TSGS#27(05)0030

Source: SA5 (Telecom Management)

Title: CR 32225-260-299 IMS charging - Diameter charging applications

Document for: Approval

Agenda Item: 7.5.3

Doc-1st-Level	Spec	CR	R	Phase	Subject	Ca	VerCr	Doc-2nd-Level	Workitem
SP-050030	32.225	032	--	Rel-5	Correction of missing Service Specific Data AVP (Attribute Value Pair)	F	5.7.0	S5-054184	OAM-CH
SP-050030	32.260	001	--	Rel-6	Correction of missing Service Specific Data AVP (Attribute Value Pair)	A	6.0.0	S5-054185	OAM-CH
SP-050030	32.299	006	--	Rel-6	Correction of missing Service Specific Data AVP (Attribute Value Pair)	A	6.1.0	S5-054195	OAM-CH
SP-050030	32.225	033	--	Rel-5	Correction of criteria for the presence of the GPRS charging ID in the IMS CDRs – Align with SA2's TS 23.228	F	5.7.0	S5-054186	OAM-CH
SP-050030	32.260	002	--	Rel-6	Correction of criteria for the presence of the GPRS charging ID in the IMS CDRs - Align with SA2's TS 23.228	A	6.0.0	S5-054198	OAM-CH
SP-050030	32.299	007	--	Rel-6	Correction of criteria for the presence of the GPRS charging ID in the Diameter Accounting messages - Align with SA2's TS 23.228	A	6.1.0	S5-054199	OAM-CH
SP-050030	32.260	003	--	Rel-6	Correction of table 5.1: "addition of reporting of 2xx/3xx events"	F	6.0.0	S5-054191	CH
SP-050030	32.299	008	--	Rel-6	Correct the description of Charging Key	F	6.1.0	S5-054187	CH
SP-050030	32.299	009	--	Rel-6	Correction of Termination action	B	6.1.0	S5-054188	CH
SP-050030	32.299	010	--	Rel-6	Correction of missing Quota-Consumption-Time	F	6.1.0	S5-054189	CH
SP-050030	32.299	011	--	Rel-6	Correction of cause code for 2xx events	F	6.1.0	S5-054192	CH
SP-050030	32.299	012	--	Rel-6	Correction of missing cause code to distinguishing deregistration charging event	F	6.1.0	S5-054193	CH
SP-050030	32.299	013	--	Rel-6	Correction to Session Charging with Unit Reservation (SCUR)	F	6.1.0	S5-054194	CH
SP-050030	32.299	014	--	Rel-6	Correction to Server-Capabilities AVP	F	6.1.0	S5-054196	CH
SP-050030	32.299	015	--	Rel-6	Correction on Tariff Switch handling	F	6.1.0	S5-054197	CH

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054184***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.225** **CR** **032** ⌘ **rev** **-** ⌘ Current version: **5.7.0** ⌘

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

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

Title:	⌘	Correction of missing Service Specific Data AVP (Attribute Value Pair)
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	OAM-CH
Date:	⌘	28/01/2005
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:	⌘	The IMS CDRs include the "Service specific data" parameter. The corresponding Diameter AVP is missing
Summary of change:	⌘	A new AVP "Service Specific Data" is created
Consequences if not approved:	⌘	Mismatch between the IMS CDR parameter and the Diameter Accounting message AVP

Clauses affected:	⌘	5.1.3, 7.2

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

⌘

Other comments:	⌘	Rel-6 mirrors in S5-054185 TS (32.260) and S5-054195 (TS 32.299)

Change in Clause 5.1.3

5.1.3 Message Formats

…

5.1.3.2.1 Accounting-Request Message

Table 5.4 illustrates the basic structure of a Diameter *Accounting-Request* message as used for offline charging. The use of the AVPs is specified in subclause 5.1.3.3 per IMS node and ACR type.

Table 5.4: Accounting-Request (ACR) Message Contents for Offline Charging

Diameter base protocol AVPs	
AVP	**Used in offline ACR**
<Diameter-Header:271,REQ,PXY>	Yes
<Session-Id> -- Diameter Session Id	Yes
{Origin-Host}	Yes
{Origin-Realm}	Yes
{Destination-Realm}	Yes
{Accounting-Record-Type}	Yes
{Accounting-Record-Number}	Yes
[Acct-Application-Id]	No
[Vendor-Specific-Application-Id]	Yes
[User-Name]	Yes
[Accounting-Sub-Session-Id]	No
[Accounting-RADIUS-Session-Id]	No
[Acct-Multi-Session-Id]	No
[Acct-Interim-Interval]	Yes
[Accounting-Realtime-Required]	No
[Origin-State-Id]	Yes
[Event-Timestamp]	Yes
*[Proxy-Info]	No
*[Route-Record]	No
*[AVP]	No
3GPP Diameter accounting AVPs	
[Event-Type]	Yes
[Role-of-node]	Yes
[User-Session-ID]	Yes
[Calling-Party-Address]	Yes
[Called-Party-Address]	Yes
[Time-stamps]	Yes
*[Application-Server-Information]	Only for S-CSCF/MRFC
*[Inter-Operator-Identifier]	Yes
[IMS-Charging-Identifier]	Yes
*[SDP-Session-Description]	Yes
*[SDP-Media-Component]	Yes
[GGSN-Address]	Yes
[Served-Party-IP-Address]	Only for P-CSCF
[Authorised-QoS]	Only for P-CSCF
[Server-Capabilities]	Only for I-CSCF
[Trunk-Group-ID]	Only for MGCF
[Bearer-Service]	Only for MGCF
[Service-ID]	Only for MRFC
[Service-Specific-Data]	Only for AS
[UUS-Data]	Yes
[Cause]	Yes

…

5.1.3.3 Detailed Message Formats

…

Table 5.8: Detailed Diameter ACR Message Contents for Offline Charging

AVP name	Node Type	S-CSCF	P-CSCF	I-CSCF	MRFC	MGCF	BGCF	AS
	Supported ACRs	S/I/S/E	S/I/S/E	E	S/I/S	S/I/S/E	S/I/S/E	S/I/S/E
AVPs from the Diameter base protocol								
<Session-Id>		SISE	SISE	E	SIS	SISE	SISE	SISE
{Origin-Host}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Origin-Realm}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Destination-Realm}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Accounting-Record-Type}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Accounting-Record-Number}		SISE	SISE	E	SIS	SISE	SISE	SISE
[Vendor-Specific-Application-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Acct-Application-Id]		-	-	-	-	-	-	-
[User-Name] (see note 1)		SISE	SISE	E	SIS	SISE	SISE	SISE
[Accounting-Sub-Session-Id]		-	-	-	-	-	-	-
[Accounting-RADIUS-Session-Id]		-	-	-	-	-	-	-
[Acct-Multi-Session-Id]		-	-	-	-	-	-	-
[Acct-Interim-Interval]		SIS-	SIS-	-	SIS-	SIS-	SIS-	SIS-
[Accounting-Realtime-Required]		-	-	-	-	-	-	-
[Origin-State-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Event-Timestamp]		SISE	SISE	E	SIS	SISE	SISE	SISE
*[Proxy-Info]		-	-	-	-	-	-	-
*[Route-Record]		-	-	-	-	-	-	-
*[AVP]		-	-	-	-	-	-	-
Diameter Credit Control AVP								
[Subscription-Id]		-	-	-	-	-	-	-
[Requested-Action]		-	-	-	-	-	-	-
*[Requested-Service-Unit]		-	-	-	-	-	-	-
*[Used-Service-Unit]		-	-	-	-	-	-	-
*[Service-Parameter-Info]		-	-	-	-	-	-	-
[Abnormal-Termination-Reason]		-	-	-	-	-	-	-
*[Accounting-Correlation-Id]		-	-	-	-	-	-	-
[Credit-Control-Failure-Handling]		-	-	-	-	-	-	-
[Direct-Debiting-Failure-Handling]		-	-	-	-	-	-	-
3GPP Diameter accounting AVPs								
[Event-Type]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Role-of-Node]		SISE	SISE	E	SIS	SISE	SISE	SISE
[User-Session-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Calling-Party-Address]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Called-Party-Address]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Time-stamps]		SISE	SISE	E	SIS	SISE	SISE	SISE
*[Application-server-Information] (see note 1)		SISE	-	-	SIS-	-	-	-
*[Inter-Operator-Identifiers] (see note 1)		SISE	SISE	E	SIS	SISE	SISE	SISE
[IMS-Charging-Identifier]		SISE	SISE	E	SIS	SISE	SISE	SISE
*[SDP-Session-Description]		SI-E	SI-E	-	SI-	SI-E	SI-E	SI-E
*[SDP-Media-component]		SI-E	SI-E		SI-	SI-E	SI-E	SI-E
[GGSN-Address]		SI-E	SI-E		SI-	SI-E	SI-E	SI-E
[Served-Party-IP-Address] (see note 1)		-	SISE	-	-	-	-	-
[Authorized-QoS] (see note 1)		-	SISE	-	-	-	-	-
[Server-Capabilities]		-	-	E	-	-	-	-
[Trunk-Group-ID]		-	-	-	-	SISE	-	-
[Bearer-Service]		-	-	-	-	SISE	-	-
[Service-Id]		-	-	-	SIS	-	-	-
[Service-Specific-Data]		-	-	-	-	-	-	SISE
[UUS-Data] (see note 2)		SISE	SISE					SISE
[Cause]		--SE	--SE	E	--S	--SE	--SE	--SE
NOTE 1: Only present if available in the IMS node. NOTE 2: Present only if user-to-user data is included in the SIP message that triggered the ACR.								

End of Change in Clause 5.1.3

Change in Clause 7

7.2 Additional AVPs

For the purpose of IMS charging additional AVPs are used in ACR and ACA for offline charging. The use of these AVPs are described in subclause 5.1.3 for offline charging and in subclause 6.1.3 for online charging. The information is summarized in table 7.2 along with the AVP flag rules.

Detailed descriptions of AVPs that are used specifically for IMS charging are provided in the subclauses below the table. However, for AVPs that are just borrowed from other applications only the reference (e.g. [13]), is provided in table 7.2 and the detailed description is not repeated.

Table 7.2: Use Of Diameter Credit Control and 3GPP accounting AVPs for IMS

AVP Name	AVP Code	Clause Defined	Value Type	AVP Flag rules				
				Must	May	Should not	Must not	May Encr.
CC-Correlation-Id	[13]	[13]	OctetString					
CC-Input-Octets	[13]	[13]	Unsigned64					
CC-Money	[13]	[13]	Grouped					
CC-Output-Octets	[13]	[13]	Unsigned64					
CC-Request-Number	[13]	[13]	Unsigned32					
CC-Request-Type	[13]	[13]	Enumerated					
CC-Service-Specific-Units	[13]	[13]	Unsigned64					
CC-Session -Failover	[13]	[13]	Enumerated					
CC-Sub-Session-Id	[13]	[13]	Unsigned64					
CC-Time	[13]	[13]	Unsigned32					
CC-Total-Octets	[13]	[13]	Unsigned64					
CC-Unit-Type	[13]	[13]	Enumerated					
Check-Balance-Result	[13]	[13]	Enumerated					
Cost-Information	[13]	[13]	Grouped					
Cost-Unit	[13]	[13]	UTF8String					
Credit-Control	[13]	[13]	Enumerated					
Credit-Control-Failure-Handling	[13]	[13]	Enumerated					
Currency-Code	[13]	[13]	Unsigned32					
Direct-Debiting	[13]	[13]	Enumerated					
Failure-Handling-Exponent	[13]	[13]	Integer32					
Final-Unit-Action	[13]	[13]	Enumerated					
Final-Unit-Indication	[13]	[13]	Grouped					
Granted-Service-Unit	[13]	[13]	Grouped					
Granted-Service-Unit -Pool-Identifier	[13]	[13]	Unsigned32					
Granted-Service-Unit -Pool-Reference	[13]	[13]	Grouped					
Multiple-Services-Credit-Control	[13]	[13]	Grouped					
Multiple-Services-Indicator	[13]	[13]	Enumerated					
Rating-Group	[13]	[13]	Unsigned32					
Redirect-Address-Type	[13]	[13]	Enumerated					
Redirect-Server	[13]	[13]	Grouped					
Redirect-Server-Address	[13]	[13]	UTF8String					
Requested-Action	[13]	[13]	Enumerated					
Requested-Unit	[13]	[13]	Grouped					
Restriction -Filter-Rule	[13]	[13]	IPFiltrRule					
Service-Identifier	[13]	[13]	UTF8String					
Service-Parameter-Info	[13]	[13]	Grouped					
Service-Parameter-Type	[13]	[13]	Unsigned32					
Service- Parameter-Value	[13]	[13]	OctetString					
Subscription-Id	[13]	[13]	Grouped					
Subscription-Id-Data	[13]	[13]	UTF8String					
Subscription-Id-Type	[13]	[13]	Enumerated					
Tariff-Change-Usage	[13]	[13]	Enumerated					
Tariff-Time-Change	[13]	[13]	Time					
Unit-Value	[13]	[13]	Grouped					
Used-Service-Unit	[13]	[13]	Grouped					
User-Equipment-Info	[13]	[13]	Grouped					
User-Equipment-Info-Type	[13]	[13]	Unsigned32					
User-Equipment-Info-Value	[13]	[13]	UTF8String					
Value-Digits	[13]	[13]	Integer64					
Validity-Time	[13]	[13]	Unsigned32					
3GPP Diameter Accounting AVPs								
[Event-Type]	823	7.2.16	Grouped	V				
[SIP-Method]	824	7.2.34	UTF8String	V				
[Event]	825	7.2.15	UTF8String	V				
[Content-Type]	826	7.2.12	UTF8String	V				
[Content-Length]	827	7.2.11	UTF8String	V				
[Content-Disposition]	828	7.2.10	UTF8String	V				
[Role-of-Node]	829	7.2.27	Enumerated	V				
[User Session Id]	830	7.2.45	UTF8String	V				
[Calling-Party-Address]	831	7.2.7	UTF8String	V				
[Called-Party-Address]	832	7.2.6	UTF8String	V				
[Time-stamps]	833	7.2.39	Grouped	V				
[SIP-Request-Timestamp]	834	7.2.35	UTF8String	V				
[SIP-Response-Timestamp]	835	7.2.36	UTF8String	V				
*[Application-server-Information]	863	7.2.2a	Grouped					
[Application-server]	836	7.2.3	UTF8String	V				
[Application-provided-called-party-address]	837	7.2.2	UTF8String	V				
*[Inter-Operator-Identifier]	838	7.2.22	Grouped	V				

AVP Name	AVP Code	Clause Defined	Value Type	AVP Flag rules				
				Must	May	Should not	Must not	May Encr.
[Originating-IOI]	839	7.2.25	UTF8String	V				
[Terminating-IOI]	840	7.2.38	UTF8String	V				
[IMS-Charging-Identifier]	841	7.2.20	UTF8String	V				
*[SDP-Session-Description]	842	7.2.31	UTF8String	V				
*[SDP-Media-component]	843	7.2.28	Grouped	V				
[SDP-Media-Name]	844	7.2.30	UTF8String	V				
*[SDP-Media-Description]	845	7.2.29	UTF8String	V				
[GPRS-Charging-Id]	846	7.2.18	UTF8String	V				
[GGSN-Address]	847	7.2.17	IPAddress	V				
[Served-Party-IP-Address]	848	7.2.32	IPAddress	V				
[Authorized-QoS]	849	7.2.4	UTF8String	V				
[Server-Capabilities]	[19]	[19]		V				
[Trunk-Group-Id]	851	7.2.40	Grouped	V				
[Incoming-Trunk-Group-Id]	852	7.2.21	UTF8String	V				
[Outgoing-Trunk-Group-Id]	853	7.2.26	UTF8String	V				
[Bearer-Service]	854	7.2.5	OctetString	V				
[Service-Id]	855	7.2. 33	UTF8String	V				
[UUS-Data]	856	7.2.46	Grouped	V				
[Amount-of-UUS-data]	857	7.2.1	UTF8String	V				
[Mime-type]	858	7.2.23	UTF8String	V				
[Direction]	859	7.2.14	Enumerated	V				
[Cause]	860	7.2.8	Grouped	V				
{Cause-Code}	861	7.2.9	Enumerated	V				
{Node-Functionality}	862	7.2.24	Enumerated	V				
[Service-Specific-Data]	xxx	7.2.31A	UTF8String					

7.2.1 Amount-of-UUS-Data AVP

The *Amount-Of-UUS-Data* AVP (AVP code 857) is of type UTF8String and holds the amount (in octets) of User-to-User data conveyed in the body of the SIP message with content-disposition header field equal to "render".

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7.2.31 Service-ID AVP

The *Service-ID* AVP (AVP code 855) is of type UTF8String and identifies the service the MRFC is hosting. For conferences the conference ID is used as the value of this parameter.

7.2.31A Service-Specific-Data AVP

The *Service-Specific-Data* AVP (AVP Code xxx) is of type UTF8String and holds service specific data if and as provided by an Application Server

7.2.32 SIP-Method AVP

The *SIP-Method* AVP (AVP code 824) is of type UTF8String and holds the name of the SIP Method (INVITE, UPDATE etc.) causing an accounting request to be sent to the CCF.

…

End of Change in Clause 7
End of Document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2002	S_15	SP-020033	--	--	Submitted to TSG SA #15 for Information	1.0.0	
Jun 2002	S_16	SP-020327	--	--	Submitted to TSG SA #16 for the 2nd time for Information	1.5.0	
Sep 2002	S_17	SP-020453	--	--	Submitted to TSG SA #17 for Approval	2.0.0	5.0.0
Dec 2002	S_18	SP-020739	001	--	Remove ambiguity of the CCF Session State	5.0.0	5.1.0
Dec 2002	S_18	SP-020739	002	--	Addition of Application Server (AS) acting as a Voice Mail Server	5.0.0	5.1.0
Dec 2002	S_18	SP-020739	003	--	Corrections of definitions and ambiguity	5.0.0	5.1.0
Mar 2003	S_19	SP-030057	004	--	Alignment of Immediate Event Charging (IEC) description with the latest draft IEFT Credit-Control specification	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	005	--	Correction of the IMS Charging Identifier (ICID) definition	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	006	--	Correction of IMS-CDR definitions	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	007	--	Inclusion of IETF draft 'Hakala-diameter-credit-control' specification version 05	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	008	--	Removal of Re-Transmission Attribute Value Pair (AVP) in order to align duplicate detection procedure with the Diameter Base protocol	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	009	--	Correction of the accounting session supervision (Offline) - alignment with the Diameter Base protocol	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	010	--	Correction of the accounting session supervision (Online) - alignment with the Diameter Base protocol	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	011	--	Correction of the support of local file storage and use of FTP for transfer of Accounting Information	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	012	--	Correction of abnormal session termination procedure	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	013	--	Correction of network initiated session release procedure - alignment with SIP (IETF RFC 3261)	5.1.0	5.2.0
Mar 2003	S_19	SP-030057	014	--	Correction of media modification procedures - add the UPDATE SIP method	5.1.0	5.2.0
Jun 2003	S_20	SP-030271	015	--	Corrections to align “Event Charging with Unit Reservation” (ECUR) with IETF Credit Control Application	5.2.0	5.3.0
Jun 2003	S_20	SP-030271	016	--	Correction of usage of Application-Provided-Called-Party-Address AVP	5.2.0	5.3.0
Jun 2003	S_20	SP-030271	017	--	Correction of “Cause” and “Service-ID”AVP	5.2.0	5.3.0
Jun 2003	S_20	SP-030271	018	--	Correction to some AVP definitions	5.2.0	5.3.0
Jun 2003	S_20	SP-030271	019	--	Correction on ICID definition	5.2.0	5.3.0
Dec 2003	S_22	SP-030622	020	--	Correction of MRFC-CDR content definition for multi-party-call establishment	5.3.0	5.4.0
Dec 2003	S_22	SP-030622	021	--	Correction on ICID definition	5.3.0	5.4.0
Dec 2003	S_22	SP-030622	022	--	Removal of ASR and ASA	5.3.0	5.4.0
Mar 2004	S_23	SP-040143	023	--	Correction of AVP Codes and Diameter protocol specific details	5.4.0	5.5.0
Mar 2004	S_23	SP-040143	024	--	Corrections on the Session Description Protocol (SDP) parameters	5.4.0	5.5.0
Mar 2004	S_23	SP-040143	025	--	Correction of reference to diameter base protocol	5.4.0	5.5.0
Jun 2004	S_24	SP-040278	026	--	Correction of reference to security specification	5.5.0	5.6.0
Jun 2004	S_24	SP-040278	027	--	Correction on CauseForRecordClosing	5.5.0	5.6.0
Jun 2004	S_24	SP-040278	028	--	Correction of Diameter credit control protocol reference - Align with RFC 3588	5.5.0	5.6.0
Dec 2004	SA_26	SP-040776	029	--	Align SDP-Media-Components in ACR with CDR	5.6.0	5.7.0
Dec 2004	SA_26	SP-040776	030	--	Reassign Vendor specific AVP codes - Align with CN4’s 29.230	5.6.0	5.7.0
Dec 2004	SA_26	SP-040776	031	--	Correct multiple occurrence of Inter-Operator-Identifier, ApplicationServer, Application-provided-Called-Party-Address	5.6.0	5.7.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054185***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.260** **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 missing Service Specific Data AVP (Attribute Value Pair)
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	OAM-CH
Date:	⌘	28/01/2005
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:	⌘	The IMS CDRs include the "Service specific data" parameter. The corresponding Diameter AVP is missing
Summary of change:	⌘	A new AVP "Service Specific Data" is created
Consequences if not approved:	⌘	Mismatch between the IMS CDR parameter and the Diameter Accounting message AVP

Clauses affected:	⌘	6.1.1.2.1, 6.1.1.2.3, 6.2.2.1

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

Other comments:	⌘	Mirror CR to S5-054184.

Change in Clause 6.1.1.2.1

6.1.1.2.1 Accounting-Request Message

The table below illustrates the basic structure of a Diameter *Accounting-Request* message as used for IMS offline charging.

Table : Accounting-Request (ACR) Message Contents for Offline Charging

AVP	Category	Description	Provided by IMS NE
Session-Id	M	Described in 32.299 [50]	All
Origin-Host	M	Described in 32.299 [50]	All
Origin-Realm	M	Described in 32.299 [50]	All
Destination-Realm	M	Described in 32.299 [50]	All
Accounting-Record-Type	M	Described in 32.299 [50]	All
Accounting-Record-Number	M	Described in 32.299 [50]	All
Acct-Application-Id	Oc	Described in 32.299 [50]	All
User-Name	Oc	Described in 32.299 [50]	All
Acct-Interim-Interval	C_O	Described in 32.299 [50]	All
Origin-State-Id	Oc	Described in 32.299 [50]	All
Event-Timestamp	Oc	Described in 32.299 [50]	All
Event-Type	Oc	This AVP holds the content of the "Event" header used in SUBSCRIBE and NOTIFY messages.	All
Role-of-node	Oc	This AVP specifies the role of the AS/CSCF	All
User-Session-ID	Oc	This AVP holds the session identifier. For a SIP session the *Session-ID* contains the SIP Call ID.	All
Calling-Party-Address	Oc	This AVP holds the address (Public User ID: SIP URL, E.164, etc.) of the party initiating a session.	All
Called-Party-Address	Oc	This AVP holds the address (Public User ID: SIP URL, E.164, etc.) of the party to whom a session is established.	All
Time-stamp	Oc	This AVP holds the time of the initial SIP request and the time of the response to the initial SIP Request.	All
Application-Server-Information	Oc	This AVP holds the SIP URL(s) of the AS(s) addressed during the session and the called party number (SIP URL, E.164), if an application server determines it..	Only from S-CSCF/MRFC
Inter-Operator-Identifier	Oc	This AVP holds the identification of the network neighbours (originating and terminating) as exchanged via SIP signalling.	All
IMS-Charging-Identifier	Oc	This AVP holds the IMS Charging Identifier (ICID) as generated by a IMS node for a SIP session and described in clause 5.1.2.2.	All
SDP-Session-Description	Oc	This AVP holds the content of an "attribute-line" (i=, c=, b=, k=, a=, etc.) related to a session.	All

AVP	Category	Description	Provided by IMS NE
SDP-Media-Components	Oc	This AVP contains information about media used for a IMS session.	All
GGSN-Address	Oc	This AVP holds the IP-address of the GGSN that generated the GPRS Charging ID, as described in [1].	All
Served-Party-IP-Address	Oc	This AVP holds the IP address of either the calling or called party, depending on whether the P-CSCF is in touch with the calling or the called party.	Only from P-CSCF
Authorised-QoS	Oc	This AVP holds the Authorised QoS as defined in TS 23.207 / TS 29.207 and applied via the Go interface.	Only from P-CSCF
Server-Capabilities	Oc	This AVP is described in 3GPP TS 29.229: "Cx and Dx Interfaces based on the Diameter protocol; Protocol Details".	Only from I-CSCF
Trunk-Group-ID	Oc	This AVP identifies the incoming and outgoing PSTN legs.	Only from MRFC
Bearer-Service	Oc	This AVP holds the used bearer service for the PSTN leg.	Only from MRFC
Service-Id	Oc	This AVP identifies the service the MRFC is hosting. For conferences the conference ID is used as the value of this parameter.	Only from MGCF
UUS-Data	Oc	This AVP holds information about the sent User-To-User data.	All
Cause	Oc	This AVP contains the cause value and the Node-Functionality AVP that contains the function of the node where the cause code was generated.	All
Service-Specific-Data	Oc	This AVP contains service specific data if and as provided by an Application Server	Only from AS

NOTE: For AVP of type "Grouped" only the group AVP is listed in table 6.2. Detailed descriptions of the AVPs are provided in TS 32.299 [50].

End of Change in Clause 6.1.1.2.1

Change in Clause 6.1.1.2.3

6.1.1.2.3 Detailed Message Formats

The following table specifies per ACR type the accounting data that are sent by each of the IMS network elements:

- S-CSCF
- P-CSCF
- I-CSCF
- MRFC
- MGCF
- BGCF
- AS

The ACR types in the table are listed in the following order: S (start)/I (interim)/S (stop)/E (event). Therefore, when all ACR types are possible it is marked as SISE. If only some ACR types are allowed for a node, only the appropriate letters are used (i.e. SIS or E) as indicated in the table heading. The omission of an ACR type for a particular AVP is marked with "-" (i.e. SI-E). Also, when an entire AVP is not allowed in a node the entire cell is marked as "-".

Note that not for all Grouped AVPs the individual AVP members are listed in the table. Detailed descriptions of the AVPs are provided in TS 32.299 [50].

Table : Detailed Diameter ACR Message Contents for Offline Charging

AVP name	Node Type	S-CSCF	P-CSCF	I-CSCF	MRFC	MGCF	BGCF	AS
	Supported ACRs	S/I/S/E	S/I/S/E	E	S/I/S	S/I/S/E	S/I/S/E	S/I/S/E
AVPs from the Diameter base protocol								
<Session-Id>		SISE	SISE	E	SIS	SISE	SISE	SISE
{Origin-Host}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Origin-Realm}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Destination-Realm}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Accounting-Record-Type}		SISE	SISE	E	SIS	SISE	SISE	SISE
{Accounting-Record-Number}		SISE	SISE	E	SIS	SISE	SISE	SISE
[Vendor-Specific-Application-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Acct-Application-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[User-Name] (see note 1)		SISE	SISE	E	SIS	SISE	SISE	SISE
[Accounting-Sub-Session-Id]		-	-	-	-	-	-	-
[Accounting-RADIUS-Session-Id]		-	-	-	-	-	-	-
[Acct-Multi-Session-Id]		-	-	-	-	-	-	-
[Acct-Interim-Interval]		SIS-	SIS-	-	SIS-	SIS-	SIS-	SIS-
[Accounting-Realtime-Required]		-	-	-	-	-	-	-
[Origin-State-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Event-Timestamp]		SISE	SISE	E	SIS	SISE	SISE	SISE
*[Proxy-Info]		-	-	-	-	-	-	-
*[Route-Record]		-	-	-	-	-	-	-
*[AVP]		-	-	-	-	-	-	-
3GPP Diameter AVPs								
[Event-Type]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Role-of-Node]		SISE	SISE	E	SIS	SISE	SISE	SISE
[User-Session-Id]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Calling-Party-Address]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Called-Party-Address]		SISE	SISE	E	SIS	SISE	SISE	SISE
[Time-stamps]		SISE	SISE	E	SIS	SISE	SISE	SISE
*[Application-server-Information] (see note 1)		SISE	-	-	SIS	-	-	-
[Inter-Operator-Identifiers] (see note 1)		SISE	SISE	E	SIS	SISE	SISE	SISE
[IMS-Charging-Identifier]		SISE	SISE	E	SIS	SISE	SISE	SISE
*[SDP-Session-Description]		SI--	SI--	-	SI--	SI--	SI--	SI--
*[SDP-Media-component]		SI--	SI--		SI--	SI--	SI--	SI--
[GGSN-Address]		SI--	SI--		SI--	SI--	SI--	SI--
[Served-Party-IP-Address] (see note 1)		-	SISE	-	-	-	-	-
[Authorized-QoS] (see note 1)		-	SI--	-	-	-	-	-
[Server-Capabilities]		-	-	E	-	-	-	-
[Trunk-Group-ID]		-	-	-	-	SISE	-	-
[Bearer-Service]		-	-	-	-	SISE	-	-
[Service-Id]		-	-	-	SIS	-	-	-
[Service-Specific-Data]		-	-	-	-	-	-	SISE
[UUS-Data] (see note 2)		SISE	SISE					SISE
[Cause]		--SE	--SE	E	--S	--SE	--SE	--SE
NOTE 1: Only present if available in the IMS node. NOTE 2: Present only if user-to-user data is included in the SIP message that triggered the ACR.								

End of Change in Clause 6.1.1.2.3

Change in Clause 6.2.2.1

6.2.2.1 Definition of the IMS-Information AVP

The detailed structure of the IMS-Information AVP can be found in the following table.

The AVP header bit denoted as 'M', indicates whether support of the AVP is required. The AVP header bit denoted as 'V', indicates whether the optional Vendor-ID field is present in the AVP header.

Table : Structure of the IMS-Information AVP

				AVP Flag rules			
AVP Name	**AVP Code**	**Defined**	**Value Type**	**Must**	**May**	**Should not**	**Must not**
[Event-Type]	823	[50]	Grouped				
[SIP-Method]	824	[50]	UTF8String				
[Event]	825	[50]	UTF8String				
[Content-Type]	826	[50]	UTF8String				
[Content-Length]	827	[50]	UTF8String				
[Content-Disposition]	828	[50]	UTF8String				
[Role-of-Node]	829	[50]	Enumerated				
[User Session Id]	830	[50]	UTF8String				
[Calling-Party-Address]	831	[50]	UTF8String				
[Called-Party-Address]	832	[50]	UTF8String				
[Time-stamps]	833	[50]	Grouped				
[SIP-Request-Timestamp]	834	[50]	UTF8String				
[SIP-Response-Timestamp]	835	[50]	UTF8String				
[Application-server-Information]	863	[50]	Grouped				
[Application-server]	836	[50]	UTF8String				
*[Application-provided-called-party-address]	837	[50]	UTF8String				
*[Inter-Operator-Identifier]	838	[50]	Grouped				
[Originating-IOI]	839	[50]	UTF8String				
[Terminating-IOI]	840	[50]	UTF8String				
[IMS-Charging-Identifier]	841	[50]	UTF8String				
*[SDP-Session-Description]	842	[50]	UTF8String				
*[SDP-Media-component]	843	[50]	Grouped				
[SDP-Media-Name]	844	[50]	UTF8String				
*[SDP-Media-Description]	845	[50]	UTF8String				
[GPRS-Charging-Id]	846	[50]	UTF8String				
[GGSN-Address]	847	[50]	IPAddress				
[Served-Party-IP-Address]	848	[50]	IPAddress				
[Authorized-QoS]	849	[50]	UTF8String				
[Server-Capabilities]	[19]	[50]					
[Trunk-Group-Id]	851	[50]	Grouped				
[Incoming-Trunk-Group-Id]	852	[50]	UTF8String				
[Outgoing-Trunk-Group-Id]	853	[50]	UTF8String				
[Bearer-Service]	854	[50]	OctetString				
[Service-Id]	855	[50]	UTF8String				
[UUS-Data]	856	[50]	Grouped				
[Amount-of-UUS-data]	857	[50]	UTF8String				
[Mime-type]	858	[50]	UTF8String				
[Direction]	859	[50]	Enumerated				
[Cause]	860	[50]	Grouped				
{Cause-Code}	861	[50]	Enumerated				
{Node-Functionality}	862	[50]	Enumerated				
[Service-Specific-Data]	xxx	[50]	UTF8String				

End of Change in Clause 6.2.2.1
End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	S_23	SP-040144	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Dec 2004	S_26	SP-040777	--	--	Submitted to TSG SA#26 forApproval	2.0.0	6.0.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054186***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.225** **CR** **033** ⌘ **rev** **-** ⌘ Current version: **5.7.0** ⌘

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

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

Title:	⌘	Correction of criteria for the presence of the GPRS charging ID in the IMS CDRs – Align with SA2's TS 23.228
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	OAM-CH
Date:	⌘	28/01/2005
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:	⌘	The "GPRS charging ID" parameter which allows charging correlation between the PS domain and the IMS Domain is categorized as "Mo" (Mandatory Operator provisionnable) in the IMS CDRs. However, the Stage 2 IMS specification TS 23.228 indicates that the Go interface that conveys the GCID from the GGSN to the IMS Domain is optional.
Summary of change:	⌘	- The category of the GPRS charging ID parameter is changed to "Co" (Conditional Operator provisionable) - The condition for the presence of the parameter is specified
Consequences if not approved:	⌘	Errors would occur in the implementation of the IMS CDRs

Clauses affected:	⌘	5.2.3, 5.2.4.13

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

Other comments: ⌘

Change in Clause 5.2.3

5.2.3 CDR Content

Table 5.9 specifies the content of each CDR type. For each column describing the CDR type, the field name and its category are specified. The detailed description of the field is provided in section 5.2.1. Diagonal shading of a cell indicates, that the particular CDR field is not included in the particular CDR type.

Table 5.9: Charging Data of IMS CDR Types

Field	CDR Type						
	S-CSCF-CDR	P-CSCF-CDR	I-CSCF-CDR	MRFC-CDR	MGCF-CDR	BGCF-CDR	AS-CDR
Record Type	M	M	M	M	M	M	M
Retransmission	C_O	C_O	C_O	C_O	C_O	C_O	C_O
SIP Method	C_O	C_O	C_O	C_O	C_O	C_O	C_O
Role of Node	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Node Address	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Session ID	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Service ID				M_O			
Calling Party Address	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Called Party Address	M_O	M_O	M_O	C_O	M_O	M_O	M_O
Private User ID	M_O						
Served Party IP Address		M_O					
Service Request Time Stamp	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Service Delivery Start Time Stamp	M_O	M_O		M_O	M_O	M_O	M_O
Service Delivery End Time Stamp	C_O	C_O		C_O	C_O	C_O	C_O
Record Opening Time	C_O	C_O		C_O	C_O	C_O	C_O
Record Closure Time	M_O	M_O		M_O	M_O	M_O	M_O
Application Servers Information	C_O			C_O			
Application Servers Involved	C_O			C_O			
Application Provided Called Parties	C_O			C_O			
Inter Operator Identifiers	C_O	C_O	C_O	C_O	C_O	C_O	C_O
originating IOI	C_O	C_O	C_O	C_O	C_O	C_O	C_O
terminating IOI	C_O	C_O	C_O	C_O	C_O	C_O	C_O
Local Record Sequence Number	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Record Sequence Number	C_O	C_O		C_O	C_O	C_O	C_O
Cause For Record Closing	M_O	M_O	M_O	M_O	M_O	M_O	M_O
Incomplete CDR Indication	C_O	C_O	C_O	C_O	C_O	C_O	C_O
S-CSCF Information			C_O				
IMS Charging Identifier	M_O	M_O	M_O	M_O	M_O	M_O	M_O
SDP Session Description	Co	Co		Co	Co	Co	Co
List of SDP Media Components	C_O	C_O		C_O	C_O	C_O	C_O
SIP Request Timestamp	M_O	M_O		M_O	M_O	M_O	M_O
SIP Response Timestamp	M_O	M_O		M_O	M_O	M_O	M_O
SDP Media Components	M_O	M_O		M_O	M_O	M_O	M_O
SDP Media Name	M_O	M_O		M_O	M_O	M_O	M_O
SDP Media Description	M_O	M_O		M_O	M_O	M_O	M_O
GPRS Charging ID	C_O~~M_O~~	C_O~~M_O~~		C_O~~M_O~~	C_O~~M_O~~	C_O~~M_O~~	C_O~~M_O~~
Media Initiator Flag	C_O	C_O		C_O	C_O	C_O	C_O
Authorised QoS		C_O					
GGSN Address	C_O	C_O	C_O	C_O	C_O	C_O	C_O
Service Delivery Failure Reason	C_O	C_O	C_O	C_O	C_O	C_O	C_O
Service Specific Data							C_O
List of Message Bodies	C_O	C_O					C_O
Content-Type	C_O	C_O					C_O
Content-Disposition	C_O	C_O					C_O
Content-Length	C_O	C_O					C_O
Originator	C_O	C_O					C_O
Trunk Group ID Incoming/Outgoing					M_O		
Bearer Service					M_O		
Record Extensions	C_O	C_O	C_O	C_O	C_O	C_O	C_O

End of Change in Clause 5.2.3

End of Change in Clause 5.2.4.13

5.2.4.13 GPRS Charging ID

This parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. There is a 1:1 relationship between the GCID and the PDP context. If GPRS is used to access the IMS, the GCID is used together with the GGSN address if received over the Go interface as the access part of the charging correlation vector that is comprised of an access part and an IMS part, which is the IMS Charging Identifier.

For further information regarding the composition of the charging correlation vector refer to the appropriate clause in TS 32.200 [2].

End of Change in Clause 5.2.4.13
End of Document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2004	SA_26	SP-040776	029	--	Align SDP-Media-Components in ACR with CDR	5.6.0	5.7.0
Dec 2004	SA_26	SP-040776	030	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	5.6.0	5.7.0
Dec 2004	SA_26	SP-040776	031	--	Correct multiple occurrence of Inter-Operator-Identifier, ApplicationServer, Application-provided-Called-Party-Address	5.6.0	5.7.0

CR-Form-v7

CHANGE REQUEST

⌘ 32.299 CR 008 ⌘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 X

Title:	⌘	Correct the description of Charging Key
Source:	⌘	SA5 (ggfj@nortelnetworks.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2004
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:

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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	To complete the description of the Rating-Group AVP.
Summary of change:	⌘	Introduce the procedural text that maps the charging key to the DCC Rating-Group
Consequences if not approved:	⌘	Errors due to incomplete specification. Stage 2 requirements will not be fulfilled.

Clauses affected:	⌘	5.3.2.2

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

Other comments:	⌘	

Change in Clause 7.2.1

7.2.1. Diameter Credit Control AVPs

~~tbd.~~

7.2.1.1 Rating-Group AVP

The *Rating-Group* AVP is defined in DCC [402]. It contains the charging key (defined in 3GPP TS 23.125 [70]). Each quota allocated to a Diameter CC session has a unique Rating Group value as specified in DCC [402].

End of change in Clause 7.2.1
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
				--			

3GPP TSG-SA5 (Telecom Management) **S5-054188**
Meeting #41, Lisbon, Portugal, 24 - 28 January 2005

CR-Form-v7

CHANGE REQUEST

⌘ **32.299** **CR** **009** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

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

Title:	⌘	Correction of Termination action
Source:	⌘	SA5 (ggfj@nortelnetworks.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2005
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:	⌘	The Termination Action is missing from the requirements (clause 5) and from the stage 3 (clause 6).
Summary of change:	⌘	The termination action is specified with 2 values and approaches: terminate and redirect.
Consequences if not approved:	⌘	The termination action is undefined.

Clauses affected:	⌘	New clause added in 5.3 and 6.5.3

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

Other comments: ⌘

First change

5.3.2 Threshold based re-authorization triggers

The server may optionally include an indication to the client of the remaining quota threshold that shall trigger a quota re-authorization.

5.3.3 Termination action

The server may specify to the client the behaviour on consumption of the final granted units; this is known as termination action.

End of first change

Second change 6.5.3

6.5 Other procedural description of the 3GPP charging applications

…

6.5.3 Termination action

The termination action is sent over the Ro reference point. Two different approaches are specified:

- The Final-Unit-Indication AVP with Final-Unit-Action TERMINATE does not include any other information. When the user has consumed the final granted units, the network element shall terminate the service. This is the default handling applicable whenever the client receives an unsupported Final-Unit-Action value. A final Credit-Control-Request message to the server shall be sent if the Final-Unit-Indication AVP indicating action TERMINATE was present at command level or Multiple-Services-Credit-Control AVP level. If the Final-Unit-Indication AVP is at command level, the CC-Request-Type AVP in the request is set to the value TERMINATION_REQUEST. If the Final-Unit-Indication AVP is at Multiple-Services-Credit-Control level, the network element shall set the CC-Request-Type AVP to the value UPDATE_REQUEST and report the Used-Service-Unit AVP for the service that has terminated, as defined in IETF DCCA [402].

- Another termination action consists in re-directing packets corresponding to a terminated service (consumption of the final granted units) to an application server. This allows the client to redirect user originated requests to a top-up server so that network access can be re-instated. This functionality is achieved with the server returning a "REDIRECT" and redirect-to URL in the Final-Units-Action AVP of the Multiple-Services-Credit-Control AVP or at command level. Upon receiving this result code, the Network Element shall apply the redirection. The URL should be categorized so that the End-User's ability to reach it is guaranteed.

End of change
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054189***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7

CHANGE REQUEST

⌘ **32.299** **CR** **010** ⌘ **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 **X**

Title:	⌘	Correction of missing Quota-Consumption-Time
Source:	⌘	SA5 (ggfj@nortelnetworks.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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

Use one of the following releases:

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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	For certain packet services charged by time, it is more convenient and intuitive for users to be charged only for the time they were actually using the service.
Summary of change:	⌘	A new AVP, Quota-Consumption-Time, is introduced to provide an “idle threshold” after which time quota consumption stops.
Consequences if not approved:	⌘	Time based charging is possible only on the time for which the service is made available, not the time for which it was actually used.

Clauses affected:	⌘	6.4.3, 6.5.3, 7.2, 7.2.2

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

Other comments:	⌘	

Change to 6.4.3

6.4.3 Credit-Control-Answer Message

The following table illustrates the basic structure of a Diameter Credit Control *Credit-Control-Answer* message as used for online charging. This message is always used by the OCS as specified below, independent of the receiving network element and the CCR record type that is being replied to.

Table 6.4.3: Credit Control Answer (CCA) Message Contents for Online Charging

Diameter base protocol AVPs	
AVP	**Used in 3GPP**
<Diameter Header: 272, PXY>	Yes
<Session-Id>	Yes
{Result-Code}	Yes
{Origin-Host}	Yes
{Origin-Realm}	Yes
{Auth-Application-Id}	Yes
[Vendor-Specific-Application-Id]	Yes
[Vendor-Id]	Yes
{ Auth-Application-Id }	Yes
{ Acct-Application-Id }	Yes
[User-Name]	Yes
[Acct-Multi-Session-Id]	No
*[Redirect-Host]	No
[Redirect-Host-Usage]	No
[Redirect-Max-Cache-Time]	No
[Origin-State-Id]	Yes
[Event-Timestamp]	Yes
*[Proxy-Info]	No
{ Proxy-Host }	No
{ Proxy-State }	No
*[Route-Record]	No
*[AVP]	Yes
Diameter Credit Control AVPs	
{CC-Request-Type}	Yes
{CC-Request-Number}	Yes
[CC-Subsession-Id]	Yes
[CC-Session Failover]	No
*[Subscription-Id]	Yes
[Granted-Service-Unit]	Yes
[Tariff-Time-Change]	Yes
[CC-Time]	Yes
[CC-Money]	Yes
{Unit-Value}	Yes
{Value-Digits}	Yes
[Exponent]	Yes
[Currency-Code]	Yes
[CC-Total-Octets]	Yes
[CC-Input-Octets]	Yes
[CC-Output-Octets]	Yes
[CC-Service-Specific-Units]	Yes
[Time-Quota-Threshold]	Yes
[Volume-Quota-Threshold]	Yes
*[AVP]	Yes
[Cost-Information]	Yes
{Unit-Value}	Yes
{Value-Digits}	Yes
[Exponent]	Yes
{Currency-Code}	Yes
[Cost-Unit]	Yes
[Final-Unit-Indication]	Yes
{Final-Unit-Action}	Yes

*[Restriction-Filter-Rule]	Yes
*[Filter-Id]	Yes
[Redirect-Server]	Yes
[Check-Balance-Result]	Yes
[Credit-Control-Failure-Handling]	Yes
[Validity-Time]	Yes
*[Trigger-Type]	Yes
[Direct-Debiting-Failure-Handling]	Yes
*[Multiple-Services-Credit-Control]	Yes
[Quota-Holding-Time]	Yes
[Granted-Service-Unit]	Yes
[Tariff-Time-Change]	Yes
[CC-Time]	Yes
[CC-Money]	Yes
{Unit-Value}	Yes
{Value-Digits}	Yes
[Exponent]	Yes
[Currency-Code]	Yes
[CC-Total-Octets]	Yes
[CC-Input-Octets]	Yes
[CC-Output-Octets]	Yes
[CC-Service-Specific-Units]	Yes
[Time-Quota-Threshold]	Yes
[Volume-Quota-Threshold]	Yes
*[AVP]	Yes
[Requested-Service-Unit]	No
*[Used-Service-Unit]	No
[Tariff-Change-Usage]	Yes
*[Service-Identifier]	Yes
[Rating-Group]	Yes
*[G-S-U-Pool-Reference]	Yes
{G-S-U-Pool-Identifier}	Yes
{CC-Unit-Type}	Yes
{Unit-Value}	Yes
[Validity-Time]	Yes
[Result-Code]	Yes
[Final-Unit-Indication]	Yes
{Final-Unit-Action}	Yes
*[Restriction-Filter-Rule]	Yes
*[Filter-Id]	Yes
[Redirect-Server]	Yes
{Redirect-Address-Type}	Yes
{Redirect-Server-Address}	Yes
*[AVP]	Yes
3GPP Diameter Credit Control AVPs	
[PS-Furnish-Charging-Information]	Yes
{GPRS-Charging-Id}	Yes
{PS-Free-Format-Data}	Yes
[PS-Append-Free-Format-Data]	Yes
[Quota-Consumption-Time]	Yes (NOTE 1)
NOTE 1: this AVP is part of the grouped [Multiple-Services-Credit-Control] AVP.	

End of Change to 6.4.3

Change to 6.5.3

6.5.3 Quota consumption time

The server may optionally indicate to the client that the quota consumption must be stopped after a period equal to the Quota Consumption Time in which no packets are received or at session termination, whichever is sooner. This is indicated by including the Quota-Consumption-Time AVP in the CCA. The idle period equal to the Quota Consumption Time is included in the reported usage. The quota is consumed normally during gaps in traffic of duration less than or equal to the Quota-Consumption-Time. Quota consumption resumes on receipt of a further packet belonging to the service data flow.

If packets are allowed to flow during a Credit Control Request (Update)/Credit Control Answer exchange, and the Quota-Consumption-Time AVP value in the provided quota is the same as in the previously provided quota, then the Quota-Consumption-Time runs normally through this procedure. For example, if 5 seconds of a 10 second QCT timer have passed when a CCR(U) is triggered, and the CCA(U) returns 2 seconds later, then the QCT timer will expire 3 seconds after the receipt of the CCA and the remaining unaccounted 5 seconds of usage will be recorded against the new quota even though no packets were transmitted with the new quota.

In the case of a new quota with the Quota-Consumption-Time AVP, or when packets are blocked during the CCR(U)/CCA procedure then the Quota-Consumption-Time stops running (if it was running) and quota consumption begins again when the next service data flow packet matching the Charging Rule is received.

If a Quota-Consumption-Time AVP value of zero is provided, or if no Quota-Consumption-Time AVP is present in the CCA, the quota is consumed contintinuously from the point at which it is granted.

End of Change to 6.5.3

Change to 7.2

7.2. AVPs for Credit Control

For the purpose of online charging additional AVPs are used in CCR and CCA. The information is summarized in the following table along with the AVP flag rules.

Detailed descriptions of AVPs that are used specifically for 3GPP charging are provided in the subclauses below the table. However, for AVPs that are just borrowed from other applications only the reference (e.g. [402]), is provided in the following table and the detailed description is not repeated.

Table 7.3: Use Of Diameter Credit Control

AVP Name	AVP Code	Clause Defined	Value Type	AVP Flag rules				
				Must	May	Should not	Must not	May Encr.
CC-Correlation-Id	[402]	[402]	OctetString					
CC-Input-Octets	[402]	[402]	Unsigned64					
CC-Money	[402]	[402]	Grouped					
CC-Output-Octets	[402]	[402]	Unsigned64					
CC-Request-Number	[402]	[402]	Unsigned32					
CC-Request-Type	[402]	[402]	Enumerated					
CC-Service-Specific-Units	[402]	[402]	Unsigned64					
CC-Session –Failover	[402]	[402]	Enumerated					
CC-Sub-Session-Id	[402]	[402]	Unsigned64					
CC-Time	[402]	[402]	Unsigned32					
CC-Total-Octets	[402]	[402]	Unsigned64					
CC-Unit-Type	[402]	[402]	Enumerated					
Check-Balance-Result	[402]	[402]	Enumerated					
Cost-Information	[402]	[402]	Grouped					
Cost-Unit	[402]	[402]	UTF8String					
Credit-Control	[402]	[402]	Enumerated					
Credit-Control-Failure-Handling	[402]	[402]	Enumerated					
Currency-Code	[402]	[402]	Unsigned32					
Direct-Debiting-Failure-Handling	[402]	[402]	Enumerated					
Exponent	[402]	[402]	Integer32					
Final-Unit-Action	[402]	[402]	Enumerated					
Final-Unit-Indication	[402]	[402]	Grouped					
Granted-Service-Unit	[402]	[402]	Grouped					
Granted-Service-Unit -Pool-Identifier	[402]	[402]	Unsigned32					
Granted-Service-Unit -Pool-Reference	[402]	[402]	Grouped					
Multiple-Services-Credit-Control	[402]	[402]	Grouped					
Multiple-Services-Indicator	[402]	[402]	Enumerated					
Rating-Group	[402]	[402]	Unsigned32					
Redirect-Address-Type	[402]	[402]	Enumerated					
Redirect-Server	[402]	[402]	Grouped					
Redirect-Server-Address	[402]	[402]	UTF8String					
Requested-Action	[402]	[402]	Enumerated					
Requested-Service-Unit	[402]	[402]	Grouped					
Restriction -Filter-Rule	[402]	[402]	IPFiltrRule					
Service-Identifier	[402]	[402]	UTF8String					
Service-Parameter-Info	[402]	[402]	Grouped					
Service-Parameter-Type	[402]	[402]	Unsigned32					
Service- Parameter-Value	[402]	[402]	OctetString					
Subscription-Id	[402]	[402]	Grouped					
Subscription-Id-Data	[402]	[402]	UTF8String					
Subscription-Id-Type	[402]	[402]	Enumerated					
Tariff-Change-Usage	[402]	[402]	Enumerated					
Tariff-Time-Change	[402]	[402]	Time					
Unit-Value	[402]	[402]	Grouped					
Used-Service-Unit	[402]	[402]	Grouped					
User-Equipment-Info	[402]	[402]	Grouped					
User-Equipment-Info-Type	[402]	[402]	Unsigned32					
User-Equipment-Info-Value	[402]	[402]	UTF8String					
Value-Digits	[402]	[402]	Integer64					
Validity-Time	[402]	[402]	Unsigned32					
3GPP Diameter Credit Control AVPs								
Service-Information	Tbd.	7.2.2.1	Grouped					
PS-Furnish-Charging-Information	865	7.2.2.2	Grouped					
GPRS-Charging-Id	846	7.1.2.18	UTF8String					

AVP Name	AVP Code	Clause Defined	Value Type	AVP Flag rules				
				Must	May	Should not	Must not	May Encr.
PS-Free-Format-Data	866	7.2.2.3	OctetString					
PS-Append-Free-Format-Data	867	7.2.2.4	Enumerated					
Time-Quota-Threshold	868	7.2.2.5	Unsigned64					
Volume-Quota-Threshold	869	7.2.2.6	Unsigned64					
Trigger-Type	870	7.2.2.7						
Quota-Holding-Time	871	7.2.2.8						
Reporting-Reason	872	7.2.2.9						
Quota-Consumption-Time	Tbd	7.2.2.10	Unsigned32					

End of Change to 7.2

Change to 7.2.2.10

7.2.2.10 Quota-Consumption-Time AVP

The Quota-Consumption-Time AVP (AVP code tbd) is of type Unsigned32 and contains an idle traffic threshold time in seconds. This AVP may be included within the Multiple-Services-Credit-Control AVP when this AVP also contains a Granted-Service-Units AVP containing a CC-Time AVP (i.e. when the granted quota is a time quota).

End of Change to 7.2.2.10

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
				--			

CR-Form-v7

CHANGE REQUEST

⌘ 32.260 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 X

Title:	⌘	Correction of table 5.1: "addition of reporting of 2xx/3xx events"
Source:	⌘	SA5 (ggfj@nortel.Networks.com
Work item code:	⌘	CH
Date:	⌘	28/01/2005
Category:	⌘	F
Release:	⌘	Rel-6

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

Use one of the following releases:
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:	⌘	For a SIP final response 3xx for a SIP session set-up (INVITE) and for a 2xx response for REFER there is no information available in 32.260
Summary of change:	⌘	3xx and 2xx responses are included in Table 5.1.
Consequences if not approved:	⌘	Behaviour for SIP 3xx and 2xx messages undefined and open to different interpretations that could lead to interoperability problems.

Clauses affected:	⌘	5.2.1

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

Other comments: ⌘

First Change

5.2 IMS Offline Charging Principles

5.2.1 Basic Principles

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Table : Accounting Request Messages Triggered by SIP Methods or ISUP Messages for all IMS nodes except for MRFC and AS

Diameter Message	Triggering SIP Method /ISUP Message	Mandatory/ Configurable
ACR [Start]	SIP 200 OK acknowledging an initial SIP INVITE	Mandatory
	ISUP:ANM (applicable for the MGCF)	Mandatory
ACR [Interim]	SIP 200 OK acknowledging a SIP RE-INVITE or SIP UPDATE [e.g. change in media components]	Configurable
	Expiration of AVP [Acct-Interim-Interval]	Configurable
ACR [Stop]	SIP BYE message (both normal and abnormal session termination cases)	Mandatory
	ISUP:REL (applicable for the MGCF)	Mandatory
ACR [Event]	SIP 200 OK acknowledging non-session related SIP messages, which are:	
	SIP NOTIFY	Configurable
	SIP MESSAGE	Configurable
	SIP REGISTER	Configurable
	SIP SUBSCRIBE	Configurable
	SIP REFER	Configurable
	SIP PUBLISH	Configurable
	SIP Final Response 2xx (except SIP 200 OK)	Configurable
	SIP Final Response 3xx	Configurable *
	SIP Final Response (4xx, 5xx or 6xx), indicating an unsuccessful SIP session set-up	Configurable *
	SIP Final Response (4xx, 5xx or 6xx), indicating an unsuccessful session-unrelated procedure	Configurable *
	SIP CANCEL, indicating abortion of a SIP session set-up	Configurable *
	I-CSCF completing a Cx Query that was issued in response to a SIP INVITE	Configurable
NOTE: SIP SUBSCRIBE with the field "Expires" set to 0 means unsubscribe. SIP REGISTER with its "Expires" header field or "Expires" parameter equal to 0 means Deregistration (see 3GPP TS 24.229 [204]).		

…

End of Change
End of document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	S_23	SP-040144	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Dec 2004	S_26	SP-040777	--	--	Submitted to TSG SA#26 forApproval	2.0.0	6.0.0

3GPP TSG-SA5 (Telecom Management) **S5-054192**
Meeting #41, Lisbon, Portugal, 24-28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.299** **CR** **011** ⌘ **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 **X**

Title:	⌘	Correction of cause code for 2xx events
Source:	⌘	SA5 (ggfj@nortel.networks.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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

Use one of the following releases:

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

Reason for change:	⌘	Errors of cause-code for 2xx.
Summary of change:	⌘	In Section 7.2.1.9 of 32.299, additional “successful cause code value” added.
Consequences if not approved:	⌘	Final response for 2xx can not be uniquely distinguished.

Clauses affected:	⌘	7.1.2.9

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

Other comments:	⌘	

First Change

7.1.2.9 Cause-Code AVP

The *Cause-Code* AVP (AVP code 861) is of type Enumerated and includes the cause code value from IMS node. It is used in Accounting-request[stop] and/or Accounting-request[event] messages.

Within the cause codes, values ≤ 0 are reserved for successful causes while values ≥ 1 are used for failure causes. In case of errors where the session has been terminated as a result of a specific known SIP error code, then the SIP error code is also used as the cause code.

Successful cause code values.

"Normal end of session" 0

The cause "Normal end of session" is used in Accounting-request[stop] message to indicate that an ongoing SIP session has been normally released either by the user or by the network (SIP BYE message initiated by the user or initiated by the network has been received by the IMS node after the reception of the SIP ACK message).

"Successful transaction" -1

The cause "Successful transaction" is used in Accounting-request[event] message to indicate a successful SIP transaction (e.g. REGISTER, MESSAGE, NOTIFY, SUBSCRIBE). It may also be used by an Application Server to indicate successful service event execution.

"End of SUBSCRIBE dialog" -2

The cause "End of SUBSCRIBE dialog" is used to indicate the closure of a SIP SUBSCRIBE dialog . For instance a successful SIP SUBSCRIBE transaction terminating the dialog has been detected by the IMS node (i.e. SUBSCRIBE with expire time set to 0).

"2xx Final Response" -2xx

The cause-code "2xx Final Response"(except 200) is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 2xx Final response [405].

"3xx Redirection" -3xx

The cause "3xx Redirection" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 3xx response [405].

Failure cause code values.

"Unspecified error" 1

The cause "Unspecified error" is used when the SIP transaction is terminated due to an unknown error.

" 4xx Request failure" 4xx

The cause "4xx Request failure" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 4xx error response [405].

"5xx Server failure" 5xx

The cause "5xx Server failure" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 5xx error response [405].

"6xx Global failure" 6xx

The cause "6xx Global failure" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 6xx error response [405].

"Unsuccessful session setup" 2

The cause "Unsuccessful session setup" is used in the Accounting-request[stop] when the SIP session has not been successfully established (i.e. Timer H expires and SIP ACK is not received or SIP BYE is received after reception of the 200OK final response and SIP ACK is not received) [202] [405].

"Internal error" 3

The cause "Internal error" is used when the SIP transaction is terminated due to an IMS node internal error (e.g. error in processing a request/response).

End of Change
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
				--			

3GPP TSG-SA5 (Telecom Management) **S5-054193**
Meeting #41, Lisbon, Portugal, 24-28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.299** **CR** **012** ⌘ **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 **X**

Title:	⌘	Correction of missing cause code to distinguishing deregistration charging event
Source:	⌘	SA5 (ggfj@nortel.Networks.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	Currently, deregistration event cannot be distinguished from Registration charging event. Just like Unsubscribe, a cause-code should be added to Deregistration to distinguish from Registration.
Summary of change:	⌘	In Section 7.2.1.9 of 32.299, additional “successful cause code value” added.
Consequences if not approved:	⌘	Incorrect charging for IMS session.

Clauses affected:	⌘	7.1.2.9

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

Other comments: ⌘

First Change

7.1.2.9 Cause-Code AVP

The *Cause-Code* AVP (AVP code 861) is of type Enumerated and includes the cause code value from IMS node. It is used in Accounting-request[stop] and/or Accounting-request[event] messages.

Within the cause codes, values ≤ 0 are reserved for successful causes while values ≥ 1 are used for failure causes. In case of errors where the session has been terminated as a result of a specific known SIP error code, then the SIP error code is also used as the cause code.

Successful cause code values.

"Normal end of session" 0

The cause "Normal end of session" is used in Accounting-request[stop] message to indicate that an ongoing SIP session has been normally released either by the user or by the network (SIP BYE message initiated by the user or initiated by the network has been received by the IMS node after the reception of the SIP ACK message).

"Successful transaction" -1

The cause "Successful transaction" is used in Accounting-request[event] message to indicate a successful SIP transaction (e.g. REGISTER, MESSAGE, NOTIFY, SUBSCRIBE). It may also be used by an Application Server to indicate successful service event execution.

"End of SUBSCRIBE dialog" -2

The cause "End of SUBSCRIBE dialog" is used to indicate the closure of a SIP SUBSCRIBE dialog . For instance a successful SIP SUBSCRIBE transaction terminating the dialog has been detected by the IMS node (i.e. SUBSCRIBE with expire time set to 0).

"3xx Redirection" -3xx

The cause "3xx Redirection" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 3xx response [405].

"End of REGISTER dialog" -3

The cause "End of REGISTER dialog" is used to indicate the closure of a SIP REGISTER dialog. For instance a successful SIP REGISTER transaction terminating the dialog has been detected by the IMS node (i.e. REGISTER with expire time set to 0).

Failure cause code values.

"Unspecified error" 1

The cause "Unspecified error" is used when the SIP transaction is terminated due to an unknown error.

" 4xx Request failure" 4xx

The cause "4xx Request failure" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 4xx error response [405].

"5xx Server failure" 5xx

The cause "5xx Server failure" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 5xx error response [405].

"6xx Global failure" 6xx

The cause "6xx Global failure" is used when the SIP transaction is terminated due to an IMS node receiving/initiating a 6xx error response [405].

"Unsuccessful session setup" 2

The cause "Unsuccessful session setup" is used in the Accounting-request[stop] when the SIP session has not been successfully established (i.e. Timer H expires and SIP ACK is not received or SIP BYE is received after reception of the 200OK final response and SIP ACK is not received) [202] [405].

"Internal error" 3

The cause "Internal error" is used when the SIP transaction is terminated due to an IMS node internal error (e.g. error in processing a request/response).

End of Change
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
				--			

CR-Form-v7

CHANGE REQUEST

⌘ 32.299 CR 013 ⌘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 X

Title:	⌘	Correction to Session Charging with Unit Reservation (SCUR)
Source:	⌘	**SA5** (benni.alexander@nokia.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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

Use one of the following releases:

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:	⌘	Error in the description of SCUR (Session based Charging with Unit Reservation)
Summary of change:	⌘	Correcting picture and text for SCUR.
Consequences if not approved:	⌘	SCUR can't be used for session charging.

Clauses affected:	⌘	6.3.2.1 and 6.3.5			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

Change in Clause 6.3.2.1

6.3.2 Diameter Description on the Ro Interface

6.3.2.1 Basic Principles

For online charging the Diameter Credit Control Application defined in [402] is used with additional AVPs defined in the present document.

Three cases for control of user credit for online charging are distinguished:

- Immediate Event Charging IEC; and
- Event Charging with Unit Reservation (ECUR).
- Session Charging with Unit Reservation (SCUR)

In the case of Immediate Event Charging (IEC),the credit control process for events is controlled by the corresponding *CC-Requested-Type* EVENT_REQUEST that is sent with Credit-*Control-Request (*CCR) for a given credit control event.

In the case of Event Charging with Unit Reservation (ECUR) the *CC-Request-Type* INITIAL / TERMINATION_REQUEST are used for charging for a given credit control event, however, where a reservation is made prior to service delivery and committed on execution of a successful delivery.

Session Charging with Unit Reservation is used for credit control of sessions and uses the *CC-Request-Type* INITIAL / UPDATE and TERMINATION_REQUEST.

The network element may apply IEC, where CCR Event messages are generated, or ECUR, using CCR Initial, Termination and Update. The decision whether to apply IEC or ECUR is based on the service and/or operator's policy.

NOTE: To the extent possible alignment with the IETF Diameter Credit Control Application, [402], is planned. However, this can only be accomplished when the current IETF draft receives an official RFC status.

Editor's note: Incorporate the framework from 32.200 for ECUR and IEC to this document.

Editor's note: Include 3 scenarios. Distinguish between Event & Session.

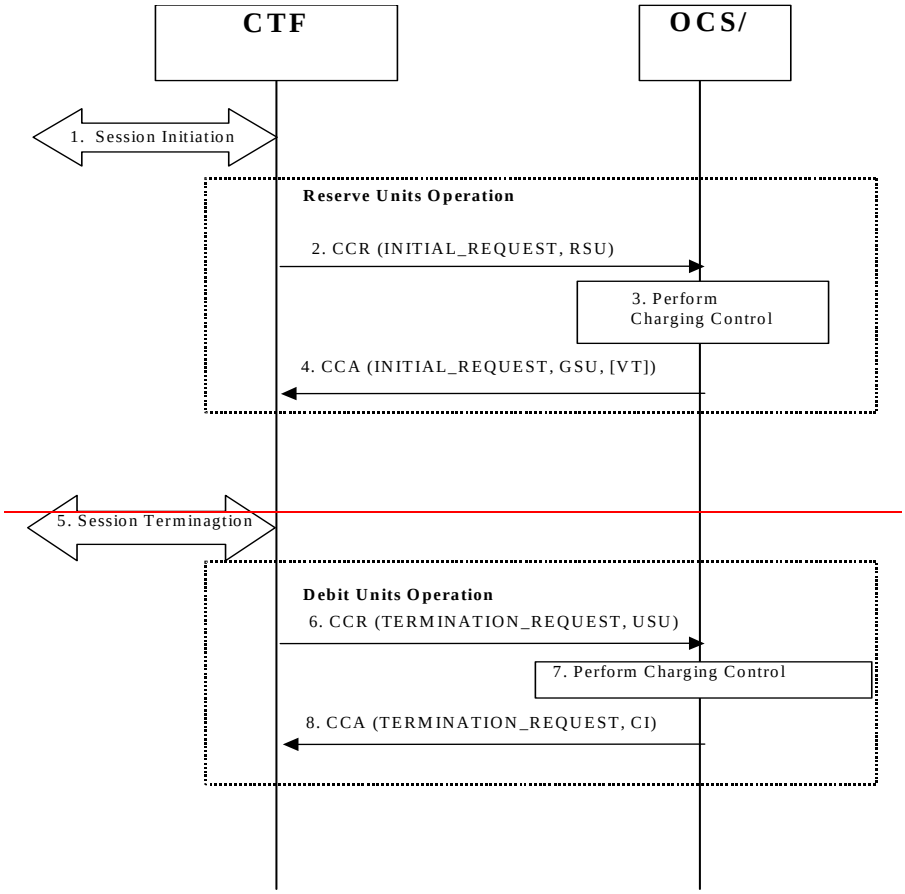
Editor's note: Use of CCR Update in ECUR is ffs.

End of Change in Clause 6.3.2.1

Change in Clause 6.3.5

6.3.5 Session Charging with Unit Reservation (SCUR)

The follwing figure shows the transactions that are required on the Ro interface in order to perform the SCUR .


CTF
OCS/
1. Session Initiation
Reserve Units Operation
2. CCR (INITIAL_REQUEST, RSU)
3. Perform Charging Control
4. CCA (INITIAL_REQUEST, GSU, [VT])
5. Session Terminagtion
Debit Units Operation
6. CCR (TERMINATION_REQUEST, USU)
7. Perform Charging Control
8. CCA (TERMINATION_REQUEST, CI)

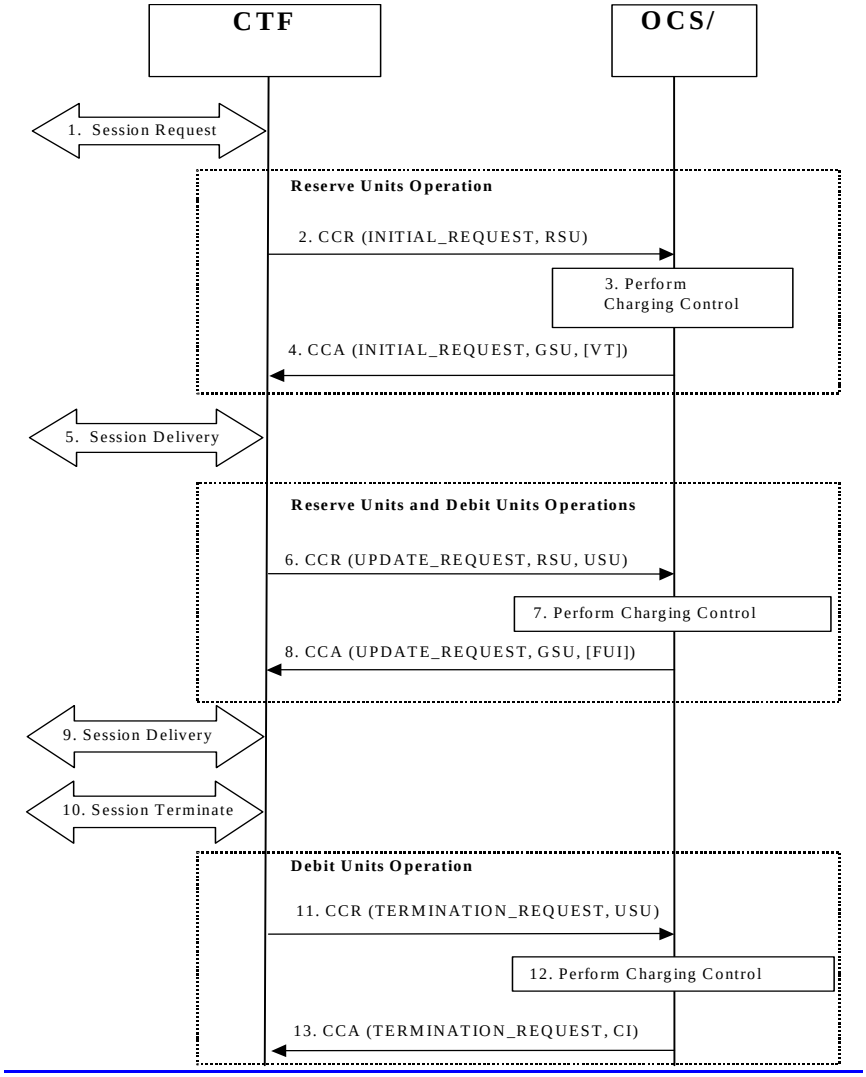


Figure 6.3.5: SCUR for session based credit control

Step 1. The network element receives a session initiation. The session initiation may be done either by the user or the other network element.

Step 2. In order to perform Reserve Units operation for a number of units (monetary or non-monetary units), the network element sends a *Credit-Control-Request* (CCR) with *CC-Request-Type* AVP set to INITIAL_REQUEST to the OCS. If known, the network element may include *Requested-Service-Unit* (RSU) AVP (monetary or non monetary units) in the request message.

Step 3. If the service cost information is not received by the OCS, the OCS determines the price of the desired service according to the service specific information received by issuing a rating request to the Rating Function. If the cost of the service is included in the request, the OCS directly reserves the specified monetary amount. If the credit balance is sufficient, the OCS reserves the corresponding amount from the users account.

Step 4. Once the reservation has been made, the OCS returns *Credit-Control-Answer* (CCA) message with *CC-Request-Type* set to INITIAL_REQUEST to the network element in order to authorize the service execution (*Granted-Service-Unit* and possibly *Cost-Information* indicating the cost of the service are included in the *Credit-Control-Answer* message). The OSC may return the *Validity-Time* (VT) AVP with value field set to a non-zero value.

Step 5. Content/service delivery starts and the reserved units are concurrently controlled.

Step 6. During session delivery, in order to perform Debit Units and subsequent Reserve Units operations, the network element sends a CCR with *CC-Request-Type* AVP set to UPDATE_REQUEST, to report the units used and request additional units, respectively. The CCR message with *CC-Request-Type* AVP set to UPDATE_REQUEST must be sent by the network element between the INITIAL_REQUEST and TERMINATION_REQUEST either on request of the credit control application within the validity time or if the validity time is elapsed. If known, the network element may include *Requested-Service-Unit* AVP (monetary or non monetary units) in the request message. The *Used-Service-Unit* (USU) AVP is complemented in the CCR message to deduct units from both the user's account and the reserved units, respectively.

Step 7. The OCS deducts the amount used from the account. If the service cost information is not received by the OCS, the OCS determines the price of the desired service according to the service specific information received by issuing a rating request to the Rating Function. If the cost of the service is included in the request, the OCS directly reserves the specified monetary amount. If the credit balance is sufficient, the OCS reserves the corresponding amount from the users account.

Step 8. Once the deduction and reservation have been made, the OCS returns *Credit-Control-Answer* message with *CC-Request-Type* set to UPDATE_REQUEST to the network element, in order to allow the content/service delivery to continue (new *Granted-Service-Unit (GSU) AVP* and possibly *Cost-Information (CI) AVP* indicating the cumulative cost of the service are included in the *Credit-Control-Answer* message). The OCS may include in the CCA message the *Final-Unit-Indication* (FUI) AVP to indicate the final granted units.

Step 9. Session delivery continues and the reserved units are concurrently controlled.

Step 10~~6~~. The session is terminated at the network element.

Step ~~7~~11. The network element sends CCR with *CC-Request-Type* AVP set to TERMINATION_REQUEST to terminate the active credit control session and report the used units.

Step ~~8~~12. The OCS deducts the amount used from the account. Unused reserved units are released, if applicable.

Step ~~9~~13. The OCS acknowledges the reception of the CCR message by sending CCA message with *CC-Request-Type* AVP indicating TERMINATION_REQUEST (possibly *Cost-Information* AVP indicating the cumulative cost of the service is included in the *Credit-Control-Answer* message).

NOTE: This scenario is supervised by corresponding timers (e.g. validity time timer) that are not shown in the figure 6.3.5.

~~Editor's note: Update the figure to reflect the changes made in the steps.~~

End of Change in Clause 6.3.5
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054195***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

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CHANGE REQUEST

⌘ **32.299** **CR** **006** ⌘ **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:	⌘	Correction of missing Service Specific Data AVP (Attribute Value Pair)
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	OAM-CH
Date:	⌘	28/01/2005
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:	⌘	The IMS CDRs include the "Service specific data" parameter. The corresponding Diameter AVP is missing
Summary of change:	⌘	A new AVP "Service Specific Data" is created
Consequences if not approved:	⌘	Mismatch between the IMS CDR parameter and the Diameter Accounting message AVP

Clauses affected:	⌘	6.2.1, 7.1.2

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

⌘

Other comments:	⌘	Mirror CR to S5-054184.

Change in Clause 6.2.1

6.2.1 Accounting-Request Message

The following table illustrates the basic structure of a Diameter *Accounting-Request* message as used for offline charging.

Table 6.2.1 : Accounting-Request (ACR) Message Contents for Offline Charging

Diameter base protocol AVPs	
AVP	**Used in offline ACR**
<Diameter-Header:271,REQ,PXY>	Yes
<Session-Id> -- Diameter Session Id	Yes
{Origin-Host}	Yes
{Origin-Realm}	Yes
{Destination-Realm}	Yes
{Accounting-Record-Type}	Yes
{Accounting-Record-Number}	Yes
[Acct-Application-Id]	No
[Vendor-Specific-Application-Id]	Yes
[Vendor-Id]	Yes
{ Auth-Application-Id }	Yes
{ Acct-Application-Id }	Yes
[User-Name]	Yes
[Accounting-Sub-Session-Id]	No
[Accounting-RADIUS-Session-Id]	No
[Acct-Multi-Session-Id]	No
[Acct-Interim-Interval]	Yes
[Accounting-Realtime-Required]	No
[Origin-State-Id]	Yes
[Event-Timestamp]	Yes
*[Proxy-Info]	Yes
{ Proxy-Host }	Yes
{ Proxy-State }	Yes
*[Route-Record]	No
*[AVP]	No
3GPP Diameter accounting AVPs	
[Event-Type]	Yes
[Role-of-node]	Yes
[User-Session-ID]	Yes
[Calling-Party-Address]	Yes
[Called-Party-Address]	Yes
[Time-stamps]	Yes
*[Application-Server]	Only for IMS (S-CSCF)
Application Servers Involved	Only for IMS (S-CSCF)
*Application Provided Called Parties	Only for IMS (S-CSCF)
*[Application-provided-Called-Party-Address]	Only for IMS (S-CSCF)
*[Inter-Operator-Identifier]	Yes
originating IOI	Yes
terminating IOI	Yes
[IMS-Charging-Identifier]	Yes
*[SDP-Session-Description]	Yes
*[SDP-Media-Component]	Yes
SIP Request Timestamp	Yes
SIP Response Timestamp	Yes
SDP Media Components	Yes
SDP Media Name	Yes

SDP Media Description	Yes
GPRS Charging ID	Yes
Media Initiator Flag	Yes
Authorised QoS	Yes
[GGSN-Address]	Yes
[Served-Party-IP-Address]	Only for IMS (P-CSCF)
[Authorized-QoS]	Only for IMS (P-CSCF)
[Server-Capabilities]	Only for IMS (I-CSCF)
[Trunk-Group-ID]	Only for IMS (MGCF)
[Bearer-Service]	Only for IMS (MGCF)
[Service-ID]	Only for IMS (MRFC)
[Service-Specific-Data]	Only for AS
[UUS-Data]	Yes
Content-Type	Yes
Content-Disposition	Yes
Content-Length	Yes
Originator	Yes
[Cause]	Yes
[PS-Furnish-Charging-Information]	Yes
{GPRS-Charging-Id}	Yes
{PS-Free-Format-Data}	Yes
[PS-Append-Free-Format-Data]	Yes

NOTE: A detailed description of the AVPs is provided in clause 7.

Editor's note: The Application Provided Called Party issue needs to be reviewed & corrected if needed.

End of Change in Clause 6.2.1

Change in Clause 7.1.2

7.1.2 3GPP specific accountingAVPs

For the purpose of offline charging additional AVPs are used in ACR and ACA. The information is summarized in the following table along with the AVP flag rules.

Detailed descriptions of AVPs that are used specifically for 3GPP charging are provided in the subclauses below the table. However, for AVPs that are just borrowed from other applications only the reference (e.g. [402]), is provided in the following table and the detailed description is not repeated.

Table 7.2: Use Of Diameter accounting AVPs

AVP Name	AVP Code	Clause Defined	Value Type	AVP Flag rules				
				Must	May	Should not	Must not	May Encr.
3GPP Diameter Accounting AVPs								
[Event-Type]	823	7.1.2.16	Grouped	V				
[SIP-Method]	824	7.1.2.34	UTF8String	V				
[Event]	825	7.1.2.15	UTF8String	V				
[Content-Type]	826	7.1.2.12	UTF8String	V				
[Content-Length]	827	7.1.2.11	UTF8String	V				
[Content-Disposition]	828	7.1.2.10	UTF8String	V				
[Role-of-Node]	829	7.1.2.27	Enumerated	V				
[User Session Id]	830	7.1.2.45	UTF8String	V				
[Calling-Party-Address]	831	7.1.2.7	UTF8String	V				
[Called-Party-Address]	832	7.1.2.6	UTF8String	V				
[Time-stamps]	833	7.1.2.39	Grouped	V				
[SIP-Request-Timestamp]	834	7.1.2.35	UTF8String	V				
[SIP-Response-Timestamp]	835	7.1.2.36	UTF8String	V				
[Application-server]	836	7.1.2.3	UTF8String	V				
[Application-provided-called-party-address]	837	7.1.2.2	UTF8String	V				
[Inter-Operator-Identifier]	838	7.1.2.22	Grouped	V				
[Originating-IOI]	839	7.1.2.25	UTF8String	V				
[Terminating-IOI]	840	7.1.2.38	UTF8String	V				
[IMS-Charging-Identifier]	841	7.1.2.20	UTF8String	V				
*[SDP-Session-Description]	842	7.1.2.31	UTF8String	V				
*[SDP-Media-component]	843	7.1.2.28	Grouped	V				
[SDP-Media-Name]	844	7.1.2.30	UTF8String	V				
*[SDP-Media-Description]	845	7.1.2.29	UTF8String	V				
[GPRS-Charging-Id]	846	7.1.2.18	UTF8String	V				
[GGSN-Address]	847	7.1.2.17	IPAddress	V				
[Served-Party-IP-Address]	848	7.1.2.32	IPAddress	V				
[Authorized-QoS]	849	7.1.2.4	UTF8String	V				
[Server-Capabilities]	[204]	[204]		V				
[Trunk-Group-Id]	851	7.1.2.40	Grouped	V				
[Incoming-Trunk-Group-Id]	852	7.1.2.21	UTF8String	V				
[Outgoing-Trunk-Group-Id]	853	7.1.2.26	UTF8String	V				
[Bearer-Service]	854	7.1.2.5	OctetString	V				
[Service-Id]	855	7.1.2. 33	UTF8String	V				
[UUS-Data]	856	7.1.2.46	Grouped	V				
[Amount-of-UUS-data]	857	7.1.2.1	UTF8String	V				
[Mime-type]	858	7.1.2.23	UTF8String	V				
[Direction]	859	7.1.2.14	Enumerated	V				
[Cause]	860	7.1.2.8	Grouped	V				
{Cause-Code}	861	7.1.2.9	Enumerated	V				
{Node-Functionality}	862	7.1.2.24	Enumerated	V				
[Service-Specific-Data]	xxx	7.1.2.31A	UTF8String	V				

7.1.2.1 Amount-of-UUS-Data AVP

The *Amount-Of-UUS-Data* AVP (AVP code 857) is of type UTF8String and holds the amount (in octets) of User-to-User data conveyed in the body of the SIP message with content-disposition header field equal to "render".

…

7.1.2.31 Service-ID AVP

The *Service-ID* AVP (AVP code 855) is of type UTF8String and identifies the service the MRFC is hosting. For conferences the conference ID is used as the value of this parameter.

7.1.2.31A Service-Specific-Data AVP

The *Service-Specific-Data* AVP (AVP Code xxx) is of type UTF8String and holds service specific data if and as provided by an Application Server

7.1.2.32 SIP-Method AVP

The *SIP-Method* AVP (AVP code 824) is of type UTF8String and holds the name of the SIP Method (INVITE, UPDATE etc.) causing an accounting request to be sent to the CCF.

…

End of Change in Clause 7.1.2
End of document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
				--			

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CHANGE REQUEST

⌘ **32.299** **CR** **014** ⌘ **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 **X**

Title:	⌘	Correction to Server-Capabilities AVP
Source:	⌘	**SA5** (benni.alexander@nokia.com)
Work item code:	⌘	CH
Date:	⌘	28/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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

Use one of the following releases:

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

Reason for change:	⌘	The Server-Capabilities AVP definition is missing.
Summary of change:	⌘	The Server-Capabilities AVP definition is added.
Consequences if not approved:	⌘	Conflicts with Diameter Credit Control Application.

Clauses affected:	⌘	7.1.2

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

Other comments: ⌘

Change in Clause 7.1.2

7.1.2 3GPP specific accountingAVPs

For the purpose of offline charging additional AVPs are used in ACR and ACA. The information is summarized in the following table along with the AVP flag rules.

Detailed descriptions of AVPs that are used specifically for 3GPP charging are provided in the subclauses below the table. However, for AVPs that are just borrowed from other applications only the reference (e.g. [402]), is provided in the following table and the detailed description is not repeated.

Table 7.2: Use Of Diameter accounting AVPs

AVP Name	AVP Code	Clause Defined	Value Type	AVP Flag rules				
				Must	May	Should not	Must not	May Encr.
3GPP Diameter Accounting AVPs								
[Event-Type]	823	7.1.2.16	Grouped	V				
[SIP-Method]	824	7.1.2.34	UTF8String	V				
[Event]	825	7.1.2.15	UTF8String	V				
[Content-Type]	826	7.1.2.12	UTF8String	V				
[Content-Length]	827	7.1.2.11	UTF8String	V				
[Content-Disposition]	828	7.1.2.10	UTF8String	V				
[Role-of-Node]	829	7.1.2.27	Enumerated	V				
[User Session Id]	830	7.1.2.45	UTF8String	V				
[Calling-Party-Address]	831	7.1.2.7	UTF8String	V				
[Called-Party-Address]	832	7.1.2.6	UTF8String	V				
[Time-stamps]	833	7.1.2.39	Grouped	V				
[SIP-Request-Timestamp]	834	7.1.2.35	UTF8String	V				
[SIP-Response-Timestamp]	835	7.1.2.36	UTF8String	V				
[Application-server]	836	7.1.2.3	UTF8String	V				
[Application-provided-called-party-address]	837	7.1.2.2	UTF8String	V				
[Inter-Operator-Identifier]	838	7.1.2.22	Grouped	V				
[Originating-IOI]	839	7.1.2.25	UTF8String	V				
[Terminating-IOI]	840	7.1.2.38	UTF8String	V				
[IMS-Charging-Identifier]	841	7.1.2.20	UTF8String	V				
*[SDP-Session-Description]	842	7.1.2.31	UTF8String	V				
*[SDP-Media-component]	843	7.1.2.28	Grouped	V				
[SDP-Media-Name]	844	7.1.2.30	UTF8String	V				
*[SDP-Media-Description]	845	7.1.2.29	UTF8String	V				
[GPRS-Charging-Id]	846	7.1.2.18	UTF8String	V				
[GGSN-Address]	847	7.1.2.17	IPAddress	V				
[Served-Party-IP-Address]	848	7.1.2.32	IPAddress	V				
[Authorized-QoS]	849	7.1.2.4	UTF8String	V				
[Server-Capabilities]	602~~[204]~~	[~~204~~402]	Grouped	V				
[Trunk-Group-Id]	851	7.1.2.40	Grouped	V				
[Incoming-Trunk-Group-Id]	852	7.1.2.21	UTF8String	V				
[Outgoing-Trunk-Group-Id]	853	7.1.2.26	UTF8String	V				
[Bearer-Service]	854	7.1.2.5	OctetString	V				
[Service-Id]	855	7.1.2. 33	UTF8String	V				
[UUS-Data]	856	7.1.2.46	Grouped	V				
[Amount-of-UUS-data]	857	7.1.2.1	UTF8String	V				
[Mime-type]	858	7.1.2.23	UTF8String	V				
[Direction]	859	7.1.2.14	Enumerated	V				
[Cause]	860	7.1.2.8	Grouped	V				
{Cause-Code}	861	7.1.2.9	Enumerated	V				
{Node-Functionality}	862	7.1.2.24	Enumerated	V				

End of Change in Clause 7.1.2

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CHANGE REQUEST

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

⌘ **32.299** **CR** **015** ⌘**rev** **-** ⌘ Current version: **6.1.0** ⌘

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

Title: ⌘ Correction on Tariff Switch handling

Source: ⌘ SA5 (karl-heinz.nenner@t-mobile.net)

Work item code: ⌘ CH ***Date:*** ⌘ 28/01/2005

Category: ⌘ **F**

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.

Release: ⌘ Rel-6

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 current draft version of the IETF Diameter Credit-Control (DCC) Application states, that the Tariff-Time-Change AVP "is not used for time-based services". Therefore, the "Tariff Switch" mechanism as supported in CAMEL is not available on the DCC-based Ro-Interface in the context of time-based services.

However, there is no technical requirement for this restriction. Even the IETF Diameter Credit-Control Application indicates certain exceptions for this rule (in section 5.1.1 of the IETF draft document, i.e. if time-based services are not continuously consumed). Furthermore, CAMEL generally allows Tariff-Switch handling for time-based services.

Based on the existing documents, consistent handling of Tariff Switches in DCC and CAMEL is not possible. Enhancements of existing solutions to support also DCC is unnecessarily complicated.

Summary of change: ⌘ To allow consistent handling of Tariff Switches in DCC and CAMEL, a description of Tariff Switch Handling in the context of continuously time based charging is added.

Consequences if not approved: ⌘ Inconsistent support of Tariff Switches in DCC and CAMEL.
Higher efforts and unnecessary complications if existing (CAMEL-based) applications shall be enhanced to support also DCC.

Clauses affected: ⌘ 6.3.7

Other specs affected: ⌘

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

Other comments: ⌘

Change in Clause 6.3.7

6.3.7 Support of Tariff Changes During an Active User Session

6.3.7.1 Support of Tariff Changes using the Tariff Switch Mechanism

After a tariff switch has been reached, all the active user sessions shall report their session usage by the end of the validity period of the current request and receive new quota for resource usage for the new tariff period.

In order to avoid the need for mass simultaneous quota refresh, the traffic usage can be split into resource usage before a tariff switch and resources used after a tariff switch.

The Tariff-Time-Change AVP is used to determine the tariff switch time as described by [402]. In addition to the scenarios described in [402], the Tariff-Time-Change AVP may also be used in the context of continuously time-based charging.

The Tariff-Change-Usage AVP is used within the Used-Service-Units AVP to distinguish reported usage before and after the tariff time change.

The Tariff-Change-Usage AVP is used within the Multiple-Services-Credit-Control AVP to allow separate quotas to be granted for use before and after the tariff switch. If this AVP is not present, the granted quota may be consumed both before and after the tariff switch, but usage must still be reported separately.

6.3.7.2 Support of Tariff Changes using Validity Time AVP

Changes to the tariffs pertaining to the service during active user sessions may also be handled using the Validity Time AVP as described by [402].

Editor's note: Additional details need to be added.

End of Change in Clause 6.3.7
End of Document

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054198***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

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CHANGE REQUEST

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

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

Title:	⌘	Correction of criteria for the presence of the GPRS charging ID in the IMS CDRs - Align with SA2's TS 23.228
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	OAM-CH
Date:	⌘	28/01/2005
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:	⌘	The "GPRS charging ID" parameter which allows charging correlation between the PS domain and the IMS Domain is categorized as "Mo" (Mandatory Operator provisionnable) in the IMS CDRs. However, the Stage 2 IMS specification TS 23.228 indicates that the Go interface that conveys the GCID from the GGSN to the IMS Domain is optional.
Summary of change:	⌘	- The category of the GPRS charging ID parameter is changed to "Co" (Conditional Operator provisionable) - The condition for the presence of the parameter is specified
Consequences if not approved:	⌘	Errors would occur in the implementation of IMS charging

Clauses affected:	⌘	6.1.3

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

Other comments:	⌘	Rel-6 mirror of S5-054186

Change in Clause 6.1.3

6.1.3 CDR Description on the Bi Interface

…

6.1.3.3 S-CSCF CDR Content

The detailed description of the field is provided in TS 32.298 [51].

Table : Charging Data of S-CSCF CDR

Field	Category	Description
Record Type	M	Identifies the type of record. The parameter is derived from the *Origin-Host* AVP
Retransmission	O_C	This parameter, when present, indicates that information from retransmitted Diameter ACRs has been used in this CDR
SIP Method	O_C	Specifies the SIP-method for which the CDR is generated. Only available in session unrelated cases. This parameter corresponds to SIP-Event-Type AVP
Role of Node	O_M	This field indicates the role of the AS/CSCF. This parameter corresponds to Role-of-Node AVP
Node Address	O_M	This item holds the address of the node providing the information for the CDR. This may either be the IP address or the FQDN of the IMS node generating the accounting data. This parameter corresponds to the *Origin-Host* AVP
Session ID	O_M	The Session identification. For a SIP session the Session-ID contains the SIP Call ID as defined in the Session Initiation Protocol RFC 3261 [404]. This parameter corresponds to User-Session-ID AVP
Calling Party Address	O_M	The address (Public User ID) of the party requesting a service or initiating a session. This field holds either the SIP URL (according to IETF RFC 3261 [404]) or the TEL URL (according to RFC 2806 [403]) of the calling party. This parameter corresponds to Calling-Party-Address AVP
Called Party Address	O_M	In the context of an end-to-end SIP transaction this field holds the address of the party (Public User ID) to whom the SIP transaction is posted. This parameter corresponds to Called-Party-Address AVP
Private User ID	O_M	Holds the used Network Access Identifier of the served party according to RFC2486 [405]. This parameter corresponds to the *User-Name* AVP
Service Request Time Stamp	O_M	This field contains the time stamp, which indicates the time at which the service was requested. This parameter corresponds to SIP-Request-Timestamp AVP in START ACR
Service Delivery Start Time Stamp	O_M	This field holds the time stamp reflecting either: successful session set-up, a delivery unrelated service, an unsuccessful session set-up and an unsuccessful session unrelated request. This parameter corresponds to SIP-Response-Timestamp AVP in START ACR
Service Delivery End Time Stamp	O_C	This field records the time at which the service delivery was terminated. It is Present only in SIP session related case. This parameter corresponds to SIP-Request-Timestamp AVP in STOP ACR
Record Opening Time	O_C	A time stamp reflecting the time the CCF opened this record. Present only in SIP session related case
Record Closure Time	O_M	A Time stamp reflecting the time the CCF closed the record
Application Servers Information	O_C	This a grouped CDR field containing the fields: “Application Server Involved” and “Application Provided Called Parties”
Application Servers Involved	O_C	Holds the ASs (if any) identified by the SIP URLs. This parameter corresponds to Application-Server AVP
Application Provided Called Parties	O_C	Holds a list of the Called Party Address(es), if the address(es) are determined by an AS (SIP URL, E.164…). This parameter corresponds to Application-Provided-Called-Party-Address AVP
Inter Operator Identifiers	O_C	Holds the identification of the home network (originating and terminating) if exchanged via SIP signalling, as recorded in the *Inter-Operator-Identifier* AVP
Originating IOI	O_C	This parameter corresponds to Originating-IOI AVP
Terminating IOI	O_C	This parameter corresponds to Terminating-IOI AVP

Field	Category	Description
Local Record Sequence Number	O_M	This field includes a unique record number created by this node. The number is allocated sequentially for each partial CDR (or whole CDR) including all CDR types. The number is unique within the CCF
Record Sequence Number	O_C	This field contains a running sequence number employed to link the partial records generated by the CCF for a particular session
Cause For Record Closing	O_M	This field contains a reason for the release of the CDR
Incomplete CDR Indication	O_C	This field provides additional diagnostics when the CCF detects missing ACRs
IMS Charging Identifier	O_M	This parameter holds the IMS charging identifier (ICID) as generated by the IMS node for the SIP session. This parameter corresponds to IMS-Charging-Identifier (ICID) AVP
SDP Session Description	O_C	Holds the Session portion of the SDP data exchanged between the User Agents if available in the SIP transaction. This parameter corresponds to SDP-Session-Description AVP
List of SDP Media Components	O_C	This is a grouped field comprising several sub-fields associated with one media component. It may occur several times in one CDR. The field is present only in a SIP session related case
SIP Request Timestamp	O_M	This parameter contains the time of the SIP Request (usually a (Re)Invite). This parameter corresponds to SIP-Request-Timestamp AVP in INTERIM ACR
SIP Response Timestamp	O_M	This parameter contains the time of the response to the SIP Request (usually a 200 OK). This parameter corresponds to SIP-Response-Timestamp AVP in INTERIM ACR
SDP Media Components	O_M	This is a grouped field comprising several sub-fields associated with one media component. Since several media components may exist for a session in parallel these sub-fields may occur several times. This parameter corresponds to SDP-Media-Component AVP
SDP Media Name	O_M	This field holds the name of the media as available in the SDP data. This parameter corresponds to SDP-Media-Name
SDP Media Description	O_M	This field holds the attributes of the media as available in the SDP data. This parameter corresponds to SDP-Media-Description
GPRS Charging ID	O_C ~~O_M~~	If received over the Go interface, ~~T~~this parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. This parameter corresponds to GPRS-Charging-Id
Media Initiator Flag	O_C	This field indicates if the called party has requested the session modification and it is present only if the initiator was the called party
GGSN Address	O_C	This parameter holds the control plane IP address of the GGSN that handles one or more media component(s) of a IMS session. This parameter corresponds to GGSN-Address AVP
Service Delivery Failure Reason	O_C	Holds the reason for why a requested service could not be successfully provided (i.e. SIP error codes taken from *SIP-Method* AVP). This field is not present in case of a successful service delivery
List of Message Bodies	O_C	This grouped field comprising several sub-fields describing the data that may be conveyed end-to-end in the body of a SIP message. Since several message bodies may be exchanged via SIP-signalling, this grouped field may occur several times. This parameter corresponds to UUS-Data AVP
Content-Type	O_C	This sub-field of Message Bodies holds the MIME type of the message body, Examples are: application/zip, image/gif, audio/mpeg, etc. This parameter corresponds to UUS-Data AVP/Mime-Type AVP or Event-Type AVP/ Content-Type AVP
Content-Disposition	O_C	This sub-field of Message Bodies holds the content disposition of the message body inside the SIP signalling, Content-disposition header field equal to “render”, indicates that “the body part should be displayed or otherwise rendered to the user”. Content disposition values are: session, render, inline, icon, alert, attachment, etc. This parameter corresponds to Even-Type AVP / Content-Disposition AVP
Content-Length	O_C	This sub-field of Message Bodies holds the size of the data of a message body in bytes. This parameter corresponds to UUS-Data AVP/ Amount-of-UUS-data AVP or Event-Type AVP / Content-Length AVP
Originator	O_C	This sub-field of the "List of Message Bodies" indicates the originating party of the message body. This parameter corresponds to UUS-Data AVP/ Direction AVP
Record Extensions	O_C	A set of operator/manufacturer specific extensions to the record, conditioned upon existence of an extension

6.1.3.4 P-CSCF CDR Content

The detailed description of the field is provided in TS 32.298 [51].

Table : Charging Data of P-CSCF CDR

Field	Category	Description
Record Type	M	Identifies the type of record. The parameter is derived from the *Origin-Host* AVP
Retransmission	O_C	This parameter, when present, indicates that information from retransmitted Diameter ACRs has been used in this CDR
SIP Method	O_C	Specifies the SIP-method for which the CDR is generated. Only available in session unrelated cases. This parameter corresponds to SIP-Event-Type AVP
Role of Node	O_M	This fields indicates the role of the AS/CSCF. This parameter corresponds to Role-of-Node AVP
Node Address	O_M	This item holds the address of the node providing the information for the CDR. This may either be the IP address or the FQDN of the IMS node generating the accounting data. This parameter corresponds to the O*rigin-Host* AVP
Session ID	O_M	The Session identification. For a SIP session the Session-ID contains the SIP Call ID as defined in the Session Initiation Protocol RFC 3261 [404]. This parameter corresponds to User-Session-ID AVP
Calling Party Address	O_M	The address (Public User ID) of the party requesting a service or initiating a session. This field holds either the SIP URL (according to IETF RFC 3261 [404]) or the TEL URL (according to RFC 2806 [403]) of the calling party. This parameter corresponds to Calling-Party-Address AVP
Called Party Address	O_M	In the context of an end-to-end SIP transaction this field holds the address of the party (Public User ID) to whom the SIP transaction is posted. This parameter corresponds to Called-Party-Address AVP
Served Party IP Address	O_M	This field contains the IP address of either the calling or called party, depending on whether the P-CSCF is in touch with the calling or called network. This parameter corresponds to Served-Party-IP-Address AVP
Service Request Time Stamp	O_M	This field contains the time stamp, which indicates the time at which the service was requested. This parameter corresponds to SIP-Request-Timestamp AVP in START ACR
Service Delivery Start Time Stamp	O_M	This field holds the time stamp reflecting either: successful session set-up, a delivery unrelated service, an unsuccessful session set-up and an unsuccessful session unrelated request. This parameter corresponds to SIP-Response-Timestamp AVP in START ACR
Service Delivery End Time Stamp	O_C	This field records the time at which the service delivery was terminated. It is Present only in SIP session related case. This parameter corresponds to SIP-Request-Timestamp AVP in STOP ACR
Record Opening Time	O_C	A time stamp reflecting the time the CCF opened this record. Present only in SIP session related case
Record Closure Time	O_M	A Time stamp reflecting the time the CCF closed the record
Inter Operator Identifiers	O_C	Holds the identification of the home network (originating and terminating) if exchanged via SIP signalling, as recorded in the *Inter-Operator-Identifier* AVP
Originating IOI	O_C	This parameter corresponds to Originating-IOI AVP
Terminating IOI	O_C	This parameter corresponds to Terminating-IOI AVP
Local Record Sequence Number	O_M	This field includes a unique record number created by this node. The number is allocated sequentially for each partial CDR (or whole CDR) including all CDR types. The number is unique within the CCF
Record Sequence Number	O_C	This field contains a running sequence number employed to link the partial records generated by the CCF for a particular session
Cause For Record Closing	O_M	This field contains a reason for the release of the CDR
Incomplete CDR Indication	O_C	This field provides additional diagnostics when the CCF detects missing ACRs
IMS Charging Identifier	O_M	This parameter holds the IMS charging identifier (ICID) as generated by the IMS node for the SIP session. This parameter corresponds to IMS-Charging-Identifier (ICID) AVP
SDP Session Description	O_C	Holds the Session portion of the SDP data exchanged between the User Agents if available in the SIP transaction. This parameter corresponds to SDP-Session-Description AVP

Field	Category	Description
List of SDP Media Components	O_C	This is a grouped field comprising several sub-fields associated with one media component. It may occur several times in one CDR. The field is present only in a SIP session related case
SIP Request Timestamp	O_M	This parameter contains the time of the SIP Request (usually a (Re)Invite). This parameter corresponds to SIP-Request-Timestamp AVP in INTERIM ACR
SIP Response Timestamp	O_M	This parameter contains the time of the response to the SIP Request (usually a 200 OK). This parameter corresponds to SIP-Response-Timestamp AVP in INTERIM ACR
SDP Media Components	O_M	This is a grouped field comprising several sub-fields associated with one media component. Since several media components may exist for a session in parallel these sub-fields may occur several times. This parameter corresponds to SDP-Media-Component AVP
SDP Media Name	O_M	This field holds the name of the media as available in the SDP data. This parameter corresponds to SDP-Media-Name
SDP Media Description	O_M	This field holds the attributes of the media as available in the SDP data. This parameter corresponds to SDP-Media-Description
GPRS Charging ID	O_C ~~O_M~~	If received over the Go interface, ~~T~~this parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. This parameter corresponds to GPRS-Charging-Id AVP
Media Initiator Flag	O_C	This field indicates if the called party has requested the session modification and it is present only if the initiator was the called party
Authorised QoS	O_C	Authorised QoS as defined in TS 23.207 [7] / TS 29.207 [8] and applied via the Go interface. This parameter corresponds to Authorised-QoS AVP
GGSN Address	O_C	This parameter holds the control plane IP address of the GGSN that handles one or more media component(s) of a IMS session. This parameter corresponds to GGSN-Address AVP
Service Delivery Failure Reason	O_C	Holds the reason for why a requested service could not be successfully provided (i.e. SIP error codes taken from *SIP-Method* AVP). This field is not present in case of a successful service delivery
List of Message Bodies	O_C	This grouped field comprising several sub-fields describing the data that may be conveyed end-to-end in the body of a SIP message. Since several message bodies may be exchanged via SIP-signalling, this grouped field may occur several times. This parameter corresponds to UUS-Data AVP
Content-Type	O_C	This sub-field of Message Bodies holds the MIME type of the message body, Examples are: application/zip, image/gif, audio/mpeg, etc. This parameter corresponds to UUS-Data AVP/Mime-Type AVP or Event-Type AVP/ Content-Type AVP
Content-Disposition	O_C	This sub-field of Message Bodies holds the content disposition of the message body inside the SIP signalling, Content-disposition header field equal to “render”, indicates that “the body part should be displayed or otherwise rendered to the user”. Content disposition values are: session, render, inline, icon, alert, attachment, etc. This parameter corresponds to Even-Type AVP / Content-Disposition AVP
Content-Length	O_C	This sub-field of Message Bodies holds the size of the data of a message body in bytes. This parameter corresponds to UUS-Data AVP/ Amount-of-UUS-data AVP or Event-Type AVP / Content-Length AVP
Originator	O_C	This sub-field of the "List of Message Bodies" indicates the originating party of the message body. This parameter corresponds to UUS-Data AVP/ Direction AVP
Record Extensions	O_C	A set of operator/manufacturer specific extensions to the record, conditioned upon existence of an extension

…

6.1.3.6 MRFC CDR Content

The detailed description of the field is provided in TS 32.298 [51].

Table 6 : Charging Data of MRFC CDR

Field	Category	Description
Record Type	M	Identifies the type of record. The parameter is derived from the *Origin-Host* AVP
Retransmission	O_C	This parameter, when present, indicates that information from retransmitted Diameter ACRs has been used in this CDR
SIP Method	O_C	Specifies the SIP-method for which the CDR is generated. Only available in session unrelated cases. This parameter corresponds to SIP-Event-Type AVP
Role of Node	O_M	This fields indicates the role of the AS/CSCF. This parameter corresponds to Role-of-Node AVP
Node Address	O_M	This item holds the address of the node providing the information for the CDR. This may either be the IP address or the FQDN of the IMS node generating the accounting data. This parameter corresponds to the O*rigin-Host* AVP
Session ID	O_M	The Session identification. For a SIP session the Session-ID contains the SIP Call ID as defined in the Session Initiation Protocol RFC 3261 [404]. This parameter corresponds to User-Session-ID AVP
Service ID	O_M	This field identifies the service the MRFC is hosting. For conferences the conference ID is used here. This parameter corresponds to Service-Id AVP
Calling Party Address	O_M	The address (Public User ID) of the party requesting a service or initiating a session. This field holds either the SIP URL (according to IETF RFC 3261 [404]) or the TEL URL (according to RFC 2806 [403]) of the calling party. This parameter corresponds to Calling-Party-Address AVP
Called Party Address	O_C	In the context of an end-to-end SIP transaction this field holds the address of the party (Public User ID) to whom the SIP transaction is posted. This parameter to corresponds Called-Party-Address AVP
Service Request Time Stamp	O_M	This field contains the time stamp which indicates the time at which the service was requested. This parameter corresponds to SIP-Request-Timestamp AVP in START ACR
Service Delivery Start Time Stamp	O_M	This field holds the time stamp reflecting either: successful session set-up, a delivery unrelated service, an unsuccessful session set-up and an unsuccessful session unrelated request. This parameter corresponds to SIP-Response-Timestamp AVP in START ACR
Service Delivery End Time Stamp	O_C	This field records the time at which the service delivery was terminated. It is Present only in SIP session related case. This parameter corresponds to SIP-Request-Timestamp AVP in STOP ACR
Record Opening Time	O_C	A time stamp reflecting the time the CCF opened this record. Present only in SIP session related case
Record Closure Time	O_M	A Time stamp reflecting the time the CCF closed the record
Application Servers Information	O_C	This a grouped CDR field containing the fields: “Application Server Involved” and “Application Provided Called Parties”
Application Servers Involved	O_C	Holds the ASs (if any) identified by the SIP URLs. This parameter corresponds to Application-Server AVP
Application Provided Called Parties	O_C	Holds a list of the Called Party Address(es), if the address(es) are determined by an AS (SIP URL, E.164…). This parameter corresponds to Application-Provided-Called-Party-Address AVP
Inter Operator Identifiers	O_C	Holds the identification of the home network (originating and terminating) if exchanged via SIP signalling, as recorded in the *Inter-Operator-Identifier* AVP
Originating IOI	O_C	This parameter corresponds to Originating-IOI AVP
Terminating IOI	O_C	This parameter corresponds to Terminating-IOI AVP
Local Record Sequence Number	O_M	This field includes a unique record number created by this node. The number is allocated sequentially for each partial CDR (or whole CDR) including all CDR types. The number is unique within the CCF
Record Sequence Number	O_C	This field contains a running sequence number employed to link the partial records generated by the CCF for a particular session
Cause For Record Closing	O_M	This field contains a reason for the release of the CDR
Incomplete CDR Indication	O_C	This field provides additional diagnostics when the CCF detects missing ACRs

Field	Category	Description
IMS Charging Identifier	O_M	This parameter holds the IMS charging identifier (ICID) as generated by the IMS node for the SIP session. This parameter corresponds to IMS-Charging-Identifier (ICID AVP
SDP Session Description	O_C	Holds the Session portion of the SDP data exchanged between the User Agents if available in the SIP transaction. This parameter corresponds to SDP-Session-Description AVP
List of SDP Media Components	O_C	This is a grouped field comprising several sub-fields associated with one media component. It may occur several times in one CDR. The field is present only in a SIP session related case
SIP Request Timestamp	O_M	This parameter contains the time of the SIP Request (usually a (Re)Invite). This parameter corresponds to SIP-Request-Timestamp AVP in INTERM ACR
SIP Response Timestamp	O_M	This parameter contains the time of the response to the SIP Request (usually a 200 OK). This parameter corresponds to SIP-Response-Timestamp AVP in INTERM ACR
SDP Media Components	O_M	This is a grouped field comprising several sub-fields associated with one media component. Since several media components may exist for a session in parallel these sub-fields may occur several times. This parameter corresponds to SDP-Media-Component AVP
SDP Media Name	O_M	This field holds the name of the media as available in the SDP data. This parameter corresponds to SDP-Media-Name
SDP Media Description	O_M	This field holds the attributes of the media as available in the SDP data. This parameter corresponds to SDP-Media-Description
GPRS Charging ID	O_C ~~O_M~~	If received over the Go interface, ~~T~~this parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. This parameter corresponds to GPRS-Charging-Id AVP
Media Initiator Flag	O_C	This field indicates if the called party has requested the session modification and it is present only if the initiator was the called party
GGSN Address	O_C	This parameter holds the control plane IP address of the GGSN that handles one or more media component(s) of a IMS session. This parameter corresponds to GGSN-Address AVP
Service Delivery Failure Reason	O_C	Holds the reason for why a requested service could not be successfully provided (i.e. SIP error codes taken from *SIP-Method* AVP). This field is not present in case of a successful service delivery
Record Extensions	O_C	A set of operator/manufacturer specific extensions to the record, conditioned upon existence of an extension

6.1.3.7 MGCF CDR Content

The detailed description of the field is provided in TS 32.298 [51].

Table : Charging Data of MGCF CDR

Field	Category	Description
Record Type	M	Identifies the type of record. The parameter is derived from the *Origin-Host* AVP
Retransmission	O_C	This parameter, when present, indicates that information from retransmitted Diameter ACRs has been used in this CDR
SIP Method	O_C	Specifies the SIP-method for which the CDR is generated. Only available in session unrelated cases. This parameter corresponds to SIP-Event-Type AVP
Role of Node	O_M	This fields indicates the role of the AS/CSCF. This parameter corresponds to Role-of-Node AVP
Node Address	O_M	This item holds the address of the node providing the information for the CDR. This may either be the IP address or the FQDN of the IMS node generating the accounting data. This parameter corresponds to the O*rigin-Host* AVP
Session ID	O_M	The Session identification. For a SIP session the Session-ID contains the SIP Call ID as defined in the Session Initiation Protocol RFC 3261 [404]. This parameter corresponds to User-Session-ID AVP
Calling Party Address	O_M	The address (Public User ID) of the party requesting a service or initiating a session. This field holds either the SIP URL (according to IETF RFC 3261 [404]) or the TEL URL (according to RFC 2806 [403]) of the calling party. This parameter corresponds to Calling-Party-Address AVP
Called Party Address	O_M	In the context of an end-to-end SIP transaction this field holds the address of the party (Public User ID) to whom the SIP transaction is posted. This parameter to corresponds Called-Party-Address AVP
Service Request Time Stamp	O_M	This field contains the time stamp which indicates the time at which the service was requested. This parameter corresponds to SIP-Request-Timestamp AVP in START ACR
Service Delivery Start Time Stamp	O_M	This field holds the time stamp reflecting either: successful session set-up, a delivery unrelated service, an unsuccessful session set-up and an unsuccessful session unrelated request. This parameter corresponds to SIP-Response-Timestamp AVP in START ACR
Service Delivery End Time Stamp	O_C	This field records the time at which the service delivery was terminated. It is Present only in SIP session related case. This parameter corresponds to SIP-Request-Timestamp AVP in STOP ACR
Record Opening Time	O_C	A time stamp reflecting the time the CCF opened this record. Present only in SIP session related case
Record Closure Time	O_M	A Time stamp reflecting the time the CCF closed the record
Inter Operator Identifiers	O_C	Holds the identification of the home network (originating and terminating) if exchanged via SIP signalling, as recorded in the *Inter-Operator-Identifier* AVP
Originating IOI	O_C	This parameter corresponds to Originating-IOI AVP
Terminating IOI	O_C	This parameter corresponds to Terminating-IOI AVP
Local Record Sequence Number	O_M	This field includes a unique record number created by this node. The number is allocated sequentially for each partial CDR (or whole CDR) including all CDR types. The number is unique within the CCF
Record Sequence Number	O_C	This field contains a running sequence number employed to link the partial records generated by the CCF for a particular session
Cause For Record Closing	O_M	This field contains a reason for the release of the CDR
Incomplete CDR Indication	O_C	This field provides additional diagnostics when the CCF detects missing ACRs
IMS Charging Identifier	O_M	This parameter holds the IMS charging identifier (ICID) as generated by the IMS node for the SIP session. This parameter corresponds to IMS-Charging-Identifier (ICID) AVP
SDP Session Description	O_C	Holds the Session portion of the SDP data exchanged between the User Agents if available in the SIP transaction. This parameter corresponds to SDP-Session-Description AVP
List of SDP Media Components	O_C	This is a grouped field comprising several sub-fields associated with one media component. It may occur several times in one CDR. The field is present only in a SIP session related case
SIP Request Timestamp	O_M	This parameter contains the time of the SIP Request (usually a (Re)Invite). This parameter corresponds to SIP-Request-Timestamp AVP in INTERM ACR

Field	Category	Description
SIP Response Timestamp	O_M	This parameter contains the time of the response to the SIP Request (usually a 200 OK). This parameter corresponds to SIP-Response-Timestamp AVP in INTERM ACR
SDP Media Components	O_M	This is a grouped field comprising several sub-fields associated with one media component. Since several media components may exist for a session in parallel these sub-fields may occur several times. This parameter corresponds to SDP-Media-Component AVP
SDP Media Name	O_M	This field holds the name of the media as available in the SDP data. This parameter corresponds to SDP-Media-Name
SDP Media Description	O_M	This field holds the attributes of the media as available in the SDP data. This parameter corresponds to SDP-Media-Description
GPRS Charging ID	O_C ~~O_M~~	If received over the Go interface, ~~T~~this parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. This parameter corresponds to GPRS-Charging-Id AVP
Media Initiator Flag	O_C	This field indicates if the called party has requested the session modification and it is present only if the initiator was the called party
GGSN Address	O_C	This parameter holds the control plane IP address of the GGSN that handles one or more media component(s) of a IMS session. This parameter corresponds to GGSN-Address AVP
Service Delivery Failure Reason	O_C	Holds the reason for why a requested service could not be successfully provided (i.e. SIP error codes taken from *SIP-Method* AVP). This field is not present in case of a successful service delivery
Trunk Group ID Incoming/Outgoing	O_M	Contains the outgoing trunk group ID for an outgoing session/call or the incoming trunk group ID for an incoming session/call. This parameter corresponds to Trunk-Group-ID AVP
Bearer Service	O_M	Holds the used bearer service for the PSTN leg. This parameter corresponds to Bearer-Service AVP
Record Extensions	O_C	A set of operator/manufacturer specific extensions to the record, conditioned upon existence of an extension

6.1.3.8 BGCF CDR Content

The detailed description of the field is provided in TS 32.298 [51].

Table : Charging Data of BGCF CDR

Field	Category	Description
Record Type	M	Identifies the type of record. The parameter is derived from the *Origin-Host* AVP
Retransmission	O_C	This parameter, when present, indicates that information from retransmitted Diameter ACRs has been used in this CDR
SIP Method	O_C	Specifies the SIP-method for which the CDR is generated. Only available in session unrelated cases. This parameter corresponds to SIP-Event-Type AVP
Role of Node	O_M	This fields indicates the role of the AS/CSCF. This parameter corresponds to Role-of-Node AVP
Node Address	O_M	This item holds the address of the node providing the information for the CDR. This may either be the IP address or the FQDN of the IMS node generating the accounting data. This parameter corresponds to the O*rigin-Host* AVP
Session ID	O_M	The Session identification. For a SIP session the Session-ID contains the SIP Call ID as defined in the Session Initiation Protocol RFC 3261 [404]. This parameter corresponds to User-Session-ID AVP
Calling Party Address	O_M	The address (Public User ID) of the party requesting a service or initiating a session. This field holds either the SIP URL (according to IETF RFC 3261 [404]) or the TEL URL (according to RFC 2806 [403]) of the calling party. This parameter corresponds to Calling-Party-Address AVP
Called Party Address	O_M	In the context of an end-to-end SIP transaction this field holds the address of the party (Public User ID) to whom the SIP transaction is posted. This parameter corresponds to Called-Party-Address AVP
Service Request Time Stamp	O_M	This field contains the time stamp which indicates the time at which the service was requested. This parameter corresponds to SIP-Request-Timestamp AVP in START ACR
Service Delivery Start Time Stamp	O_M	This field holds the time stamp reflecting either: successful session set-up, a delivery unrelated service, an unsuccessful session set-up and an unsuccessful session unrelated request. This parameter corresponds to SIP-Response-Timestamp AVP in START ACR
Service Delivery End Time Stamp	O_C	This field records the time at which the service delivery was terminated. It is Present only in SIP session related case. This parameter corresponds to SIP-Request-Timestamp AVP in STOP ACR
Record Opening Time	O_C	A time stamp reflecting the time the CCF opened this record. Present only in SIP session related case
Record Closure Time	O_M	A Time stamp reflecting the time the CCF closed the record
Inter Operator Identifiers	O_C	Holds the identification of the home network (originating and terminating) if exchanged via SIP signalling, as recorded in the *Inter-Operator-Identifier* AVP
Originating IOI	O_C	This parameter corresponds to Originating-IOI AVP
Terminating IOI	O_C	This parameter corresponds to Terminating-IOI AVP
Local Record Sequence Number	O_M	This field includes a unique record number created by this node. The number is allocated sequentially for each partial CDR (or whole CDR) including all CDR types. The number is unique within the CCF
Record Sequence Number	O_C	This field contains a running sequence number employed to link the partial records generated by the CCF for a particular session
Cause For Record Closing	O_M	This field contains a reason for the release of the CDR
Incomplete CDR Indication	O_C	This field provides additional diagnostics when the CCF detects missing ACRs
IMS Charging Identifier	O_M	This parameter holds the IMS charging identifier (ICID) as generated by the IMS node for the SIP session. This parameter corresponds to IMS-Charging-Identifier (ICID) AVP
SDP Session Description	O_C	Holds the Session portion of the SDP data exchanged between the User Agents if available in the SIP transaction. This parameter corresponds to SDP-Session-Description AVP
List of SDP Media Components	O_C	This is a grouped field comprising several sub-fields associated with one media component. It may occur several times in one CDR. The field is present only in a SIP session related case
SIP Request Timestamp	O_M	This parameter contains the time of the SIP Request (usually a (Re)Invite). This parameter corresponds to SIP-Request-Timestamp AVP in INTERM ACR

Field	Category	Description
SIP Response Timestamp	O_M	This parameter contains the time of the response to the SIP Request (usually a 200 OK). This parameter corresponds to SIP-Response-Timestamp AVP in INTERM ACR
SDP Media Components	O_M	This is a grouped field comprising several sub-fields associated with one media component. Since several media components may exist for a session in parallel these sub-fields may occur several times. This parameter corresponds to SDP-Media-Component AVP
SDP Media Name	O_M	This field holds the name of the media as available in the SDP data. This parameter corresponds to SDP-Media-Name
SDP Media Description	O_M	This field holds the attributes of the media as available in the SDP data. This parameter corresponds to SDP-Media-Description
GPRS Charging ID	O_C ~~O_M~~	If received over the Go interface, ~~T~~this parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. This parameter corresponds to GPRS-Charging-Id AVP
Media Initiator Flag	O_C	This field indicates if the called party has requested the session modification and it is present only if the initiator was the called party
GGSN Address	O_C	This parameter holds the control plane IP address of the GGSN that handles one or more media component(s) of a IMS session. This parameter corresponds to GGSN-Address AVP
Service Delivery Failure Reason	O_C	Holds the reason for why a requested service could not be successfully provided (i.e. SIP error codes taken from *SIP-Method* AVP). This field is not present in case of a successful service delivery
Record Extensions	O_C	A set of operator/manufacturer specific extensions to the record, conditioned upon existence of an extension

6.1.3.9 SIP AS CDR Content

The detailed description of the field is provided in TS 32.298 [51].

Table : Charging Data of AS CDR

Field	Category	Description
Record Type	M	Identifies the type of record. The parameter is derived from the *Origin-Host* AVP
Retransmission	O_C	This parameter, when present, indicates that information from retransmitted Diameter ACRs has been used in this CDR
SIP Method	O_C	Specifies the SIP-method for which the CDR is generated. Only available in session unrelated cases. This parameter corresponds to SIP-Event-Type AVP
Role of Node	O_M	This fields indicates the role of the AS/CSCF. This parameter corresponds to Role-of-Node AVP
Node Address	O_M	This item holds the address of the node providing the information for the CDR. This may either be the IP address or the FQDN of the IMS node generating the accounting data. This parameter corresponds to the O*rigin-Host* AVP
Session ID	O_M	The Session identification. For a SIP session the Session-ID contains the SIP Call ID as defined in the Session Initiation Protocol RFC 3261 [404]. This parameter corresponds to User-Session-ID AVP
Calling Party Address	O_M	The address (Public User ID) of the party requesting a service or initiating a session. This field holds either the SIP URL (according to IETF RFC 3261 [404]) or the TEL URL (according to RFC 2806 [403]) of the calling party. This parameter corresponds to Calling-Party-Address AVP
Called Party Address	O_M	In the context of an end-to-end SIP transaction this field holds the address of the party (Public User ID) to whom the SIP transaction is posted. This parameter corresponds to Called-Party-Address AVP
Service Request Time Stamp	O_M	This field contains the time stamp which indicates the time at which the service was requested. This parameter corresponds to SIP-Request-Timestamp AVP in START ACR
Service Delivery Start Time Stamp	O_M	This field holds the time stamp reflecting either: successful session set-up, a delivery unrelated service, an unsuccessful session set-up and an unsuccessful session unrelated request. This parameter corresponds to SIP-Response-Timestamp AVP in START ACR
Service Delivery End Time Stamp	O_C	This field records the time at which the service delivery was terminated. It is Present only in SIP session related case. This parameter corresponds to SIP-Request-Timestamp AVP in STOP ACR
Record Opening Time	O_C	A time stamp reflecting the time the CCF opened this record. Present only in SIP session related case
Record Closure Time	O_M	A Time stamp reflecting the time the CCF closed the record
Inter Operator Identifiers	O_C	Holds the identification of the home network (originating and terminating) if exchanged via SIP signalling, as recorded in the *Inter-Operator-Identifier* AVP
Originating IOI	O_C	This parameter corresponds to Originating-IOI AVP
Terminating IOI	O_C	This parameter corresponds to Terminating-IOI AVP
Local Record Sequence Number	O_M	This field includes a unique record number created by this node. The number is allocated sequentially for each partial CDR (or whole CDR) including all CDR types. The number is unique within the CCF
Record Sequence Number	O_C	This field contains a running sequence number employed to link the partial records generated by the CCF for a particular session
Cause For Record Closing	O_M	This field contains a reason for the release of the CDR
Incomplete CDR Indication	O_C	This field provides additional diagnostics when the CCF detects missing ACRs
IMS Charging Identifier	O_M	This parameter holds the IMS charging identifier (ICID) as generated by the IMS node for the SIP session. This parameter corresponds to IMS-Charging-Identifier (ICID) AVP
SDP Session Description	O_C	Holds the Session portion of the SDP data exchanged between the User Agents if available in the SIP transaction. This parameter corresponds to SDP-Session-Description AVP
List of SDP Media Components	O_C	This is a grouped field comprising several sub-fields associated with one media component. It may occur several times in one CDR. The field is present only in a SIP session related case
SIP Request Timestamp	O_M	This parameter contains the time of the SIP Request (usually a (Re)Invite). This parameter corresponds to SIP-Request-Timestamp AVP in INTERM ACR

Field	Category	Description
SIP Response Timestamp	O_M	This parameter contains the time of the response to the SIP Request (usually a 200 OK). This parameter corresponds to SIP-Response-Timestamp AVP in INTERM ACR
SDP Media Components	O_M	This is a grouped field comprising several sub-fields associated with one media component. Since several media components may exist for a session in parallel these sub-fields may occur several times. This parameter corresponds to SDP-Media-Component AVP
SDP Media Name	O_M	This field holds the name of the media as available in the SDP data. This parameter corresponds to SDP-Media-Name
SDP Media Description	O_M	This field holds the attributes of the media as available in the SDP data. This parameter corresponds to SDP-Media-Description
GPRS Charging ID	O_C ~~O_M~~	If received over the Go interface, ~~T~~this parameter holds the GPRS charging ID (GCID) which is generated by the GGSN for a GPRS PDP context. This parameter corresponds to GPRS-Charging-Id AVP
Media Initiator Flag	O_C	This field indicates if the called party has requested the session modification and it is present only if the initiator was the called party
GGSN Address	O_C	This parameter holds the control plane IP address of the GGSN that handles one or more media component(s) of a IMS session. This parameter corresponds to GGSN-Address AVP
Service Delivery Failure Reason	O_C	Holds the reason for why a requested service could not be successfully provided (i.e. SIP error codes taken from *SIP-Method* AVP). This field is not present in case of a successful service delivery
Service Specific Data	O_C	This field contains service specific data
List of Message Bodies	O_C	This grouped field comprising several sub-fields describing the data that may be conveyed end-to-end in the body of a SIP message. Since several message bodies may be exchanged via SIP-signalling, this grouped field may occur several times
Content-Type	O_C	This sub-field of Message Bodies holds the MIME type of the message body, Examples are: application/zip, image/gif, audio/mpeg, etc. This parameter corresponds to UUS-Data AVP/Mime-Type AVP or Event-Type AVP/ Content-Type
Content-Disposition	O_C	This sub-field of Message Bodies holds the content disposition of the message body inside the SIP signalling, Content-disposition header field equal to “render”, indicates that “the body part should be displayed or otherwise rendered to the user”. Content disposition values are: session, render, inline, icon, alert, attachment, etc. This parameter corresponds to Even-Type AVP / Content-Disposition AVP
Content-Length	O_C	This sub-field of Message Bodies holds the size of the data of a message body in bytes. This parameter corresponds to UUS-Data AVP/ Amount-of-UUS-data AVP or Event-Type AVP / Content-Length AVP
Originator	O_C	This sub-field of the "List of Message Bodies" indicates the originating party of the message body. This parameter corresponds to UUS-Data AVP/ Direction AVP
Record Extensions	O_C	A set of operator/manufacturer specific extensions to the record, conditioned upon existence of an extension

End of Change in Clause 6.1.3
End of Document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	S_23	SP-040144	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Dec 2004	S_26	SP-040777	--	--	Submitted to TSG SA#26 forApproval	2.0.0	6.0.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc ⌘S5-054199***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.299** **CR** **007** ⌘ **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:	⌘	Correction of criteria for the presence of the GPRS charging ID in the Diameter Accounting messages - Align with SA2's TS 23.228
Source:	⌘	**SA5** (alain.bibas@francetelecom.com)
Work item code:	⌘	OAM-CH
Date:	⌘	28/01/2005
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:	⌘	The "GPRS charging ID" parameter which allows charging correlation between the PS domain and the IMS Domain is categorized as "Mo" (Mandatory Operator provisionnable) in the Diameter Accounting Request message. However, the Stage 2 IMS specification TS 23.228 indicates that the Go interface that conveys the GCID from the GGSN to the IMS Domain is optional.
Summary of change:	⌘	The category of the GPRS charging ID parameter is changed to "Oc" (Conditional Operator provisionable)
Consequences if not approved:	⌘	Errors would occur in the implementation of IMS charging

Clauses affected:	⌘	6.2 and 7.2.2

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

⌘

Other comments:	⌘	Rel-6 mirror of S5-054186

Change in Clause 6.2

6.2 Message Contents for Offline Charging

6.2.1 Accounting-Request Message

The following table illustrates the basic structure of a Diameter *Accounting-Request* message as used for offline charging.

Table 6.2.1 : Accounting-Request (ACR) Message Contents for Offline Charging

Diameter base protocol AVPs	
AVP	**Used in offline ACR**
<Diameter-Header:271,REQ,PXY>	Yes
<Session-Id> -- Diameter Session Id	Yes
{Origin-Host}	Yes
{Origin-Realm}	Yes
{Destination-Realm}	Yes
{Accounting-Record-Type}	Yes
{Accounting-Record-Number}	Yes
[Acct-Application-Id]	No
[Vendor-Specific-Application-Id]	Yes
[Vendor-Id]	Yes
{ Auth-Application-Id }	Yes
{ Acct-Application-Id }	Yes
[User-Name]	Yes
[Accounting-Sub-Session-Id]	No
[Accounting-RADIUS-Session-Id]	No
[Acct-Multi-Session-Id]	No
[Acct-Interim-Interval]	Yes
[Accounting-Realtime-Required]	No
[Origin-State-Id]	Yes
[Event-Timestamp]	Yes
*[Proxy-Info]	Yes
{ Proxy-Host }	Yes
{ Proxy-State }	Yes
*[Route-Record]	No
*[AVP]	No
3GPP Diameter accounting AVPs	
[Event-Type]	Yes
[Role-of-node]	Yes
[User-Session-ID]	Yes
[Calling-Party-Address]	Yes
[Called-Party-Address]	Yes
[Time-stamps]	Yes
*[Application-Server]	Only for IMS (S-CSCF)
Application Servers Involved	Only for IMS (S-CSCF)
*Application Provided Called Parties	Only for IMS (S-CSCF)
*[Application-provided-Called-Party-Address]	Only for IMS (S-CSCF)
*[Inter-Operator-Identifier]	Yes
originating IOI	Yes
terminating IOI	Yes
[IMS-Charging-Identifier]	Yes
*[SDP-Session-Description]	Yes
*[SDP-Media-Component]	Yes
SIP Request Timestamp	Yes

SIP Response Timestamp	Yes
SDP Media Components	Yes
SDP Media Name	Yes
SDP Media Description	Yes
[GPRS Charging ID]	Yes
Media Initiator Flag	Yes
Authorised QoS	Yes
[GGSN-Address]	Yes
[Served-Party-IP-Address]	Only for IMS (P-CSCF)
[Authorized-QoS]	Only for IMS (P-CSCF)
[Server-Capabilities]	Only for IMS (I-CSCF)
[Trunk-Group-ID]	Only for IMS (MGCF)
[Bearer-Service]	Only for IMS (MGCF)
[Service-ID]	Only for IMS (MRFC)
[UUS-Data]	Yes
Content-Type	Yes
Content-Disposition	Yes
Content-Length	Yes
Originator	Yes
[Cause]	Yes
[PS-Furnish-Charging-Information]	Yes
{GPRS-Charging-Id}	Yes
{PS-Free-Format-Data}	Yes
[PS-Append-Free-Format-Data]	Yes

NOTE: A detailed description of the AVPs is provided in clause 7.

Editor's note: The Application Provided Called Party issue needs to be reviewed & corrected if needed.

6.2.2 Accounting-Answer Message

The following table illustrates the basic structure of a Diameter *Accounting-Answer* message as used for offline charging. This message is always used by the CDF as specified below, regardless of the network element it is received from and the ACR record type that is being replied to.

NOTE: Other AVPs would be added. Only generic AVPs should be here, so IMS specific AVPs should be removed.

Table 6.2.2 : Accounting-Answer (ACA) Message Contents for Offline Charging

Diameter base protocol AVPs	
AVP	**Used in Offline ACA**
<Diameter-Header:271,PXY>	Yes
<Session-Id>	Yes
{Result-Code}	Yes
{Origin-Host}	Yes
{Origin-Realm}	Yes
{Accounting-Record-Type}	Yes
{Accounting-Record-Number}	Yes
[Acct-Application-Id]	No
[Vendor-Specific-Application-Id]	Yes
[Vendor-Id]	Yes
{ Auth-Application-Id }	Yes
{ Acct-Application-Id }	Yes
[User-Name]	Yes
[Accounting-Sub-Session-Id]	No
[Accounting-RADIUS-Session-Id]	No
[Acct-Multi-Session-Id]	No
[Error-Reporting-Host]	No
[Acct-Interim-Interval]	Yes
[Accounting-Realtime-Required]	No
[Origin-State-Id]	Yes
[Event-Timestamp]	Yes
*[Proxy-Info]	No
{ Proxy-Host }	No
{ Proxy-State }	No
*[AVP]	No

End of Change in Clause 6.2

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	SA_23	SP-040145	--	--	Submitted to TSG SA#23 for Information	1.0.0	
Sep 2004	SA_25	SP-040554	--	--	Submitted to TSG SA#25 for Approval	2.0.0	6.0.0
Dec 2004	SA_26	SP-040776	001	--	Reassign Vendor specific AVP codes - Align with CN4's 29.230	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	002	--	Add Threshold based re-authorisation triggers	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	003	--	Add Re-authorisation triggers for flow-based online charging – Align with Stage 2	6.0.0	6.1.0
Dec 2004	SA_26	SP-040776	004	--	Add missing elements and other corrections	6.0.0	6.1.0
Dec 2004	SA_26	SP-040775	005	--	Add definition of a new 3GPP-specific AVP: PS Furnish Charging Information AVP - Align with 32.251	6.0.0	6.1.0
				--			