**3GPP TSG-SA5 Meeting #133e *S5-205184***

**e-meeting 12th - 21st October 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.260** | **CR** | **0406** | **rev** | **1** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Definition of the IMS converged charging information | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSIMSCH | | | | |  | ***Date:*** | | | 2020-10-02 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The IMS converged charging information is not specified | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding IMS converged charging information | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | IMS cannot use the converged charging. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.x (new), 6.y (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision of S5-205184. | | | | | | | | |

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| **First change** |

## 6.x Definition of the IMS converged charging information

### 6.x.1 General

The Charging Information parameter used for IMS converged charging is provided in the following clauses.

### 6.x.2 Definition of IMS charging information

SMS specific charging information used for IMS converged charging is provided within the IMS charging Information.

Table 6.x.2.1: Structure of SMS Charging information

|  |  |  |
| --- | --- | --- |
| Information Element | Category | Description |
| User Location Info | OC | This field contains the network provided location information for 3GPP accesses, if available. |
| UE Time Zone | OC | This field holds the Time Zone of where the UE is located, if available where the UE currently resides. |
| Subscriber Equipment Number | OC | This field contains the identification of the mobile device (i.e., IMEI) that the subscriber is using. Note: In TS 32.251 [11], this is identified as User Equipment Info within PS Information. |
| 3GPP PS Data Off Status | OC | This field holds the 3GPP PS Data Off Status associated with the registration, as defined in TS 23.228 [201], when available. |
| ISUP Cause | OC | This indicates the reason the call was released. |
| VLR Number | OC | This identifies the international E.164 address of the VLR serving the user. |
| MSC Address | OC | This identifies the international E.164 address of the MSC that generated the network call reference number. |
| GGSN Address | OC | This field holds the IP-address of the Node that generated the access Charging ID. |
| Event Type | OC | This field holds the SIP Method, the content of the SIP "Event" header and the content of the SIP "expires" header when present in the SIP request. |
| Role of Node | OM | This field specifies whether the IMS node is serving the Originating or the Terminating party. |
| User Session ID | OM | This field holds the session identifier. For a SIP session the Session-ID contains the SIP Call ID. When the AS acts as B2BUA, the incoming session is identified. |
| Outgoing Session ID | OC | When the AS acts as B2BUA, the outgoing side session is identified by the Outgoing Session ID which contains the SIP Call ID. |
| Session Priority | OC | This field contains the priority of the session. |
| Calling Party Address | OM | This field holds the address (SIP URI or Tel URI) URI of the party (Public User Identity or Public Service Identity) initiating a session or requesting a service. |
| Called Party Address | OM | For SIP transactions, except for registration, this field holds the address of the party (Public User ID or Public Service ID) to whom the SIP transaction is posted.  For registration transactions, this field holds the Public User ID under registration. |
| Number Portability routing information | OC | This field includes information on number portability after DNS/ENUM request from IMS node in the calling user's home network. |
| Carrier Select routing information | OC | This field includes information on carrier select after DNS/ENUM request from IMS node in the calling user's home network. |
| Alternate Charged Party Address | OC | The address of an alternate party that is identified by the AS at session initiation and is charged in place of the calling party. |
| Requested Party Address | **OC** | For SIP transactions this field initially holds the address of the party (Public User ID or Public Service ID) to whom the SIP transaction was originally posted.  This field is only present if different from the Called Party Address parameter. |
| Called Asserted Identity | **OC** | The address of the final asserted identity. Present if the final asserted identity is available in the SIP 2xx response. |
| Called Identity Change | **OC** | Terminating identity address change and associated time stamp. |
| Called Identity Change Time Stamp | **OC** | Time stamp of SIP UPDATE or SIP RE-INVITE with changed terminating identity information. |
| Called Identity | **OC** | Changed terminating identity information received in a SIP UPDATE or SIP RE-INVITE. |
| Associated URI | OC | This field holds a non-barred public user identity (SIP URI or Tel URI) associated to the public user identity under registration and is present for registration transactions. |
| Time Stamps | OC | This field holds the time of the SIP Request and the time of the response to the SIP Request. |
| Application Server Information | OC | This field holds the SIP URI(s) of the AS(s) addressed during the session and the called party number (SIP URI, E.164), if an AS determines it. |
| Inter Operator Identifier | OC | This field holds the identification of the network neighbours (originating and terminating) as exchanged via SIP signalling if available. This field may occur several times. |
| IMS Charging Identifier | OM | This field holds the IMS Charging Identifier (ICID) as generated by an IMS node for a SIP session. |
| Related IMS Charging Identifier | OC | This field holds the Related IMS charging identifier when the session is the target access leg in case of access transfer. |
| Related IMS Charging Identifier Generation Node | OC | This field holds the identifier of the server that generated the Related IMS charging identifier. |
| Transit IOI List | OC | This field holds the identification of the involved transit networks as exchanged via SIP signalling if available. This field may occur several times. When received from the AS, each occurrence of this field represents transit networks inbound to or outbound from the S-CSCF. |
| Early Media Description | OC | This field holds session and media parameters related to media components set to active during the SIP session establishment and before a final successful or unsuccessful SIP answer to the initial SIP INVITE request is received. Once a media component is set to active, subsequent status changes shall be registered. Since several SDP negotiations may occur during the SIP session establishment, this field may occur several times. |
| SDP Session Description | OC | This field holds the content of an "attribute-line" (i=, c=, b=, k=, a=, etc.) related to a session. |
| SDP Media Component | OC | 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. |
| Service Id | OC | This field identifies the service the MRFC is hosting. For conferences the conference ID is used as the value of this parameter. |
| Message Bodies | OC | This field holds information about the Message body, Content-Type, Content-Length, Content-Disposition and Originator if available. |
| Access Network Information | OC | This field contains the content of one P-header P-Access-Network-Info, if available. |
| Additional Access Network Information | OC | This field contains the content of an additional SIP P-header "P-Access-Network-Info", if available. |
| Cellular Network Information | OC | This field contains the content of one SIP "Cellular-Network-Info" header, when the UE supporting one or more cellular radio access technologies but using a non-cellular IP-CAN, such as untrusted WLAN access, provides this header field to relay information to its service provider about the radio cell identity of the cellular radio access network on which the UE most recently camped. |
| Access Transfer Information | OC | This field contains information related to the session transfer. |
| IMS Communication Service ID | OC | This field contains the IMS communication service identifier if received in the P-Asserted-Service header in the SIP request for all applicable IMS nodes downstream from the S‑CSCF serving the Originating party. This field contains the IMS communication service identifier if received in the "+g.3gpp.icsi-ref" header field parameter of the Feature-Caps header in the SIP response for all applicable IMS nodes upstream from the S‑CSCF serving the Originating party. |
| IMS Application Reference ID | OC | This field contains the IMS application reference identifier if received in the SIP Request. |
| Cause Code | OC | This field contains the cause value. |
| Reason Header | OC | This field contains SIP reason header included in BYE or CANCEL method,  Reliability of this information is not guaranteed if the SIP or CANCEL is originated outside of the trust domain which is determined by the Operator on a "per parameter basis".  Since several Reason Header may exist for a SIP message, these sub-fields may occur several times |
| Initial IMS Charging Identifier | OC | This field holds the Initial IMS charging identifier (ICID) as generated by the IMS node for the initial SIP session created for IMS service continuity. |
| NNI Information | **OC** | This field holds information about the NNI used for interconnection and roaming. |
| From Address | OM | Contains the information from the SIP From header. |
| IMS Emergency Indication | OC | This field indicates the registration is an emergency registration or the IMS session is an IMS emergency session |
| IMS Visited Network Identifier | OC | Contains the information from the SIP P-Visited-Network-ID header. |
| Instance Id | OC | This field uniquely identifies the device (fixed or mobile) of the served user. |
| TAD Identifier | OC | This field indicates the type of access network (CS or PS) through which the session shall be terminated. |
| FE Identifier List | OC | This element contains one or more IM CN subsystem functional entity addresses and/or AS and application identifiers where the IM CN subsystem functional entity does create charging information for the related CDR of this IM CN subsystem functional entity. |

Editors Note: The applicable information elements are FFS.

### 6.x.3 Detailed message format for converged charging

The following clause specifies per Operation Type the charging data that are sent by IMS Node for IMS converged charging.

The Operation Types are listed in the following order: I (Initial)/U (Update)/T (Termination)/E (Event). Therefore, when all Operation Types are possible it is marked as IUTE. If only some Operation Types are allowed for a node, only the appropriate letters are used (i.e. IT or E) as indicated in the table heading. The omission of an Operation Type for a particular field is marked with "-" (i.e. I--E). Also, when an entire field is not allowed in a node the entire cell is marked as "-".

Table 6.x.3.1 defines the basic structure of the supported fields in the *Charging Data Request* message for IMS converged charging.

Table 6.x.3.1: Supported fields in *Charging Data Request* message

| Information Element | Node Type | IMS-GWF | MRFC | SIP AS |
| --- | --- | --- | --- | --- |
| Supported Operation Types | IUTE | IUT | IUTE |
| Session Identifier | | -UT- | -UT | -UT- |
| Subscriber Identifier | | IUT- | IUT | IUT- |
| NF Consumer Identification | | IUT- | IUT | IUT- |
| Invocation Timestamp | | IUT- | IUT | IUT- |
| Invocation Sequence Number | | IUT- | IUT | IUT- |
| Retransmission Indicator | | IUT- | IUT | IUT- |
| One-time Event | | ---E | - | ---E |
| One-time Event Type | | ---E | - | ---E |
| Service Specification Information | | IUT- | IUT | IUT- |
| Notify URI | | IU-- | IU- | IU-- |
| Triggers | | -UT- | -UT | -UT- |
| Multiple Unit Usage | | IUT- | IUT | IUT- |
| Rating Group | | IUT-- | IUT- | IUT-- |
| Requested Unit | | IU-- | IU- | IU-- |
| Used Unit Container | | -UT- | -UT | -UT- |
| IMS Charging Information | | IUTE | IUT | IUTE |
| Event Type | | IUTE | IUT | IUTE |
| Role of Node | | IUTE | - | IUTE |
| User Session Id | | IUTE | IUT | IUTE |
| Outgoing Session ID | | - | - | IUTE |
| Session Priority | | I--E | I-- | I--E |
| Calling Party Address | | IUTE | IUT | IUTE |
| Called Party Address | | IUTE | IUT | IUTE |
| Number Portability routing information | | I--E | - | I--E |
| Carrier Select routing information | | I--E | - | I--E |
| Requested Party Address | | I--E | I-- | I--E |
| Called Asserted Identity | | -U-E | -U- | -U-E |
| Called Identity Change | | -U-- | - | -U-- |
| Called Identity Change Time Stamp | | -U-- | - | -U-- |
| Called Identity | | -U-- | - | -U-- |
| Associated URI | | ---E | - | - |
| Time Stamps | | IUTE | IUT | IUTE |
| Application Server Information | | IUTE | IUT | - |
| Inter Operator Identifier | | IUTE | IUT | IUTE |
| Transit IOI List | | IUTE | IUT | IUTE |
| IMS Charging Identifier | | IUTE | IUT | IUTE |
| Related IMS Charging Identifier | | - | - | IUTE |
| Related IMS Charging Identifier Generation Node | | - | - | IUTE |
| SDP Session Description | | IU-- | IU- | IU-- |
| SDP Media Component | | IU-- | IU- | IU-- |
| GGSN Address | | IU-- | IU- | IU-- |
| User Location Info | | IUTE | IUT | IUTE |
| UE Time Zone | | IUTE | IUT | IUTE |
| Service Id | | - | IUT | - |
| Messages Bodies | | IUTE | - | IUTE |
| Cause Code | | --TE | --T | --TE |
| Reason Header | | --TE | --T | --TE |
| Access Network Information | | IUTE | IUT | IUTE |
| Additional Access Network Information | | IUTE | IUT | IUTE |
| Cellular Network Information | | IUTE | IUT | IUTE |
| IMS Communication Service ID | | I--E | - | I—E |
| Initial IMS Charging Identifier | | - | - | IUTE |
| From Address | | IUTE | IUT | IUTE |
| Access Network Info Change | | - | - | - |
| Access Transfer Information | | - | - | -U-- |
| IMS Visited Network Identification | | IUTE | - | IUTE |
| Instance Id | | IUTE | - | IUTE |
| 3GPP PS Data Off Status | | - | - | E |

Editors Note: The supported fields in charging data request are FFS.

Table 6.x.3.2 defines the basic structure of the supported fields in the *Charging Data Response* message for SMS converged charging.

Table 6.x.3.2: Supported fields in *Charging Data Response* message

| Information Element | Node Type | IMS-GWF | MRFC | SIP AS |
| --- | --- | --- | --- | --- |
| Supported Operation Types | IUTE | IUT | IUTE |
| Session Identifier | | -UT- | -UT | -UT- |
| Invocation Timestamp | | IUT- | IUT | IUT- |
| Invocation Result | | IUT- | IUT- | IUT- |
| Invocation Sequence Number | | IUT- | IUT- | IUT- |
| Session Failover | | IU-- | IU- | IU-- |
| Supported Features | | IU-- | IU- | IU-- |
| Triggers | | IU-- | IU- | IU-- |
| Multiple Unit information | | IU-- | IU- | IU-- |
| Result Code | | IU-- | IU- | IU-- |
| Rating Group | | IU-- | IU- | IU-- |
| Granted Unit | | IU-- | IU- | IU-- |
| Validity Time | | IU-- | IU- | IU-- |
| Final Unit Indication | | IU-- | IU- | IU-- |
| Time Quota Threshold | | IU-- | IU- | IU-- |
| Volume Quota Threshold | | IU-- | IU- | IU-- |
| Unit Quota Threshold | | IU-- | IU- | IU-- |
| Quota Holding Time | | IU-- | IU- | IU-- |
| Triggers | | IU-- | IU- | IU-- |
| Announcement Information | | IU-- | - | IU-- |
| IMS Charging Information | | - | - | - |
| Event Type | | - | - | - |
| Role of Node | | - | - | - |
| User Session Id | | - | - | - |
| Outgoing Session ID | | - | - | - |
| Session Priority | | - | - | - |
| Calling Party Address | | - | - | - |
| Called Party Address | | - | - | - |
| Number Portability routing information | | - | - | - |
| Carrier Select routing information | | - | - | - |
| Requested Party Address | | - | - | - |
| Called Asserted Identity | | - | - | - |
| Called Identity Change | | - | - | - |
| Called Identity Change Time Stamp | | - | - | - |
| Called Identity | | - | - | - |
| Associated URI | | - | - | - |
| Time Stamps | | - | - | - |
| Application Server Information | | - | - | - |
| Inter Operator Identifier | | - | - | - |
| Transit IOI List | | - | - | - |
| IMS Charging Identifier | | - | - | - |
| Related IMS Charging Identifier | | - | - | - |
| Related IMS Charging Identifier Generation Node | | - | - | - |
| SDP Session Description | | - | - | - |
| SDP Media Component | | - | - | - |
| GGSN Address | | - | - | - |
| User Location Info | | - | - | - |
| UE Time Zone | | - | - | - |
| Service Id | | - | - | - |
| Messages Bodies | | - | - | - |
| Cause Code | | - | - | - |
| Reason Header | | - | - | - |
| Access Network Information | | - | - | - |
| Additional Access Network Information | | - | - | - |
| Cellular Network Information | | - | - | - |
| IMS Communication Service ID | | - | - | - |
| Initial IMS Charging Identifier | | - | - | - |
| From Address | | - | - | - |
| Access Network Info Change | | - | - | - |
| Access Transfer Information | | - | - | - |
| IMS Visited Network Identification | | - | - | - |
| Instance Id | | - | - | - |
| 3GPP PS Data Off Status | | - | - | - |

Editors Note: The supported fields in charging data response are FFS.

### 6.x.4 Formal IMS converged charging parameter description

#### 6.x.4.1 IMS charging CHF CDR parameters

The detailed definitions, abstract syntax and encoding of the IMS charging CHF CDR parameters are specified in TS 32.298 [51].

#### 6.x.4.2 IMS charging resources attributes

The detailed definitions of resources attributes used for IMS charging are specified in TS 32.291 [58].

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| **Second change** |

## 6.y Bindings for IMS converged charging

This mapping between the Information Elements, resource attributes and CHF CDR parameters for IMS converged charging is described in clause 7 of TS 32.291 [58].

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| **End of changes** |