**3GPP TSG-SA5 Meeting #154 *S5-241612rev2***

Changsha, China, 15 - 19 April 2024

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **32.255** | **CR** | **0518** | **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 32.255 Correction on the charging message content |
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| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** | TEI18 |  | ***Date:*** | 2024-04-17 |
|  |  |  |  |  |
| ***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:*** | The charging message content has some errors and is not consistent between stage 2 and stage 3.TR 28.286 concluded on Solution #6.10: Only Applicable Common IEs should be reflected in common part description compared to TS 32.290. |
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| ***Summary of change:*** | 1. Remove not applicable IEs and Expand the sub-fields in the message content.2. Correct the indentation errors under Used Unit Container. Correct spelling error in charging data response.3. Add the missing parameters in clause 6.2.2, align with clause 6.1.1.2. |
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| ***Consequences if not approved:*** | The charging message is not accurate.  |
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| ***Clauses affected:*** | 6.1.1.2, 6.1.1.3, 6.2.2 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Revision of S5-241612 |

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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 SMF as used for 5G data connectivity converged charging.

Table 6.1.1.2.1: Charging Data Request message contents

| **Information Element** | **Category for converged charging** | **Category for offline only charging** | **Description** |
| --- | --- | --- | --- |
| Session Identifier | OC | OC | Described in TS 32.290 [57] |
| Subscriber Identifier | OM | M | Described in TS 32.290 [57]In case 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. |
| NF Consumer Identification | M | M | Described in TS 32.290 [57] |
| NF Functionality | M | OC | Described in TS 32.290 [57] |
| NF Name | OC | OC | Described in TS 32.290 [57] |
| NF Address | OC | OC | Described in TS 32.290 [57] |
| NF PLMN ID | OC | OC | Described in TS 32.290 [57] |
| Invocation Timestamp | M | M | Described in TS 32.290 [57] |
| Invocation Sequence Number | M | M | Described in TS 32.290 [57] |
| Retransmission Indicator | OC | OC | Described in TS 32.290 [57] |
| Notify URI | OC | OC | Described in TS 32.290 [57] |
| Service Specification Information | OC | OC | Described in TS 32.290 [57] |
| Supported Features | OC | - | This field indicates the features supported by the NF consumer. |
| Triggers | OC | OC | This field is described in TS 32.290 [57] and holds the 5G data connectivity specific triggers described in clause 5.2.1. |
| Multiple Unit Usage  | OC | OC | Described in TS 32.290 [57]This field is not applicable to QBC. |
| Rating Group | M | M | Described in TS 32.290 [57] |
| Requested Unit | OC | - | Described in TS 32.290 [57] |
| Time | OC | - | Described in TS 32.290 [57] |
| Total Volume | OC | - | Described in TS 32.290 [57] |
| Uplink Volume | OC | - | Described in TS 32.290 [57] |
| Downlink Volume | OC | - | Described in TS 32.290 [57] |
| Used Unit Container | OC | OC | Described in TS 32.290 [57] |
| Service Identifier | OC | OC | Described in TS 32.290 [57] |
| Quota management Indicator | OC | - | Described in TS 32.290 [57] |
| Triggers | OC | OC | This field is described in TS 32.290 [57] and holds the 5G data connectivity specific triggers described in clause 5.2.1.  |
| Trigger Timestamp | OC | OC | Described in TS 32.290 [57] |
| Time | OC | OC | Described in TS 32.290 [57] |
| Total Volume | OC | OC | Described in TS 32.290 [57] |
| Uplink Volume | OC | OC | Described in TS 32.290 [57] |
| Downlink Volume | OC | OC | Described in TS 32.290 [57] |
| Local Sequence Number  | OM | OM | Described in TS 32.290 [57] |
| PDU Container Information  | OC | OC | This field holds the 5G data connectivity PDU session container specific information described in clause 6.2. |
| UPF ID | OC | OC | This field holds the UPF identifier used to identify the UPF.These fields shall only be included when either quota is requested per UPF, or used units are reported per UPF |
| multi-homed PDU address | OC | OC | This field holds the IPv6 prefix used by UPF. It may only be used for IPv6 multi-homed PDU sessions and then only for reporting used units. |
| PDU Session Charging Information | OM | OM | This field holds the 5G data connectivity specific information described in clause 6.2.This field is applicable to FBC and QBC. |
| Roaming QBC information | OM | OM | This field holds the roaming QBC specific information defined in clause 6.2.1.4This field is only applicable to QBC. |
| Inter-CHF Information | OC | - | This field holds inter CHF specific information described in clause 6.2.1.6 |

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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 data connectivity converged charging.

Table 6.1.1.3.1: Charging Data Response message contents

| **Information Element** | **Category for converged charging** | **Category for offline only charging** | **Description** |
| --- | --- | --- | --- |
| Session Identifier | OC | OC | Described in TS 32.290 [57] |
| Invocation Timestamp | M | M | Described in TS 32.290 [57] |
| Invocation Result | OC | M | Described in TS 32.290 [57] |
| Invocation Result Code | OC | M | Described in TS 32.290 [57] |
| Failed Parameter | OC | OC | Described in TS 32.290 [57] |
| Failure Handling | OC | OC | Described in TS 32.290 [57] |
| Invocation Sequence Number | M | M | Described in TS 32.290 [57] |
| Session Failover | OC | OC | Described in TS 32.290 [57] |
| Supported Features | OC | - | This field indicates the features supported by the NF consumer. |
| Multiple Unit Information | OC | OC | Described in TS 32.290 [57]This field is not applicable to QBC. |
| Result Code | OC | OC | Described in TS 32.290 [57] |
| Rating Group | M | M | Described in TS 32.290 [57] |
| UPF ID | OC | OC | This field holds the UPF identifier used for quota granted per UPF by CHF  |
| Granted Unit | OC | - | Described in TS 32.290 [57] |
| Validity Time | OC | - | Described in TS 32.290 [57] |
| Final Unit Indication | OC | - | Described in TS 32.290 [57] |
| Time Quota Threshold  | OC | - | Described in TS 32.290 [57] |
| Volume Quota Threshold  | OC | - | Described in TS 32.290 [57] |
| Unit Quota Threshold  | OC | - | Described in TS 32.290 [57] |
| Quota Holding Time | OC | - | Described in TS 32.290 [57] |
| Triggers | OC | OC | This field is described in TS 32.290 [57] and holds the 5G data connectivity specific triggers described in clause 5.2.1. |
| Triggers  | OC | OC | This field is described in TS 32.290 [57] and holds the 5G data connectivity specific triggers described in clause 5.2.1. |
| PDU Session Charging Information | OM | OM | This field holds the 5G data connectivity specific information described in clause 6.2. |
| Roaming QBC Information | OM | OM | This field holds the roaming QBC specific information defined in clause 6.2.1.4This field is not applicable to FBC. |
| Inter-CHF Information | OC | - | This field holds inter-CHF specific information described in clause 6.2.1.6 |

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| **Next change** |

### 6.2.2 Detailed message format for converged charging

The following clause specifies per Operation Type the charging data that are sent by SMF for 5G data connectivity converged charging or offline only 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. IUT or E) as indicated in the table heading. The omission of an Operation Type for a particular field is marked with "-" (i.e. IU-E). Also, when an entire field is not allowed in a node the entire cell is marked as "-".

Table 6.2.2.1 defines the basic structure of the supported fields in the *Charging Data* Request message for 5G data connectivity converged charging or offline only charging.

Table 6.2.2.1: Supported fields in *Charging Data Request* message

| Information Element | Functionality of SMF | FBC | QBC | FBC | QBC |
| --- | --- | --- | --- | --- | --- |
| Charging Service | Converged Charging | Converged Charging | Offline Only Charging | Offline Only Charging |
| Supported Operation Types | I/U/T/E | I/U/T/E | I/U/T/E | I/U/T/E |
| Session Identifier | -UT- | -UT- | -UT- | -UT- |
| Subscriber Identifier | IUT- | IUT- | IUT- | IUT- |
| NF Consumer Identification | IUT- | IUT- | IUT- | IUT- |
| NF Functionality | IUT- | IUT- | IUT- | IUT- |
| NF Name | IUT- | IUT- | IUT- | IUT- |
| NF Address | IUT- | IUT- | IUT- | IUT- |
| NF PLMN ID | IUT- | IUT- | IUT- | IUT- |
| Invocation Timestamp | IUT- | IUT- | IUT- | IUT- |
| Invocation Sequence Number | IUT- | IUT- | IUT- | IUT- |
| Retransmission Indicator | IUT- | IUT- | IUT- | IUT- |
| Notify URI | IU- | IU- | IU- | IU- |
| Supported Features | IU- | IU- | - | - |
| Service Specification Information | IUT- | IUT- | IUT- | IUT- |
| Triggers | -UT- | -UT- | -UT- | -UT- |
| Multiple Unit Usage | IUT- | - | IUT- | - |
| Rating Group | IUT- | - | IUT- | - |
| Requested Unit | IU-- | - | - | - |
| Time | IU-- | - | - | - |
| Total Volume | IU-- | - | - | - |
| Uplink Volume | IU-- | - | - | - |
| Downlink Volume | IU-- | - | - | - |
| Used Unit Container | -UT- | - | -UT- | - |
| Service Identifier | -UT- | - | -UT- | - |
| Quota management Indicator | -UT- | - | -UT- | - |
| Triggers | -UT- | - | -UT- | - |
| Trigger Timestamp | -UT- | - | -UT- | - |
| Time | -UT- | - | -UT- | - |
| Total Volume | -UT- | - | -UT- | - |
| Uplink Volume | -UT- | - | -UT- | - |
| Downlink Volume | -UT- | - | -UT- | - |
| Local Sequence Number  | -UT- | - | -UT- | - |
| PDU Container Information  | -UT- | - | -UT- | - |
| UPF ID | IUT- | - | IUT- | - |
| multi-homed PDU address | IUT- | - | IUT- | - |
| PDU Session Charging Information | IUT- | IUT- | IUT- | IUT- |
| Charging Id | IUT- | IUT- | IUT- | IUT- |
| SMF Charging Id | IUT- | IUT- | IUT- | IUT- |
| Home Provided Charging Id | -UT- | -UT- | -UT- | -UT- |
| SMF Home Provided Charging Id | -UT- | -UT- | -UT- | -UT- |
| User Information | IUT- | IUT- | IUT- | IUT- |
| User Location Info | IUT- | IUT- | IUT- | IUT- |
| IMS Session Information | IUT- | IUT- | IUT- | IUT- |
| MA PDU Non 3GPP User Location Info | IUT- | IUT- | IUT- | IUT- |
| User Location Time | IUT- | IUT- | IUT- | IUT- |
| MA PDU Non 3GPP User Location Time | IUT- | IUT- | IUT- | IUT- |
| UE Time Zone | IUT- | IUT- | IUT- | IUT- |
| Presence Reporting Area Information | -UT- | -UT- | -UT- | -UT- |
| PDU Session Information | IUT- | IUT- | IUT- | IUT- |
| PDU Session ID | IUT- | IUT- | IUT- | IUT- |
| Network Slice Instance Identifier  | IUT- | IUT- | IUT- | IUT- |
| PDU Type | IUT- | IUT- | IUT- | IUT- |
| PDU Address | IUT- | IUT- | IUT- | IUT- |
| SSC Mode | IUT- | IUT- | IUT- | IUT- |
| MA PDU session information | IUT- | IUT- | IUT- | IUT- |
| SUPI PLMN ID | IUT- | IUT- | IUT- | IUT- |
| Serving Network Function ID  | IUT- | IUT- | IUT- | IUT- |
| Serving CN PLMN ID | IUT- | IUT- | IUT- | IUT- |
| RAT Type | IUT- | IUT- | IUT- | IUT- |
| MA PDU Non 3GPP RAT Type | IUT- | IUT- | IUT- | IUT- |
| Data Network Name Identifier | IUT- | IUT- | IUT- | IUT- |
| DNN Selection Mode | IUT- | IUT- | IUT- | IUT- |
| Authorized QoS Information | IUT- | IUT- | IUT- | IUT- |
| Subscribed QoS Information | IUT- | IUT- | IUT- | IUT- |
| Authorized Session-AMBR | IUT- | IUT- | IUT- | IUT- |
| Subscribed Session-AMBR | IUT- | IUT- | IUT- | IUT- |
| PDU session start Time | I--- | I--- | I--- | I--- |
| PDU session stop Time | --T- | --T- | --T- | --T- |
| Diagnostics | --T- | --T- | --T- | --T- |
| Enhanced Diagnostics | --T- | --T- | --T- | --T- |
| Charging Characteristics | IUT- | IUT- | IUT- | IUT- |
| Charging Characteristics Selection Mode | IUT- | IUT- | IUT- | IUT- |
| 3GPP PS Data Off Status | IUT- | IUT- | IUT- | IUT- |
| Session Stop Indicator | --T- | --T- | --T- | --T- |
| Redundant Transmission Type | IUT- | IUT- | IUT- | IUT- |
| PDU Session Pair ID | IUT- | IUT- | IUT- | IUT- |
| 5G LAN Type Service  | IUT- | IUT- | IUT- | IUT- |
| SNPN Information | IUT- | IUT- | IUT- | IUT- |
| 5GS Bridge Information | IUT- | - | - | - |
| 5G Multicast Service | IUT- | IUT- | IUT- | IUT- |
| 5G Satellite Access Indicator | IUT- | IUT- | - | - |
| Satellite backhaul Information | IUT- | IUT- | - | - |
| Unit Count Inactivity Timer | IU-- | - | IU-- | - |
| RAN Secondary RAT Usage Report | -UT- | -UT- | -UT- | -UT- |
| Roaming QBC information | - | IUT- | - | IUT- |
| Multiple QFI container | - | IUT- | - | IUT- |
| UPF ID | - | IUT- | - | IUT- |
| Roaming Charging Profile | - | IU-- | - | IU-- |
| Inter-CHF Information | IUT- | IUT- | - | - |
|  |  |  |  |  |
| Original NF Consumer Id | IUT- | IUT- | - | - |

Table 6.2.2.2 defines the basic structure of the supported fields in the *Charging Data* Response message for 5G data connectivity converged charging or offline only charging.

Table 6.2.2.2: Supported fields in *Charging Data Response* message

| Information Element | Functionality of SMF | FBC | QBC | FBC | QBC |
| --- | --- | --- | --- | --- | --- |
| Charging Service | Converged Charging | Converged Charging  | Offline Only Charging | Offline Only Charging |
| Supported Operation Types | I/U/T/E | I/U/T/E | I/U/T/E | I/U/T/E |
| Session Identifier | I--- | I--- | I--- | I--- |
| Invocation Timestamp | IUT- | IUT- | IUT- | IUT- |
| Invocation Result | IUT- | IUT- | IUT- | IUT- |
| Invocation Result Code | IUT- | IUT- | IUT- | IUT- |
| Failed Parameter | IUT- | IUT- | IUT- | IUT- |
| Failure Handling | IUT- | IUT- | IUT- | IUT- |
| Invocation Sequence Number | IUT- | IUT- | IUT- | IUT- |
| Session Failover  | IU-- | IUT- | IU-- | IUT- |
| Supported Features | IU-- | IU-- | - | - |
| Triggers | IU-- | IU-- | IU-- | IU-- |
| Multiple Unit information  | IU-- | - | IU-- | - |
| Result Code | IU-- | - | IU-- | - |
| Rating Group | IU-- | - | IU-- | - |
| UPF ID | IU-- | - | IU-- | - |
| Granted Unit | IU-- | - | - | - |
| Validity Time | IU-- | - | - | - |
| Final Unit Indication | IU-- | - | - | - |
| Time Quota Threshold  | IU-- | - | - | - |
| Volume Quota Threshold  | IU-- | - | - | - |
| Unit Quota Threshold  | IU-- | - | - | - |
| Quota Holding Time | IU-- | - | - | - |
| Triggers | IU-- | - | IU-- | - |
| PDU Session Charging Information | IU-- | IU-- | IU-- | IU-- |
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| Presence Reporting Area Information | IU-- | IU-- | IU-- | IU-- |
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| Unit Count Inactivity Timer | IU-- | - | - | - |
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| Roaming QBC information | - | IU-- | - | IU-- |
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|  |  |  |  |  |
| Roaming Charging Profile | - | IU-- | - | IU-- |
| Inter-CHF Information | IUT- | IUT- | - | - |
| Remote CHF resource | IUT- | IUT- | - | - |
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| **End of change** |