**3GPP TSG-SA5 Meeting #133e *S5-205076***

**e-meeting 12th Oct-21st Oct 2020** Revision of S5-20xxxx

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v11.4* | | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | | |
|  | | | | | | | | | |
|  | **32.255** | **CR** | **0251** | **rev** | **-** | **Current version:** | **16.6.1** |  |
|  | | | | | | | | | |
| *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)*.* | | | | | | | | | |
|  | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Support the QoS assurance | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16, 5GS\_Ph1-DCH | | | | |  | ***Date:*** | | | 2020-10-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | The QoS information is required when CHF authorizes the quota. As per the current specifications, the PDU charging session includes the default QoS information (Authorized QoS Information for PDU session and Subscribed QoS Information), which may not be the QoS information corresponding to the current Rating Group. Propose to add the QoS information in the Requested Unit. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the QoS information in the Requested Unit. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Can not support the quoa authorization based on the QoS information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.1.2,6.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

|  |
| --- |
| **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] | |
| PDU Container Information | | OC | | - | | This field holds the PDU Container Information applied when requests the units.  Only the QoS Information is applicable. | |
| 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 | |
| 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. | |
| 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. | |

|  |
| --- |
| **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- | | |
| 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-- | | | - | | | - | | | - | | |
| PDU Container Information | | | | 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- | | |
| MA PDU Non 3GPP 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- | | |
| 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- | | |  | | |  | | |
| 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 | | | - | | - | | - | | - | |
| MA PDU Non 3GPP User Location info | | | - | | - | | - | | - | |
| UE Time Zone | | | - | | - | | - | | - | |
| Presence Reporting Area Information | | | IU-- | | IU-- | | IU-- | | IU-- | |
| PDU Session Information | | | - | | - | | - | | - | |
| PDU Session ID | | | - | | - | | - | | - | |
| Network Slice Instance Identifier | | | - | | - | | - | | - | |
| PDU Type | | | - | | - | | - | | - | |
| PDU Address | | | - | | - | | - | | - | |
| SSC Mode | | | - | | - | | - | | - | |
| MA PDU session information | | | - | | - | | - | | - | |
| SUPI PLMN ID | | | - | | - | | - | | - | |
| Serving Network Function ID | | | - | | - | | - | | - | |
| Serving CN PLMN ID | | | - | | - | | - | | - | |
| RAT Type | | | - | | - | | - | | - | |
| MA PDU Non 3GPP 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-- | |

|  |
| --- |
| **End of Change** |