelongs to different ANDed sets, SPTcan have more than one Group values assigned. At least one Group must be assigned for each SPI.

The attribute ConditionNegated of the class Service Point Trigger defines whether the individual SPTinstance is negated (i.e. NOT logical expression).

The attribute RegistrationType of the class Service Point Trigger is relevant only to the SIP Method SPT with a value of "REGISTER" and its' support is optional in the HSS and in the S-CSCF. The RegistrationType may contain a list of values that define whether the SPT matches to REGISTER messages that are related to initial registrations, re-registrations, and/or de-registrations. If RegistrationTypes are given, the SIP Method SPT with a value of "REGISTER" shall match if any of the RegistrationTypes match and the S-CSCF supports the RegistrationType attribute. If the SIP Method SPT contains value “REGISTER”, and no RegistrationType is given, or if the S-CSCF does not support the

RegistrationType attribute, the SIP Method SPT matches to all REGISTER messages. The attribute RegistrationType may be discarded if it is present in an SPT other than SIP Method with value "REGISTER".

Request-URI class defines SPTfor the Request-URI. Request-URI contains attribute RequestURI.

SIP Method class defines SPTfor the SIP method. SIP Method contains attribute ~~SIP~~Method which ~~can evaluate to~~ holds the name of any ~~existent~~ SIP method.~~.~~

SIP Header class defines SPTfor the presence or absence of any SIP header or for the content of any SIP header. SIP Header contains attribute SIP Header which identifies the SIP Header, which is the SPT, and the Content attribute defines the value of the SIP Header if required. The value of the Content attribute is a string that shall be interpreted as a regular expression. Perl-like regular expressions shall be taken as a model for legal regular expressions for this function. A regular expression would be as simple as a literal (e.g. “john”) or a more elaborated one, allowing to match a string “containing” a substring, beginning with a substring, etc. Examples of regular expressions valid for the “Match” attribute could be:

“Joe”: meaning that a given header matches exactly with the string “Joe”.

“^(Jo).*”: meaning that a given header contains a value that begins with “Jo”.

“.*Jo.*”: meaning that a given header contains the sub string “Jo” at any position.

The absence of the Content attribute and ConditionNegated = TRUE indicates that the SPTis the absence of a determined SIP header.

Session Case class represents an enumerated type, with possible values “Originating”, “Terminating_Registered”, “Terminating_Unregistered” indicating if the filter should be used by the S-CSCF handling the Originating, Terminating for a registered end user or Terminating for an unregistered end user services.

Session Description Information class defines SPTfor the content of any SDP field within the body of a SIP Method. The Line attribute identifies the line inside the session description. Content is a string defining the content of the line identified by Line. Perl-like regular expressions shall be taken as a model for regular expressions for this function (as described above).

Annex E (normative): XML schema for the Cx interface user profile

The file CxDataType.xsd, attached to this specification, contains the XML schema for the Cx interface user profile. Such XML schema details all the data types on which XML documents containing Cx profile information shall be based. The XML schema file is intended to be used by an XML parser.

Table E.1 describes the data types and the dependencies among them that configure the XML schema.

Table E.1: XML schema for Cx interface: simple data types

Data type	Tag	Base type	Comments
tPriority	Priority	integer	>= 0
tGroupID	Group	integer	>= 0
tRegistrationType	RegistrationType	enumerated	Possible values: 0 (INITIAL_REGISTRATION) 1 (RE-REGISTRATION) 2 (DE-REGISTRATION)
tDefaultHandling	DefaultHandling	enumerated	Possible values: 0 (SESSION_CONTINUED) 1 (SESSION_TERMINATED)
tDirectionOfRequest	SessionCase	enumerated	Possible values: 0 (ORIGINATING_SESSION) 1 TERMINATING_REGISTERED 2 (TERMINATING_UNREGISTERED)
tPrivateID	PrivateID	anyURI	Syntax described in RFC 2486
tSIP_URL	Identity	anyURI	Syntax described in RFC 3261
tTEL_URL	Identity	anyURI	Syntax described in RFC 2806
TIdentity	Identity	(union)	Union of tSIP_URL and tTEL_URL
tServiceInfo	ServiceInfo	string	
tString	RequestURI, Method, Header, Content, Line	string	
Tbool	ConditionTypeCNF, ConditionNegated, BarringIndication	boolean	Possible values: 0 (false) 1 (true)
tSubscribedMediaProfileId	SubscribedMediaProfileId	integer	>=0

Table E.2: XML schema for Cx interface: complex data types

Data type	Tag	Compound of		
		Tag	Type	Cardinality
tIMSSubscription	IMSSubscription	PrivateID	tPrivateID	1
		ServiceProfile	tServiceProfile	(1 to n)
tServiceProfile	ServiceProfile	PublicIdentity	tPublicIdentity	(1 to n)
		InitialFilterCriteria	tInitialFilterCriteria	(0 to n)
		CoreNetworkServicesAuthorization	CoreNetworkServicesAuthorization	(0 to 1)
tCoreNetworkServicesAuthorization	CoreNetworkServicesAuthorization	SubscribedMediaProfileId	tSubscribedMediaProfileId	(0 to 1)
tPublicIdentity	PublicIdentity	BarringIndication	tBool	1
		Identity	tIdentity	1
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1
		TriggerPoint	tTrigger	(0 to 1)
		ApplicationServer	tApplicationServer	1
tTrigger	TriggerPoint	ConditionTypeCNF	tBool	1
		SPT	tSePoTri	(1 to n)
tSePoTri	SPT	ConditionNegated	TBool	(0 to 1)
		Group	TgroupID	(1 to n)
		Choice of: RequestURI	TString	1
		Choice of: Method	TString	1
		Choice of: SIPHeader	Theader	1
		Choice of: SessionCase	tDirectionOfRequest	1
		Choice of: SessionDescription	tSessionDescription	1
		RegistrationType	tRegistrationType	(0 to 2)
tHeader	SIPHeader	Header	TString	1

		Content	TString	(0 to 1)
tSessionDescription	SessionDescription	Line	TString	1
		Content	TString	(0 to 1)
tApplicationServer	ApplicationServer	ServerName	tSIP_URL	1
		DefaultHandling	tDefaultHandling	(0 to 1)
		ServiceInfo	tServiceInfo	(0 to 1)
NOTE: “n” shall be interpreted as non-bounded.				

3GPP TSG-CN WG4 Meeting #24 ***N4-041120***

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

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.228** **CR** **118** ⌘ **rev** **1** ⌘ Current version: **6.3.0** ⌘

*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:	⌘	XML versioning
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	16/08/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	The versioning of the user profile XML is not clearly defined.
Summary of change:	⌘	The version of the Cx application sending the user profile XML shall be the same as the version of the sent user profile XML and thus it implies the version of the user profile XML schema to be used to validate it. Also some editorial changes and clarifications are made.
Consequences if not approved:	⌘	The versioning of the user profile XML remains unclear.

Clauses affected:	⌘	6.2.1, 7.7, Annex E			
Other specs affected:	⌘	**Y** / **N**		⌘	
		X /	Other core specifications		29.328 CR 088
		/ **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.

6.2.2.1 Detailed behaviour

The HSS shall make use of this procedure to update the relevant user information ~~and/or the charging information in~~ to the S-CSCF. ~~The user information contains the user profile.~~See chapters 6.5.2.1 and 6.6.1 for the rules of user profile updating. If there are multiple registered ~~private~~ Private User ~~identities~~ Identities associated to the ~~public~~ Public User ~~identity~~ Identity in the HSS, the HSS shall send only single request and select arbitrarily one of the ~~private~~ Private User ~~identities~~ Identities and put it into the request.

The Charging-Information AVP and/or the User-Data AVP shall be present in the request. If the User-Data AVP is present in the request, ~~,~~ the S-CSCF shall overwrite, for the Public User Identities indicated in the request, current information with the information received from the HSS, except in the error situations detailed in table 6.2.2.1.1. If the Charging-Information AVP is present in the request, the S-CSCF shall replace the existing charging information with the information received from the HSS.

If the S-CSCF receives more data than it can accept, it shall return the corresponding error code to the HSS as indicated in table 6.2.2.1.1. The S-CSCF shall not overwrite the data that it already has to give service to the user. The HSS shall initiate a network-initiated de-registration procedure towards the S-CSCF with Deregistration-Reason set to SERVER_CHANGE, which will trigger the assignment of a new S-CSCF. ~~If the Charging-Information AVP is present in the request, the S-CSCF shall replace the existing charging information with the information received from the HSS.~~

~~The Charging-Information AVP and/or the User-Data AVP shall be present in the request.~~

Table 6.2.2.1.1 details the valid result codes that the S-CSCF can return in the response.

Table 6.2.2.1.1: User profile response valid result codes

Result-Code AVP value	Condition
DIAMETER_SUCCESS	The request succeeded.
DIAMETER_ERROR_NOT SUPPORTED_USER_DATA	The request failed. The S-CSCF informs the HSS that the received user information contained infor~~data~~mation, which was not recognised or supported~~, i.e. user information which is not correctly encoded according to the XML schema or standardised profile information which cannot be interpreted~~ by the S-CSCF due to unsupported S-CSCF capabilities.
DIAMETER_ERROR_USER_UNKNOWN	The request failed because the user is not found in S-CSCF.
DIAMETER_ERROR_TOO_MUCH_DATA	The request failed. The S-CSCF informs to the HSS that it tried to push too much data into the S-CSCF.
DIAMETER_UNABLE_TO_COMPLY	The request failed.

7.7 User Profile

This information element contains the user profile of a user in XML format. ~~as an XML documents conformant to~~ The user profile XML shall be valid against the user profile XML schema defined in Annex ~~D~~E.

Annex B specifies the UML logical model of the user profile downloaded via the Cx interface.

Annex ~~C~~ D contains and informative, high level representation, of the wire representation of user profile data.

Annex E (normative): XML schema for the Cx interface user profile

The file CxDataType.xsd, attached to this specification, contains the XML schema for the ~~Cx interface~~ user profile that is sent over the Cx interface. ~~Such~~ The user profile XML schema defines ~~details all~~ the data types that are used in the user profile XML~~on which XML documents containing Cx profile information shall be based~~. The data that is allowed to be sent in the user profile may vary depending on the features supported by the Diameter end points, see 3GPP TS 29.229 [5]. The user profile XML schema file is intended to be used by an XML parser. The version of the Cx application sending the user profile XML shall be the same as the version of the sent user profile XML and thus it implies the version of the user profile XML schema to be used to validate it.

Table E.1 describes the data types and the dependencies among them that configure the user profile XML schema.

Table E.1: XML schema for the Cx interface user profile: simple data types

Data type	Tag	Base type	Comments
tPriority	Priority	integer	>= 0
tGroupID	Group	integer	>= 0
tDefaultHandling	DefaultHandling	enumerated	Possible values: 0 (SESSION_CONTINUED) 1 (SESSION_TERMINATED)
tDirectionOfRequest	SessionCase	enumerated	Possible values: 0 (ORIGINATING_SESSION) 1 TERMINATING_REGISTERED 2 (TERMINATING_UNREGISTERED)
tPrivateID	PrivateID	anyURI	Syntax described in RFC 2486
tSIP_URL	Identity	anyURI	Syntax described in RFC 3261
tTEL_URL	Identity	anyURI	Syntax described in RFC 2806
tIdentity	Identity	(union)	Union of tSIP_URL and tTEL_URL
tServiceInfo	ServiceInfo	string	
tString	RequestURI, Method, Header, Content, Line	string	
tBool	ConditionTypeCNF, ConditionNegated, BarringIndication	boolean	Possible values: 0 (false) 1 (true)
tSubscribedMediaProfileId	SubscribedMediaProfileId	integer	>=0

Table E.2: XML schema for the Cx interface user profile: complex data types

Data type	Tag	Compound of		
		Tag	Type	Cardinality
tIMSSubscription	IMSSubscription	PrivateID	tPrivateID	1
		ServiceProfile	tServiceProfile	(1 to n)
tServiceProfile	ServiceProfile	PublicIdentity	tPublicIdentity	(1 to n)
		InitialFilterCriteria	tInitialFilterCriteria	(0 to n)
		CoreNetworkServicesAuthorization	CoreNetworkServicesAuthorization	(0 to 1)
tCoreNetworkServicesAuthorization	CoreNetworkServicesAuthorization	SubscribedMediaProfileId	tSubscribedMediaProfileId	(0 to 1)
tPublicIdentity	PublicIdentity	BarringIndication	tBool	1
		Identity	tIdentity	1
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1
		TriggerPoint	tTrigger	(0 to 1)
		ApplicationServer	tApplicationServer	1
tTrigger	TriggerPoint	ConditionTypeCNF	tBool	1
		SPT	tSePoTri	(1 to n)
tSePoTri	SPT	ConditionNegated	tBool	(0 to 1)
		Group	tGroupID	(1 to n)
		Choice of: RequestURI	tString	1
		Choice of: Method	tString	1
		Choice of: SIPHeader	tHeader	1
		Choice of: SessionCase	tDirectionOfRequest	1
		Choice of: SessionDescription	tSessionDescription	1
tHeader	SIPHeader	Header	tString	1
		Content	tString	(0 to 1)

tSessionDescription	SessionDescription	Line	tString	1
		Content	tString	(0 to 1)
tApplicationServer	ApplicationServer	ServerName	tSIP_URL	1
		DefaultHandling	tDefaultHandling	(0 to 1)
		ServiceInfo	tServiceInfo	(0 to 1)
NOTE: “n” shall be interpreted as non-bounded.				

3GPP TSG-CN WG4 Meeting #24 ***N4-041121***

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

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.328** **CR** **088** ⌘ **rev** **1** ⌘ 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:	⌘	XML versioning
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	16/08/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	The versioning of the user profile XML is not clearly defined.
Summary of change:	⌘	The version of the Sh application sending the user profile XML shall be the same as the version of the sent user profile XML and thus it implies the version of the user profile XML schema to be used to validate it. Also some editorial changes and clarifications are made.
Consequences if not approved:	⌘	The versioning of the user profile XML remains unclear.

Clauses affected:	⌘	Annex D			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	29.228 CR 118
		X /	Other core specifications		
		/ X	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘	-			

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

Annex D (normative): XML schema for the Sh interface user profile

The file ShDataType.xsd, attached to this specification, contains the XML schema for the ~~Sh interface~~ user profile that is sent over the Sh interface. ~~Such~~ The user profile XML schema defines ~~details all~~ the data types that are used in the user profile XML ~~on which XML documents containing Sh profile information shall be based~~. The data that is allowed to be sent in the user profile may vary depending on the features supported by the Diameter end points, see 3GPP TS 29.229 [5]. The user profile XML schema file is intended to be used by an XML parser. The version of the Sh application sending the user profile XML shall be the same as the version of the sent user profile XML and thus it implies the version of the user profile XML schema to be used to validate it.

Tables D.1 and D.2 describe the data types and the dependencies among them that configure the user profile XML schema.

Table D.1: XML schema for the Sh interface user profile: simple data types

Data type	Tag	Base type	Comments
tPriority	Priority	integer	>= 0
tGroupID	Group	integer	>= 0
tDefaultHandling	DefaultHandling	enumerated	Possible values: 0 (SESSION_CONTINUED) 1 (SESSION_TERMINATED)
tDirectionOfRequest	SessionCase	enumerated	Possible values: 0 (ORIGINATING_SESSION) 1 TERMINATING_SESSION 2 (TERMINATING_UNREGISTERED)
tIMSUserState	IMSUserState	Enumerated	Possible values: 0 (NOT_REGISTERED) 1 (REGISTERED) 2 (REGISTERED_UNREG_SERVICES) 3 (AUTHENTICATION_PENDING)
tCSUserState	CSUserState	Enumerated	Possible values (as defined in 3GPP TS 23.078 [14]): 0 (CAMELBusy) 1 (NetworkDeterminedNotReachable) 2 (AssumedIdle) 3 (NotProvidedfromVLR)
tPSUserState	PSUserState	Enumerated	Possible values (as defined in 3GPP TS 23.078 [14]): 0 (Detached) 1 (AttachedNotReachableForPaging) 2 (AttachedReachableForPaging) 3 (ConnectedNotReachableForPaging) 4 (ConnectedReachableForPaging) 5 (NotProvidedFromSGSN)
tLocationNumber	LocationNumber	string	Syntax described in ITU-T Q.763 [9] (Base64

			encoded according to RFC 2045 [15]). Lenght >=4 and <=16 (multiples of 4).
tCellGlobalId	CellGlobalId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 12.
tServiceAreaId	ServiceAreaId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 12.
tLocationAreaId	LocationAreaId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 8.
tRoutingAreaId	RoutingAreaId	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 8.
tGeographicalInformation	GeographicalInformation	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 12.
tGeodeticInformation	GeodeticInformation	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length = 16.
tAgeOfLocationInformation	AgeOfLocationInformation	integer	>=0, <=32767
tAddressString	AddressString	string	Syntax described in 3GPP TS 29.002 [13] (Base64 encoded according to RFC 2045 [15]). Length >= 4 and <=28 (multiples of 4).
tMSISDN	MSISDN	string	Syntax described in 3GPP TS 23.003 [11].
tSIP_URL	PublicIdentity	anyURI	Syntax described in RFC 3261 [16]
tTEL_URL	PublicIdentity	anyURI	Syntax described in RFC 2806 [17]
tDiameterURI	DiameterURI	string	Syntax of a Diameter URI as described in IETF RFC 3588 [8]
tIMSPublicIdentity	IMSPublicIdentity	(union)	Union of tSIP_URL and tTEL_URL
tServiceInfo	ServiceInfo	string	
tString	RequestURI, Method, Header, Content, Line	string	

tBool	ConditionTypeCNF, ConditionNegated	boolean	Possible values: 0 (false) 1 (true)
tSequenceNumber	SequenceNumber	integer	>=0, <=65535

Table D.2: XML schema for the Sh interface user profile: complex data types

Data type	Tag	Compound of		
		Tag	Type	Cardinality
tSh-Data	Sh-Data	PublicIdentifiers	tPublicIdentity	0 to 1
		RepositoryData	tTransparentData	0 to 1
		Sh-IMS-Data	tShIMSData	0 to 1
		CSLocationInformation	tCSLocationInformation	0 to 1
		PSLocationInformation	tPSLocationInformation	0 to 1
		CSUserState	tCSUserState	0 to 1
		PSUserState	tPSUserState	0 to 1
tTransparentData	RepositoryData	ServiceIndication	string	1
		SequenceNumber	tSequenceNumber	1
		ServiceData	tServiceData	0 to 1
tServiceData	any	any	any	1
tShIMSData	Sh-IMS-Data	SCSCFName	tSIP_URL	0 to 1
		InitialFilterCriteria	tInitialFilterCriteria	0 to n
		IMSUserState	tIMSUserState	0 to 1
		ChargingInformation	tChargingInformation	0 to 1
tCSLocationInformation	CSLocationInformation	LocationNumber	tLocationNumber	0 to 1
		CellGlobalId	tCellGlobalId	0 to 1
		ServiceAreaId	tServiceAreaId	0 to 1
		LocationAreaId	tLocationAreaId	0 to 1
		GeographicalInformation	tGeographicalInformation	0 to 1

		GeodeticInformation	tGeodeticInformation	0 to 1
		VLRNumber	tISDNAddress	0 to 1
		MSCNumber	tISDNAddress	0 to 1
		CurrentLocationRetrieved	tBool	0 to 1
		AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1
tPSLocationInformation	PSLocationInformation	CellGlobalId	tCellGlobalId	0 to 1
		ServiceAreaId	tServiceAreaId	0 to 1
		LocationAreaId	tLocationAreaId	0 to 1
		RoutingAreaId	tRoutingAreaId	0 to 1
		GeographicalInformation	tGeographicalInformation	0 to 1
		GeodeticInformation	tGeodeticInformation	0 to 1
		SGSNNumber	tISDNAddress	0 to 1
		CurrentLocationRetrieved	tBool	0 to 1
		AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1
tPublicIdentity	PublicIdentity	IMSPublicIdentity	tIMSPublicIdentity	0 to n
		MSISDN	tMSISDN	0 to n
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1
		TriggerPoint	tTrigger	0 to 1
		ApplicationServer	tApplicationServer	1
tTrigger	TriggerPoint	ConditionTypeCNF	tBool	1

		SPT		tSePoTri	0 to n
tSePoTri	SPT	ConditionNegated		tBool	0 to 1
		Group		tGroupID	1 to n
		Choice of	RequestURI	tString	1
			Method	tString	1
			SIPHeader	tHeader	1
			SessionCase	tDirectionOfRequest	1
			SessionDescription	tSessionDescription	1
tHeader	SIPHeader	Header		tString	1
		Content		tString	0 to 1
tSessionDescription	SessionDescription	Line		tString	1
		Content		tString	0 to 1
tApplicationServer	ApplicationServer	ServerName		tSIP_URL	1
		DefaultHandling		tDefaultHandling	0 to 1
		ServiceInfo		tServiceInfo	0 to 1
tChargingInformation	ChargingInformation	PrimaryEventChargingFunctionName		tDiameterURI	0 to 1
		SecondaryEventChargingFunctionName		tDiameterURI	0 to 1
		PrimaryChargingCollectionFunctionName		tDiameterURI	1
		SecondaryChargingCollectionFunctionName		tDiameterURI	0 to 1
NOTE: “n” shall be interpreted as non-bounded.					

3GPP TSG CN WG4 Meeting #24 **N4-041122**
Sophia Antipolis, FRANCE, 16th – 20th AUGUST 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **122** ⌘ **rev** **1** ⌘ Current version: **6.3.0** ⌘

*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:	⌘	Optimization of User Profile Download
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	16/08/2004
Category:	⌘	**B**
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:	⌘	To optimize the user data download procedure with respect to signalling load on the Cx interface and memory capacity in HSS and S-CSCF.
Summary of change:	⌘	A subset of all Initial Filter Criteria (iFCs) belonging to a service profile may be defined to be a shared set of iFCs identified by a unique identifier. Instead of explicitly downloading iFCs belonging to a shared set, it is possible to simply download the identifier, and so save signalling capacity. Furthermore instead of storing the iFCs belonging to a shared set individually against each service profile that shares the set of iFCs, it is possible to simply store the identifier, and so save memory capacity. A locally administered database in the S-CSCF and the HSS provides the mapping between shared sets of iFCs and their identifiers. This optimization is an optional feature
Consequences if not approved:	⌘	No saving of signalling and memory capacity.

Clauses affected:	⌘	6.6, B.1, B.2, E, xsd-file			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	29.229 CR 056
		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.

6.6 Download of the Relevant User Profile

The download of the relevant user profile from the HSS to the S-CSCF depends on whether the user profile is already stored in the S-CSCF and/or on the user profile requested from the S-CSCF and/or whether the requested user profile is up-to-date in the S-CSCF. If the SiFC feature is supported by the HSS and S-CSCF, the HSS shall download the identifiers of the shared iFC sets. If either the HSS or the S-CSCF does not support the SiFC feature, the HSS shall download the complete iFCs, and SiFC identifiers shall not be downloaded by the HSS. The SiFC feature is defined in 3GPP TS 29.229 [5]. ~~Depending on the support of the SiFC feature in both the HSS and the S-CSCF, the HSS may download either the identifiers of the shared iFC sets or the complete iFCs of the shared iFC sets to the S-CSCF. For definition of the SiFC feature see section 7.1.y in 3GPP TS 29.229 [5]~~

If User-Data-Already-Available is set to USER_DATA_NOT_AVAILABLE the HSS shall download the requested profile, according to the value of User-Data-Request-Type. See Section 6.3.25 in 3GPP TS 29.229 [5].

If User-Data-Already-Available is set to USER_DATA_ALREADY_AVAILABLE and the requested user profile is not up-to-date (according to the indications stored in HSS defined in 6.6.1) the HSS shall download the requested profile, according to the value of User-Data-Request-Type. See Section 6.3.25 in 3GPP TS 29.229 [5].

Otherwise, the HSS shall not return any user profile data.

**********next modification**********

Annex B (informative): User profile UML model

The purpose of this UML model is to define in an abstract level the structure of the user profile downloaded over the Cx interface and describe the purpose of the different information classes included in the user profile.

B.1 General description

The following picture gives an outline of the UML model of the user profile, which is downloaded from HSS to S-CSCF:

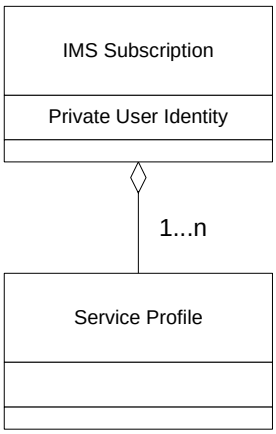

Figure B.1.1: User Profile

IMS Subscription class contains as a parameter the private user identity of the user in NAI format.

Each instance of the IMS Subscription class contains one or several instances of the class Service Profile. ~~Service Profile class contains the meaningful data in the user profile: Public Identification, Core Network Service Authorization and Initial Filter Criteria.~~

B.2 Service profile

The following picture gives an outline of the UML model of the Service Profile class:

:

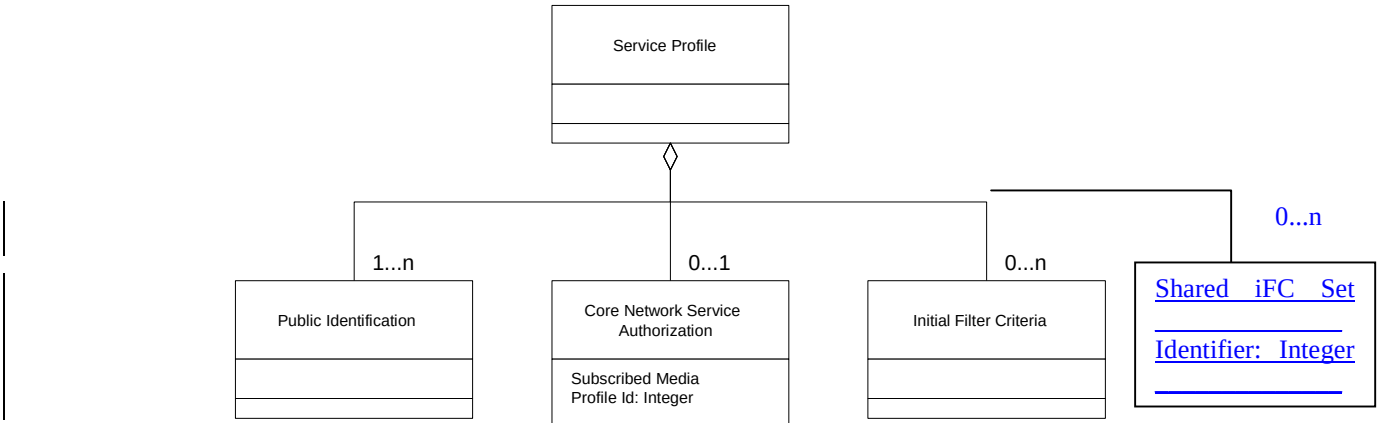

Figure B.2.1: Service Profile

Each instance of the Service Profile class consists of one or several instances of the class Public Identification. Public Identification class contains the public identities of the user associated with that service profile. The information in the Core Network Service Authorization, ~~and~~ Initial Filter Criteria, and Shared iFC Set classes apply to all public identity instances, which are included in one Service profile class.

Each instance of the Service Profile class contains zero or one instance of the class Core Network Service Authorization. If no instance of the class Core Network Service Authorization is present, no filtering related to subscribed media applies in S-CSCF.

Each instance of the class Service Profile contains zero or several instances of the class Initial Filter Criteria.

Each instance of the class Service Profile contains zero or more instances of the class Shared iFC Set. A Shared iFC Set points to a set of Initial Filter Criteria locally administered and stored at the S-CSCF. Shared iFC Sets may be shared by several Service Profiles.

**********next modification**********

Annex E (normative): XML schema for the Cx interface user profile

The file CxDataType.xsd, attached to this specification, contains the XML schema for the Cx interface user profile. Such XML schema details all the data types on which XML documents containing Cx profile information shall be based. The XML schema file is intended to be used by an XML parser.

Table E.1 describes the data types and the dependencies among them that configure the XML schema.

Table E.1: XML schema for Cx interface: simple data types

Data type	Tag	Base type	Comments
tPriority	Priority	integer	>= 0
tSharedIFCSetID	SharedIFCSetID	integer	>= 0
tGroupID	Group	integer	>= 0
tDefaultHandling	DefaultHandling	enumerated	Possible values: 0 (SESSION_CONTINUED) 1 (SESSION_TERMINATED)
tDirectionOfRequest	SessionCase	enumerated	Possible values: 0 (ORIGINATING_SESSION) 1 TERMINATING_REGISTERED 2 (TERMINATING_UNREGISTERED)
tPrivateID	PrivateID	anyURI	Syntax described in RFC 2486
tSIP_URL	Identity	anyURI	Syntax described in RFC 3261
tTEL_URL	Identity	anyURI	Syntax described in RFC 2806
tIdentity	Identity	(union)	Union of tSIP_URL and tTEL_URL
tServiceInfo	ServiceInfo	string	
tString	RequestURI, Method, Header, Content, Line	string	
tBool	ConditionTypeCNF, ConditionNegated, BarringIndication	boolean	Possible values: 0 (false) 1 (true)
tSubscribedMediaProfileId	SubscribedMediaProfileId	integer	>=0

Table E.2: XML schema for Cx interface: complex data types

Data type	Tag	Compound of		
		Tag	Type	Cardinality
tIMSSubscription	IMSSubscription	PrivateID	tPrivateID	1
		ServiceProfile	tServiceProfile	(1 to n)
tServiceProfile	ServiceProfile	PublicIdentity	tPublicIdentity	(1 to n)
		InitialFilterCriteria	tInitialFilterCriteria	(0 to n)
		CoreNetworkServicesAuthorization	tCoreNetworkServicesAuthorization	(0 to 1)
		SharedIFCSetID	tSharedIFCSetID	(0 to n)
tCoreNetworkServicesAuthorization	CoreNetworkServicesAuthorization	SubscribedMediaProfileId	tSubscribedMediaProfileId	(0 to 1)
tPublicIdentity	PublicIdentity	BarringIndication	tBool	1
		Identity	tIdentity	1
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1
		TriggerPoint	tTrigger	(0 to 1)
		ApplicationServer	tApplicationServer	1
tTrigger	TriggerPoint	ConditionTypeCNF	tBool	1
		SPT	tSePoTri	(1 to n)
tSePoTri	SPT	ConditionNegated	tBool	(0 to 1)
		Group	tGroupID	(1 to n)
		Choice of: RequestURI	tString	1
		Choice of: Method	tString	1
		Choice of: SIPHeader	tHeader	1
		Choice of: SessionCase	tDirectionOfRequest	1
		Choice of: SessionDescription	tSessionDescription	1
tHeader	SIPHeader	Header	tString	1

		Content	tString	(0 to 1)
tSessionDescription	SessionDescription	Line	tString	1
		Content	tString	(0 to 1)
tApplicationServer	ApplicationServer	ServerName	tSIP_URL	1
		DefaultHandling	tDefaultHandling	(0 to 1)
		ServiceInfo	tServiceInfo	(0 to 1)
NOTE: “n” shall be interpreted as non-bounded.				

3GPP TSG-CN WG4 Meeting #24 ***N4-041126***

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

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.230** **CR** **003** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

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

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

Title:	⌘	Removal of User Data Request Type AVP
Source:	⌘	CN4
Work item code:	⌘	IMS2-CCR
Date:	⌘	16/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	User Data Request Type AVP is removed from Cx interface by CR's linked below and is not used anywhere else in 3GPP defined Diameter applications.
Summary of change:	⌘	User Data Request Type AVP is removed from the spec
Consequences if not approved:	⌘	AVP that is not used in any 3GPP Diameter application remains in the TS.

Clauses affected:	⌘	7.1			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	29.228 CR 124r1, 29.229 CR 058
			Test specifications		
			O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:
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Below is a brief summary:

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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.

7.1 3GPP specific AVP codes

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

Table 7.1: 3GPP specific AVP codes

AVP Code	Attribute Name	Data Type	Specified in the TS
1	Visited-Network-Identifier	OctetString	
2	Public-Identity	UTF8String	
3	Server-Name	UTF8String	
4	Server-Capabilities	Grouped	
5	Mandatory-Capability	Unsigned32	
6	Optional-Capability	Unsigned32	
7	User-Data	OctetString	
8	SIP-Number-Auth-Items	Unsigned32	
9	SIP-Authentication-Scheme	UTF8String	
10	SIP-Authenticate	OctetString	
11	SIP-Authorization	OctetString	
12	SIP-Authentication-Context	OctetString	
13	SIP-Auth-Data-Item	Grouped	
14	SIP-Item-Number	Unsigned32	29.229 [2]
15	Server-Assignment-Type	Enumerated	
16	Deregistration-Reason	Grouped	
17	Reason-Code	Enumerated	
18	Reason-Info	UTF8String	
19	Charging-Information	Grouped	
20	Primary-Event-Charging-Function-Name	DiameterURI	
21	Secondary-Event-Charging-Function-Name	DiameterURI	
22	Primary-Charging-Collection-Function-Name	DiameterURI	
23	Secondary-Charging-Collection-Function-Name	DiameterURI	
24	User-Authorization-Type	Enumerated	
25	~~User-Data-Request-Type~~Void	~~Enumerated~~	
26	User-Data-Already-Available	Enumerated	
27	Confidentiality-Key	OctetString	
28	Integrity-Key	OctetString	
Note: The AVP codes from 29 to 99 are reserved for TS 29.229.			
100	User-Identity	Grouped	
101	MSISDN	OctetString	
102	User-Data	OctetString	
103	Data-Reference	Enumerated	
104	Service-Indication	OctetString	29.329 [4]
105	Subs-Req-Type	Enumerated	
106	Requested-Domain	Enumerated	
107	Current-Location	Enumerated	
108	Identity-Set	Enumerated	
Note: The AVP codes from 109 to199 are reserved for TS 29.329.			
			32.225 [5]
Note: The AVP codes from 200 to 299 are reserved for TS 32.225			
			29.234 [6]
Note: The AVP codes from 300 to 399 are reserved for TS 29.234			
			29.109 [7]
Note: The AVP codes from 400 to 499 are reserved for TS 29.109			
			29.209 [8]
Note: The AVP codes from 500 to 599 are reserved for TS 29.209			