**3GPP TSG SA WG5 Meeting #155 *S5-243037***

Jeju, South Korea, 27 - 31 May 2024

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **32.256** | **CR** | **0033** | **rev** | **1** | **Current version:** | **18.3.0** |  |
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| *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:***  | Rel-18 CR 32.256 Correct charging information for 5G connection charging |
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| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TEI18 |  | ***Date:*** | 2024-05-30 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *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 canbe found in 3GPP o. | *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)* |
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| ***Reason for change:*** | 1. TR 28.286 concluded on Solution #6.10: Only Applicable Common IEs should be reflected in common part description compared to TS 32.290. In particular, the “requested unit” and “granted unit” are not expanded to show the applicability of the sub-fields. Since this service only support event-based charging, the “Service Specific Units” sub-field may apply, which is analogue to the SMS charging in TS 32.274.2. The Operation Types for MUU and MUI are not aligned with the IE description. Since the two set of IEs only apply to ECUR, the operation type should be "IT-". 3. The Operation Types for the Inter-CHF Information is undefined.4. The common IE Tenant identifier can be used in the charging data request to hold the business subscriber identification, in the case when there is interaction between C-CHF and B-CHF for the business context. |
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| ***Summary of change:*** | 1. Remove not applicable IE and expand applicable sub-fields in Table 6.1.1.2.1, Table 6.1.1.3.1, Table 6.2.3.1, Table 6.2.3.2.2. Fix the errors of Operations Types for MUU in Table 6.2.3.1 and MUI in Table 6.2.3.2.3. Add the Operation Types for the Inter-CHF Information in Table 6.2.3.1, Table 6.2.3.2.4. Add Tenant Identifier in Charging Data Request and CHF CDR. |
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| ***Consequences if not approved:*** | The 5G connection and mobility charging information is incorrect.  |
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| ***Clauses affected:*** | 6.1.1.2, 6.1.1.3, 6.2.3, 6.1.3.2, 6.1.3.3, 6.1.3.4 |
|  |  |
|  | **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 S5-242735 |

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| **First change** |

#### 6.1.1.2 Charging Data Request message

Table 6.1.1.2.1 illustrates the basic structure of a Charging Data Request message from the AMF as used for 5G connection and mobility converged charging.

Table 6.1.1.2.1: Charging Data Request message contents

| **Information Element** | **Category for converged charging** | **Description** |
| --- | --- | --- |
| Session Identifier | OC | Described in TS 32.290 [57] |
| Subscriber Identifier | OM | Described in TS 32.290 [57]In case Subscriber Identifier (i.e. SUPI) is not present (for emergency service), the User Equipment Info in table 6.2.1.2.1. shall be present for identifying the user. |
| Tenant Identifier | OC | Described in TS 32.290 [57]. This field may be used in the business context. |
| NF Consumer Identification | M | Described in TS 32.290 [57] |
| NF Functionality | M | Described in TS 32.290 [57] |
| NF Name | OC | Described in TS 32.290 [57] |
| NF Address | OC | Described in TS 32.290 [57] |
| NF PLMN ID | OC | Described in TS 32.290 [57] |
|  |  |  |
| Invocation Timestamp | M | Described in TS 32.290 [57] |
| Invocation Sequence Number | M | Described in TS 32.290 [57] |
|  |  |  |
| One-time Event | OC | Described in TS 32.290 [57] |
| One-time Event Type | OC | Described in TS 32.290 [57] |
|  |  |  |
| Supported Features | OC | Described in TS 32.290 [57] |
| Service Specification Information | OC | Described in TS 32.290 [57] |
|  |  |  |
| Multiple Unit Usage  | OC | Described in TS 32.290 [57]. |
| Rating Group | M | Described in TS 32.290 [57] |
| Requested Unit | OC | Described in TS 32.290 [57] |
| AMF Identifier | OC | This field holds the AMF identifier. |
| AMF Charging Profile | OC | This field holds the applicable AMF Charging Profile |
| Registration Charging Information | OM | This field holds the registration specific information described in clause 6.2.1.2 |
| N2 connection Charging Information | OM | This field holds the N2 connection specific information described in clause 6.2.1.3 |
| Location Reporting Charging information | OM | This field holds the Location Reporting specific information described in clause 6.2.1.4 |
| Inter-CHF Information | OC | This field holds inter-CHF specific information described in clause 6.2.1.5 |

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| **Next change** |

#### 6.1.1.3 Charging data response message

Table 6.1.1.3.1 illustrates the basic structure of a Charging Data Response message from the CHF as used for 5G connection and mobility converged charging.

Table 6.1.1.3.1: Charging Data Response message contents

| **Information Element** | **Category for converged charging** | **Description** |
| --- | --- | --- |
| Session Identifier | OC | Described in TS 32.290 [57] |
| Invocation Timestamp | M | Described in TS 32.290 [57] |
| Invocation Result | OC | Described in TS 32.290 [57] |
| Invocation Result Code | OC | Described in TS 32.290 [57] |
| Failed parameter | OC | Described in TS 32.290 [57] |
| Failure Handling | OC | Described in TS 32.290 [57] |
| Invocation Sequence Number | M | Described in TS 32.290 [57] |
| Session Failover | OC | This field is not applicable. |
| Supported Features | OC | Described in TS 32.290 [57] |
|  |  |  |
| Multiple Unit Information | OC | This field is applicable for ECUR. |
| Result Code | OC | Described in TS 32.290 [57] |
| Rating Group | OM | Described in TS 32.290 [57] |
|  |  |  |
| Validity Time | OC | Described in TS 32.290 [57] |
| AMF Charging Profile | OC | This field holds the AMF Charging Profile to be applied |
| Location Reporting Charging information | Oc | This field holds the Location Reporting specific information described in clause 6.2.1.4 |
| Inter-CHF Information | OC | This field holds Inter-CHF specific information described in clause 6.2.1.5 |

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| **Next change** |

#### 6.1.3.2 Registration charging CHF CDR data

If enabled, CHF CDRs for Registration charging shall be produced for each registration and deregistration

The fields of Registration charging CHF CDR are specified in table 6.1.3.2.1.

Table 6.1.3.2.1: Registration charging CHF record data

| Field | Category | Description |
| --- | --- | --- |
| Record Type  | M | CHF record. |
| Recording Network Function ID | OM | This field holds the name of the recording entity, i.e. the CHF id. |
| Subscriber Identifier | OM | This field holds the 5G Subscription Permanent Identifier (SUPI) of the served party. This fields should be present except for emergency session. |
| Tenant Identifier | OC | Described in TS 32.298 [51]. It is used in the business context. |
| NF Consumer Information | M | This field holds the information of the AMF that used the charging service. |
| NF Functionality | M | This field contains the function of the node (i.e. AMF) |
| NF Name | OC | This field holds the name of the AMF used. |
| NF Address | OC | This field holds the IP Address of the AMF used. |
| NF PLMN ID | Oc | This field holds the PLMN identifier (MCC MNC) of the AMF. |
| Record Opening Time | M | Described in TS 32.298 [51] |
| Duration | M | Described in TS 32.298 [51] |
| Record Sequence Number | C | Described in TS 32.298 [51] |
| Cause for Record Closing  | M | Described in TS 32.298 [51] |
| Diagnostics | OM | Described in TS 32.298 [51] |
| Local Record Sequence Number | OM | Described in TS 32.298 [51] |
| Record Extensions | OC | Described in TS 32.298 [51] |
| AMF Identifier | OC | This field holds the AMF identifier. |
| Registration Charging Information | OM | This field holds the 5G registration specific information defined in clause 6.2.1.2. |
| Inter-CHF Information | OC | This field holds inter-CHF specific information described in clause 6.2.1.5 |

#### 6.1.3.3 N2 connection charging Information CHF CDR data

If enabled, CHF CDRs for N2 connection charging shall be produced for each N2 connection establishment and release.

The fields of N2 connection charging CHF CDR are specified in table 6.1.3.3.1.

Table 6.1.3.3.1: N2 connection charging CHF record data

| Field | Category | Description |
| --- | --- | --- |
| Record Type  | M | CHF record. |
| Recording Network Function ID | OM | This field holds the name of the recording entity, i.e. the CHF id. |
| Subscriber Identifier | OM | This field holds the 5G Subscription Permanent Identifier (SUPI) of the served party. This fields should be present except for emergency session. |
| Tenant Identifier | OC | Described in TS 32.298 [51]. It is used in the business context. |
| NF Consumer Information | M | This field holds the information of the AMF that used the charging service. |
| NF Functionality | M | This field contains the function of the node (i.e. AMF) |
| NF Name | OC | This field holds the name of the AMF used. |
| NF Address | OC | This field holds the IP Address of the AMF used. |
| NF PLMN ID | Oc | This field holds the PLMN identifier (MCC MNC) of the AMF. |
| Record Opening Time | OC | Described in TS 32.298 [51] |
| Duration | M | Described in TS 32.298 [51] |
| Record Sequence Number | C | Described in TS 32.298 [51] |
| Cause for Record Closing  | M | Described in TS 32.298 [51] |
| Local Record Sequence Number | OM | Described in TS 32.298 [51] |
| Record Extensions | OC | Described in TS 32.298 [51] |
| AMF Identifier | OC | This field holds the AMF identifier. |
| N2 connection charging Information | OM | This field holds the N2 connection specific information defined in clause 6.2.1.3 |
| Inter-CHF Information | OC | This field holds inter-CHF specific information described in clause 6.2.1.5 |

#### 6.1.3.4 Location reporting charging CHF CDR data

If enabled, CHF CDRs for Location reporting charging shall be produced for each Location reporting.

The fields of Location reporting charging CHF CDR are specified in table 6.1.3.4.1.

Table 6.1.3.4.1: Location reporting charging CHF record data

| Field | Category | Description |
| --- | --- | --- |
| Record Type  | M | CHF record. |
| Recording Network Function ID | OM | This field holds the name of the recording entity, i.e. the CHF id. |
| Subscriber Identifier | OM | This field holds the 5G Subscription Permanent Identifier (SUPI) of the served party. This fields should be present except for emergency session. |
| Tenant Identifier | OC | Described in TS 32.298 [51]. It is used in the business context. |
| NF Consumer Information | M | This field holds the information of the AMF that used the charging service. |
| NF Functionality | M | This field contains the function of the node (i.e. AMF) |
| NF Name | OC | This field holds the name of the AMF used. |
| NF Address | OC | This field holds the IP Address of the AMF used. |
| NF PLMN ID | Oc | This field holds the PLMN identifier (MCC MNC) of the AMF. |
| Record Opening Time | M | Described in TS 32.298 [51] |
| Duration | M | Described in TS 32.298 [51] |
| Record Sequence Number | C | Described in TS 32.298 [51] |
| Cause for Record Closing  | M | Described in TS 32.298 [51] |
| Local Record Sequence Number | OM | Described in TS 32.298 [51] |
| Record Extensions | OC | Described in TS 32.298 [51] |
| AMF Identifier | OC | This field holds the AMF identifier. |
| Location reporting charging Information | OM | This field holds the Location reporting specific information defined in clause 6.2.1.4. |
| Inter-CHF Information | OC | This field holds inter-CHF specific information described in clause 6.2.1.5 |

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| **Next change** |

### 6.2.3 Detailed message format for converged charging

The following clause specifies per Operation Type the charging data that are sent by AMF for 5G connection and mobility converged charging.

The Operation Types are listed in the following order: I (Initial)/T (Termination)/E (Event). Therefore, when all Operation Types are possible it is marked as ITE. 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 6.2.3.1 defines the basic structure of the supported fields in the *Charging Data Request* message for AMF converged charging.

Table 6.2.3.1: Supported fields in Charging Data Request message

| Information Element | Functionality of AMF | Reg. | N2 cnt  | Loc. Report. |
| --- | --- | --- | --- | --- |
| Supported Operation Types | I/T/E | E | E |
| Session Identifier | ITE | E | E |
| Subscriber Identifier | ITE | E | E |
| Tenant Identifier | ITE | E | E |
| NF Consumer Identification | ITE | E | E |
| NF Functionality | ITE | E | E |
| NF Name | ITE | E | E |
| NF Address | ITE | E | E |
| NF PLMN ID | ITE | E | E |
|  |  |  |  |
| Invocation Timestamp | ITE | E | E |
| Invocation Sequence Number | ITE | E | E |
|  |  |  |  |
| One-time Event | --E | E | E |
| One-time Event Type | --E | E | E |
|  |  |  |  |
| Supported Features | I-E | E | E |
| Service Specification Information | ITE | E | E |
|  |  |  |  |
| Multiple Unit Usage | IT- | - | - |
| Rating Group | IT- | - | - |
| Requested Unit | IT- | - | - |
| AMF Identifier | ITE | E | E |
| AMF Charging Profile | IT-E | E | E |
| Registration Charging Information |
| Registration Message type | ITE | - | - |
| User Information | ITE | - | - |
| UE 5GMM Core Network Capability | ITE | - | - |
| MICO Mode Indication | ITE | - | - |
| SMS Supported Indication | ITE | - | - |
| Access Type | ITE | - | - |
| RAT Type | ITE | - | - |
| TAI List | ITE | - | - |
| User Location Info | ITE | - | - |
| PSCell Information | ITE | - | - |
| UE Time Zone | ITE | - | - |
| Mobility Restrictions | ITE | - | - |
| Requested NSSAI | ITE | - | - |
| Allowed NSSAI | ITE | - | - |
| Rejected NSSAI | ITE | - | - |
| NSSAI mapping list | ITE | - | - |
| Alternative NSSAI Map | ITE | - | - |
| AMF UE NGAP ID | ITE | - | - |
| RAN UE NGAP ID | ITE | - | - |
| RAN Node Id | ITE | - | - |
| SNPN ID | ITE | - | - |
| CAG ID List | ITE | - | - |
| Satellite Access Indicator | ITE | - | - |
| N2 Connection Charging Information |
| N2 Connection Message type | - | E | - |
| User Information | - | E | - |
| User Location Info | - | E | - |
| PSCell Information | - | E | - |
| UE Time Zone | - | E | - |
| RAT Type | - | E | - |
| AMF UE NGAP ID | - | E | - |
| RAN UE NGAP ID | - | E | - |
| RAN Node Id | - | E | - |
| Mobility Restrictions | - | E | - |
| Allowed NSSAI | - | E | - |
| NSSAI mapping list | - | E | - |
| RRC Establishment Cause | - | E | - |
| Satellite Access Indicator | - | E | - |
| Location Reporting Charging information |
| Location reporting Message type | - | - | E |
| User Information | - | - | E |
| User Location Info | - | - | E |
| PSCell Information | - | - | E |
| UE Time Zone | - | - | E |
| Presence Reporting Area Information | - | - | E |
| RAT Type | - | - | E |
| Satellite Access Indicator | - | - | E |
| Inter-CHF Information |
| Original NF Consumer Id | ITE | E | E |

Table 6.2.3.2 defines the basic structure of the supported fields in the *Charging Data Response* message for AMF converged charging.

Table 6.2.3.2: Supported fields in Charging Data Response message

| Information Element | Functionality of AMF | Reg. | N2 cnt  | Loc. Report. |
| --- | --- | --- | --- | --- |
| Supported Operation Types | ITE | E | E |
| Session Identifier | ITE | E | E |
| Invocation Timestamp | ITE | E | E |
| Invocation Result | ITE | E | E |
| Invocation Sequence Number | ITE | E | E |
| Session Failover | I-- | - | - |
| Supported Features | I-E | E | E |
|  |  |  |  |
| Multiple Unit information | IT- | - | - |
| Result Code | IT- | - | - |
| Rating Group | IT- | - | - |
| AMF Charging Profile | ITE | E | E |
|

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| Location Reporting Charging information |

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|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Presence Reporting Area Information | - | - | E |
|  |  |  |  |
| Inter-CHF Information |
| Remote CHF resource | ITE | E | E |

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| **End of change** |