3GPP TSG-RAN WG3 Meeting #121 R3-234627

Toulouse, France, 21 – 25 Aug 2023

Agenda Item: 11.3

Source: ZTE, China Unicom, China Telecom, Ericsson

Title: (TP to BL CR of 38.423) QoE in NR-DC

Document for: Discussions & Approval

# 1 Introduction

This paper provides the text proposal for the BL CR of 38.423, based on the discussion in R3-234421.

# 2 TP to BL CR of 38.423

<<<<<<<<<<<<<<<<<<<< First Change >>>>>>>>>>>>>>>>>>>>

## **8.3 Procedures for Dual Connectivity**

### **8.3.1 S-NG-RAN node Addition Preparation**

#### **8.3.1.1 General**

The purpose of the S-NG-RAN node Addition Preparation procedure is to request the S-NG-RAN node to allocate resources for dual connectivity operation for a specific UE.

The procedure uses UE-associated signalling.

#### **8.3.1.2 Successful Operation**



Figure 8.3.1.2-1: S-NG-RAN node Addition Preparation, successful operation

The M-NG-RAN node initiates the procedure by sending the S-NODE ADDITION REQUEST message to the S-NG-RAN node.

When the M-NG-RAN node sends the S-NODE ADDITION REQUEST message, it shall start the timer TXnDCprep.

The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *QoS Flow Level QoS Parameters* IE for each QoS flow shall follow the principles specified for the PDU Session Resource Setup procedure in TS 38.413 [5].

The S-NG-RAN node shall choose the ciphering algorithm based on the information in the *UE Security Capabilities* IE and locally configured priority list of AS encryption algorithms and apply the key indicated in the *S-NG-RAN node Security Key* IE as specified in TS 33.501 [28].

If the *TSC Traffic Characteristics* IE is included for a QoS flow in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [5].

<unchanged text omitted>

If the *CG-CandidateList* is included in the *S-NG-RAN node to M-NG-RAN node Container* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message, the M-NG-RAN node shall, if supported, use it for the purpose of CPAC.

If the *Estimated Arrival Probability* IE is contained in the *Conditional PSCell Addition Information Request* IE included in the S-NODE ADDITION REQUEST message, then the candidate target S-NG-RAN node may use the information to allocate necessary resources for the incoming CPAC procedure.

If the *S-NG-RAN node UE Slice Maximum Bit Rate* IE for a specific S-NSSAI is included in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall, if supported, store and use the received S-NG-RAN node UE Slice Maximum Bit Rate for all PDU sessions associated with the S-NSSAI for the concerned UE as defined in TS 23.501 [7].

If the QMC Initial Coordination Request IE is contained in the S-NODE ADDITION REQUEST message, the S-NG-RAN node may use it as specified in 37.340 [x], and shall, if supported, include the QMC Initial Coordination Response IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message.

If the QMC Modification Request IE is contained in the S-NODE ADDITION REQUEST message, the S-NG-RAN node may use it as specified in 37.340 [x], and shall, if supported, include the QMC Modification Response IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message.

Editor’s Note: The procedure text could be further refined. This note applies to all the new procedure text in this TP.

Editor’s Note: Whether SN Addition procedure would be used for QMC modification could be further discussed.

**Interactions with the S-NG-RAN node Reconfiguration Completion procedure:**

If the S-NG-RAN node admits at least one PDU session resource, the S-NG-RAN node shall start the timer TXnDCoverall when sending the S-NODE ADDITION REQUEST ACKNOWLEDGE message to the M-NG-RAN node except for a request for conditional configuration. The reception of the S-NODE RECONFIGURATION COMPLETE message shall stop the timer TXnDCoverall if TXnDCoverall is running.

**Interaction with the Activity Notification procedure**

Upon receiving an S-NODE ADDITION REQUEST message containing the *Desired Activity Notification Level* IE, the S-NG-RAN node shall, if supported, use this information to decide whether to trigger subsequent Activation Notification procedures according to the requested notification level.

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### **8.3.3 M-NG-RAN node initiated S-NG-RAN node Modification Preparation**

#### **8.3.3.1 General**

This procedure is used to enable an M-NG-RAN node to request an S-NG-RAN node to either modify the UE context at the S-NG-RAN node or to query the current SCG configuration for supporting delta signalling in M-NG-RAN node initiated S-NG-RAN node change, or to provide the S-RLF-related information to the S-NG-RAN node.

The procedure uses UE-associated signalling.

#### **8.3.3.2 Successful Operation**



Figure 8.3.3.2-1: M-NG-RAN node initiated S-NG-RAN node Modification Preparation, successful operation

The M-NG-RAN node initiates the procedure by sending the S-NODE MODIFICATION REQUEST message to the S-NG-RAN node.

When the M-NG-RAN node sends the S-NODE MODIFICATION REQUEST message, it shall start the timer TXnDCprep.

The S-NODE MODIFICATION REQUEST message may contain

- within the *UE Context Information* IE;

- PDU session resources to be added within the *PDU Session Resources To Be Added Item* IE;

- PDU session resources to be modified within the *PDU Session Resources To Be Modified Item* IE;

- PDU session resources to be released within the *PDU Session Resources To Be Released Item* IE;

- the *S-NG-RAN node Security Key* IE;

- the *S-NG-RAN node UE Aggregate Maximum Bit Rate* IE;

- the *M-NG-RAN node to S-NG-RAN node Container* IE;

- the *PDCP Change Indication* IE;

- the *SCG Configuration Query* IE;

- the *Requested split SRBs IE*;

- the *Requested split SRBs release* IE;

- the *Requested fast MCG recovery via SRB3 IE*;

- the *Requested fast MCG recovery via SRB3 Release* IE;

- the *Additional DRB IDs* IE;

- the *MR-DC Resource Coordination Information* IE.

If the S-NODE MODIFICATION REQUEST message contains the *Selected PLMN* IE, the S-NG-RAN node may use it for RRM purposes.

<unchanged text omitted>

If for a given QoS Flow the *Source DL Forwarding IP Address* IE is included within the *QoS Flows Mapped To DRB List* IE in the *PDU Session Resource Setup Response Info – SN terminated* IE and/or in the *PDU Session Resource Modification Response Info – SN terminated* IE contained in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message, the M-NG-RAN node shall, if supported, store this information and use it as part of its ACL functionality to identify source TNL address for data forwarding in case of subsequent handover preparation, if such ACL functionality is deployed.

If the *Management Based MDT PLMN Modification List* IE is contained in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall, if supported, overwrite any previously stored Management Based MDT PLMN List information in the UE context and use the received information to determine subsequent selection of the UE for management based MDT defined in TS 32.422 [23].

If the QMC Initial Coordination Request IE is contained in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node may use it as specified in 37.340 [x], and shall, if supported, include the QMC Initial Coordination Response IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGEmessage.

If the QMC Modification Request IE is contained in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node may use it as specified in 37.340 [x], and shall, if supported, include the QMC Modification Response IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message.

**Interactions with the S-NG-RAN node Reconfiguration Completion procedure:**

If the S-NG-RAN node admits a modification of the UE context requiring the M-NG-RAN node to report about the success of the RRC connection reconfiguration procedure, the S-NG-RAN node shall start the timer TXnDCoverall when sending the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message to the M-NG-RAN node except for a request for conditional configuration. The reception of the S-NG-RAN node RECONFIGURATION COMPLETE message shall stop the timer TXnDCoverall if TXnDCoverall is running.

**Interaction with the Activity Notification procedure**

Upon receiving an S-NODE MODIFICATION REQUEST message containing the *Desired Activity Notification Level* IE, the S-NG-RAN node shall, if supported, use this information to decide whether to trigger subsequent Activity Notification procedures, or stop or modify ongoing triggering of these procedures due to a previous request.

**Interaction with the Xn-U Address Indication procedure**

For QoS flow mapped to DRBs configured with an SN terminated bearer option and removed from the SDAP in the S-NG-RAN node the S-NG-RAN node may provides data forwarding related information in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE within the *Data Forwarding and offloading Info from source NG-RAN node* IE, in which case the M-NG-RAN node may decide to provide data forwarding addresses to the S-NG-RAN node and trigger the Xn-U Address Indication procedure as specified in TS 37.340 [8].

For QoS flow offloading from the S-NG-RAN node to the M-NG-RAN, the S-NG-RAN node may provide the data forwarding related information in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE within the *Data Forwarding and offloading Info from source NG-RAN node* IE, in which case the M-NG-RAN node may decide to provide data forwarding addresses to the S-NG-RAN node and trigger the Xn-U Address Indication procedure as specified in TS 37.340 [8].

**Interactions with the S-NG-RAN node initiated S-NG-RAN node Modification:**

If the *SN triggered* IE set to "TRUE" is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall consider that the procedure has been initiated in response to the previously initiated S-NG-RAN node initiated S-NG-RAN node Modification procedure.

**Interaction with the Path Switch Request procedure as specified in TS 38.413 [5]:**

For a split PDU session, if the *Integrity Protection Indication* IE and/or the *Confidentiality Protection Indication* IE included in the PATH SWITCH REQUEST ACKNOWLEDGE message is set to "preferred", the M-NG-RAN node may keep the current UP integrity protection and ciphering policy.

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### **8.3.4 S-NG-RAN node initiated S-NG-RAN node Modification**

#### **8.3.4.1 General**

This procedure is used by the S-NG-RAN node to modify the UE context in the S-NG-RAN node.

The procedure uses UE-associated signalling.

#### **8.3.4.2 Successful Operation**



Figure 8.3.4.2-1: S-NG-RAN node initiated S-NG-RAN node Modification, successful operation.

The S-NG-RAN node initiates the procedure by sending the S-NODE MODIFICATION REQUIRED message to the M-NG-RAN node.

When the S-NG-RAN node sends the S-NODE MODIFICATION REQUIRED message, it shall start the timer TXnDCoverall.

The S-NODE MODIFICATION REQUIRED message may contain

- the *S-NG-RAN node to M-NG-RAN node Container* IE.

- PDU session resources to be modified within the *PDU Session Resources To Be Modified Item* IE;

- PDU session resources to be released within the *PDU Session Resources To Be Released Item* IE;

- the *PDCP Change Indication* IE;

- the Spare DRB IDs IE;

- the *Required Number of DRB IDs* IE;

- the *QoS Flow Mapping Indication* IE;

- the *MR-DC Resource Coordination Information* IE.

If the M-NG-RAN node receives a S-NODE MODIFICATION REQUIRED message containing the *PDCP Change Indication* IE, the M-NG-RAN node shall act as specified in TS 37.340 [8].

<unchanged text omitted>

If the *SCG Reconfiguration Notification* IE is included in the S-NODE MODIFICATION REQUIRED message the M-NG-RAN node shall, if supported, consider the request is sent to coordinate CHO or MN-initiated CPC with SCG reconfigurations:

- If the *SCG Reconfiguration Notification* IE is set to "executed", the M-NG-RAN node shall, if supported, consider that a reconfiguration of the SCG resources using SRB3 has been executed. If the *S-NG-RAN node to M-NG-RAN node Container* IE is also included in the S-NODE MODIFICATION REQUIRED message, the M-NG-RAN node shall, if supported, consider that the received SCG configuration has already been applied in the UE and should not be forwarded to the UE.

- If the *SCG Reconfiguration Notification* IE is set to "executed-deleted", the M-NG-RAN node shall, if supported, consider that a reconfiguration with sync of the SCG resources has been executed and earlier CHO or MN-initiated CPC configuration has been deleted in the UE. If the *S-NG-RAN node to M-NG-RAN node Container* IE is also included in the S-NODE MODIFICATION REQUIRED message, the M-NG-RAN node shall, if supported, consider that the received SCG configuration has already been applied in the UE and should not be forwarded to the UE.

- If the *SCG Reconfiguration Notification* IE is set to "deleted", the M-NG-RAN node shall, if supported, consider that an earlier CHO or MN-initiated CPC configuration will be deleted in the UE when the SCG configuration provided in the *S-NG-RAN node to M-NG-RAN node Container* IE is delivered to the UE and executed.

If the QMC Initial Coordination Request IE is contained in the S-NODE MODIFICATION REQUIRED message, the M-NG-RAN node may use it to determine how to configure the management-based QoE as specified in 37.340 [x], and shall, if supported, include the QMC Initial Coordination Response IE in the S-NODE MODIFICATION CONFIRM message.

If the QMC Modification Request IE is contained in the S-NODE MODIFICATION REQUIRED message, the M-NG-RAN node may use it as specified in 37.340 [x], and shall, if supported, include the QMC Modification Response IE in the S-NODE MODIFICATION CONFIRM message.

**Interaction with the M-NG-RAN node initiated S-NG-RAN node Modification Preparation procedure:**

If applicable, as specified in TS 37.340 [8], the S-NG-RAN node may receive, after having initiated the S-NG-RAN node initiated S-NG-RAN node Modification procedure, the S-NODE MODIFICATION REQUEST message including the *measGapConfig* contained in the *CG-ConfigInfo* message as defined in TS 38.331 [10] within the *M-NG-RAN node to S-NG-RAN node Container* IE.

If applicable, the S-NG-RAN node may receive, after having initiated the S-NG-RAN node initiated S-NG-RAN node Modification procedure, the S-NODE MODIFICATION REQUEST message including the *SN triggered* IE.

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#### **9.1.2.1 S-NODE ADDITION REQUEST**

This message is sent by the M-NG-RAN node to the S-NG-RAN node to request the preparation of resources for dual connectivity operation for a specific UE.

Direction: M-NG-RAN node  S-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| UE Security Capabilities | M |  | 9.2.3.49 |  | YES | reject |
| S-NG-RAN node Security Key | M |  | 9.2.3.51 |  | YES | reject |
| S-NG-RAN node UE Aggregate Maximum Bit Rate | M |  | UE Aggregate Maximum Bit Rate9.2.3.17 | The UE Aggregate Maximum Bit Rate is split into M-NG-RAN node UE Aggregate Maximum Bit Rate and S-NG-RAN node UE Aggregate Maximum Bit Rate which are enforced by M-NG-RAN node and S-NG-RAN node respectively. | YES | reject |
| Selected PLMN | O |  | PLMN Identity9.2.2.4 | The selected PLMN of the SCG in the S-NG-RAN node. | YES | ignore |
| Mobility Restriction List | O |  | 9.2.3.53 |  | YES | ignore |
| Index to RAT/Frequency Selection Priority | O |  | 9.2.3.23 |  | YES | reject |
| **PDU Session Resources To Be Added List** |  | *1* |  |  | YES | reject |
| **>PDU Session Resources To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Info – SN terminated* IE nor the*PDU Session Resource Setup Info – MN terminated* IEis present in a *PDU Session Resources To Be Added Item* IE, abnormal conditions as specified in clause 8.3.1.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>S-NSSAI | M |  | 9.2.3.21 |  | – |  |
| >>S-NG-RAN node PDU Session Aggregate Maximum Bit Rate | O |  | PDU Session Aggregate Maximum Bit Rate9.2.3.69 |  | – |  |
| >>PDU Session Resource Setup Info – SN terminated | O |  | 9.2.1.5 |  | – |  |
| >>PDU Session Resource Setup Info – MN terminated | O |  | 9.2.1.7 |  | – |  |
| M-NG-RAN node to S-NG-RAN node Container | M |  | OCTET STRING | Includes the *CG-ConfigInfo* message as defined in subclause 11.2.2 of TS 38.331 [10] | YES | reject |
| S-NG-RAN node UE XnAP ID | O |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| Expected UE Behaviour | O |  | 9.2.3.81 |  | YES | ignore |
| Requested Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates that resources for Split SRBs are requested. | YES | reject |
| PCell ID | O |  | Global NG-RAN Cell Identity9.2.2.27 |  | YES | reject |
| Desired Activity Notification Level | O |  | 9.2.3.77 |  | YES | ignore |
| Available DRB IDs | C-ifSNterminated |  | DRB List9.2.1.29 | Indicates the list of DRB IDs that the S-NG-RAN node may use for SN-terminated bearers. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Uplink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Uplink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Uplink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. If the *S-NG-RAN node Maximum Integrity Protected Data Rate Downlink* IE is not present, this IE applies to both UL and DL. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Downlink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Downlink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Downlink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. | YES | reject |
| Location Information at S-NODE reporting | O |  | ENUMERATED (pscell, ...) | Indicates that the user’s Location Information at S-NODE is to be provided. | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| Masked IMEISV | O |  | 9.2.3.32 |  | YES | ignore |
| NE-DC TDM Pattern | O |  | 9.2.2.38 |  | YES | ignore |
| SN Addition Trigger Indication | O |  | ENUMERATED (SN change, inter-MN HO, intra-MN HO, ...) | This IE indicates the trigger for S-NG-RAN node Addition Preparation procedure | YES | reject |
| Trace Activation | O |  | 9.2.3.55 |  | YES | ignore |
| Requested Fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates that the resources for fast MCG recovery via SRB3 are requested. | YES | ignore |
| UE Radio Capability ID | O |  | 9.2.3.138 |  | YES | reject |
| Source NG-RAN Node ID | O |  | Global NG-RAN Node ID9.2.2.3 | The NG-RAN Node ID of the source NG-RAN node or the source SN. | YES | ignore |
| Management Based MDT PLMN List | O |  | MDT PLMN List9.2.3.133 |  | YES | ignore |
| UE History Information | O |  | 9.2.3.64 |  | YES | ignore |
| UE History Information from the UE | O |  | 9.2.3.110 |  | YES | ignore |
| PSCell Change History | O |  | ENUMERATED (reporting full history, ...) |  | YES | ignore |
| IAB Node Indication | O |  | ENUMERATED (true, ...) |  | YES | reject |
| No PDU Session Indication  | O |  | ENUMERATED (true, ...) | This IE applies only if the UE is an IAB-MT. | YES | ignore |
| **CHO Information SN Addition** | O |  |  |  | YES | reject |
| >Source M-NG-RAN node ID | M |  | Global NG-RAN Node ID9.2.2.3 |  | – |  |
| >Source M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the source M-NG-RAN node | – |  |
| >Estimated Arrival Probability | O |  | INTEGER (1..100) |  | – |  |
| SCG Activation Request | O |  | 9.2.3.154 |  | YES | ignore |
| **Conditional PSCell Addition Information Request** | O |  |  |  | YES | reject |
| >Maximum Number of PSCells To Prepare | M |  | INTEGER (1..8, ...) | Indicates the maximum number of PSCells that the target SN may prepare. | – |  |
| >Estimated Arrival Probability | O |  | INTEGER (1..100) | Indicates the arrival probability for the UE towards the candidate target SN. | – |  |
| S-NG-RAN node UE Slice Maximum Bit Rate | O |  | UE Slice Maximum Bit Rate List9.2.3.167 | This IE indicates the S-NG-RAN node portion of the UE Slice Aggregate Maximum Bit Rate as specified in TS 23.501 [7] | YES | reject |
| F1-terminating IAB-donor Indicator | O |  | ENUMERATED (true, ...) | This IE applies only if the UE is an IAB-MT. | YES | reject |
| QMC Initial Coordination Request | O |  | 9.2.3.x1 |  | YES | ignore |
| QMC Modification Request | O |  | 9.2.3.x3 |  | YES | ignore |

Editor’s Note: Whether QMC Modification Request IE could be included in SN addition Request message could be further discussed.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifSNterminated | This IE shall be present if there is at least one *PDU Session Resource Setup Info – SN terminated* in the *PDU Session Resources To Be Added List* IE. |

 <<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### **9.1.2.2 S-NODE ADDITION REQUEST ACKNOWLEDGE**

This message is sent by the S-NG-RAN node to confirm the M-NG-RAN node about the S-NG-RAN node addition preparation.

Direction: S-NG-RAN node  M-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| **PDU Session Resources Admitted To Be Added List** |  | *1* |  |  | YES | ignore |
| **>PDU Session Resources Admitted To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Response Info – SN terminated* IE nor the*PDU Session Resource Setup Response Info – MN terminated* IEis present in a *PDU Session Resources Admitted to be Added Item* IE, abnormal conditions as specified in clause 8.3.1.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>PDU Session Resource Setup Response Info – SN terminated | O |  | 9.2.1.6 |  | – |  |
| >>PDU Session Resource Setup Response Info – MN terminated | O |  | 9.2.1.8 |  | – |  |
| **PDU Session Resources Not Admitted List** | O |  |  |  | YES | ignore |
| >PDU Session Resources Not Admitted List – SN terminated | O |  | PDU Session Resources Not Admitted List9.2.1.3 |  | – |  |
| >PDU Session Resources Not Admitted List – MN terminated | O |  | PDU Session Resources Not Admitted List9.2.1.3 |  | – |  |
| S-NG-RAN node to M-NG-RAN node Container | M |  | OCTET STRING | Includes the *CG-Config* message or the *CG-CandidateList* message as defined in subclause 11.2.2 of TS 38.331 [10]. | YES | reject |
| Admitted Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates admitted SRBs | YES | reject |
| RRC Config Indication | O |  | 9.2.3.72 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| Location Information at S-NODE | O |  | Target Cell Global ID9.2.3.25 | Contains information to support localisation of the UE | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| Available fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates the fast MCG recovery via SRB3 is enabled. | YES | ignore |
| Direct Forwarding Path Availability | O |  | ENUMERATED (direct path available, …) | Indicates direct forwarding path is available between the target S-NG-RAN node and source NG-RAN node for intra-system handover or between the target S-NG-RAN node and the source SN.  | YES | ignore |
| SCG Activation Status | O |  | 9.2.3.155 |  | YES | ignore |
| **Conditional PSCell Addition Information Acknowledge** | O |  |  |  | YES | ignore |
| **>Candidate PSCell List** |  | *1* |  |  | – |  |
| **>>Candidate PSCell Item** |  | *1 .. <maxnoofPSCellCandidate>* |  |  | – |  |
| >>>PSCell ID | M |  | NR CGI 9.2.2.7 |  | – |  |
| QMC Initial Coordination Response | O |  | 9.2.3.x2 |  | YES | ignore |
| QMC Modification Response | O |  | 9.2.3.x4 |  | YES | ignore |

 Editor’s Note: Whether QMC Modification Response IE could be included in SN addition Request Acknowledge message could be further discussed.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |
| maxnoofPSCellCandidate | Maximum no, of PSCell candidate. Value is 8 |

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

#### **9.1.2.5 S-NODE MODIFICATION REQUEST**

This message is sent by the M-NG-RAN node to the S-NG-RAN node to either request the preparation to modify S-NG-RAN node resources for a specific UE, or to query for the current SCG configuration, or to provide the S-RLF-related information to the S-NG-RAN node.

Direction: M-NG-RAN node  S-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID 9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| Cause | M |  | 9.2.3.2 |  | YES | ignore |
| PDCP Change Indication | O |  | 9.2.3.74 |  | YES | ignore |
| Selected PLMN | O |  | PLMN Identity9.2.2.4 | The selected PLMN of the SCG in the S-NG-RAN node. | YES | ignore |
| Mobility Restriction List | O |  | 9.2.3.53 |  | YES | ignore |
| SCG Configuration Query | O |  | 9.2.3.27 |  | YES | ignore |
| **UE Context Information** |  | *0..1* |  |  | YES | reject |
| >UE Security Capabilities | O |  | 9.2.3.49 |  | – |  |
| >S-NG-RAN node Security Key | O |  | 9.2.3.51 |  | – |  |
| >S-NG-RAN node UE Aggregate Maximum Bit Rate | O |  | UE Aggregate Maximum Bit Rate9.2.3.17 |  | – |  |
| >Index to RAT/Frequency Selection Priority | O |  | 9.2.3.23 |  | – |  |
| >Lower Layer presence status change | O |  | 9.2.3.60 |  | – |  |
| **>PDU Session Resources To Be Added List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Info – SN terminated* IE nor the*PDU Session Resource Setup Info – MN terminated* IEis present in a *PDU Session Resources To Be Added Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>S-NSSAI | M |  | 9.2.3.21 |  | – |  |
| >>>S-NG-RAN node PDU Session Aggregate Maximum Bit Rate | O |  | PDU Session Aggregate Maximum Bit Rate9.2.3.69 |  | – |  |
| >>>PDU Session Resource Setup Info – SN terminated | O |  | 9.2.1.5 |  | – |  |
| >>>PDU Session Resource Setup Info – MN terminated | O |  | 9.2.1.7 |  | – |  |
| >>>PDU Session Expected UE Activity Behaviour | O |  | Expected UE Activity Behaviour9.2.3.82 | Expected UE Activity Behaviour for the PDU Session. | YES | ignore |
| **>PDU Session Resources To Be Modified List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources To Be Modified Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Modification Info – SN terminated* IE nor the*PDU Session Resource Modification Info – MN terminated* IEis present in a *PDU Session Resources To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>S-NG-RAN node PDU Session Aggregate Maximum Bit Rate | O |  | PDU Session Aggregate Maximum Bit Rate9.2.3.69 |  | – |  |
| >>>PDU Session Resource Modification Info – SN terminated | O |  | 9.2.1.9 |  | – |  |
| >>>PDU Session Resource Modification Info – MN terminated | O |  | 9.2.1.11 |  | – |  |
| >>>S-NSSAI | O |  | 9.2.3.21 |  | YES | reject |
| >>>PDU Session Expected UE Activity Behaviour | O |  | Expected UE Activity Behaviour9.2.3.82 | Expected UE Activity Behaviour for the PDU Session. | YES | ignore |
| >PDU Session Resources To Be Released List | O |  | PDU session List with Cause9.2.1.26 |  | – |  |
| M-NG-RAN node to S-NG-RAN node Container | O |  | OCTET STRING | Includes the *CG-ConfigInfo* message as defined in subclause 11.2.2. of TS 38.331 [10]. | YES | ignore |
| Requested Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates that resources for Split SRBs are requested. | YES | ignore |
| Requested Split SRBs release | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates that resources for Split SRBs are requested to be released. | YES | ignore |
| Desired Activity Notification Level | O |  | 9.2.3.77 |  | YES | ignore |
| Additional DRB IDs | O |  | DRB List9.2.1.29 | Indicates additional list of DRB IDs that the S-NG-RAN node may use for SN-terminated bearers. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Uplink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Uplink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Uplink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. If the *S-NG-RAN node Maximum Integrity Protected Data Rate Downlink* IE is not present, this IE applies to both UL and DL. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Downlink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Downlink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Downlink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. | YES | reject |
| Location Information at S-NODE reporting | O |  | ENUMERATED (pscell, ...) | Indicates that the user’s Location Information at S-NODE is to be provided. | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| PCell ID | O |  | Global NG-RAN Cell Identity9.2.2.27 |  | YES | reject |
| NE-DC TDM Pattern | O |  | 9.2.2.38 |  | YES | ignore |
| Requested Fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates that the resources for fast MCG recovery via SRB3 are requested. | YES | ignore |
| Requested Fast MCG recovery via SRB3 Release | O |  | ENUMERATED (true, ...) | Indicates that resources for fast MCG recovery via SRB3 are requested to be released. | YES | ignore |
| SN triggered | O |  | ENUMERATED (TRUE ...) |  | YES | ignore |
| Target Node ID | O |  | Global NG-RAN Node ID9.2.2.3 | Indicates the target node ID of the handover procedure decided by the M-NG-RAN node. | YES | ignore |
| PSCell History Information Retrieve | O |  | ENUMERATED (query, ...) | Indicates that the SN UE history information is requested. | YES | ignore |
| UE History Information from the UE | O |  | 9.2.3.110 |  | YES | ignore |
| **CHO Information SN Modification** | O |  |  |  | YES | ignore |
| >Conditional Reconfiguration | M |  | ENUMERATED (intra-MN-CHO, ...) |  | – |  |
| >Estimated Arrival Probability | O |  | INTEGER (1..100) |  | – |  |
| SCG Activation Request | O |  | 9.2.3.154 |  | YES | ignore |
| **Conditional PSCell Addition Information Modification Request** | O |  |  | This IE may be sent to the target SN. | YES | ignore |
| >Maximum Number of PSCells To Prepare | O |  | INTEGER (1..8, ...) | Indicates the maximum number of PSCells that the target SN may prepare. | – |  |
| >Estimated Arrival Probability | O |  | INTEGER (1..100) | Indicates the arrival probability for the UE towards the candidate target SN. |  |  |
| **Conditional PSCell Change Information Update** | O |  |  | This IE may be sent to the source SN. | YES | ignore |
| **>Multiple Target S-NG-RAN Node List** |  | *1* |  |  | – |  |
| **>>Multiple Target S-NG-RAN Node Item** |  | *1 .. <maxnoofTargetSNs>* |  |  | – |  |
| >>>Target S-NG-RAN node ID | M |  | Global NG-RAN Node ID9.2.2.3 |  | – |  |
| **>>>Candidate PSCell List** |  | *1* |  |  | – |  |
| **>>>>Candidate PSCell Item** |  | *1 .. <maxnoofPSCellCandidate>* |  |  | – |  |
| >>>>>PSCell ID | M |  | NR CGI 9.2.2.7 |  | – |  |
| S-NG-RAN node UE Slice Maximum Bit Rate | O |  | UE Slice Maximum Bit Rate List9.2.3.167 | This IE indicates the S-NG-RAN node portion of the UE Slice Aggregate Maximum Bit Rate as specified in TS 23.501 [7] | YES | ignore |
| Management Based MDT PLMN Modification List | O |  | MDT PLMN Modification List9.2.3.169 |  | YES | ignore |
| QMC Initial Coordination Request | O |  | 9.2.3.x1 |  | YES | ignore |
| QMC Modification Request | O |  | 9.2.3.x3 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |
| maxnoofPSCellCandidate | Maximum no. of PSCell candidates. Value is 8 |
| maxnoofTargetSNs | Maximum no. of the target S-NG-RAN nodes. Value is 8 |

 <<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### **9.1.2.6 S-NODE MODIFICATION REQUEST ACKNOWLEDGE**

This message is sent by the S-NG-RAN node to confirm the M-NG-RAN node’s request to modify the S-NG-RAN node resources for a specific UE.

Direction: S-NG-RAN node  M-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | ignore |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | ignore |
| **PDU Session Resources Admitted List** |  | *0..1* |  |  | YES | ignore |
| **>PDU Session Resources Admitted To Be Added List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources Admitted To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Response Info – SN terminated* IE nor the*PDU Session Resource Setup Response Info – MN terminated* IEis present in a *PDU Session Resources Admitted To Be Added Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>PDU Session Resource Setup Response Info – SN terminated | O |  | 9.2.1.6 |  | – |  |
| >>>PDU Session Resource Setup Response Info – MN terminated | O |  | 9.2.1.8 |  | – |  |
| **>PDU Session Resources Admitted To Be Modified List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources Admitted To Be Modified Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Modification Response Info – SN terminated* IE nor the*PDU Session Resource Modification Response Info – MN terminated* IEis present in a *PDU Session Resources Admitted To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>PDU Session Resource Modification Response Info – SN terminated | O |  | 9.2.1.10 |  | – |  |
| >>>PDU Session Resource Modification Response Info – MN terminated | O |  | 9.2.1.12 |  | – |  |
| **>PDU Session Resources Admitted To Be Released List** |  | *0..1* |  |  | – |  |
| >>PDU Session Resources admitted to be released List – SN terminated | O |  | PDU session List with data forwarding request info9.2.1.24 |  | – |  |
| >>PDU Session Resources admitted to be released List – MN terminated | O |  | PDU session List with data Cause9.2.1.26 |  | – |  |
| **PDU Session Resources Not Admitted to be Added List** | O |  | PDU session List9.2.1.27 |  | YES | ignore |
| S-NG-RAN node to M-NG-RAN node Container | O |  | OCTET STRING | Includes the *CG-Config* message or the *CG-CandidateList* message as defined in subclause 11.2.2 of TS 38.331 [10]. | YES | ignore |
| Admitted Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates admitted SRBs | YES | ignore |
| Admitted Split SRBs release | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates admitted SRBs release | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| Location Information at S-NODE | O |  | Target Cell Global ID9.2.3.25 | Contains information to support localisation of the UE | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| **PDU Session Resources with Data Forwarding List** |  | *0..1* |  |  | YES | ignore |
| >PDU Session Resources with Data Forwarding List – SN terminated | M |  | PDU session List with data forwarding request info9.2.1.24 |  | – |  |
| RRC Config Indication | O |  | 9.2.3.72 |  | YES | reject |
| Available fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates the fast MCG recovery via SRB3 isenabled. | YES | ignore |
| Release fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates the fast MCG recovery via SRB3 is released. | YES | ignore |
| Direct Forwarding Path Availability | O |  | ENUMERATED (direct path available,…) | Indicates direct path is available between the S-NG-RAN node and the target NG-RAN node. | YES | ignore |
| SCG UE History Information | O |  | 9.2.3.151 |  | YES | ignore |
| SCG Activation Status | O |  | 9.2.3.155 |  | YES | ignore |
| **Conditional PSCell Addition Information Modification Acknowledge** | O |  |  | This IE may be sent from the target SN. | YES | ignore |
| **>Candidate PSCell List** |  | *1* |  |  | – |  |
| **>>Candidate PSCell Item** |  | *1 .. <maxnoofPSCellCandidate>* |  |  | – |  |
| >>>PSCell ID | M |  | NR CGI 9.2.2.7 |  | – |  |
| QMC Initial Coordination Response | O |  | 9.2.3.x2 |  | YES | ignore |
| QMC Modification Response | O |  | 9.2.3.x4 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |
| maxnoofPSCellCandidate | Maximum no. of PSCell candidates. Value is 8 |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### **9.1.2.8 S-NODE MODIFICATION REQUIRED**

This message is sent by the S-NG-RAN node to the M-NG-RAN node to request the modification of S-NG-RAN node resources for a specific UE.

Direction: S-NG-RAN node  M-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| Cause | M |  | 9.2.3.2 |  | YES | ignore |
| PDCP Change Indication | O |  | 9.2.3.74 |  | YES | ignore |
| **PDU Session Resources To Be Modified List** |  | *0..1* |  |  | YES | ignore |
| **>PDU Session Resources To Be Modified Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Modification Required Info – SN terminated* IE nor the*PDU Session Resource Modification Required Info – MN terminated* IEis present in a *PDU Session Resources To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.4.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>PDU Session Resource Modification Required Info – SN terminated | O |  | 9.2.1.20 |  | – |  |
| >>PDU Session Resource Modification Required Info – MN terminated | O |  | 9.2.1.22 |  | – |  |
| **PDU Session Resources To Be Released List** |  | *0..1* |  |  | YES | ignore |
| **>PDU Session Resources To Be Released Item** |  | *1 .. <maxnoofPDUSessions>* |  |  | – |  |
| >PDU sessions to be released List – SN terminated | O |  | PDU session List with data forwarding request info9.2.1.24 |  | – |  |
| >PDU sessions to be released List – MN terminated | O |  | PDU session List with Cause9.2.1.26 |  | – |  |
| S-NG-RAN node to M-NG-RAN node Container | O |  | OCTET STRING | Includes the *CG-Config* message or the *CG-CandidateList* message as defined in subclause 11.2.2 of TS 38.331 [10]. | YES | ignore |
| Spare DRB IDs | O |  | DRB List9.2.1.29 | Indicates the list of unnecessary DRB IDs that had been used by the S-NG-RAN node. | YES | ignore |
| Required Number of DRB IDs | O |  | Number of DRBs9.2.3.78 | Indicates the number of DRB IDs that the S-NG-RAN node requests more. | YES | ignore |
| Location Information at S-NODE | O |  | Target Cell Global ID9.2.3.25 | Contains information to support localisation of the UE | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| RRC Config Indication | O |  | 9.2.3.72 |  | YES | reject |
| SCG Indicator | O |  | ENUMERATED(released,...) |  | YES | ignore |
| SCG UE History Information | O |  | 9.2.3.151 |  | Yes | ignore |
| SCG Activation Request | O |  | 9.2.3.154 |  | YES | ignore |
| **CPAC Information Required** | O |  |  | This IE may be sent from the target SN. | YES | ignore |
| **>Candidate PSCell List** |  | *1* |  | Indicates the full list of candidate PSCells prepared at the target S-NG-RAN node. | – |  |
| **>>Candidate PSCell Item** |  | *1 .. <maxnoofPSCellCandidate>* |  |  | – |  |
| >>>PSCell ID | M |  | NR CGI 9.2.2.7 |  | – |  |
| SCG Reconfiguration Notification | O |  | ENUMERATED (executed, ..., executed-deleted, deleted) |  | YES | ignore |
| QMC Initial Coordination Request | O |  | 9.2.3.x1 |  | YES | ignore |
| QMC Modification Request | O |  | 9.2.3.x3 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |
| maxnoofPSCellCandidate | Maximum no, of PSCell candidate. Value is 8 |

 <<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.1.2.9 S-NODE MODIFICATION CONFIRM

This message is sent by the M-NG-RAN node to inform the S-NG-RAN node about the successful modification.

Direction: M-NG-RAN node  S-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | ignore |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | ignore |
| **PDU sessions Admitted To Be Modified List** |  | *0..1* |  |  | YES | ignore |
| **>PDU sessions Admitted To Be Modified Item** |  | *1 .. <maxnoofPDUsessions>* |  | NOTE: If neither the *PDU Session Resource Modification Confirm Info – SN terminated* IE nor the*PDU Session Resource Modification Confirm Info – MN terminated* IEis present in a *PDU Session Resources Admitted To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.4.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>PDU Session Resource Modification Confirm Info – SN terminated | O |  | 9.2.1.21 |  | – |  |
| >>PDU Session Resource Modification Confirm Info – MN terminated | O |  | 9.2.1.23 |  | – |  |
| **PDU sessions Released List** |  | *0..1* |  |  | YES | ignore |
| >PDU sessions released List – SN terminated | O |  | PDU Session List with data forwarding info from the target node9.2.1.25 |  | – |  |
| >PDU sessions released List – MN terminated | O |  | PDU session List9.2.1.27 |  | – |  |
| M-NG-RAN node to S-NG-RAN node Container  | O |  | OCTET STRING | Includes the *RRCReconfigurationComplete* message as defined in subclause 6.2.2 of TS 38.331 [10] or the *RRCConnectionReconfigurationComplete* message as defined in subclause 6.2.2 of TS 36.331 [14]. | YES | ignore |
| Additional DRB IDs | O |  | DRB List9.2.1.29 | Indicates additional list of DRB IDs that the S-NG-RAN node may use for SN-terminated bearers. | YES | reject |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| QMC Initial Coordination Response | O |  | 9.2.3.x2 |  | YES | ignore |
| QMC Modification Response | O |  | 9.2.3.x4 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

**9.1.2.20 RRC TRANSFER**

This message is sent by the M-NG-RAN-NODE to the S-NG-RAN-NODE to transfer an RRC message or from the S-NG-RAN-NODE to the M-NG-RAN-NODE to report the DL RRC message delivery status.

This message is also sent by the new NG-RAN-NODE to the old NG-RAN-NODE or from the old NG-RAN-NODE to the new NG-RAN-NODE to transfer an RRC message containing the SDT SRB in case of RACH based SDT without UE context relocation.

This message is also sent by the M-NG-RAN-NODE to the S-NG-RAN node or from the S-NG-RAN node to the M-NG-RAN node to forward the RAN visible QoE results received from the UE.

Direction: M-NG-RAN node  S-NG-RAN node or S-NG-RAN node  M-NG-RAN node (Dual Connectivity).

Direction: new NG-RAN node  old NG-RAN node or old NG-RAN node  new NG-RAN node (SDT).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| **Split SRB** |  | *0..1* |  |  | YES | reject |
| >RRC Container | O |  | OCTET STRING | Contains a PDCP-C PDU encapsulating an RRC message as defined in subclause 6.2.1 of TS 38.331 [10] or TS 36.331 [14] and ciphered with the key of the M-NG-RAN node | – |  |
| >SRB Type | M |  | ENUMERATED (srb1, srb2, ...) | The SRB type to be used | – |  |
| >Delivery Status | O |  | 9.2.3.45 | DL RRC delivery status of split SRB | – |  |
| **UE Report** |  | *0..1* |  |  | YES | reject |
| >RRC Container | M |  | OCTET STRING | For NGEN-DC and NR-DC, includes the *UL-DCCH-Message* as defined in subclause 6.2.1 of TS 38.331 [10] containing the *MeasurementReport* message or the *RRCReconfigurationComplete message* or the *FailureInformation*message or the *UEAssistanceInformation* message. For NR-DC, includes the UL-DCCH-Message as defined in subclause 6.2.1 of TS 38.331 [10] containing the *IABOtherInformation* message.For NE-DC, includes the *UL-DCCH-Message* as defined in subclause 6.2.1 of TS 36.331 [14] containing the *MeasurementReport* message. | – |  |
| **Fast MCG Recovery via SRB3 from SN to MN** |  | *0..1* |  |  | YES | ignore |
| >RRC Container | M |  | OCTET STRING | For NR-DC, includes the *UL-DCCH-Message* as defined in subclause 6.2.1 of TS 38.331 [10] containing the *MCGFailureInformation*, message.For NGEN-DC, includes the *UL-DCCH-Message* as defined in subclause 6.2.1 of TS 36.331 [14] containing the *MCGFailureInformation* message. | – |  |
| **Fast MCG Recovery via SRB3 from MN to SN** |  | *0..1* |  |  | YES | ignore |
| >RRC Container | M |  | OCTET STRING | For NR-DC, includes the *DL-DCCH-Message* as defined in subclause 6.2.1 of TS 38.331 [10] containing the *RRCReconfiguration* message, or the *RRCRelease* message, or the *MobilityFromNRCommand message*.For NGEN-DC, includes the *DL-DCCH-Message* as defined in subclause 6.2.1 of TS 36.331 [14] containing the *RRCConnectionReconfiguration* message, or the *RRCConnectionRelease* message, or the *MobilityFromEUTRACommand*message. | – |  |
| **SDT SRB between New NG-RAN node and Old NG-RAN node** |  | *0..1* |  |  | YES | ignore |
| >RRC Container | M |  | OCTET STRING | Contains a PDCP-C PDU encapsulating an RRC message as defined in subclause 6.2.1 of TS 38.331 [10]. | – |  |
| >SRB ID | M |  | 9.2.3.165 | In this version of the specification, values "0", "1", "3", and "4" are not set by the sender and ignored by the receiver. | – |  |
| **RVQoE measurement report** |  | *0..1* |  |  | YES | ignore |
| >RRC Container | M |  | OCTET STRING | Contains RVQoE meassurement results in the RAN-VisibleMeasurements IE of the *MeasurementReportAppLayer* message as defined in 38.331 [FFS] | - |  |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### **9.2.3.x1 QMC Initial Coordination Request**

This IE contains the information that the S-NG-RAN node needs to provide to the M-NG-RAN node or the M-NG-RAN node needs to provide to the S-NG-RAN node, for managing configuration and reporting of one or more QoE and/or RAN visible QoE measurements.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **QMC Configuration List** |  |  |  |  |
| **>QMC Configuration List Item** |  |  | *1..<maxnoofUEAppLayerMeas>* |  |
| >>QoE Reference | M |  | OCTET STRING (SIZE(6)) |  |
| >>Measurement Configuration Application Layer ID | O |  | INTEGER (0..15, ...) | This IE could only be sent by the MN. |
| >>Measurement Collection Entity IP Address | O |  | Transport Layer Address9.2.3.29 | The IP address of the entity receiving the QoE measurement report.  |
| >>QoE Configuration Sending Request | O |  | ENUMERATED (true,...) | This IE could only be sent by the SN. |
| >>QoE Reporting Option Preference | O |  | ENUMERATED (SRB4, SRB5[FFS], ...) | FFS whether this IE can only be sent by the SN. |
| >>RVQoE Reporting Option Request | O |  | ENUMERATED (SRB4,…) | This IE could only be sent by the SN. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofUEAppLayerMeas | Maximum no. of simultaneous QoE measurement configurations at a UE. In this version of the specification, the value is 16. |

 Editor’s Note: Whether to also include QoE configuration container in the IE is FFS.

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### **9.2.3.x2 QMC Initial Coordination Response**

This IE contains the information that the M-NG-RAN node needs to provide in response to the S-NG-RAN node or the S-NG-RAN node needs to provide in response to the M-NG-RAN node, for the QMC initial coordination.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **QMC Response List** |  |  |  |  |
| **>QMC Response List Item** |  |  | *1..<maxnoofUEAppLayerMeas>* |  |
| >>QoE Reference | M |  | OCTET STRING (SIZE(6)) |  |
| >>Measurement Configuration Application Layer ID | O |  | INTEGER (0..15, ...) |  |
| >>QoE Configuration Sending Option Response | O |  | ENUMERATED (MN, SN, …). | This IE could only be sent by the MN. |
| >>QoE Reporting Option  | O |  | ENUMERATED (SRB4, SRB5, …) |  |
| >>RVQoE Reporting Option Response | O |  | ENUERATED (SRB4, …) | This IE could only be sent by the MN. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofUEAppLayerMeas | Maximum no. of simultaneous QoE measurement configurations at a UE. In this version of the specification, the value is 16. |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### **9.2.3.x3 QMC Modification Request**

This IE indicates the information needed for an M-NG-RAN node or an S-NG-RAN node to request the modification of QoE and/or RVQoE configuration and reporting.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **QMC Modification Request List** |  |  |  |  |
| **>QMC Modification Request Item** |  |  | *1..<maxnoofUEAppLayerMeas>* |  |
| >>QoE Reference | M |  | OCTET STRING (SIZE(6)) |  |
| >>Measurement Configuration Application Layer ID | O |  | INTEGER (0..15, ...) | This IE could only be sent by the MN. |
| >>Measurement Collection Entity IP Address | O |  | Transport Layer Address9.2.3.29 |  |
| >>QoE Reporting Modification Request  | O |  | ENUMERATED (true, …) | This IE indicates the request to switch the SRB for receiving QoE reports.  |
|  |  |  |  |  |
| >>RAN Visible QoE Reporting Modification Request [FFS] | O |  | ENUMERATED (true, …) | This IE indicates a request for the receiving node provides a bearer for the application session pertaining to the indicated QoE Reference. |
|  |  |  |  |  |
|  |  |  |  |  |
| >> Available RAN Visible QoE Metrics | O |  | 9.2.3.158 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofUEAppLayerMeas | Maximum no. of simultaneous QoE measurement configurations at a UE. In this version of the specification, the value is 16. |

#### **9.2.3.x4 QMC Modification Response**

This IE contains the information that the S-NG-RAN node or the M-NG-RAN node needs to provide in the response to the QMC modification request.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **QMC Modification Response List** |  |  |  |  |
| **>QMC Modification Response Item** |  |  | *1..<maxnoofUEAppLayerMeas>* |  |
| >>QoE Reference | M |  | OCTET STRING (SIZE(6)) |  |
| >>QoE Reporting Modification response | O |  | ENUMARATED (accepted, rejected…) |  |
| >>RVQoE Reporting Modification response | O |  | ENUMARATED (accepted, rejected,…) | FFS whether the code points should be refined, to reflect the agreement about the response from non-RVQoE configuring node. |
| >>RAN Visible QoE Configuration Preference | O |  | 9.2.3.x5 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofUEAppLayerMeas | Maximum no. of simultaneous QoE measurement configurations at a UE. In this version of the specification, the value is 16. |

#### **9.2.3.x5 RAN visible QoE configuration**

This IE provides information of RAN visible QoE configuration.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Available RAN visible QoE Metrics | O |  | 9.2.3.158 | FFS whether number of entries related to buffer level is to be added. |
| Reporting periodicity | O |  | ENUMERATED (ms120, ms240, ms480, ms640, ms1024) |  |
| Event trigger[FFS] | O |  |  |  |

<<<<<<<<<<<<<<<<<<<< Next Changes >>>>>>>>>>>>>>>>>>>>

9.3.4 PDU Definitions

-- ASN1START

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

--

-- PDU definitions for XnAP.

--

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

XnAP-PDU-Contents {

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

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

 ActivationIDforCellActivation,

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

 SRB-ID,

 AdditionalListofPDUSessionResourceChangeConfirmInfo-SNterminated,

 HashedUEIdentityIndexValue,

 SNInitiatedQMCCoordinationRequest,

 SNInitiatedQMCCoordinationResponse,

 QMCModificationRequest,

 QMCModificationReponse,

FROM XnAP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-ContainerPairList{},

 ProtocolIE-Single-Container{},

 XNAP-PRIVATE-IES,

 XNAP-PROTOCOL-EXTENSION,

 XNAP-PROTOCOL-IES,

 XNAP-PROTOCOL-IES-PAIR

FROM XnAP-Containers

 id-ActivatedServedCells,

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

 id-S-NG-RANnodeUE-Slice-MBR,

 id-ManagementBasedMDTPLMNModificationList,

 id-F1-terminatingIAB-donorIndicator,

 id-AdditionalListofPDUSessionResourceChangeConfirmInfo-SNterminated,

 id-HashedUEIdentityIndexValue,

 id-SNInitiatedQMCCoordinationRequest,

 id-SNInitiatedQMCCoordinationResponse,

 id-QMCModificationRequest,

 id-QMCModificationReponse,

 maxnoofCellsinNG-RANnode,

 maxnoofDRBs,

 maxnoofPDUSessions,

 maxnoofQoSFlows,

 maxnoofServedCellsIAB,

 maxnoofTrafficIndexEntries,

 maxnoofTLAsIAB,

 maxnoofBAPControlPDURLCCHs,

 maxnoofServingCells

<unchanged text omitted>

-- S-NODE ADDITION REQUEST

--

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

SNodeAdditionRequest ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeAdditionRequest-IEs}},

 ...

}

SNodeAdditionRequest-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-UESecurityCapabilities CRITICALITY reject TYPE UESecurityCapabilities PRESENCE mandatory}|

 { ID id-s-ng-RANnode-SecurityKey CRITICALITY reject TYPE S-NG-RANnode-SecurityKey PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUE-AMBR CRITICALITY reject TYPE UEAggregateMaximumBitRate PRESENCE mandatory}|

 { ID id-selectedPLMN CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|

 { ID id-MobilityRestrictionList CRITICALITY ignore TYPE MobilityRestrictionList PRESENCE optional }|

 { ID id-indexToRatFrequSelectionPriority CRITICALITY reject TYPE RFSP-Index PRESENCE optional }|

 { ID id-PDUSessionToBeAddedAddReq CRITICALITY reject TYPE PDUSessionToBeAddedAddReq PRESENCE mandatory}|

 { ID id-MN-to-SN-Container CRITICALITY reject TYPE OCTET STRING PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE optional }|

 { ID id-ExpectedUEBehaviour CRITICALITY ignore TYPE ExpectedUEBehaviour PRESENCE optional }|

 { ID id-requestedSplitSRB CRITICALITY reject TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-PCellID CRITICALITY reject TYPE GlobalNG-RANCell-ID PRESENCE optional }|

 { ID id-DesiredActNotificationLevel CRITICALITY ignore TYPE DesiredActNotificationLevel PRESENCE optional }|

 { ID id-AvailableDRBIDs CRITICALITY reject TYPE DRB-List PRESENCE conditional}

 -- The IE shall be present if there is at least one PDUSessionResourceSetupInfo-SNterminated included --|

 { ID id-S-NG-RANnodeMaxIPDataRate-UL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-S-NG-RANnodeMaxIPDataRate-DL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-LocationInformationSNReporting CRITICALITY ignore TYPE LocationInformationSNReporting PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-MaskedIMEISV CRITICALITY ignore TYPE MaskedIMEISV PRESENCE optional }|

 { ID id-NE-DC-TDM-Pattern CRITICALITY ignore TYPE NE-DC-TDM-Pattern PRESENCE optional }|

 { ID id-S-NG-RANnode-Addition-Trigger-Ind CRITICALITY reject TYPE S-NG-RANnode-Addition-Trigger-Ind PRESENCE optional }|

 { ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional }|

 { ID id-RequestedFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE RequestedFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-UERadioCapabilityID CRITICALITY reject TYPE UERadioCapabilityID PRESENCE optional }|

 { ID id-SourceNG-RAN-node-ID CRITICALITY ignore TYPE GlobalNG-RANNode-ID PRESENCE optional }|

 { ID id-ManagementBasedMDTPLMNList CRITICALITY ignore TYPE MDTPLMNList PRESENCE optional }|

 { ID id-UEHistoryInformation CRITICALITY ignore TYPE UEHistoryInformation PRESENCE optional }|

 { ID id-UEHistoryInformationFromTheUE CRITICALITY ignore TYPE UEHistoryInformationFromTheUE PRESENCE optional }|

 { ID id-PSCellChangeHistory CRITICALITY ignore TYPE PSCellChangeHistory PRESENCE optional }|

 { ID id-IABNodeIndication CRITICALITY reject TYPE IABNodeIndication PRESENCE optional }|

 { ID id-NoPDUSessionIndication CRITICALITY ignore TYPE NoPDUSessionIndication PRESENCE optional }|

 { ID id-CHOinformation-AddReq CRITICALITY reject TYPE CHOinformation-AddReq PRESENCE optional }|

 { ID id-SCGActivationRequest CRITICALITY ignore TYPE SCGActivationRequest PRESENCE optional }|

 { ID id-CPAInformationRequest CRITICALITY reject TYPE CPAInformationRequest PRESENCE optional }|

 { ID id-S-NG-RANnodeUE-Slice-MBR CRITICALITY reject TYPE UESliceMaximumBitRateList PRESENCE optional }|

 { ID id-F1-terminatingIAB-donorIndicator CRITICALITY reject TYPE F1-terminatingIAB-donorIndicator PRESENCE optional }|

 { ID id-QMCModificationRequest CRITICALITY ignore TYPE QMCModificationRequest PRESENCE optional },

 ...

}

<unchanged text omitted>

-- S-NODE ADDITION REQUEST ACKNOWLEDGE

--

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

SNodeAdditionRequestAcknowledge ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeAdditionRequestAcknowledge-IEs}},

 ...

}

SNodeAdditionRequestAcknowledge-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-PDUSessionAdmittedAddedAddReqAck CRITICALITY ignore TYPE PDUSessionAdmittedAddedAddReqAck PRESENCE mandatory}|

 { ID id-PDUSessionNotAdmittedAddReqAck CRITICALITY ignore TYPE PDUSessionNotAdmittedAddReqAck PRESENCE optional }|

 { ID id-SN-to-MN-Container CRITICALITY reject TYPE OCTET STRING PRESENCE mandatory}|

 { ID id-admittedSplitSRB CRITICALITY reject TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-RRCConfigIndication CRITICALITY reject TYPE RRCConfigIndication PRESENCE optional }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

 { ID id-LocationInformationSN CRITICALITY ignore TYPE Target-CGI PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-AvailableFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE AvailableFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-DirectForwardingPathAvailability CRITICALITY ignore TYPE DirectForwardingPathAvailability PRESENCE optional }|

 { ID id-SCGActivationStatus CRITICALITY ignore TYPE SCGActivationStatus PRESENCE optional }|

 { ID id-CPAInformationAck CRITICALITY ignore TYPE CPAInformationAck PRESENCE optional }|

{ ID id-QMCModificationResponse CRITICALITY ignore TYPE QMCModificationResponse PRESENCE optional },

 ...

}

<unchanged text omitted>

-- S-NODE MODIFICATION REQUEST

--

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

SNodeModificationRequest ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationRequest-IEs}},

 ...

}

SNodeModificationRequest-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory}|

 { ID id-PDCPChangeIndication CRITICALITY ignore TYPE PDCPChangeIndication PRESENCE optional }|

 { ID id-selectedPLMN CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|

 { ID id-MobilityRestrictionList CRITICALITY ignore TYPE MobilityRestrictionList PRESENCE optional }|

 { ID id-SCGConfigurationQuery CRITICALITY ignore TYPE SCGConfigurationQuery PRESENCE optional }|

 { ID id-UEContextInfo-SNModRequest CRITICALITY reject TYPE UEContextInfo-SNModRequest PRESENCE optional }|

 { ID id-MN-to-SN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-requestedSplitSRB CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-requestedSplitSRBrelease CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-DesiredActNotificationLevel CRITICALITY ignore TYPE DesiredActNotificationLevel PRESENCE optional }|

 { ID id-AdditionalDRBIDs CRITICALITY reject TYPE DRB-List PRESENCE optional }|

 { ID id-S-NG-RANnodeMaxIPDataRate-UL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-S-NG-RANnodeMaxIPDataRate-DL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-LocationInformationSNReporting CRITICALITY ignore TYPE LocationInformationSNReporting PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-PCellID CRITICALITY reject TYPE GlobalNG-RANCell-ID PRESENCE optional }|

 { ID id-NE-DC-TDM-Pattern CRITICALITY ignore TYPE NE-DC-TDM-Pattern PRESENCE optional }|

 { ID id-RequestedFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE RequestedFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-RequestedFastMCGRecoveryViaSRB3Release CRITICALITY ignore TYPE RequestedFastMCGRecoveryViaSRB3Release PRESENCE optional }|

 { ID id-SNTriggered CRITICALITY ignore TYPE SNTriggered PRESENCE optional }|

 { ID id-TargetNodeID CRITICALITY ignore TYPE GlobalNG-RANNode-ID PRESENCE optional }|

 { ID id-PSCellHistoryInformationRetrieve CRITICALITY ignore TYPE PSCellHistoryInformationRetrieve PRESENCE optional }|

 { ID id-UEHistoryInformationFromTheUE CRITICALITY ignore TYPE UEHistoryInformationFromTheUE PRESENCE optional }|

 { ID id-CHOinformation-ModReq CRITICALITY ignore TYPE CHOinformation-ModReq PRESENCE optional }|

 { ID id-SCGActivationRequest CRITICALITY ignore TYPE SCGActivationRequest PRESENCE optional }|

 { ID id-CPAInformationModReq CRITICALITY ignore TYPE CPAInformationModReq PRESENCE optional }|

 { ID id-CPCInformationUpdate CRITICALITY ignore TYPE CPCInformationUpdate PRESENCE optional }|

 { ID id-S-NG-RANnodeUE-Slice-MBR CRITICALITY ignore TYPE UESliceMaximumBitRateList PRESENCE optional }|

 { ID id-ManagementBasedMDTPLMNModificationList CRITICALITY ignore TYPE MDTPLMNModificationList PRESENCE optional }|

 { ID id-QMCModificationRequest CRITICALITY ignore TYPE QMCModificationRequest PRESENCE optional },

 ...

}

<unchanged text omitted>

-- S-NODE MODIFICATION REQUEST ACKNOWLEDGE

--

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

SNodeModificationRequestAcknowledge ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationRequestAcknowledge-IEs}},

 ...

}

SNodeModificationRequestAcknowledge-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-PDUSessionAdmitted-SNModResponse CRITICALITY ignore TYPE PDUSessionAdmitted-SNModResponse PRESENCE optional }|

 { ID id-PDUSessionNotAdmitted-SNModResponse CRITICALITY ignore TYPE PDUSessionNotAdmitted-SNModResponse PRESENCE optional }|

 { ID id-SN-to-MN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-admittedSplitSRB CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-admittedSplitSRBrelease CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

 { ID id-LocationInformationSN CRITICALITY ignore TYPE Target-CGI PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-PDUSessionDataForwarding-SNModResponse CRITICALITY ignore TYPE PDUSessionDataForwarding-SNModResponse PRESENCE optional }|

 { ID id-RRCConfigIndication CRITICALITY reject TYPE RRCConfigIndication PRESENCE optional }|

 { ID id-AvailableFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE AvailableFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-ReleaseFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE ReleaseFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-DirectForwardingPathAvailability CRITICALITY ignore TYPE DirectForwardingPathAvailability PRESENCE optional }|

 { ID id-SCGUEHistoryInformation CRITICALITY ignore TYPE SCGUEHistoryInformation PRESENCE optional }|

 { ID id-SCGActivationStatus CRITICALITY ignore TYPE SCGActivationStatus PRESENCE optional }|

 { ID id-CPAInformationModReqAck CRITICALITY ignore TYPE CPAInformationModReqAck PRESENCE optional }|

{ ID id-QMCModificationResponse CRITICALITY ignore TYPE QMCModificationResponse PRESENCE optional },

 ...

}

<unchanged text omitted>

-- S-NODE MODIFICATION REQUIRED

--

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

SNodeModificationRequired ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationRequired-IEs}},

 ...

}

SNodeModificationRequired-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory}|

 { ID id-PDCPChangeIndication CRITICALITY ignore TYPE PDCPChangeIndication PRESENCE optional }|

 { ID id-PDUSessionToBeModifiedSNModRequired CRITICALITY ignore TYPE PDUSessionToBeModifiedSNModRequired PRESENCE optional }|

 { ID id-PDUSessionToBeReleasedSNModRequired CRITICALITY ignore TYPE PDUSessionToBeReleasedSNModRequired PRESENCE optional }|

 { ID id-SN-to-MN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-SpareDRBIDs CRITICALITY ignore TYPE DRB-List PRESENCE optional }|

 { ID id-RequiredNumberOfDRBIDs CRITICALITY ignore TYPE DRB-Number PRESENCE optional }|

 { ID id-LocationInformationSN CRITICALITY ignore TYPE Target-CGI PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-RRCConfigIndication CRITICALITY reject TYPE RRCConfigIndication PRESENCE optional }|

 { ID id-AvailableFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE AvailableFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-ReleaseFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE ReleaseFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-SCGIndicator CRITICALITY ignore TYPE SCGIndicator PRESENCE optional }|

 { ID id-SCGUEHistoryInformation CRITICALITY ignore TYPE SCGUEHistoryInformation PRESENCE optional }|

 { ID id-SCGActivationRequest CRITICALITY ignore TYPE SCGActivationRequest PRESENCE optional }|

 { ID id-CPACInformationModRequired CRITICALITY ignore TYPE CPACInformationModRequired PRESENCE optional }|

 { ID id-SCGreconfigNotification CRITICALITY ignore TYPE SCGreconfigNotification PRESENCE optional }|

{ ID id-SNInitiatedQMCCoordinationRequest CRITICALITY ignore TYPE SNInitiatedQMCCoordinationRequest PRESENCE optional }|

 { ID id-QMCModificationRequest CRITICALITY ignore TYPE QMCModificationRequest PRESENCE optional },

 ...

}

<unchanged text omitted>

-- S-NODE MODIFICATION CONFIRM

--

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

SNodeModificationConfirm ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationConfirm-IEs}},

 ...

}

SNodeModificationConfirm-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-PDUSessionAdmittedModSNModConfirm CRITICALITY ignore TYPE PDUSessionAdmittedModSNModConfirm PRESENCE optional }|

 { ID id-PDUSessionReleasedSNModConfirm CRITICALITY ignore TYPE PDUSessionReleasedSNModConfirm PRESENCE optional }|

 { ID id-MN-to-SN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-AdditionalDRBIDs CRITICALITY reject TYPE DRB-List PRESENCE optional }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

{ ID id-SNInitiatedQMCCoordinationResponse CRITICALITY ignore TYPE SNInitiatedQMCCoordinationResponse PRESENCE optional }|

{ ID id-QMCModificationResponse CRITICALITY ignore TYPE QMCModificationResponse PRESENCE optional },

 ...

}

-------------------------------------------Next change-------------------------------------------

9.3.5 Information Element definitions

-- ASN1START

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

--

-- Information Element Definitions

--

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

XnAP-IEs {

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

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

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 id-CNTypeRestrictionsForEquivalent,

 id-CNTypeRestrictionsForServing,

 id-Additional-UL-NG-U-TNLatUPF-List,

 id-ConfiguredTACIndication,

 id-AlternativeQoSParaSetList,

 id-CurrentQoSParaSetIndex,

 id-DefaultDRB-Allowed,

 id-DLCarrierList,

 id-EndpointIPAddressAndPort,

 id-ExtendedReportIntervalMDT,

 id-ExtendedTAISliceSupportList,

 id-FiveGCMobilityRestrictionListContainer,

 id-SecondarydataForwardingInfoFromTarget-List,

 id-LastE-UTRANPLMNIdentity,

 id-IntendedTDD-DL-ULConfiguration-NR,

 id-MaxIPrate-DL,

 id-SecurityResult,

 id-OldQoSFlowMap-ULendmarkerexpected,

 id-PDUSessionCommonNetworkInstance,

 id-PDUSession-PairID,

 id-BPLMN-ID-Info-EUTRA,

 id-BPLMN-ID-Info-NR,

 id-DRBsNotAdmittedSetupModifyList,

 id-Secondary-MN-Xn-U-TNLInfoatM,

 id-ULForwardingProposal,

 id-DRB-IDs-takenintouse,

 id-SplitSessionIndicator,

 id-NonGBRResources-Offered,

 id-MDT-Configuration,

 id-TraceCollectionEntityURI,

 id-NPN-Broadcast-Information,

 id-NPNPagingAssistanceInformation,

 id-NPNMobilityInformation,

 id-NPN-Support,

 id-LTEUESidelinkAggregateMaximumBitRate,

 id-NRUESidelinkAggregateMaximumBitRate,

 id-ExtendedRATRestrictionInformation,

 id-QoSMonitoringRequest,

 id-QoSMonitoringDisabled,

 id-QosMonitoringReportingFrequency,

 id-DAPSRequestInfo,

 id-OffsetOfNbiotChannelNumberToDL-EARFCN,

 id-OffsetOfNbiotChannelNumberToUL-EARFCN,

 id-NBIoT-UL-DL-AlignmentOffset,

 id-TDDULDLConfigurationCommonNR,

 id-CarrierList,

 id-ULCarrierList,

 id-FrequencyShift7p5khz,

 id-SSB-PositionsInBurst,

 id-NRCellPRACHConfig,

 id-Redundant-UL-NG-U-TNLatUPF,

 id-Redundant-DL-NG-U-TNLatNG-RAN,

 id-CNPacketDelayBudgetDownlink,

 id-CNPacketDelayBudgetUplink,

 id-ExtendedPacketDelayBudget,

 id-Additional-Redundant-UL-NG-U-TNLatUPF-List,

 id-RedundantCommonNetworkInstance,

 id-TSCTrafficCharacteristics,

 id-RedundantQoSFlowIndicator,

 id-Additional-PDCP-Duplication-TNL-List,

 id-RedundantPDUSessionInformation,

 id-UsedRSNInformation,

 id-RLCDuplicationInformation,

 id-CSI-RSTransmissionIndication,

 id-UERadioCapabilityID,

 id-secondary-SN-UL-PDCP-UP-TNLInfo,

 id-pdcpDuplicationConfiguration,

 id-duplicationActivation,

 id-NPRACHConfiguration,

 id-QoSFlowsMappedtoDRB-SetupResponse-MNterminated,

 id-DL-scheduling-PDCCH-CCE-usage,

 id-UL-scheduling-PDCCH-CCE-usage,

 id-SFN-Offset,

 id-QoS-Mapping-Information,

 id-AdditionLocationInformation,

 id-dataForwardingInfoFromTargetE-UTRANnode,

 id-Cause,

 id-SecurityIndication,

 id-RRCConnReestab-Indicator,

 id-SourceDLForwardingIPAddress,

 id-SourceNodeDLForwardingIPAddress,

 id-M4ReportAmount,

 id-M5ReportAmount,

 id-M6ReportAmount,

 id-M7ReportAmount,

 id-BeamMeasurementIndicationM1,

 id-Supported-MBS-FSA-ID-List,

 id-MBS-SessionAssociatedInformation,

 id-MBS-SessionInformation-List,

 id-SliceRadioResourceStatus-List,

 id-CompositeAvailableCapacitySupplementaryUplink,

 id-SSBOffsets-List,

 id-NG-RANnode2SSBOffsetsModificationRange,

 id-NR-U-Channel-List,

 id-NR-U-ChannelInfo-List,

 id-MIMOPRBusageInformation,

 id-UEAssistantIdentifier,

 id-IAB-MT-Cell-List,

 id-NoPDUSessionIndication,

 id-permutation,

 id-UL-GNB-DU-Cell-Resource-Configuration,

 id-DL-GNB-DU-Cell-Resource-Configuration,

 id-tdd-GNB-DU-Cell-Resource-Configuration,

 id-Additional-Measurement-Timing-Configuration-List,

 id-SurvivalTime,

 id-Local-NG-RAN-Node-Identifier,

 id-Neighbour-NG-RAN-Node-List,

 id-FiveGProSeUEPC5AggregateMaximumBitRate,

 id-Redcap-Bcast-Information,

 id-UESliceMaximumBitRateList,

 id-PositioningInformation,

 id-ServedCellSpecificInfoReq-NR,

 id-TAINSAGSupportList,

 id-earlyMeasurement,

 id-BeamMeasurementsReportConfiguration,

 id-CoverageModificationCause,

 id-UERLFReportContainerLTEExtension,

 id-ExcessPacketDelayThresholdConfiguration,

 maxEARFCN,

 maxnoofAllowedAreas,

 maxnoofAMFRegions,

 maxnoofAoIs,

 maxnoofBPLMNs,

 maxnoofCAGs,

 maxnoofCAGsperPLMN,

 maxnoofCellsinAoI,

 maxnoofCellsinNG-RANnode,

 maxnoofCellsinRNA,

 maxnoofCellsinUEHistoryInfo,

 maxnoofCellsUEMovingTrajectory,

 maxnoofDRBs,

 maxnoofEPLMNs,

 maxnoofEPLMNsplus1,

 maxnoofEUTRABands,

 maxnoofEUTRABPLMNs,

 maxnoofForbiddenTACs,

 maxnoofMBSFNEUTRA,

 maxnoofMultiConnectivityMinusOne,

 maxnoofNeighbours,

 maxnoofNIDs,

 maxnoofNRCellBands,

 maxnoofPDUSessions,

 maxnoofPLMNs,

 maxnoofProtectedResourcePatterns,

 maxnoofQoSFlows,

 maxnoofQoSParaSets,

 maxnoofRANAreaCodes,

 maxnoofRANAreasinRNA,

 maxnoofSCellGroups,

 maxnoofSCellGroupsplus1,

 maxnoofSliceItems,

 maxnoofExtSliceItems,

 maxnoofSNPNIDs,

 maxnoofsupportedTACs,

 maxnoofsupportedPLMNs,

 maxnoofTAI,

 maxnoofTAIsinAoI,

 maxnoofTNLAssociations,

 maxnoofUEContexts,

 maxNRARFCN,

 maxNrOfErrors,

 maxnoofRANNodesinAoI,

 maxnooftimeperiods,

 maxnoofslots,

 maxnoofExtTLAs,

 maxnoofGTPTLAs,

 maxnoofCHOcells,

 maxnoofPC5QoSFlows,

 maxnoofSSBAreas,

 maxnoofNRSCSs,

 maxnoofPhysicalResourceBlocks,

 maxnoofRACHReports,

 maxnoofAdditionalPDCPDuplicationTNL,

 maxnoofRLCDuplicationstate,

 maxnoofBluetoothName,

 maxnoofCellIDforMDT,

 maxnoofMDTPLMNs,

 maxnoofTAforMDT,

 maxnoofWLANName,

 maxnoofSensorName,

 maxnoofNeighPCIforMDT,

 maxnoofFreqforMDT,

 maxnoofNonAnchorCarrierFreqConfig,

 maxnoofDataForwardingTunneltoE-UTRAN,

 maxnoofUEIDIndicesforMBSPaging,

 maxnoofMBSFSAs,

 maxnoofMBSQoSFlows,

 maxnoofMRBs,

 maxnoofCellsforMBS,

 maxnoofMBSServiceAreaInformation,

 maxnoofTAIforMBS,

 maxnoofAssociatedMBSSessions,

 maxnoofMBSSessions,

 maxnoofSuccessfulHOReports,

 maxnoofPSCellsPerSN,

 maxnoofNR-UChannelIDs,

 maxnoofCellsinCHO,

 maxnoofCHOexecutioncond,

 maxnoofServingCells,

 maxnoofBHInfo,

 maxnoofTLAsIAB,

 maxnoofTrafficIndexEntries,

 maxnoofBAPControlPDURLCCHs,

 maxnoofServedCellsIAB,

 maxnoofDUFSlots,

 maxnoofSymbols,

 maxnoofHSNASlots,

 maxnoofRBsetsPerCell,

 maxnoofChildIABNodes,

 maxnoofIABSTCInfo,

 maxnoofPSCellCandidates,

 maxnoofTargetSNs,

 maxnoofUEAppLayerMeas,

 maxnoofSNSSAIforQMC,

 maxnoofCellIDforQMC,

 maxnoofPLMNforQMC,

 maxnoofTAforQMC,

 maxnoofMTCItems,

 maxnoofCSIRSconfigurations,

 maxnoofCSIRSneighbourCells,

 maxnoofCSIRSneighbourCellsInMTC,

 maxnoofNeighbour-NG-RAN-Nodes,

 maxnoofSRBs,

 maxnoofSMBR,

 maxnoofNSAGs,

 maxnoofRBsetsPerCell1,

 maxnoofTargetSNsMinusOne,

 maxnoofThresholdsForExcessPacketDelay

FROM XnAP-Constants

 Criticality,

 ProcedureCode,

 ProtocolIE-ID,

 TriggeringMessage

FROM XnAP-CommonDataTypes

 ProtocolExtensionContainer{},

 ProtocolIE-Single-Container{},

 XNAP-PROTOCOL-EXTENSION,

 XNAP-PROTOCOL-IES

FROM XnAP-Containers;

-- A

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

-- Q

QMCConfigInfo ::= SEQUENCE {

 uEAppLayerMeasInfoList UEAppLayerMeasInfoList,

 iE-Extensions ProtocolExtensionContainer { {QMCConfigInfo-ExtIEs} } OPTIONAL,

 ...

}

QMCConfigInfo-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UEAppLayerMeasInfoList ::= SEQUENCE (SIZE(1..maxnoofUEAppLayerMeas)) OF UEAppLayerMeasInfo-Item

UEAppLayerMeasInfo-Item ::= SEQUENCE {

 uEAppLayerMeasConfigInfo UEAppLayerMeasConfigInfo,

 iE-Extensions ProtocolExtensionContainer { { UEAppLayerMeasInfo-Item-ExtIEs} } OPTIONAL,

 ...

}

UEAppLayerMeasInfo-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QMCModificationRequest ::= SEQUENCE {

 qMCModificationRequestList QMCModificationRequestList,

 iE-Extensions ProtocolExtensionContainer { {QMCModificationRequest-ExtIEs} } OPTIONAL,

 ...

}

QMCModificationRequest-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QMCModificationRequestList ::= SEQUENCE (SIZE(1..maxnoofUEAppLayerMeas)) OF QMCModificationRequest-Item

QMCModificationRequest-Item ::= SEQUENCE {

qOEReference QOEReference,

qoEReportingModification QoEReportingModification OPTIONAL,

rANVisibleQoESessionIndication RANVisibleQoESessionIndication OPTIONAL,

availableRANVisibleQoEMetrics AvailableRANVisibleQoEMetrics OPTIONAL,

measConfigAppLayerID INTEGER (0..15, ...) OPTIONAL,

measCollEntityIPAddress TransportLayerAddress OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {QMCModification-Item-ExtIEs} } OPTIONAL,

...

}

QMCModificationRequest-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QMCModificationResponse ::= SEQUENCE {

 qMCModificationResponseList QMCModificationResponseList,

 iE-Extensions ProtocolExtensionContainer { {QMCModificationResponse-ExtIEs} } OPTIONAL,

 ...

}

QMCModificationResponse-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QMCModificationResponseList ::= SEQUENCE (SIZE(1..maxnoofUEAppLayerMeas)) OF QMCModificationResponse-Item

QMCModificationResponse-Item ::= SEQUENCE {

qOEReference QOEReference,

qoEModificationReportingResponse QoEModificationResponse OPTIONAL,

rVQoEReportingModificationResponse RVQoEModificationResponse OPTIONAL,

rVQoEConfigPreference RVQoEConfigPreference,

iE-Extensions ProtocolExtensionContainer { {QMCModification-Item-ExtIEs} } OPTIONAL,

...

}

QMCModificationResponse-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

RVQoEConfigPreference ::= SEQUENCE {

ranVisibleQoEMetrics AvailableRANVisibleQoEMetrics OPTIONAL,

reportingPeriodicity ReportingPeriodicity OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {RVQoEConfigurationPreference-ExtIEs} }

}

RVQoEConfigurationPreference-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

ReportingPeriodicity ::= ENUMERATED {

 ms120,

 ms240,

 ms480,

 ms640,

 ms1024,

 ...

}

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

-- S

SCGreconfigNotification ::= ENUMERATED {executed, ... , executed-deleted, deleted }

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

SliceToReport-List-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

SNInitiatedQMCCoordinationRequest ::= SEQUENCE {

 qMCConfigurationList QMCConfigurationList,

 iE-Extensions ProtocolExtensionContainer { {SNInitiatedQMCCoordinationRequest-ExtIEs} } OPTIONAL,

 ...

}

SNInitiatedQMCCoordinationRequest-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QMCConfigurationList ::= SEQUENCE (SIZE(1..maxnoofUEAppLayerMeas)) OF QMCConfigurationList-Item

QMCConfigurationList-Item ::= SEQUENCE {

qOEReference QOEReference,

measCollectionEntityIPAddress MeasCollectionEntityIPAddress OPTIONAL,

qoEConfigurationSendingOption QoEConfigurationSendingOption\_SN OPTIONAL,

qoEReportingOptionPreference QoEReportingOptionPreference OPTIONAL,

rVQoEReportingOptionPreference RVQoEReportingOptionPreference OPTIONAL,

availableRANVisibleQoEMetrics AvailableRANVisibleQoEMetrics OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {QMCConfigurationList-Item-ExtIEs} } OPTIONAL,

...

}

QMCConfigurationList-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QoEConfigurationSendingOption\_SN ::= ENUMERATED {

 SRB3,

 Transparently-via-SRB1,

 ...

}

QoEReportingOptionPreference ::=ENUMERATED {

 SRB4,

 SRB5,

 ...

}

RVQoEReportingOptionPreference ::=ENUMERATED {

 SRB5,

 Transparently-via-SRB4,

 ...

}

SNInitiatedQMCCoordinationResponse ::= SEQUENCE {

 qMCResponseList QMCResponseList,

 iE-Extensions ProtocolExtensionContainer { {SNInitiatedQMCCoordinationResponse-ExtIEs} } OPTIONAL,

 ...

}

SNInitiatedQMCCoordinationResponse-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

QMCResponseList ::= SEQUENCE (SIZE(1..maxnoofUEAppLayerMeas)) OF QMCResponseList-Item

QMCResponseList-Item ::= SEQUENCE {

qOEReference QOEReference,

qOEMeasConfigAppLayerID QOEMeasConfAppLayerID OPTIONAL,

qoEConfigurationSendingOption QoEConfigurationSendingOption\_MN OPTIONAL,

qoEReportingOptionPreference QoEReportingOptionPreference OPTIONAL,

rVQoEReportingOptionPreference RVQoEReportingOptionPreference OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {QMCResponseList-Item-ExtIEs} } OPTIONAL,

...

}

QoEConfigurationSendingOption\_SN ::= ENUMERATED {

 SRB1,

 SRB3,

 Transparently-via-SRB1,

 ...

}

QMCResponseList-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

-------------------------------------------Next change-------------------------------------------

9.3.7 Constant definitions

-- ASN1START

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

--

-- Constant definitions

--

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

XnAP-Constants {

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

ngran-Access (22) modules (3) xnap (2) version1 (1) xnap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<<<<<<<<<<<<<<<<<< Unmodified Text Omitted >>>>>>>>>>>>>>>>>>>>

id-earlyMeasurement ProtocolIE-ID ::= 366

id-BeamMeasurementsReportConfiguration ProtocolIE-ID ::= 367

id-CoverageModificationCause ProtocolIE-ID ::= 368

id-AdditionalListofPDUSessionResourceChangeConfirmInfo-SNterminated ProtocolIE-ID ::= 369

id-UERLFReportContainerLTEExtension ProtocolIE-ID ::= 370

id-ExcessPacketDelayThresholdConfiguration ProtocolIE-ID ::= 371

id-HashedUEIdentityIndexValue ProtocolIE-ID ::= 372

id-SNInitiatedQMCCoordinationRequest ProtocolIE-ID ::= xxx

id-SNInitiatedQMCCoordinationResponse ProtocolIE-ID ::= yyy

id-QMCModificationRequest ProtocolIE-ID ::= zzz

id-QMCModificationResponse ProtocolIE-ID ::= aaa

END

-- ASN1STOP

<<<<<<<<<<<<<<<<<<<< End of Changes >>>>>>>>>>>>>>>>>>>>