**3GPP TSG-RAN WG3 Meeting #123R3-240890**

**Athens, Greece, 26th Feb – 1st Mar 2024**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **1278** | **rev** | **1** | **Current version:** |  |  |
|  |
| *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 | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Introduction of separate uplink and downlink PDU set QoS parameters |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Xiaomi, Ericsson, Qualcomm Inc., Samsung, China Telecom, ZTE, Huawei, CATT, CMCC |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_XR\_enh-Core |  | ***Date:*** | 2024-01-10 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** |  |
|  | *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)****S*** *(adding to the sourcing companies’ CR statistics)*Detailed explanations of the above categories canbe 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | SA2 agreed provisioning separate DL and UL PDU Set QoS Parameters to NG-RAN. |
|  |  |
| ***Summary of change:*** | Add the support for provisioning separate DL and UL PDU Set QoS Parameters to gNB-DU. |
|  |  |
| ***Consequences if not approved:*** | Cannot support separate DL and UL PDU Set QoS Parameters |
|  |  |
| ***Clauses affected:*** | 8.3.1.2, 8.3.4.2, 9.3.1.45, 9.4.5, 9.4.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.300 CRTS 37.483 CR 0104TS 38.413 CR 1085TS 38.423 CR 1149 |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev 1: updated based on online comments to reuse existing IE.  |

*Start of Change*

### 8.3.1 UE Context Setup

#### 8.3.1.1 General

The purpose of the UE Context Setup procedure is to establish the UE Context including, among others, SRB,DRB, BH RLC channel, Uu Relay RLC channel, PC5 Relay RLC channel, and SL DRB configuration. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: UE Context Setup Request procedure: Successful Operation

The gNB-CU initiates the procedure by sending UE CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the UE context, it replies to the gNB-CU with UE CONTEXT SETUP RESPONSE. If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established as part of the procedure. Except for RACH based SDT and UE configured with BWP specific ServingCellMO, the gNB-CU shall perform RRC Reconfiguration or RRC connection resume to send UE to the RRC\_CONNECTED state as described in TS 38.331 [8], and in this case, the *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8]. In the cases of RACH based SDT procedure and UE configured with BWP specific ServingCellMO, the *CellGroupConfig* IE shall be ignored by the gNB-CU.

\*\* Unchanged text skipped \*\*

If the *Dedicated SI Delivery Indication* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, take it into account for the system information delivery to the UE as described in TS 38.331 [8].

If the *PDU Set QoS Information* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store this information and use it as specified in TS 23.501 [21].

If the *InterFrequencyConfig-NoGap* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

*Next Change*

### 8.3.4 UE Context Modification (gNB-CU initiated)

#### 8.3.4.1 General

The purpose of the UE Context Modification procedure is to modify the established UE Context, e.g., establishing, modifying and releasing radio resources or sidelink resources. This procedure is also used to command the gNB-DU to stop data transmission for the UE for mobility (see TS 38.401 [4]). The procedure uses UE-associated signalling.

#### 8.3.4.2 Successful Operation



Figure 8.3.4.2-1: UE Context Modification procedure. Successful operation

The UE CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and if successful reports the update in the UE CONTEXT MODIFICATION RESPONSE message.

\*\* Unchanged text skipped \*\*

If the *Dedicated SI Delivery Indication* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, take it into account for the system information delivery to the UE as described in TS 38.331 [8].

If the *PDU Set QoS Information* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store this information and use it as specified in TS 23.501 [21].

If the *InterFrequencyConfig-NoGap* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

*Next Change*

#### 9.3.1.45 QoS Flow Level QoS Parameters

This IE defines the QoS to be applied to a QoS flow, or to a DRB, or to a BH RLC channel, or to a Uu Relay RLC channel, or to a PC5 Relay RLC channel.

NOTE: For a BH RLC channel, the listed mandatory IEs and the *GBR QoS Flow Information* IE are applicable, where *GBR QoS Flow Information* IE may be present if BH RLC channel conveys the traffic belonging to a GBR QoS Flow.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| CHOICE *QoS Characteristics* | M |  |  |  | - |  |
| *>Non-dynamic 5QI* |  |  |  |  | - |  |
| >>Non Dynamic 5QI Descriptor | M |  | 9.3.1.49 |  | - |  |
| *>Dynamic 5QI* |  |  |  |  | - |  |
| >>Dynamic 5QI Descriptor | M |  | 9.3.1.47 |  | - |  |
| NG-RAN Allocation and Retention Priority | M |  | 9.3.1.48 |  | - |  |
| GBR QoS Flow Information | O |  | 9.3.1.46 | This IE shall be present for GBR QoS Flows only and is ignored otherwise. | - |  |
| Reflective QoS Attribute | O |  | ENUMERATED (subject to, ...) | Details in TS 23.501 [21]. This IE applies to non-GBR flows only and is ignored otherwise. | - |  |
| PDU Session ID | O |  | INTEGER (0 ..255) | As specified in TS 23.501 [21]. | YES | ignore |
| UL PDU Session Aggregate Maximum Bit Rate | O |  | Bit Rate9.3.1.22 | The PDU session Aggregate Maximum Bit Rate Uplink which is associated with the involved PDU session. | YES | ignore |
| QoS Monitoring Request | O |  | ENUMERATED (UL, DL, Both, …, stop) | Indicates to measure UL, or DL, or both UL/DL delays for the associated QoS flow or stop the corresponding QoS monitoring.  | YES | ignore |
| PDCP Terminating Node DL Transport Layer Address | O |  | Transport Layer Address9.3.2.3 | DL Transport Layer Address of node terminating PDCP. Included for MN-terminated SCG bearers and SN-terminated MCG bearers. | YES | ignore |
| PDU Set QoS Information |  | 0..1 |  |  | YES | ignore |
| >UL PDU Set QoS Parameters | O |  | PDU Set QoS Parameters 9.3.1.319 |  | - |  |
| >DL PDU Set QoS parameters | O |  | PDU Set QoS Parameters9.3.1.319 |  | - |  |

*Next Change*

### 9.4.5 Information Element Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 id-gNB-CUSystemInformation,

 id-HandoverPreparationInformation,

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

 id-Mobile-IAB-MT-UE-ID,

 id-MobileAccessPointLocation,

 id-SIBX-message,

 id-PDUSetQoSInformation,

 id-N6JitterInformation,

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

PreambleIndex ::= INTEGER(0..63)

PDUSetQoSInformation ::= SEQUENCE {

 ulPDUSetQoSParameters PDUSetQoSParameters OPTIONAL,

 dlPDUSetQoSParameters PDUSetQoSParameters OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { PDUSetQoSInformation-ExtIEs } } OPTIONAL

 }

PDUSetQoSInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSetQoSParameters ::= SEQUENCE {

 pduSetDelayBudget ExtendedPacketDelayBudget OPTIONAL,

 pduSetErrorRate PacketErrorRate OPTIONAL,

 pduSetIntegratedHandlingInformation ENUMERATED {true, false, ...} OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { PDUSetQoSParameters-ExtIEs } } OPTIONAL

}

PDUSetQoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

-- Q

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

QoSFlowLevelQoSParameters ::= SEQUENCE {

 qoS-Characteristics QoS-Characteristics,

 nGRANallocationRetentionPriority NGRANAllocationAndRetentionPriority,

 gBR-QoS-Flow-Information GBR-QoSFlowInformation OPTIONAL,

 reflective-QoS-Attribute ENUMERATED {subject-to, ...} OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { QoSFlowLevelQoSParameters-ExtIEs } } OPTIONAL

}

QoSFlowLevelQoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 { ID id-PDUSessionID CRITICALITY ignore EXTENSION PDUSessionID PRESENCE optional}|

 { ID id-ULPDUSessionAggregateMaximumBitRate CRITICALITY ignore EXTENSION BitRate PRESENCE optional}|

 { ID id-QosMonitoringRequest CRITICALITY ignore EXTENSION QosMonitoringRequest PRESENCE optional}|

 { ID id-PDCPTerminatingNodeDLTNLAddrInfo CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional }|

 { ID id-PDUSetQoSInformation CRITICALITY ignore EXTENSION PDUSetQoSInformation PRESENCE optional},

 ...

}

QoSFlowMappingIndication ::= ENUMERATED {ul,dl,...}

*Next Change*

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

id-MulticastCU2DUCommonRRCInfo ProtocolIE-ID ::= 774

id-PDUSetQoSInformation ProtocolIE-ID ::= 775

id-N6JitterInformation ProtocolIE-ID ::= 776

id-ECNMarkingorCongestionInformationReportingRequest ProtocolIE-ID ::= 777

id-ECNMarkingorCongestionInformationReportingStatus ProtocolIE-ID ::= 778

id-NRA2XServicesAuthorized ProtocolIE-ID ::= 779

id-LTEA2XServicesAuthorized ProtocolIE-ID ::= 780

id-NRUESidelinkAggregateMaximumBitrateForA2X ProtocolIE-ID ::= 781

id-LTEUESidelinkAggregateMaximumBitrateForA2X ProtocolIE-ID ::= 782

id-NReRedCapUEIndication ProtocolIE-ID ::= 783

id-ERedcap-Bcast-Information ProtocolIE-ID ::= 784

id-NRPaginglongeDRXInformationforRRCINACTIVE ProtocolIE-ID ::= 785

END

-- ASN1STOP

*End of Change*