**3GPP TSG-SA5 Meeting #131e *S5-203137***

**e-meeting 25th May-3rd June 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.255** | **CR** | **0233** | **rev** | **-** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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:*** | Settings on Quota Management Indication for CHFCQM | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Matrixx | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | CHFCQM | | | | |  | ***Date:*** | | | 2020-05-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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:*** | | Add the CHF controlled functionality to suspend and resume the quota management for a given rating group. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | In case of CHFCQM is applied, the quota management indicator is set if quota management control is resumed.  CHFCQM will be indicated as supported feature. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No CHF-controlled quota management capability | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.1.2, 6.1.1.3, 6.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **x** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st 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] |
| 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 filed 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] |
| Used Unit Container | OC | 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. |
| 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 |
| 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 6.2.1.4  This field is not applicable to FBC. |

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| **2nd 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] |
| Invoation 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 filed 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 6.2.1.4  This field is not applicable to FBC. |

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| **3th 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- | |
| Invocation Timestamp | | | IUT- | | IUT- | | IUT- | | IUT- | |
| Invocation Sequence Number | | | 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-- | | - | | - | | - | |
| Used Unit Container | | | -UT- | | - | | -UT- | | - | |
| Triggers | | | -UT- | | - | | -UT- | | - | |
| PDU Container Information | | | -UT- | | - | | -UT- | | - | |
| UPF ID | | | IUT- | | IUT- | | IUT- | | IUT- | |
| PDU Session Charging Information | | | IUT- | | IUT- | | IUT- | | IUT- | |
| Charging Id | | | IUT- | | IUT- | | IUT- | | IUT- | |
| Home Provided Charging Id | | | -UT- | | -UT- | | -UT- | | -UT- | |
| User Information | | | IUT- | | IUT- | | IUT- | | IUT- | |
| User Location Info | | | 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- | |
| 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- | |
| Data Network Name Identifier | | | IUT- | | IUT- | | IUT- | | IUT- | |
| DNN Selection Mode | | | IUT- | | IUT- | | IUT- | | IUT- | |
| Authorized QoS Information | | | IUT- | | IUT- | |  | |  | |
| Subscribed QoS Information | | | IUT- | | IUT- | |  | |  | |
| Authorized Session-AMBR | | | IUT- | | IUT- | |  | |  | |
| Subscribed Session-AMBR | | | IUT- | | IUT- | |  | |  | |
| PDU session start Time | | | I--- | | I--- | | I--- | | I--- | |
| PDU session stop Time | | | --T- | | --T- | | --T- | | --T- | |
| 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- | |
| 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-- | |

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 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-- | |
| Charging Id | | | - | | - | | - | | - | |
| Home Provided Charging Id | | | - | | - | | - | | - | |
| User Information | | | - | | - | | - | | - | |
| User Location Info | | | - | | - | | - | | - | |
| UE Time Zone | | | - | | - | | - | | - | |
| Presence Reporting Area Information | | | IU-- | | IU-- | | IU-- | | IU-- | |
| PDU Session Information | | | IU-- | | IU-- | | IU-- | | IU-- | |
| PDU Session ID | | | - | | - | | - | | - | |
| Network Slice Instance Identifier | | | - | | - | | - | | - | |
| PDU Type | | | - | | - | | - | | - | |
| PDU Address | | | - | | - | | - | | - | |
| SSC Mode | | | - | | - | | - | | - | |
| SUPI PLMN ID | | | - | | - | | - | | - | |
| Serving Network Function ID | | | - | | - | | - | | - | |
| Serving CN PLMN ID | | | - | | - | | - | | - | |
| RAT Type | | | - | | - | | - | | - | |
| Data Network Name Identifier | | | - | | - | | - | | - | |
| DNN Selection Mode | | | - | | - | | - | | - | |
| Authorized QoS Information | | | - | | - | | - | | - | |
| Subscribed QoS Information | | | - | | - | | - | | - | |
| Authorized Session-AMBR | | | - | | - | | - | | - | |
| Subscribed Session-AMBR | | | - | | - | | - | | - | |
| PDU session start Time | | | - | | - | | - | | - | |
| PDU session stop Time | | | - | | - | | - | | - | |
| Diagnostics | | | - | | - | | - | | - | |
| Charging Characteristics | | | - | | - | | - | | - | |
| Charging Characteristics Selection Mode | | | - | | - | | - | | - | |
| Charging Rule Base Name | | | - | | - | | - | | - | |
| 3GPP PS Data Off Status | | | - | | - | | - | | - | |
| Session Stop Indicator | | | - | | - | | - | | - | |
| Unit Count Inactivity Timer | | | IU-- | | - | | - | | - | |
| RAN Secondary RAT Usage Report | | | - | | - | | - | | - | |
| Roaming QBC information | | | - | | IU-- | | - | | IU-- | |
| Multiple QFI container | | | - | | - | | - | | - | |
| UPF ID | | | - | | - | | - | | - | |
| Roaming Charging Profile | | | - | | IU-- | | - | | IU-- | |

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| **End of change** |