**3GPP TSG-RAN3 #113-e R3-21xxxx**

16th August – 26th August 2021

Online

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **38.463** | **CR** |  | **rev** |  | **Current version:** | **16.6.0** |  |
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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 | **X** | Core Network |  |

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| ***Title:***  | Dynamic ACL over E1 |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | TEI16 |  | ***Date:*** | 2021-08-16 |
|  |  |  |  |  |
| ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | If the IP address of the source node is unknown to the target node in a split architecture this prevents the use of the ACL function for data forwarding triggered during handover.  |
|  |  |
| ***Summary of change:*** | Add the source IP address used for data forwarding in the Handover Request message.Impact Analysis:Impact assessment towards the previous version of the specification (same release): This CR has limited impact under funtional point of view.  |
|  |  |
| ***Consequences if not approved:*** | It is not possible to use the ACL function for data forwarding in the case of split architecture |
|  |  |
| ***Clauses affected:*** |  |
|  |  |
|  | **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:*** |  |

**<<<<<< NEXT CHANGE >>>>>>**

## 8.3 Bearer Context Management procedures

### 8.3.1 Bearer Context Setup

#### 8.3.1.1 General

The purpose of the Bearer Context Setup procedure is to allow the gNB-CU-CP to establish a bearer context in the gNB-CU-UP. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: Bearer Context Setup procedure: Successful Operation.

The gNB-CU-CP initiates the procedure by sending the BEARER CONTEXT SETUP REQUEST message to the gNB-CU-UP. If the gNB-CU-UP succeeds to establish the requested resources, it replies to the gNB-CU-CP with the BEARER CONTEXT SETUP RESPONSE message.

The gNB-CU-UP shall report to the gNB-CU-CP, in the BEARER CONTEXT SETUP RESPONSE message, the result for all the requested resources in the following way:

For E-UTRAN:

- A list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;

- A list of DRBs which failed to be established shall be included in the *DRB Failed List* IE;

For NG-RAN:

- A list of PDU Session Resources which are successfully established shall be included in the *PDU Session Resource Setup List* IE;

- A list of PDU Session Resources which failed to be established shall be included in the *PDU Session Resource Failed List* IE;

- For each established PDU Session Resource, a list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;

- For each established PDU Session Resource, a list of DRBs which failed to be established shall be included in the *DRB Failed List* IE;

- For each established DRB, a list of QoS Flows which are successfully established shall be included in the *Flow Setup List* IE;

- For each established DRB, a list of QoS Flows which failed to be established shall be included in the *Flow Failed List* IE;

When the gNB-CU-UP reports the unsuccessful establishment of a PDU Session Resource, DRB or QoS Flow the cause value should be precise enough to enable the gNB-CU-CP to know the reason for the unsuccessful establishment.

If the *Existing Allocated NG DL UP Transport Layer Information* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP may re-use the indicated resources already allocated for this bearer context. If the gNB-CU-UP decides to re-use the indicated resources, it shall include the *NG DL UP Unchanged* IE in the BEARER CONTEXT SETUP RESPONSE message.

If the *PDU Session Resource DL Aggregate Maximum Bit Rate* IE is contained in the *PDU Session Resource To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall store and use the information for the down link traffic policing for the Non-GBR QoS flows for the concerned UE as specified in TS 23.501 [20].

If the *Data Forwarding Information Request* IE, *PDU Session Data Forwarding Information Request* IE or the *DRB Data Forwarding Information Request* IE are included in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall include the requested forwarding information in the *Data Forwarding Information Response* IE, *PDU Session Data Forwarding Information Response* IE or the *DRB Data Forwarding Information Response* IE in the BEARER CONTEXT SETUP RESPONSE message.

If the *DL UP Parameters* IE is contained in the *DRB To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall configure the corresponding information.

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Setup List* IE of the BEARER CONTEXT SETUP REQUEST message, and the *Integrity Protection Indication* IE or *Confidentiality Protection Indication* IE is set to "preferred", then the gNB-CU-UP should, if supported, perform user plane integrity protection or ciphering, respectively, for the concerned PDU session and shall notify whether it performed the user plane integrity protection or ciphering by including the *Integrity Protection Result* IE or *Confidentiality Protection Result* IE, respectively, in the *PDU Session Resource Setup List* IE of the BEARER CONTEXT SETUP RESPONSE message.

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Setup List* IE of the BEARER CONTEXT SETUP REQUEST message, and the *Integrity Protection Indication* IE or *Confidentiality Protection Indication* IE is set to "required", then the gNB-CU-UP shall perform user plane integrity protection or ciphering, respectively, for the concerned PDU Session. If the gNB-CU-UP cannot perform the user plane integrity protection or ciphering, it shall reject the setup of the PDU Session Resources with an appropriate cause value.

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Setup List* IE of the BEARER CONTEXT SETUP REQUEST message:

- if the *Integrity Protection Indication* IE is set to "not needed", then the gNB-CU-UP shall not perform user plane integrity protection for the concerned PDU session;

-if the *Confidentiality Protection Indication* IE is set to "not needed", then the gNB-CU-UP shall not perform user plane ciphering for the concerned PDU session.

For each PDU session, if the *Data Forwarding to E-UTRAN Information List* IE is included in the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, use it for inter-system data forwarding from 5GS to EPS as specified in TS38.300 [8].

If the *UE DL Maximum Integrity Protected Data Rate* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall use this value when enforcing the maximum integrity protected data rate for the UE.

If the *Bearer Context Status Change* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall consider the UE RRC state and act as specified in TS 38.401 [2].

For each requested DRB, if the *PDCP Duplication* IE is included in the *PDCP Configuration* IE contained in the BEARER CONTEXT SETUP REQUEST message, then the gNB-CU-UP shall include two *UP Transport Layer Information* IEs in the BEARER CONTEXT SETUP RESPONSE message to support packet duplication. If only one cell group is included in the *Cell Group Information* IE for the concerned DRB, then the gNB-CU-UP shall consider that the first *UP Transport Layer Information* IE of the two *UP Transport Layer Information* IEs is for the primary path.

For each requested DRB, if the *Additional PDCP duplication Information* IE is included in the *PDCP Configuration* IE contained in the BEARER CONTEXT SETUP REQUEST message, then the gNB-CU-UP shall, if supported, include the same number of *UP Transport Layer Information* IEs indicated by the *Additional PDCP duplication Information* IE in the BEARER CONTEXT SETUP RESPONSE message to support packet duplication. If only one cell group is included in the *Cell Group Information* IE for the concerned DRB, then the gNB-CU-UP shall consider that the first *UP Transport Layer Information* IE of these *UP Transport Layer Information* IEs is for the primary path. If more than one cell group is included in the *Cell Group Information* IE, then the gNB-CU-UP shall consider that the number of duplication tunnels for each cell group is indicated by the *Number of tunnels* IE, and that the first *UP Transport Layer Information* IE for each cell group is for the primary path or the split secondary path.

If the *PDCP SN Status Information* IE is contained within the *DRB To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall take it into account and act as specified in TS 38.401 [2].

If the *QoS Flow Mapping Indication* IE is contained in the *QoS Flows Information To Be Setup* IE within the *DRB To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP may take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

For each PDU Session Resource, if the *Network Instance* IE is included in the *PDU Session Resource To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message and the *Common Network Instance* IE is not included, the gNB-CU-UP shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [20].

For each PDU session, if the *Common Network Instance* IE is included in the *PDU Session Resource To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [20].

For each PDU session, if the *Redundant NG UL UP Transport Layer Information* IE is included in the *PDU Session Resource To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, use it as the uplink termination point of the redundant tunnel for the user plane data of those QoS flows in this PDU session which need redundant transmission as described in TS 23.501 [20], and it shall include the *Redundant NG DL UP Transport Layer Information* IE in the *PDU Session Resource Setup List IE* in the BEARER CONTEXT SETUP RESPONSE message.

For each PDU Session Resource, if the *Redundant Common Network Instance* IE is included in the *PDU Session Resource To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, use it when selecting transport network resource for the redundant transmission as specified in TS 23.501 [20].

For each PDU session, if the *Redundant QoS Flow Indicator* IE is included in the *QoS Flow QoS Parameters List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, consider it for the redundant transmission.

For each PDU session, if the *Redundant PDU Session Information* IE is included in the *PDU Session Resource To Setup List* IE contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, set up the redundant user plane resources, as specified in TS 23.501 [20] and include, if supported, the *Used Redundant PDU Session Information* IE in the *PDU Session Resource Setup List* IE in the BEARER CONTEXT SETUP RESPONSE message.

If *UE Inactivity Timer* IE or *PDU session Inactivity Timer* IE or *DRB Inactivity Timer* IE is contained in BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall take it into account when perform inactivity monitoring.

If the *DRB QoS* IE is contained within the *DRB To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, take it into account as specified in TS 28.552 [22].

If the *gNB-DU-ID* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall store the information received.

If the *RAN UE ID* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall store the information received.

For each successfully established DRB, the gNB-CU-UP shall provide, in the respective *UL UP Parameters* IE of the BEARER CONTEXT SETUP RESPONSE, one UL UP Transport Layer Information Item per cell group entry contained in the respective *Cell Group Information* IE of the BEARER CONTEXT SETUP REQUEST message.

If the *Trace Activation* IE is included in the BEARER CONTEXT SETUP REQUEST message the gNB-CU-UP shall, if supported, initiate the requested trace function as described in TS 32.422 [24]. In particular, the gNB-CU-UP shall, if supported:

- if the *MDT Activation* IE is set to "Immediate MDT Only", initiate the requested MDT session as described in TS 32.422 [24] and the gNB-CU-UP shall ignore *Interfaces To Trace* IE, and *Trace Depth* IE;

- if the *MDT Activation* IE is set to "Immediate MDT and Trace", initiate the requested trace session and MDT session as described in TS 32.422 [24];

If the *Management Based MDT PLMN List* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, store the received information, and use this information to allow subsequent selection of the UE for management based MDT defined in TS 32.422 [24].

For EN-DC, if the *Subscriber Profile ID for RAT/Frequency priority* IE is included in the BEARER CONTEXT SETUP REQUEST, the gNB-CU-UP may use it to apply specific RRM policies as specified in TS 36.300 [25]. If the *Additional RRM Policy Index* IE is included in the BEARER CONTEXT SETUP REQUEST, the gNB-CU-UP may use it to apply specific RRM policies as specified in TS 36.300 [25].

If the *TSC Traffic Characteristics* IE is included in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, take into account the corresponding information received in the *TSC Traffic Characteristics* IE.

For each QoS flow whose DRB has been successfully established and the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [20]. If the *QoS Monitoring Reporting Frequency* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall store this information, and, if supported, use it for RAN part delay reporting.

For each requested DRB, if the *QoS Mapping Information* IE is contained in the *DL UP Parameters* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall use it to set DSCP and/or flow label fields in the downlink IP packets which are transmitted through the GTP tunnels indicated by the *UP Transport Layer Information* IE. The Diffserv code point (DSCP) marking is performed as specified in TS 38.474 [28].

If the BEARER CONTEXT SETUP REQUEST message contains the *NPN Context Information* IE the gNB-CU-UP shall, if supported, take it into account when allocating UP resources for the bearer context.

For each requested DRB, if the *EHC Parameters* IE is included in the *PDCP Configuration* IE, the gNB-CU-CP shall, if supported, also include *ROHC Parameters* IE in the *PDCP Configuration* IE in the BEARER CONTEXT SETUP REQUEST message, to enable the gNB-CU-UP to perform appropriate header compression.

If the *EHC parameters* IE is included in the *PDCP Configuration* IE contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP may take these parameters into account to perform appropriate header compression for the concerned DRB.

If the *DAPS Request Information* IE is included for a DRB to be setup in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall consider that the request concerns a DAPS handover for that DRB and, if admitted, act as specified in TS 38.300 [4].

If the *CHO Initiation* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall consider that the request concerns conditional handover or conditional PSCell change and act as specified in TS 38.401 [2].

If the *MCG Offered GBR QoS Flow Information* IE is contained in the *QoS Flows Information To Be Setup* IE within the *DRB To Setup List* IE in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP may take it into account when two cell groups are served by the gNB-CU-UP.

If the *Additional Handover Information* IE is included in the BEARER CONTEXT SETUP REQUEST message and set to “Discard PDCP SN”, the gNB-CU-UP shall, if supported, remove the forwarded PDCP SNs if received in the forwarded GTP-U packets, and deliver the forwarded PDCP SDUs to the UE, as specified in TS 38.300 [8].

If the *Source Forwarding IP Address* IE is included in the *DRB To Setup List E-UTRAN* IE or the *PDU Session Resource To Setup List* IE contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP may, if supported, use it in the configuration of the ACL functionality.

If the *Source Forwarding IP Address* IE is included in the *Data Forwarding Information* IE contained in the BEARER CONTEXT SETUP RESPONSE message, the gNB-CU-CP may, if supported, use it in the configuration of the ACL functionality.

#### 8.3.1.3 Unsuccessful Operation



Figure 8.3.1.3-1: Bearer Context Setup procedure: Unsuccessful Operation.

If the gNB-CU-UP cannot establish the requested bearer context, or cannot even establish one bearer it shall consider the procedure as failed and respond with a BEARER CONTEXT SETUP FAILURE message and appropriate cause value.

#### 8.3.1.4 Abnormal Conditions

If the gNB-CU-UP receives a BEARER CONTEXT SETUP REQUEST message containing a *E-UTRAN QoS* IE in the *DRB To Setup List* IE for a GBR QoS DRB but where the *GBR QoS Information* IE is not present, the gNB-CU-UP shall report the establishment of the corresponding DRB as failed in the *DRB Failed List* IE of the BEARER CONTEXT SETUP RESPONSE message with an appropriate cause value.

If the gNB-CU-UP receives a BEARER CONTEXT SETUP REQUEST message containing a *QoS Flow Level QoS Parameters* IE in the *PDU Session Resource To Setup List* IE for a GBR QoS Flow but where the *GBR QoS Flow Information* IE is not present, the gNB-CU-UP shall report the establishment of the corresponding QoS Flow as failed in the corresponding *Flow Failed List* IE of the BEARER CONTEXT SETUP RESPONSE message with an appropriate cause value.

**<<<<<< NEXT CHANGE >>>>>>**

### 8.3.2 Bearer Context Modification (gNB-CU-CP initiated)

#### 8.3.2.1 General

The purpose of the Bearer Context Modification procedure is to allow the gNB-CU-CP to modify a bearer context in the gNB-CU-UP. The procedure uses UE-associated signalling.

#### 8.3.2.2 Successful Operation



Figure 8.3.2.2-1: Bearer Context Modification procedure: Successful Operation.

The gNB-CU-CP initiates the procedure by sending the BEARER CONTEXT MODIFICATION REQUEST message to the gNB-CU-UP. If the gNB-CU-UP succeeds to modify the bearer context, it replies to the gNB-CU-CP with the BEARER CONTEXT MODIFICATION RESPONSE message.

The gNB-CU-UP shall report to the gNB-CU-CP, in the BEARER CONTEXT MODIFICATION RESPONSE message, the result for all the requested resources in the following way:

For E-UTRAN:

- A list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;

- A list of DRBs which failed to be established shall be included in the *DRB Failed List* IE;

- A list of DRBs which are successfully modified shall be included in the *DRB Modified List* IE;

- A list of DRBs which failed to be modified shall be included in the *DRB Failed To Modify List* IE;

For NG-RAN:

- A list of PDU Session Resources which are successfully established shall be included in the *PDU Session Resource Setup List* IE;

- A list of PDU Session Resources which failed to be established shall be included in the *PDU Session Resource Failed List* IE;

- A list of PDU Session Resources which are successfully modified shall be included in the *PDU Session Resource Modified List* IE;

- A list of PDU Session Resources which failed to be modified shall be included in the *PDU Session Resource Failed To Modify List* IE;

- For each successfully established or modified PDU Session Resource, a list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;

- For each successfully established or modified PDU Session Resource, a list of DRBs which failed to be established shall be included in the *DRB Failed List* IE;

- For each successfully modified PDU Session Resource, a list of DRBs which are successfully modified shall be included in the *DRB Modified List* IE;

- For each successfully modified PDU Session Resource, a list of DRBs which failed to be modified shall be included in the *DRB Failed To Modify List* IE;

- For each successfully established or modified DRB, a list of QoS Flows which are successfully established shall be included in the *Flow Setup List* IE;

- For each successfully established or modified DRB, a list of QoS Flows which failed to be established shall be included in the *Flow Failed List* IE;

When the gNB-CU-UP reports the unsuccessful establishment of a PDU Session Resource, DRB or QoS Flow the cause value should be precise enough to enable the gNB-CU-CP to know the reason for the unsuccessful establishment.

If the *Security Information* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *UE DL Aggregate Maximum Bit Rate* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *UE DL Maximum Integrity Protected Data Rate* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *Bearer Context Status Change* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall consider the UE RRC state and act as specified in TS 38.401 [2].

If the *Data Forwarding Information Request* IE, *PDU Session Data Forwarding Information Request* IE or the *DRB Data Forwarding Information Request* IE are included in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall include the requested forwarding information in the *Data Forwarding Information Response* IE, *PDU Session Data Forwarding Information Response* IE or the *DRB Data Forwarding Information Response* IE in the BEARER CONTEXT MODIFICATION RESPONSE message.

If the *PDCP Configuration* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information, except for the *PDCP SN UL Size* IE, the *PDCP SN DL Size* IE and the *RLC mode* IE which shall be ignored.

If the *E-UTRAN QoS* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *PDCP SN Status Request* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall act as specified in TS 38.401 [2] and include the *UL COUNT Value* IE and the *DL COUNT Value* IE in the BEARER CONTEXT MODIFICATION RESPONSE message.

If the *PDCP SN Status Information* IE is contained in the *DRB To Setup List* IE or the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall take it into account and act as specified in TS 38.401 [2].

If the *DL UP Parameters* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *Cell Group To Add* IE or the *Cell Group To Modify* IE or the *Cell Group To Remove* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall add or modify or remove the corresponding cell group.

If the *PDU Session Resource DL Aggregate Maximum Bit Rate* IE is contained in the *PDU Session Resource To Setup List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall replace the information in the UE context and use it when enforcing downlink traffic policing for the non GBR QoS flows for the concerned UE, as specified in TS 23.501 [20].

If the *PDU Session Resource DL Aggregate Maximum Bit Rate* IE is contained in the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *SDAP Configuration* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

If the *Flow Mapping Information* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall update the corresponding information.

For each requested DRB, if the *PDCP Duplication* IE or *Additional PDCP duplication Information* IE is included in the *PDCP Configuration* IE contained in the BEARER CONTEXT MODIFICATION REQUEST message, then the gNB-CU-CP shall include two or more *UP Transport Layer Information* IEs in the BEARER CONTEXT MODIFICATION REQUEST message, and the gNB-CU-UP shall, if supported, also include two or more *UP Transport Layer Information* IEs in the BEARER CONTEXT MODIFICATION RESPONSE message to support packet duplication. If only one cell group is included in the *Cell Group Information* IE for the concerned DRB, then the gNB-CU-UP shall consider that the first *UP Transport Layer Information* IE of these *UP Transport Layer Information* IEs is for the primary path. If more than one cell group is included in the *Cell Group Information* IE, then the gNB-CU-UP shall consider that the number of duplication tunnels for each cell group is indicated by the *Numbe*r *of tunnels* IE, and that the first *UP Transport Layer Information* IE for each cell group is for the primary path or the split secondary path.

For a certain DRB which was allocated with two or more GTP-U tunnels, if such DRB is modified and given one GTP-U tunnel via the Bearer Context Modification (gNB-CU-CP initiated) procedure, i.e. only one UP Transport Layer Information per Cell Group ID is present in *DL UP Parameters* IE for the concerned DRB, then the gNB-CU-UP shall consider that PDCP duplication is deconfigured for this DRB. If such Bearer Context Modification (gNB-CU-CP initiated) procedure occurs, the *Duplication Activation* IE shall not be included for the concerned DRB.

If the *New UL TNL Information Required* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall include the new UP Transport Layer Information in the BEARER CONTEXT MODIFICATION RESPONSE message.

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Setup List* IE of the BEARER CONTEXT MODIFICATION REQUEST message, and the *Integrity Protection Indication* IE or *Confidentiality Protection Indication* IE is set to "preferred", then the gNB-CU-UP should, if supported, perform user plane integrity protection or ciphering, respectively, for the concerned PDU session and shall notify whether it performed the user plane integrity protection or ciphering by including the *Integrity Protection Result* IE or *Confidentiality Protection Result* IE, respectively, in the *PDU Session Resource Setup List* IE of the BEARER CONTEXT MODIFICATION RESPONSE message.

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Setup List* IE of the BEARER CONTEXT MODIFICATION REQUEST message, and the *Integrity Protection Indication* IE or *Confidentiality Protection Indication* IE is set to "required", then the gNB-CU-UP shall perform user plane integrity protection or ciphering, respectively, for the concerned PDU Session. If the gNB-CU-UP cannot perform the user plane integrity protection or ciphering, it shall reject the setup of the PDU Session Resources with an appropriate cause value.

For each PDU session for which the Security Indication IE is included in the *PDU Session Resource To Setup List* of the BEARER CONTEXT MODIFICATION REQUEST message:

- if the *Integrity Protection Indication* IE is set to "not needed", then the gNB-CU-UP shall not perform user plane integrity protection for the concerned PDU session;

-if the *Confidentiality Protection Indication* IE is set to "not needed", then the gNB-CU-UP shall not perform user plane ciphering for the concerned PDU session.

For each PDU Session Resource, if the *Network Instance* IE is included in the *PDU Session Resource To Setup List* IE or the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message and the *Common Network Instance* IE is not included, the gNB-CU-UP shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [20].

For each PDU session, if the *Common Network Instance* IE is included in the *PDU Session Resource To Setup List* IE or the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [20].

For each PDU session, if the *Redundant NG UL UP Transport Layer Information* IE is included in the *PDU Session Resource To Setup List* IE or the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, include the *Redundant NG DL UP Transport Layer Information* IE in the *PDU Session Resource Setup List* IE or the *PDU Session Resource Modified List* IE in the BEARER CONTEXT MODIFICATION RESPONSE message.

If the *Redundant Common Network Instance* IE is included in the *PDU Session Resource To Setup List* IE or the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, use it when selecting transport network resource for the redundant transmission as specified in TS 23.501 [20].

For each PDU session for which the *Redundant QoS Flow Indicator* IE is included in *QoS Flows Information To Be Setup* IE contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if support, shall store and use it as specified in TS 23.501 [20].

For each PDU session, if the *Redundant QoS Flow Indicator* IE is set to false for all QoS flows, the gNB-CU-UP shall, if supported, stop the redundant transmission and release the redundant tunnel for the concerned PDU session as specified in TS 23.501 [20].

If the *QoS Flow Mapping Indication* IE is contained in the *QoS Flow QoS Parameters List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, replace any previously received value and take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

If the *Data Discard Required* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message and the value is set to “Required”, the gNB-CU-UP shall consider that a RAN Paging Failure occurred for that UE. The gNB-CU-UP shall discard the user plane data for that UE and consider that the bearer context is still suspended.

If *UE Inactivity Timer* IE or *PDU session Inactivity Timer* IE or *DRB Inactivity Timer* IE is contained in BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall take it into account when perform inactivity monitoring.

If the *S-NSSAI* IE is contained in the *PDU Session Resource To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall store the corresponding information and replace any existing information.

If the *DRB QoS* IE is contained within the *DRB To Setup List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, take it into account for each DRB, as specified in TS 28.552 [22].

If the *DRB QoS* IE is contained within the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, replace any previously received value and take it into account for each DRB, as specifed in TS 28.552 [22].

If the *gNB-DU-ID* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall store and replace any previous information received.

If the *RAN UE ID* IE is contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall store and replace any previous information received.

If the gNB-CU-UP receives a BEARER CONTEXT MODIFICATION REQUEST message including *Activity Notification Level* IE and its value does not match the current bearer context, the gNB-CU-UP shall ignore the *Activity Notification Level* IE and also the requested modification of inactivity timer.

For each successfully established DRB, the gNB-CU-UP shall provide, in the respective *UL UP Parameters* IE of the BEARER CONTEXT MODIFICATION RESPONSE, one UL UP Transport Layer Information Item per cell group entry contained in the respective *Cell Group Information* IE of the BEARER CONTEXT MODIFICATION REQUEST message.

If the *Old QoS Flow List - UL End Marker expected* IE is included in the *PDU Session Resource To Modify List* IE of the BEARER CONTEXT MODIFICATION REQUEST message for a DRB to be modified, the gNB-CU-UP shall consider that the source NG-RAN node has initiated QoS flow re-mapping and has not yet received SDAP end markers, as described in TS 38.300 [8]. The gNB-CU-UP shall consider that the *Old QoS Flow List - UL End Marker expected* IE only contains UL QoS flow information for QoS flows for which no SDAP end marker has been yet received on the source side.

For EN-DC, if the *Subscriber Profile ID for RAT/Frequency priority* IE is included in the BEARER CONTEXT MODIFICATION REQUEST, the gNB-CU-UP may use it to apply specific RRM policies as specified in TS 36.300 [25]. If the *Additional RRM Policy Index* IE is included in the BEARER CONTEXT MODIFICATION REQUEST, the gNB-CU-UP may use it to apply specific RRM policies as specified in TS 36.300 [25].

If there is at least one DRB removed by the gNB-CU-UP, the gNB-CU-UP shall, if supported, include the *Retainability Measurements Information* IE in the BEARER CONTEXT MODIFICATION RESPONSE message, providing information on the removed DRB(s) for retainability measurements in the gNB-CU-CP, as described in TS 32.425 [26] and TS 28.552 [22].

If the *TSC Traffic Characteristics* IE is included in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, take into account the corresponding information received in the *TSC Traffic Characteristics* IE.

For each QoS flow whose DRB has been successfully established or modified and the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [20]. If the *QoS Monitoring Reporting Frequency* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall store this information, and, if supported, use it for RAN part delay reporting.

For each requested DRB, if the *QoS Mapping Information* IE is contained in the *DL UP Parameters* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall use it to set DSCP and/or flow label fields in the downlink IP packets which are transmitted through the GTP tunnels indicated by the *UP Transport Layer Information* IE. The Diffserv code point (DSCP) marking is performed as specified in TS 38.474 [28].

If the *Early Forwarding COUNT Request* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall act as specified in TS 38.401 [2] and include the requested *FIRST DL COUNT Value* IE or *DISCARD DL COUNT Value* IE in the BEARER CONTEXT MODIFICATION RESPONSE message.

If the *Early Forwarding COUNT Information* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall take it into account and act as specified in TS 38.401 [2].

If the *Source Forwarding IP Address* IE is included in the *DRB To Setup Modification List E-UTRAN* IE or the *DRB To Modify List E-UTRAN* IE or the *PDU Session Resource To Setup Modification List* IE or the *PDU Session Resource To Modify List* IE contained in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP may, if supported, use it in the configuration of the ACL functionality.

If the *Source Forwarding IP Address* IE is included in the *Data Forwarding Information* IE contained in the BEARER CONTEXT MODIFICATION RESPONSE message, the gNB-CU-CP may, if supported, use it in the configuration of the ACL functionality.

**Interaction with the Bearer Context Modification (gNB-CU-CP initiated)**

If the BEARER CONTEXT MODIFICATION REQUEST message includes for a DRB in the *DRB To Modify List* IE the *PDCP SN Status Request IE* set to “requested” and if the gNB-CU-UP has not yet received a SDAP end marker packet for a QoS flow which has been previously re-configured to another DRB by means of a gNB-CU-CP initiated Bearer Context Modification procedure, the gNB-CU-UP shall includes the QoS Flow Identifier of that QoS flow in the *Old QoS Flow List - UL End Marker expected* IE in the *PDU Session Resource Modified List* IE in the BEARER CONTEXT MODIFICATION RESPONSE message.

#### 8.3.2.3 Unsuccessful Operation



Figure 8.3.2.3-1: Bearer Context Modification procedure: Unsuccessful Operation.

If the gNB-CU-UP cannot successfully perform any of the requested bearer context modifications, it shall respond with a BEARER CONTEXT MODIFICATION FAILURE message and appropriate cause value.

#### 8.3.2.4 Abnormal Conditions

If the gNB-CU-UP receives a BEARER CONTEXT MODIFICATION REQUEST message containing a *E-UTRAN QoS* IE in the *DRB To Setup List* or the *DRB To Modify List* IE for a GBR QoS DRB but where the *GBR QoS Information* IE is not present, the gNB-CU-UP shall report the addition or the modification of the corresponding DRB as failed in the *DRB Failed List* IE or the *DRB Failed To Modify List* IE of the BEARER CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

If the gNB-CU-UP receives a BEARER CONTEXT MODIFICATION REQUEST message containing a *QoS Flow Level QoS Parameters* IE in the *PDU Session Resource To Setup List* IE or the *PDU Session Resource To Modify List* IE for a GBR QoS Flow but where the *GBR QoS Flow Information* IE is not present, the gNB-CU-UP shall report the addition or the modification of the corresponding QoS Flow as failed in the corresponding *Flow Failed List* IE of the BEARER CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.3.1 DRB To Setup List E-UTRAN

This IE contains DRB related information used at Bearer Context Setup Request in E-UTRAN

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **DRB To Setup Item E-UTRAN**  |  | *1..<maxnoofDRBs>* |  |  |
| >DRB ID  | M |  | 9.3.1.16 |  |
| >PDCP Configuration  | M |  | 9.3.1.38 |  |
| >E-UTRAN QoS | M |  | 9.3.1.17 |  |
| >S1 UL UP Transport Layer Information  | M |  | UP Transport Layer Information9.3.2.1 |  |
| >Data Forwarding Information Request | O |  | 9.3.2.5 | Requesting forwarding info from the target gNB-CU-UP. |
| >Cell Group Information | M |  | 9.3.1.11 |  |
| >DL UP Parameters | O |  | UP Parameters 9.3.1.13 |  |
| >DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. |
| >Existing Allocated S1 DL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 | This IE is not used in this version of the specification. |
| >> Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |

####

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.3.2 PDU Session Resource To Setup List

This IE contains PDU session resource related information used at Bearer Context Setup Request

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **PDU Session Resource To Setup Item** |  | *1..<maxnoofPDUSessionResource>* |  |  | - | - |
| >PDU Session ID  | M |  | 9.3.1.21 |  | - | - |
| >PDU Session Type  | M |  | 9.3.1.22 |  | - | - |
| >S-NSSAI  | M |  | 9.3.1.9 |  | - | - |
| >Security Indication  | M |  | 9.3.1.23 |  | - | - |
| >PDU Session Resource DL Aggregate Maximum Bit Rate | O |  | Bit Rate9.3.1.20 | This IE shall be present when at least one Non-GBR QoS Flows is being setup. | - | - |
| >NG UL UP Transport Layer Information | M |  | UP Transport Layer Information9.3.2.1 |  | - | - |
| >PDU Session Data Forwarding Information Request | O |  | Data Forwarding Information Request 9.3.2.5 |  | - | - |
| >PDU Session Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to PDU Session. | - | - |
| >Existing Allocated NG DL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 |  | - | - |
| >Network Instance | O |  | 9.3.1.62 | This IE is ignored if the *Common Network Instance* IE is included. | YES | ignore |
| >Common Network Instance | O |  | 9.3.1.66 |  | YES | ignore |
| **>DRB To Setup List** |  | *1* |  |  | - | - |
| **>>DRB To Setup Item**  |  | *1..<maxnoofDRBs>* |  |  | - | - |
| >>>DRB ID | M |  | 9.3.1.16 |  | - | - |
| >>>SDAP Configuration | M  |  | 9.3.1.39 |  | - | - |
| >>>PDCP Configuration | M |  | 9.3.1.38 |  | - | - |
| >>>Cell Group Information | M |  | 9.3.1.11 |  | - | - |
| >>>QoS Flows Information To Be Setup | M |  | QoS Flow QoS Parameters List9.3.1.25 |  | - | - |
| >>>DRB Data forwarding information Request | O |  | Data Forwarding Information Request 9.3.2.5 | Requesting forwarding info from the target gNB-CU-UP. | - | - |
| >>>DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. | - | - |
| >>>PDCP SN Status Information | O |  | 9.3.1.58 | Contains the PDCP SN Status at setup after Resume. | - | - |
| >>>DRB QoS | O |  | 9.3.1.26 | Indicates the DRB QoS when more than one QoS Flow is mapped to the DRB. | YES | ignore |
| >>>DAPS Request Information | O |  | 9.3.1.91 |  | YES | ignore |
| >>> Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] | YES | ignore |
| >Redundant NG UL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 |  | YES | ignore |
| >Redundant Common Network Instance | O |  | Common Network Instance9.3.1.66 |  | YES | ignore |
| >Redundant PDU Session Information | O |  | 9.3.1.80 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |
| maxnoofPDUSessionResource  | Maximum no. of PDU Sessions for a UE. Value is 256. |

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.3.7 DRB To Setup Modification List E-UTRAN

This IE contains DRB to setup related information used at Bearer Context Modification Request in E-UTRAN

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **DRB To Setup Modification Item E-UTRAN** |  | *1..<maxnoofDRBs>* |  |  |
| >DRB ID  | M |  | 9.3.1.16 |  |
| >PDCP Configuration  | M |  | 9.3.1.38 |  |
| >E-UTRAN QoS | M |  | 9.3.1.17 |  |
| >S1 UL UP Transport Layer Information | M |  | UP Transport Layer Information9.3.2.1 |  |
| >Data Forwarding Information Request | O |  | 9.3.2.5 | Requesting forwarding info from the target gNB-CU-UP. |
| >Cell Group Information | M |  | 9.3.1.11 |  |
| >DL UP Parameters | O |  | UP Parameters9.3.1.13 |  |
| >DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. |
| >Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.3.8 DRB To Modify List E-UTRAN

This IE contains DRB to modify related information used at Bearer Context Modification Request in E-UTRAN

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **DRB To Modify Item E-UTRAN** |  | *1..<maxnoofDRBs>* |  |  |
| >DRB ID  | M |  | 9.3.1.16 |  |
| >PDCP Configuration  | O |  | 9.3.1.38 |  |
| >E-UTRAN QoS | O |  | 9.3.1.17 |  |
| >S1 UL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 |  |
| >Data Forwarding Information | O |  | 9.3.2.6 | Providing forwarding info to the source gNB-CU-UP. |
| >PDCP SN Status Request | O |  | ENUMERATED (requested, …) | The gNB-CU-CP requests the gNB-CU-UP to provide the PDCP SN Status in the response message. |
| >PDCP SN Status Information | O |  | 9.3.1.58 | Providing SN Status information to the target gNB-CU-UP. |
| >DL UP Parameters  | O |  | UP Parameters9.3.1.13 |  |
| >Cell Group To Add | O |  | Cell Group Information 9.3.1.11 |  |
| >Cell Group To Modify  | O |  | Cell Group Information 9.3.1.11 |  |
| >Cell Group To Remove  | O |  | Cell Group Information 9.3.1.11 |  |
| >DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. |
| >Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.3.10 PDU Session Resource To Setup Modification List

This IE contains PDU session resource to setup related information used at Bearer Context Modification Request

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **PDU Session Resource To Setup Modification Item** |  | *1..<maxnoofPDUSessionResource>* |  |  | - | - |
| >PDU Session ID  | M |  | 9.3.1.21 |  | - | - |
| >PDU Session Type  | M |  | 9.3.1.22 |  | - | - |
| >S-NSSAI  | M |  | 9.3.1.9 |  | - | - |
| >Security Indication  | M |  | 9.3.1.23 |  | - | - |
| >PDU Session Resource DL Aggregate Maximum Bit Rate | O |  | Bit Rate 9.3.1.20 | This IE shall be present when Non-GBR QoS Flows are setting up. | - | - |
| >NG UL UP Transport Layer Information | M |  | UP Transport Layer Information9.3.2.1 |  | - | - |
| >PDU Session Data Forwarding Information Request | O |  | Data Forwarding Information Request 9.3.2.5 | Requesting forwarding info from the target gNB-CU-UP. | - | - |
| >PDU Session Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to PDU Session. | - | - |
| >Network Instance | O |  | 9.3.1.62 |  | - | - |
| >Common Network Instance | O |  | 9.3.1.66 |  | YES | ignore |
| **>DRB To Setup List** |  | *1* |  |  | - | - |
| **>>DRB To Setup Item**  |  | *1..<maxnoofDRBs>* |  |  | - | - |
| >>>DRB ID | M |  | 9.3.1.16 |  | - | - |
| >>>SDAP Configuration | M  |  | 9.3.1.39 |  | - | - |
| >>>PDCP Configuration | M |  | 9.3.1.38 |  | - | - |
| >>>Cell Group Information | M |  | 9.3.1.11 |  | - | - |
| >>>QoS Flows Information To Be Setup | M |  | QoS Flow QoS Parameters List9.3.1.25 |  | - | - |
| >>>DRB Data forwarding information Request | O |  | Data Forwarding Information Request 9.3.2.5 | Requesting forwarding info from the target gNB-CU-UP. | - | - |
| >>>DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. | - | - |
| >>>PDCP SN Status Information | O |  | 9.3.1.58 | Provides the PDCP SN Status at setup after Resume to the target gNB-CU-UP. | - | - |
| >>>DRB QoS | O |  | 9.3.1.26 | Indicates the DRB QoS when more than one QoS Flow is mapped to the DRB | YES | ignore |
| >>> Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] | YES | ignore |
| >Redundant NG UL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 |  | YES | ignore |
| >Redundant Common Network Instance | O |  | Common Network Instance9.3.1.66 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |
| maxnoofPDUSessionResource  | Maximum no. of PDU Sessions for a UE. Value is 256. |

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.3.11 PDU Session Resource To Modify List

This IE contains PDU session resource to modify related information used at Bearer Context Modification Request

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **PDU Session Resource To Modify Item** |  | *1..<maxnoofPDUSessionResource>* |  |  | - | - |
| >PDU Session ID  | M |  | 9.3.1.21 |  | - | - |
| >Security Indication  | O |  | 9.3.1.23 | This IE is not used in this release. | - | - |
| >PDU Session Resource DL Aggregate Maximum Bit Rate | O |  | Bit Rate 9.3.1.20 |  | - | - |
| >NG UL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 |  | - | - |
| >PDU Session Data Forwarding Information Request | O |  | Data Forwarding Information Request 9.3.2.5 | Requesting forwarding information from the target gNB-CU-UP. | - | - |
| >PDU Session Data Forwarding Information | O |  | Data Forwarding Information 9.3.2.6 | Providing forwarding information to the source gNB-CU-UP. | - | - |
| >PDU Session Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to PDU Session. | - | - |
| >Network Instance | O |  | 9.3.1.62 | This IE is ignored if the *Common Network Instance* IE is included. | YES | ignore |
| >Common Network Instance | O |  | 9.3.1.66 |  | YES | ignore |
| **>DRB To Setup List** |  | *0..1* |  |  | - | - |
| **>>DRB To Setup Item**  |  | *1..<maxnoofDRBs>* |  |  | - | - |
| >>>DRB ID | M |  | 9.3.1.16 |  | - | - |
| >>>SDAP Configuration | M |  | 9.3.1.39 |  | - | - |
| >>>PDCP Configuration | M |  | 9.3.1.38 |  | - | - |
| >>>Cell Group Information | M |  | 9.3.1.11 |  | - | - |
| >>>QoS Flow Information To Be Setup  | M |  | QoS Flow QoS Parameters List9.3.1.25 |  | - | - |
| >>>DRB Data Forwarding Information Request | O |  | Data Forwarding Information Request 9.3.2.5 | Requesting forwarding information from the target gNB-CU-UP. | - | - |
| >>>DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. | - | - |
| >>>PDCP SN Status Information | O |  | 9.3.1.58 | Provides the PDCP SN Status at setup after Resume to the target gNB-CU-UP. | - | - |
| >>>DRB QoS  | O |  | 9.3.1.26 | Indicates the DRB QoS when more than one QoS Flow is mapped to the DRB  | YES | ignore |
| >>> Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] | YES | ignore |
| **>DRB To Modify List** |  | *0.. 1* |  |  | - | - |
| **>>DRB To Modify Item**  |  | *1..<maxnoofDRBs>* |  |  | - | - |
| >>>DRB ID  | M |  | 9.3.1.16 |  | - | - |
| >>>SDAP Configuration | O |  | 9.3.1.39 |  | - | - |
| >>>PDCP Configuration  | O |  | 9.3.1.38 |  | - | - |
| >>>DRB Data forwarding information | O |  | Data Forwarding Information 9.3.2.6 | Providing forwarding information to the source gNB-CU-UP. | - | - |
| >>>PDCP SN Status Request | O |  | ENUMERATED (requested, …) | The gNB-CU-CP requests the gNB-CU-UP to provide the PDCP SN Status in the response message. | - | - |
| >>>PDCP SN Status Information | O |  | 9.3.1.58 | Provides the PDCP SN Status to the target gNB-CU-UP. | - | - |
| >>>DL UP Parameters | O |  | UP Parameters 9.3.1.13 |  | - | - |
| >>>Cell Group To Add | O |  | Cell Group Information 9.3.1.11 |  | - | - |
| >>>Cell Group To Modify  | O |  | Cell Group Information 9.3.1.11 |  | - | - |
| >>>Cell Group To Remove  | O |  | Cell Group Information 9.3.1.11 |  | - | - |
| >>>Flow Mapping Information  | O |  | QoS Flow QoS Parameters List9.3.1.25 | Overrides previous mapping information.  | - | - |
| >>>DRB Inactivity Timer | O |  | Inactivity Timer 9.3.1.54 | Included if the Activity Notification Level is set to DRB. | - | - |
| >>>Old QoS Flow List - UL End Marker expected | O |  | QoS Flow List9.3.1.12 | Indicates that the source NG-RAN node has initiated QoS flow re-mapping and has not yet received SDAP end markers, as described in TS 38.300 [8]. | YES | reject |
| >>>DRB QoS | O |  | 9.3.1.26 | Indicates the DRB QoS when more than one QoS Flow is mapped to the DRB | YES | ignore |
| >>>Early Forwarding COUNT Request | O |  | ENUMERATED (First DL count, DL discarding, …) | Requests early data forwarding information from the source gNB-CU-UP | YES | reject |
| >>>Early Forwarding COUNT Information | O |  | 9.3.1.92 | Provides early data forwarding information to the target gNB-CU-UP. | YES | reject |
| >>> Source Forwarding IP Address | O |  | Transport Layer Address9.3.2.4 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] | YES | ignore |
| **>DRB To Remove List** |  | *0.. 1* |  |  | - | - |
| **>>DRB To Remove Item**  |  | *1..<maxnoofDRBs>* |  |  | - | - |
| >>>DRB ID  | M |  | 9.3.1.16 |  | - | - |
| >S-NSSAI | O |  | 9.3.1.9 |  | YES | reject |
| >Redundant NG UL UP Transport Layer Information | O |  | UP Transport Layer Information9.3.2.1 |  | YES | ignore |
| >Redundant Common Network Instance | O |  | Common Network Instance9.3.1.66 |  | YES | ignore |
| **>Data Forwarding to E-UTRAN Information List** |  | *0.. 1* |  | Contains a list of DL Data Forwarding tunnels and the associated QoS Flows to be forwarded on each tunnel | YES | ignore |
| **>>Data Forwarding to E-UTRAN Information List Item** |  | *1..<maxnoofDataForwardingTunneltoE-UTRAN>* |  |  | - | - |
| >>>Data forwarding tunnel information | M |  | UP Transport Layer Information 9.3.2.1 |  | - | - |
| >>>QoS Flows to be forwarded List |  | *1* |  |   | - | - |
| >>>>QoS Flows to be forwarded Item |  | *1..<maxnoofQoSflows>* |  |  | - | - |
| >>>>>QoS Flow Identifier | M |  | QoS Flow Identifier9.3.1.24 |  | - | - |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |
| maxnoofPDUSessionResource  | Maximum no. of PDU Sessions for a UE. Value is 256. |
| maxnoofDataForwardingTunneltoE-UTRAN | Maximum no. of Data Forwarding Tunnels to E-UTRAN for a UE. Value is 256. |
| maxnoofQoSflows | Maximum no. of QoS flows in a PDU Session. Value is 64. |

**<<<<<< NEXT CHANGE >>>>>>**

#### 9.3.2.6 Data Forwarding Information

This IE provides the data forwarding information when performing handover or data offloading.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| UL Data Forwarding  | O |  | UP Transport Layer Information 9.3.2.1 |  |
| DL Data Forwarding  | O |  | UP Transport Layer Information 9.3.2.1 |  |
| Source Forwarding IP Address | O |  | UP Transport Layer Information 9.3.2.1 | Identifies the TNL address used by the source node for data forwarding.For details on the Transport Layer Address, see TS 36.424 [8], TS 36.414 [19] |

**<<<<<< NEXT CHANGE >>>>>>**

**<<<<<< NEXT CHANGE >>>>>>**

### 9.4.4 PDU Definitions

-- ASN1START

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

--

-- PDU definitions for E1AP

--

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

E1AP-PDU-Contents {

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

ngran-access (22) modules (3) e1ap (5) version1 (1) e1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules

--

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

IMPORTS

 Cause,

 CriticalityDiagnostics,

 GNB-CU-CP-UE-E1AP-ID,

 GNB-CU-UP-UE-E1AP-ID,

 UE-associatedLogicalE1-ConnectionItem,

 GNB-CU-UP-ID,

 GNB-CU-UP-Name,

 Extended-GNB-CU-UP-Name,

 GNB-CU-CP-Name,

 Extended-GNB-CU-CP-Name,

 CNSupport,

 PLMN-Identity,

 Slice-Support-List,

 NR-CGI-Support-List,

 QoS-Parameters-Support-List,

 SecurityInformation,

 BitRate,

 BearerContextStatusChange,

 DRB-To-Setup-List-EUTRAN,

 DRB-Setup-List-EUTRAN,

 DRB-Failed-List-EUTRAN,

 DRB-To-Modify-List-EUTRAN,

 DRB-Measurement-Results-Information-List,

 DRB-Modified-List-EUTRAN,

 DRB-Failed-To-Modify-List-EUTRAN,

 DRB-To-Remove-List-EUTRAN,

 DRB-Required-To-Remove-List-EUTRAN,

 DRB-Required-To-Modify-List-EUTRAN,

 DRB-Confirm-Modified-List-EUTRAN,

 DRB-To-Setup-Mod-List-EUTRAN,

 DRB-Setup-Mod-List-EUTRAN,

 DRB-Failed-Mod-List-EUTRAN,

 ExtendedSliceSupportList,

 PDU-Session-Resource-To-Setup-List,

 PDU-Session-Resource-Setup-List,

 PDU-Session-Resource-Failed-List,

 PDU-Session-Resource-To-Modify-List,

 PDU-Session-Resource-Modified-List,

 PDU-Session-Resource-Failed-To-Modify-List,

 PDU-Session-Resource-To-Remove-List,

 PDU-Session-Resource-Required-To-Modify-List,

 PDU-Session-Resource-Confirm-Modified-List,

 PDU-Session-Resource-To-Setup-Mod-List,

 PDU-Session-Resource-Setup-Mod-List,

 PDU-Session-Resource-Failed-Mod-List,

 PDU-Session-To-Notify-List,

 DRB-Status-Item,

 DRB-Activity-Item,

 Data-Usage-Report-List,

 TimeToWait,

 ActivityNotificationLevel,

 ActivityInformation,

 New-UL-TNL-Information-Required,

 GNB-CU-CP-TNLA-Setup-Item,

 GNB-CU-CP-TNLA-Failed-To-Setup-Item,

 GNB-CU-CP-TNLA-To-Add-Item,

 GNB-CU-CP-TNLA-To-Remove-Item,

 GNB-CU-CP-TNLA-To-Update-Item,

 GNB-CU-UP-TNLA-To-Remove-Item,

 TransactionID,

 Inactivity-Timer,

 DRBs-Subject-To-Counter-Check-List-EUTRAN,

 DRBs-Subject-To-Counter-Check-List-NG-RAN,

 PPI,

 GNB-CU-UP-Capacity,

 GNB-CU-UP-OverloadInformation,

 DataDiscardRequired,

 PDU-Session-Resource-Data-Usage-List,

 RANUEID,

 GNB-DU-ID,

 TraceID,

 TraceActivation,

 SubscriberProfileIDforRFP,

 AdditionalRRMPriorityIndex,

 RetainabilityMeasurementsInfo,

 Transport-Layer-Address-Info,

 HW-CapacityIndicator,

 RegistrationRequest,

 ReportCharacteristics,

 ReportingPeriodicity,

 TNL-AvailableCapacityIndicator,

 DLUPTNLAddressToUpdateItem,

 ULUPTNLAddressToUpdateItem,

 NPNContextInfo,

 NPNSupportInfo,

 MDTPLMNList,

 PrivacyIndicator,

 URIaddress,

 DRBs-Subject-To-Early-Forwarding-List,

 CHOInitiation,

 ExtendedSliceSupportList,

 TransportLayerAddress,

 AdditionalHandoverInfo,

 Extended-NR-CGI-Support-List

FROM E1AP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-SingleContainer{},

 E1AP-PRIVATE-IES,

 E1AP-PROTOCOL-EXTENSION,

 E1AP-PROTOCOL-IES

FROM E1AP-Containers

 id-Cause,

 id-CriticalityDiagnostics,

 id-gNB-CU-CP-UE-E1AP-ID,

 id-gNB-CU-UP-UE-E1AP-ID,

 id-ResetType,

 id-UE-associatedLogicalE1-ConnectionItem,

 id-UE-associatedLogicalE1-ConnectionListResAck,

 id-gNB-CU-UP-ID,

 id-gNB-CU-UP-Name,

 id-Extended-GNB-CU-UP-Name,

 id-gNB-CU-CP-Name,

 id-Extended-GNB-CU-CP-Name,

 id-CNSupport,

 id-SupportedPLMNs,

 id-NPNSupportInfo,

 id-NPNContextInfo,

 id-SecurityInformation,

 id-UEDLAggregateMaximumBitRate,

 id-BearerContextStatusChange,

 id-System-BearerContextSetupRequest,

 id-System-BearerContextSetupResponse,

 id-System-BearerContextModificationRequest,

 id-System-BearerContextModificationResponse,

 id-System-BearerContextModificationConfirm,

 id-System-BearerContextModificationRequired,

 id-DRB-Status-List,

 id-Data-Usage-Report-List,

 id-TimeToWait,

 id-ActivityNotificationLevel,

 id-ActivityInformation,

 id-New-UL-TNL-Information-Required,

 id-GNB-CU-CP-TNLA-Setup-List,

 id-GNB-CU-CP-TNLA-Failed-To-Setup-List,

 id-GNB-CU-CP-TNLA-To-Add-List,

 id-GNB-CU-CP-TNLA-To-Remove-List,

 id-GNB-CU-CP-TNLA-To-Update-List,

 id-GNB-CU-UP-TNLA-To-Remove-List,

 id-DRB-To-Setup-List-EUTRAN,

 id-DRB-To-Modify-List-EUTRAN,

 id-DRB-To-Remove-List-EUTRAN,

 id-DRB-Required-To-Modify-List-EUTRAN,

 id-DRB-Required-To-Remove-List-EUTRAN,

 id-DRB-Setup-List-EUTRAN,

 id-DRB-Failed-List-EUTRAN,

 id-DRB-Measurement-Results-Information-List,

 id-DRB-Modified-List-EUTRAN,

 id-DRB-Failed-To-Modify-List-EUTRAN,

 id-DRB-Confirm-Modified-List-EUTRAN,

 id-DRB-To-Setup-Mod-List-EUTRAN,

 id-DRB-Setup-Mod-List-EUTRAN,

 id-DRB-Failed-Mod-List-EUTRAN,

 id-PDU-Session-Resource-To-Setup-List,

 id-PDU-Session-Resource-To-Modify-List,

 id-PDU-Session-Resource-To-Remove-List,

 id-PDU-Session-Resource-Required-To-Modify-List,

 id-PDU-Session-Resource-Setup-List,

 id-PDU-Session-Resource-Failed-List,

 id-PDU-Session-Resource-Modified-List,

 id-PDU-Session-Resource-Failed-To-Modify-List,

 id-PDU-Session-Resource-Confirm-Modified-List,

 id-PDU-Session-Resource-Setup-Mod-List,

 id-PDU-Session-Resource-Failed-Mod-List,

 id-PDU-Session-Resource-To-Setup-Mod-List,

 id-PDU-Session-To-Notify-List,

 id-TransactionID,

 id-Serving-PLMN,

 id-UE-Inactivity-Timer,

 id-System-GNB-CU-UP-CounterCheckRequest,

 id-DRBs-Subject-To-Counter-Check-List-EUTRAN,

 id-DRBs-Subject-To-Counter-Check-List-NG-RAN,

 id-PPI,

 id-gNB-CU-UP-Capacity,

 id-GNB-CU-UP-OverloadInformation,

 id-UEDLMaximumIntegrityProtectedDataRate,

 id-DataDiscardRequired,

 id-PDU-Session-Resource-Data-Usage-List,

 id-RANUEID,

 id-GNB-DU-ID,

 id-TraceID,

 id-TraceActivation,

 id-SubscriberProfileIDforRFP,

 id-AdditionalRRMPriorityIndex,

 id-RetainabilityMeasurementsInfo,

 id-Transport-Layer-Address-Info,

 id-gNB-CU-CP-Measurement-ID,

 id-gNB-CU-UP-Measurement-ID,

 id-RegistrationRequest,

 id-ReportCharacteristics,

 id-ReportingPeriodicity,

 id-TNL-AvailableCapacityIndicator,

 id-HW-CapacityIndicator,

 id-DLUPTNLAddressToUpdateList,

 id-ULUPTNLAddressToUpdateList,

 id-ManagementBasedMDTPLMNList,

 id-TraceCollectionEntityIPAddress,

 id-PrivacyIndicator,

 id-URIaddress,

 id-DRBs-Subject-To-Early-Forwarding-List,

 id-CHOInitiation,

 id-ExtendedSliceSupportList,

 id-AdditionalHandoverInfo,

 id-Extended-NR-CGI-Support-List,

 id-SourceForwardingIPAddress,

 maxnoofErrors,

 maxnoofSPLMNs,

 maxnoofDRBs,

 maxnoofTNLAssociations,

 maxnoofIndividualE1ConnectionsToReset,

 maxnoofTNLAddresses

**<<<<<< NEXT CHANGE >>>>>>**

DRB-To-Setup-List-EUTRAN ::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF DRB-To-Setup-Item-EUTRAN

DRB-To-Setup-Item-EUTRAN ::= SEQUENCE {

 dRB-ID DRB-ID,

 pDCP-Configuration PDCP-Configuration,

 eUTRAN-QoS EUTRAN-QoS,

 s1-UL-UP-TNL-Information UP-TNL-Information,

 data-Forwarding-Information-Request Data-Forwarding-Information-Request OPTIONAL,

 cell-Group-Information Cell-Group-Information,

 dL-UP-Parameters UP-Parameters OPTIONAL,

 dRB-Inactivity-Timer Inactivity-Timer OPTIONAL,

 existing-Allocated-S1-DL-UP-TNL-Info UP-TNL-Information OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { DRB-To-Setup-Item-EUTRAN-ExtIEs } } OPTIONAL,

 ...

}

DRB-To-Setup-Item-EUTRAN-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional}, ...

}

**<<<<<< NEXT CHANGE >>>>>>**

PDU-Session-Resource-To-Setup-List ::= SEQUENCE (SIZE(1.. maxnoofPDUSessionResource)) OF PDU-Session-Resource-To-Setup-Item

PDU-Session-Resource-To-Setup-Item ::= SEQUENCE {

 pDU-Session-ID PDU-Session-ID,

 pDU-Session-Type PDU-Session-Type,

 sNSSAI SNSSAI,

 securityIndication SecurityIndication,

 pDU-Session-Resource-DL-AMBR BitRate OPTIONAL,

 nG-UL-UP-TNL-Information UP-TNL-Information,

 pDU-Session-Data-Forwarding-Information-Request Data-Forwarding-Information-Request OPTIONAL,

 pDU-Session-Inactivity-Timer Inactivity-Timer OPTIONAL,

 existing-Allocated-NG-DL-UP-TNL-Info UP-TNL-Information OPTIONAL,

 networkInstance NetworkInstance OPTIONAL,

 dRB-To-Setup-List-NG-RAN DRB-To-Setup-List-NG-RAN,

 iE-Extensions ProtocolExtensionContainer { { PDU-Session-Resource-To-Setup-Item-ExtIEs } } OPTIONAL,

 ...

}

PDU-Session-Resource-To-Setup-Item-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

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

 { ID id-redundant-nG-UL-UP-TNL-Information CRITICALITY ignore EXTENSION UP-TNL-Information PRESENCE optional }|

 { ID id-RedundantCommonNetworkInstance CRITICALITY ignore EXTENSION CommonNetworkInstance PRESENCE optional }|

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

 ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional,

 ...

}

**<<<<<< NEXT CHANGE >>>>>>**

Data-Forwarding-Information ::= SEQUENCE {

 uL-Data-Forwarding UP-TNL-Information OPTIONAL,

 dL-Data-Forwarding UP-TNL-Information OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { Data-Forwarding-Information-ExtIEs } } OPTIONAL,

 ...

}

Data-Forwarding-Information-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional},

 ...

}

**<<<<<< NEXT CHANGE >>>>>>**

DRB-To-Setup-Mod-List-EUTRAN ::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF DRB-To-Setup-Mod-Item-EUTRAN

DRB-To-Setup-Mod-Item-EUTRAN ::= SEQUENCE {

 dRB-ID DRB-ID,

 pDCP-Configuration PDCP-Configuration,

 eUTRAN-QoS EUTRAN-QoS,

 s1-UL-UP-TNL-Information UP-TNL-Information,

 data-Forwarding-Information-Request Data-Forwarding-Information-Request OPTIONAL,

 cell-Group-Information Cell-Group-Information,

 dL-UP-Parameters UP-Parameters OPTIONAL,

 dRB-Inactivity-Timer Inactivity-Timer OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { DRB-To-Setup-Mod-Item-EUTRAN-ExtIEs } } OPTIONAL,

 ...

}

DRB-To-Setup-Mod-Item-EUTRAN-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional},

 ...

}

**<<<<<< NEXT CHANGE >>>>>>**

DRB-To-Modify-List-EUTRAN ::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF DRB-To-Modify-Item-EUTRAN

DRB-To-Modify-Item-EUTRAN ::= SEQUENCE {

 dRB-ID DRB-ID,

 pDCP-Configuration PDCP-Configuration OPTIONAL,

 eUTRAN-QoS EUTRAN-QoS OPTIONAL,

 s1-UL-UP-TNL-Information UP-TNL-Information OPTIONAL,

 data-Forwarding-Information Data-Forwarding-Information OPTIONAL,

 pDCP-SN-Status-Request PDCP-SN-Status-Request OPTIONAL,

 pDCP-SN-Status-Information PDCP-SN-Status-Information OPTIONAL,

 dL-UP-Parameters UP-Parameters OPTIONAL,

 cell-Group-To-Add Cell-Group-Information OPTIONAL,

 cell-Group-To-Modify Cell-Group-Information OPTIONAL,

 cell-Group-To-Remove Cell-Group-Information OPTIONAL,

 dRB-Inactivity-Timer Inactivity-Timer OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { DRB-To-Modify-Item-EUTRAN-ExtIEs } } OPTIONAL,

 ...

}

DRB-To-Modify-Item-EUTRAN-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional},

 ...

}

**<<<<<< NEXT CHANGE >>>>>>**

PDU-Session-Resource-To-Setup-Mod-List ::= SEQUENCE (SIZE(1.. maxnoofPDUSessionResource)) OF PDU-Session-Resource-To-Setup-Mod-Item

PDU-Session-Resource-To-Setup-Mod-Item ::= SEQUENCE {

 pDU-Session-ID PDU-Session-ID,

 pDU-Session-Type PDU-Session-Type,

 sNSSAI SNSSAI,

 securityIndication SecurityIndication,

 pDU-Session-Resource-AMBR BitRate OPTIONAL,

 nG-UL-UP-TNL-Information UP-TNL-Information,

 pDU-Session-Data-Forwarding-Information-Request Data-Forwarding-Information-Request OPTIONAL,

 pDU-Session-Inactivity-Timer Inactivity-Timer OPTIONAL,

 dRB-To-Setup-Mod-List-NG-RAN DRB-To-Setup-Mod-List-NG-RAN,

 iE-Extensions ProtocolExtensionContainer { { PDU-Session-Resource-To-Setup-Mod-Item-ExtIEs } } OPTIONAL,

 ...

}

PDU-Session-Resource-To-Setup-Mod-Item-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

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

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

 {ID id-redundant-nG-UL-UP-TNL-Information CRITICALITY ignore EXTENSION UP-TNL-Information PRESENCE optional }|

 {ID id-RedundantCommonNetworkInstance CRITICALITY ignore EXTENSION CommonNetworkInstance PRESENCE optional }|

 ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional,

 ...

}

**<<<<<< NEXT CHANGE >>>>>>**

PDU-Session-Resource-To-Modify-List ::= SEQUENCE (SIZE(1.. maxnoofPDUSessionResource)) OF PDU-Session-Resource-To-Modify-Item

PDU-Session-Resource-To-Modify-Item ::= SEQUENCE {

 pDU-Session-ID PDU-Session-ID,

 securityIndication SecurityIndication OPTIONAL,

 pDU-Session-Resource-DL-AMBR BitRate OPTIONAL,

 nG-UL-UP-TNL-Information UP-TNL-Information OPTIONAL,

 pDU-Session-Data-Forwarding-Information-Request Data-Forwarding-Information-Request OPTIONAL,

 pDU-Session-Data-Forwarding-Information Data-Forwarding-Information OPTIONAL,

 pDU-Session-Inactivity-Timer Inactivity-Timer OPTIONAL,

 networkInstance NetworkInstance OPTIONAL,

 dRB-To-Setup-List-NG-RAN DRB-To-Setup-List-NG-RAN OPTIONAL,

 dRB-To-Modify-List-NG-RAN DRB-To-Modify-List-NG-RAN OPTIONAL,

 dRB-To-Remove-List-NG-RAN DRB-To-Remove-List-NG-RAN OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { PDU-Session-Resource-To-Modify-Item-ExtIEs } } OPTIONAL,

 ...

}

PDU-Session-Resource-To-Modify-Item-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

 {ID id-SNSSAI CRITICALITY reject EXTENSION SNSSAI PRESENCE optional}|

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

 {ID id-redundant-nG-UL-UP-TNL-Information CRITICALITY ignore EXTENSION UP-TNL-Information PRESENCE optional }|

 {ID id-RedundantCommonNetworkInstance CRITICALITY ignore EXTENSION CommonNetworkInstance PRESENCE optional }|

 {ID id-DataForwardingtoE-UTRANInformationList CRITICALITY ignore EXTENSION DataForwardingtoE-UTRANInformationList PRESENCE optional },|

 ID id-SourceForwardingIPAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional

 ...

}

**<<<<<< NEXT CHANGE >>>>>>**

### 9.4.7 Constant Definitions

-- ASN1START

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

--

-- Constant definitions

--

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

E1AP-Constants {

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

ngran-access (22) modules (3) e1ap (5) version1 (1) e1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 ProcedureCode,

 ProtocolIE-ID

FROM E1AP-CommonDataTypes;

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

--

-- Elementary Procedures

--

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

id-reset ProcedureCode ::= 0

id-errorIndication ProcedureCode ::= 1

id-privateMessage ProcedureCode ::= 2

id-gNB-CU-UP-E1Setup ProcedureCode ::= 3

id-gNB-CU-CP-E1Setup ProcedureCode ::= 4

id-gNB-CU-UP-ConfigurationUpdate ProcedureCode ::= 5

id-gNB-CU-CP-ConfigurationUpdate ProcedureCode ::= 6

id-e1Release ProcedureCode ::= 7

id-bearerContextSetup ProcedureCode ::= 8

id-bearerContextModification ProcedureCode ::= 9

id-bearerContextModificationRequired ProcedureCode ::= 10

id-bearerContextRelease ProcedureCode ::= 11

id-bearerContextReleaseRequest ProcedureCode ::= 12

id-bearerContextInactivityNotification ProcedureCode ::= 13

id-dLDataNotification ProcedureCode ::= 14

id-dataUsageReport ProcedureCode ::= 15

id-gNB-CU-UP-CounterCheck ProcedureCode ::= 16

id-gNB-CU-UP-StatusIndication ProcedureCode ::= 17

id-uLDataNotification ProcedureCode ::= 18

id-mRDC-DataUsageReport ProcedureCode ::= 19

id-TraceStart ProcedureCode ::= 20

id-DeactivateTrace ProcedureCode ::= 21

id-resourceStatusReportingInitiation ProcedureCode ::= 22

id-resourceStatusReporting ProcedureCode ::= 23

id-iAB-UPTNLAddressUpdate ProcedureCode ::= 24

id-CellTrafficTrace ProcedureCode ::= 25

id-earlyForwardingSNTransfer ProcedureCode ::= 26

id-gNB-CU-CPMeasurementResultsInformation ProcedureCode ::= 27

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

--

-- Lists

--

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

maxnoofErrors INTEGER ::= 256

maxnoofSPLMNs INTEGER ::= 12

maxnoofSliceItems INTEGER ::= 1024

maxnoofIndividualE1ConnectionsToReset INTEGER ::= 65536

maxnoofEUTRANQOSParameters INTEGER ::= 256

maxnoofNGRANQOSParameters INTEGER ::= 256

maxnoofDRBs INTEGER ::= 32

maxnoofNRCGI INTEGER ::= 512

maxnoofPDUSessionResource INTEGER ::= 256

maxnoofQoSFlows INTEGER ::= 64

maxnoofUPParameters INTEGER ::= 8

maxnoofCellGroups INTEGER ::= 4

maxnooftimeperiods INTEGER ::= 2

maxnoofTNLAssociations INTEGER ::= 32

maxnoofTLAs INTEGER ::= 16

maxnoofGTPTLAs INTEGER ::= 16

maxnoofTNLAddresses INTEGER ::= 8

maxnoofMDTPLMNs INTEGER ::= 16

maxnoofQoSParaSets INTEGER ::= 8

maxnoofExtSliceItems INTEGER ::= 65535

maxnoofDataForwardingTunneltoE-UTRAN INTEGER ::= 256

maxnoofExtNRCGI INTEGER ::= 16384

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

--

-- IEs

--

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

id-Cause ProtocolIE-ID ::= 0

id-CriticalityDiagnostics ProtocolIE-ID ::= 1

id-gNB-CU-CP-UE-E1AP-ID ProtocolIE-ID ::= 2

id-gNB-CU-UP-UE-E1AP-ID ProtocolIE-ID ::= 3

id-ResetType ProtocolIE-ID ::= 4

id-UE-associatedLogicalE1-ConnectionItem ProtocolIE-ID ::= 5

id-UE-associatedLogicalE1-ConnectionListResAck ProtocolIE-ID ::= 6

id-gNB-CU-UP-ID ProtocolIE-ID ::= 7

id-gNB-CU-UP-Name ProtocolIE-ID ::= 8

id-gNB-CU-CP-Name ProtocolIE-ID ::= 9

id-CNSupport ProtocolIE-ID ::= 10

id-SupportedPLMNs ProtocolIE-ID ::= 11

id-TimeToWait ProtocolIE-ID ::= 12

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id-ActivityInformation ProtocolIE-ID ::= 24

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id-New-UL-TNL-Information-Required ProtocolIE-ID ::= 26

id-GNB-CU-CP-TNLA-To-Add-List ProtocolIE-ID ::= 27

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id-GNB-CU-CP-TNLA-To-Update-List ProtocolIE-ID ::= 29

id-GNB-CU-CP-TNLA-Setup-List ProtocolIE-ID ::= 30

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id-DRB-To-Setup-List-EUTRAN ProtocolIE-ID ::= 32

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id-DRB-To-Remove-List-EUTRAN ProtocolIE-ID ::= 34

id-DRB-Required-To-Modify-List-EUTRAN ProtocolIE-ID ::= 35

id-DRB-Required-To-Remove-List-EUTRAN ProtocolIE-ID ::= 36

id-DRB-Setup-List-EUTRAN ProtocolIE-ID ::= 37

id-DRB-Failed-List-EUTRAN ProtocolIE-ID ::= 38

id-DRB-Modified-List-EUTRAN ProtocolIE-ID ::= 39

id-DRB-Failed-To-Modify-List-EUTRAN ProtocolIE-ID ::= 40

id-DRB-Confirm-Modified-List-EUTRAN ProtocolIE-ID ::= 41

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id-PDU-Session-Resource-To-Modify-List ProtocolIE-ID ::= 43

id-PDU-Session-Resource-To-Remove-List ProtocolIE-ID ::= 44

id-PDU-Session-Resource-Required-To-Modify-List ProtocolIE-ID ::= 45

id-PDU-Session-Resource-Setup-List ProtocolIE-ID ::= 46

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id-PDU-Session-Resource-Modified-List ProtocolIE-ID ::= 48

id-PDU-Session-Resource-Failed-To-Modify-List ProtocolIE-ID ::= 49

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id-DRB-Setup-Mod-List-EUTRAN ProtocolIE-ID ::= 52

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id-GNB-CU-UP-TNLA-To-Remove-List ProtocolIE-ID ::= 73

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id-GNB-DU-ID ProtocolIE-ID ::= 77

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id-NetworkInstance ProtocolIE-ID ::= 79

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id-TraceID ProtocolIE-ID ::= 82

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id-PDCP-StatusReportIndication ProtocolIE-ID ::= 88

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id-ReportCharacteristics ProtocolIE-ID ::= 92

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id-redundant-nG-UL-UP-TNL-Information ProtocolIE-ID ::= 97

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id-Extended-NR-CGI-Support-List ProtocolIE-ID ::= 135

id-SourceForwardingIPAddress ProtocolIE-ID ::= xxx

END

-- ASN1STOP

**<<<<<< END OF CHANGES >>>>>>**