**3GPP TSG- Meeting #**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **3** | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network | **x** |

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| ***Title:*** | NGAP rapporteur corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | D |  | | | | | ***Release:*** | | | 8 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Cleanup of editorial errors for specification clarity and quality. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. §3.1: Reordered to be alphabetized. 2. §3.2: Reordered to be alphabetized, and missing acronyms added. 3. §8.2.1.4: “REQUEST” changed to “RESPONSE” since failure is reported by NG-RAN node. 4. §8.2.3.2: Three occurrences of “Setup” changed to “Modify” since this is the PDU Session Resource Modify procedure (copy/paste error?) 5. §8.3.1.2: The word “received” was added in 3 places for consistency with all other bullets in the list 6. §8.3.1.2, 8.3.4.2, 8.4.2.2, 8.4.4.2: “mobile terminated communication handling” changed to “MT communication handling” for consistency with section 8.3.13. 7. §8.3.1.4, 8.4.2.4, 8.11.1.3: Abnormal condition was reworded since the *Area Scope of MDT* IE is mandatory (this seems to be a copy/paste error from XnAP where the IE is optional), plus additional editorials for clarity. 8. §8.3.2.2: “which refers to” was reworded to the typical “as specified in”, and “release cause” replaced by IE name and value. 9. §8.3.12.4: Missing Abnormal Conditions section added. 10. §8.3.13.2: The *5GC Action* IE is mandatory 11. §8.3.13.4: Missing Abnormal Conditions section added. 12. §8.4.1.2: Capitalization of IE name corrected (4 instances) 13. §8.4.9.1, 8.4.10.1, 9.2.3.16, 9.2.3.17, 9.3.1.108, 9.3.1.190: “NG-handover” changed to “NG-based handover” for consistency with legacy text. 14. §8.9.2.2: words that do not belong to message names should not be italicized. 15. §8.11.2.1: editorial correction from CB # 3\_MultipleTrace. 16. §8.12.1.3, 9.3.1.65: “area of interest” should not be capitalized. 17. §9.2.2.7: Extra space deleted from “TS 23. 316” 18. §9.2.2.12: Extra period deleted from “TS. 38.300” 19. §9.2.6.7: IE type corrected 20. §9.2.17.8: IE reference corrected 21. §9.3.1.2: Cause value for “MBS Session Area Information” (which does not exist) changed to “MBS Service Area Information” plus other editorial cleanup. 22. §9.3.1.2: As decided during discussion of R3-237192 at RAN3#122, “*rapporteurs to rephrase the ‘unspecified’ cause value description as: Sent when none of the specified cause values applies but still the cause is {x} related*”. 23. §9.3.1.25: IE names italicized 24. §9.3.1.29: missing criticality added, in alignment with ASN.1 25. §9.3.1.43/44: constants italicized 26. §9.3.1.65: missing range bound added, in alignment with ASN.1 27. §9.3.1.135: As decided during discussion of R3-237652 at RAN3#122, “*rapporteurs to update the tabular starting from 1*” to match ASN.1 28. §9.3.1.140: Presence value corrected, in alignment with ASN.1 29. §9.3.1.169: The *SNPN TAI List* IE and *MDT SNPN List* IE are renamed to align with the ASN.1, missing presence added, plus some editorial corrections in the criticality columns. 30. §9.3.1.169: Semantics description of the *PNI-NPN Area Scope of MDT* IE is reformulated since “PLMN Wide” is not an IE (it is a choice tag). 31. §9.3.1.190: An empty line is inserted between the IE table and the range definition table. 32. §9.3.1.233: “multi-path” changed to “multipath”. 33. §9.3.1.246: “information element” changed to “IE”. 34. §9.3.1.256: “Item” level removed, in alignment with ASN.1 35. §9.3.1.267: extra comma and double space deleted. 36. §9.3.2.2, 9.3.2.16: user plane changed to UP. 37. §9.3.2.6, 9.3.3.23: Missing presence added 38. §9.3.2.9: Presence value corrected, in alignment with ASN.1 39. §9.3.3.34, §9.3.3.35, §9.3.3.36: corrections to Criticality column. 40. §9.3.3.37: Presence value corrected, in alignment with ASN.1 41. §9.3.3.64: editorial correction from CB # 16\_R18Redcap. 42. Miscellaneous minor editorials | | | | | | | | |
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| ***Consequences if not approved:*** | | Editorial errors remain in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.1, 3.2, 8.2.1.4, 8.2.3.2, 8.3.1.2, 8.3.1.4, 8.3.2.2, 8.3.4.2, 8.4.1.2, 8.4.2.2, 8.4.2.4, 8.4.4.2, 8.3.12.3, 8.3.12.4 (new), 8.3.13.1, 8.3.13.2, 8.3.13.4 (new), 8.4.9.1, 8.4.10.1, 8.8.2.2, 8.9.2.2, 8.11.1.3, 8.12.1.3, 8.15.1.2, 8.17.5.2, 9.2.2.7, 9.2.2.12, 9.2.2.22, 9.2.3.16, 9.2.3.17, 9.2.6.7, 9.2.17.8, 9.3.1.2, 9.3.1.25, 9.3.1.29, 9.3.1.43, 9.3.1.44, 9.3.1.65, 9.3.1.108, 9.3.1.135, 9.3.1.140, 9.3.1.152, 9.3.1.153, 9.3.1.169, 9.3.1.190, 9.3.1.209, 9.3.1.233, 9.3.1.246, 9.3.1.256, 9.3.1.267, 9.3.2.2, 9.3.2.6, 9.3.2.9, 9.3.2.16, 9.3.3.23, 9.3.3.34, 9.3.3.35, 9.3.3.36, 9.3.3.37, 9.3.3.64 | | | | | | | | |
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|  | | **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:*** | | Rev1: updated to reflect RAN3#123 feedback | | | | | | | | |

*start of changes*

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**ACL functionality:** as defined in TS 36.413 [16].

**CAG cell:** as defined in TS 38.300 [8].

**DAPS Handover**: as defined in TS 38.300 [8].

**Elementary Procedure:** NGAP consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between the NG-RAN node and the AMF. These Elementary Procedures are defined separately and are intended to be used to build up complete sequences in a flexible manner. If the independence between some EPs is restricted, it is described under the relevant EP description. Unless otherwise stated by the restrictions, the EPs may be invoked independently of each other as standalone procedures, which can be active in parallel. The usage of several NGAP EPs together or together with EPs from other interfaces is specified in stage 2 specifications (e.g., TS 38.401 [2], TS 38.410 [3] and TS 38.300 [8]).

An EP consists of an initiating message and possibly a response message. Two kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success and/or failure).

- **Class 2:** Elementary Procedures without response.

For Class 1 EPs, the types of responses can be as follows:

Successful:

- A signalling message explicitly indicates that the elementary procedure successfully completed with the receipt of the response.

Unsuccessful:

- A signalling message explicitly indicates that the EP failed.

- On time supervision expiry (i.e., absence of expected response).

Successful and Unsuccessful:

- One signalling message reports both successful and unsuccessful outcome for the different included requests. The response message used is the one defined for successful outcome.

Class 2 EPs are considered always successful.

**en-gNB**: as defined in TS 37.340 [32].

**gNB:** as defined in TS 38.300 [8].

**MBS session resource**: as defined in TS 38.401 [2].

**Mobile IAB-MT**: as defined in TS 38.300 [8].

**Mobile IAB-node**: as defined in TS 38.300 [8].

**NB-IoT:** as defined in TS 36.300 [17].

**ng-eNB:** as defined in TS 38.300 [8].

**NG-RAN node:** as defined in TS 38.300 [8].

**Non-CAG cell:** as defined in TS 38.300 [8].

**PDU session resource:** as defined in TS 38.401 [2].

**Public Network Integrated NPN:** as defined in TS 23.501 [9].

**Stand-alone Non-Public Network:** as defined in TS 23.501 [9].

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GC 5G Core Network

5QI 5G QoS Identifier

ACL Access Control List

AMF Access and Mobility Management Function

CAG Closed Access Group

CGI Cell Global Identifier

CP Control Plane

DAPS Dual Active Protocol Stacks

DC Dual Connectivity

DL Downlink

EPC Evolved Packet Core

FN-RG Fixed Network Residential Gateway

GUAMI Globally Unique AMF Identifier

HFC Hybrid Fiber-Coax

IAB Integrated Access and Backhaul

IMEISV International Mobile station Equipment Identity and Software Version number

LMF Location Management Function

MBS Multicast/Broadcast Service

MT Mobile Terminated

N3IWF Non 3GPP InterWorking Function

NB-IoT Narrow Band Internet of Things

NGAP NG Application Protocol

NID Network Identifier

NPN Non-Public Network

NRPPa NR Positioning Protocol Annex

NSAG Network Slice AS Group

NSCI New Security Context Indicator

NSSAI Network Slice Selection Assistance Information

OTDOA Observed Time Difference of Arrival

PEIPS Paging Early Indication with Paging Subgrouping

PNI-NPN Public Network Integrated Non-Public Network

ProSe Proximity Services

PSCell Primary SCG Cell

PTM Point to Multipoint

PTP Point to Point

QMC QoE Measurement Collection

QoE Quality of Experience

RedCap Reduced Capability

RIM Remote Interference Management

RIM-RS RIM Reference Signal

RSN Redundancy Sequence Number

SCG Secondary Cell Group

SCTP Stream Control Transmission Protocol

SgNB Secondary gNB

SMF Session Management Function

S-NG-RAN node Secondary NG-RAN node

SNPN Stand-alone Non-Public Network

S-NSSAI Single Network Slice Selection Assistance Information

TAC Tracking Area Code

TAI Tracking Area Identity

TNAP Trusted Non-3GPP Access Point

TNGF Trusted Non-3GPP Gateway Function

TNLA Transport Network Layer Association

TSS Timing Synchronisation Status

TWAP Trusted WLAN Access Point

TWIF Trusted WLAN Interworking Function

UL Uplink

UP User Plane

UPF User Plane Function

V2X Vehicle-to-Everything

W-AGF Wireline Access Gateway Function

WUS Wake Up Signal

*next change*

#### 8.2.1.4 Abnormal Conditions

If the NG-RAN node receives a PDU SESSION RESOURCE SETUP REQUEST message containing several *PDU Session ID* IEs (in the *PDU Session Resource Setup Request List* IE) set to the same value, the NG-RAN node shall report the establishment of the corresponding PDU sessions as failed in the PDU SESSION RESOURCE SETUP RESPONSE message with an appropriate cause value.

If the NG-RAN node receives a PDU SESSION RESOURCE SETUP REQUEST message containing a *PDU Session ID* IE (in the *PDU Session Resource Setup Request List* IE) set to a value that identifies an active PDU session (established before the PDU SESSION RESOURCE SETUP REQUEST message was received), the NG-RAN node shall report the establishment of the new PDU session as failed in the PDU SESSION RESOURCE SETUP RESPONSE message with an appropriate cause value.

If the NG-RAN node receives a PDU SESSION RESOURCE SETUP REQUEST message containing a *QoS Flow Setup Request List* IE in the *PDU Session Resource Setup Request Transfer* IE including at least one Non-GBR QoS flow but the *PDU Session Aggregate Maximum Bit Rate* IE is not present, the NG-RAN node shall report the establishment of the corresponding PDU session as failed in the PDU SESSION RESOURCE SETUP RESPONSE message with an appropriate cause value.

If the NG-RAN node receives a PDU SESSION RESOURCE SETUP REQUEST message containing a *QoS Flow Level QoS Parameters* IE in the *PDU Session Resource Setup Request Transfer* IE for a GBR QoS flow but the *GBR QoS Flow Information* IE is not present, the NG-RAN node shall report the establishment of the corresponding QoS flow as failed in the *PDU Session Resource Setup Response Transfer* IE of the PDU SESSION RESOURCE SETUP RESPONSE message with an appropriate cause value.If the NG-RAN node receives a PDU SESSION RESOURCE SETUP REQUEST message containing the *Delay Critical* IE in the *Dynamic 5QI Descriptor* IE of the *QoS Flow Level QoS Parameters* IE of the *PDU Session Resource Setup Request Transfer* IE set to the value “delay critical” but the *Maximum Data Burst Volume* IE is not present, the NG-RAN node shall report the establishment of the corresponding QoS flow as failed in the *PDU Session Resource Setup Response Transfer* IE of the PDU SESSION RESOURCE SETUP RESPONSE message with an appropriate cause value.

*next change*

#### 8.2.3.2 Successful Operation



Figure 8.2.3.2-1: PDU session resource modify: successful operation

The AMF initiates the procedure by sending a PDU SESSION RESOURCE MODIFY REQUEST message to the NG-RAN node.

\*\* unmodified text skipped \*\*

For each PDU session in the PDU SESSION RESOURCE MODIFY REQUEST message, if the *Alternative QoS Parameters Set List* IE is included in the *GBR QoS Flow Information* IE in the *PDU Session Resource Modify Request Transfer* IE of the PDU SESSION RESOURCE MODIFY REQUEST message, the NG-RAN node may accept the setup of the QoS flow when notification control has been enabled if the requested QoS parameters or at least one of the alternative QoS parameters sets can be fulfilled at the time of setup. In case the NG-RAN node accepts the setup fulfilling one of the alternative QoS parameters it shall indicate the alternative QoS parameters set which it currently fulfils in the *Current QoS Parameters Set Index* IE within the *PDU Session Resource Modify Response Transfer* IE of the PDU SESSION RESOURCE MODIFY RESPONSE message.

For each PDU session included in the *PDU Session Resource Modify Request List* IE:

- For each QoS flow included in the *QoS Flow Add or Modify Request List* IE, based on the *QoS Flow Level QoS Parameters* IE, the NG-RAN node may establish, modify or release the DRB configuration and may change allocation of resources on NG or Uu accordingly. The NG-RAN node shall associate each QoS flow accepted to setup or modify which is not associated with an MBS QoS flow with a DRB of the PDU session. The associated DRB for the QoS flow accepted to modify may not change. If the *PDU Set QoS Parameters* IE is received, the NG-RAN node shall, if supported, store the received PDU Set QoS Parameters in the UE context and use it as specified in TS 23.501 [9]. If the *ECN Marking or Congestion Information Reporting Request* IE is included in the *PDU Session Resource Modify Request Transfer* IE contained in the PDU SESSION RESOURCE MODIFY REQUEST message, the NG-RAN node shall, if supported, use it accordingly for the specific QoS flow. If the *ECN Marking or Congestion Information Reporting Status* IE is included in the *PDU Session Resource Modify Response Transfer* IE as described in TS 23.501 [9], the AMF shall, if supported, use it to deduce if ECN marking at NG-RAN or ECN marking at UPF or congestion information reporting is active or not active.

*next change*

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: Initial context setup: successful operation

In case of the establishment of a PDU session the 5GC shall be prepared to receive user data before the INITIAL CONTEXT SETUP RESPONSE message has been received by the AMF. If no UE-associated logical NG-connection exists, the UE-associated logical NG-connection shall be established at reception of the INITIAL CONTEXT SETUP REQUEST message.

The INITIAL CONTEXT SETUP REQUEST message shall contain the *Index to RAT/Frequency Selection Priority* IE, if available in the AMF.

If the *NAS-PDU* IE is included in the INITIAL CONTEXT SETUP REQUEST message, the NG-RAN node shall pass it transparently towards the UE.

If the *Masked IMEISV* IE is contained in the INITIAL CONTEXT SETUP REQUEST message the target NG-RAN node shall, if supported, use it to determine the characteristics of the UE for subsequent handling.

Upon receipt of the INITIAL CONTEXT SETUP REQUEST message the NG-RAN node shall

- attempt to execute the requested PDU session configuration;

- store the received UE Aggregate Maximum Bit Rate in the UE context, and use the received UE Aggregate Maximum Bit Rate for Non-GBR QoS flows for the concerned UE as specified in TS 23.501 [9];

- store the received Mobility Restriction List in the UE context;

- store the received UE Radio Capability in the UE context;

- store the received Index to RAT/Frequency Selection Priority in the UE context and use it as defined in TS 23.501 [9];

- store the received UE Security Capabilities in the UE context;

- store the received Security Key in the UE context and, if the NG-RAN node is required to activate security for the UE, take this security key into use;

- if supported, store the received SRVCC Operation Possible in the UE context and use it as defined in TS 23.216 [31];

- store the received NR V2X Services Authorization information, if supported, in the UE context;

- store the received LTE V2X Services Authorization information, if supported, in the UE context;

- store the received NR A2X Services Authorization information, if supported, in the UE context;

- store the received LTE A2X Services Authorization information, if supported, in the UE context;

- store the received NR UE Sidelink Aggregate Maximum Bit Rate, if supported, in the UE context, and use it for the concerned UE’s sidelink communication in network scheduled mode for NR V2X services;

- store the received LTE UE Sidelink Aggregate Maximum Bit Rate, if supported, in the UE context, and use it for the concerned UE’s sidelink communication in network scheduled mode for LTE V2X services;

- store the received NR A2X UE PC5 Aggregate Maximum Bit Rate, if supported, in the UE context, and use it for the concerned UE’s sidelink communication in network scheduled mode for NR A2X services;

- store the received LTE A2X UE PC5 Aggregate Maximum Bit Rate, if supported, in the UE context, and use it for the concerned UE’s sidelink communication in network scheduled mode for LTE A2X services;

- store the received PC5 QoS Parameters, if supported, in the UE context and use it as defined in TS 23.287 [33];

- store the received A2X PC5 QoS Parameters, if supported, in the UE context and use it as defined in TS 23.256 [54].

- store the received Management Based MDT PLMN List information, if supported, in the UE context;

- if supported, store the received IAB Authorization information in the UE context, and use it accordingly for the IAB-MT;

- store the received 5G ProSe Authorization information in the UE context, if supported, and use it for the concerned UE’s sidelink communication in network scheduled mode for 5G ProSe services;

- store the received 5G ProSe UE PC5 Aggregate Maximum Bit Rate in the UE context, if supported, and use it for the concerned UE’s sidelink communication in network scheduled mode for 5G ProSe services;

- store the received 5G ProSe PC5 QoS Parameters, if supported, in the UE context and use it as defined in TS 23.304 [47];

- store the received Network Controlled Repeater Authorization, if supported, in the UE context;

- if supported, store the received Mobile IAB Authorization information in the UE context, and use it accordingly for the mobile IAB-MT;

- store the received PDU Set QoS parameters, if supported, in the UE context and use it as specified in TS 23.501 [9].

For the Initial Context Setup an initial value for the Next Hop Chaining Count is stored in the UE context.

\*\* unmodified text skipped \*\*

If the *Core Network Assistance Information* *for RRC INACTIVE* IE is included in the INITIAL CONTEXT SETUP REQUEST message, the NG-RAN node shall, if supported, store this information in the UE context and use it for the RRC\_INACTIVE state decision and RNA configuration for the UE and RAN paging if any for a UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *MICO All PLMN* IE is included in the *Core Network Assistance Information* *for RRC INACTIVE* IE the NG-RAN node shall, if supported, consider that the registration area for the UE is the full PLMN and ignore the *TAI List for RRC Inactive* IE. If the *Paging Cause Indication for Voice Service* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store and use it as specified in TS 38.300 [8]. If the *PEIPS Assistance Information* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and use it for paging subgrouping the UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *CN MT Communication Handling* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and may subsequently request, based on implementation, the CN for MT communication handling as described in TS 23.502 [10].

*next change*

#### 8.3.1.4 Abnormal Conditions

\*\* unmodified text skipped \*\*

If the *PNI-NPN Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE in the INITIAL CONTEXT SETUP REQUEST message, and the *Area Scope of MDT* IE is set to "PNI-NPN Based MDT", the NG-RAN node shall, if supported, use the *Area Scope of MDT* IE to derive the MDT area scope for MDT measurement collection in PNI-NPN areas, and ignore the *PNI-NPN Area Scope of MDT*.

*next change*

#### 8.3.2.2 Successful Operation



Figure 8.3.2.2-1: UE context release request

The NG-RAN node controlling a UE-associated logical NG-connection initiates the procedure by sending a UE CONTEXT RELEASE REQUEST message towards the affected AMF.

The UE CONTEXT RELEASE REQUEST message shall indicate the appropriate cause value, e.g., "TXnRELOCOverall Expiry", "Redirection", for the requested UE-associated logical NG-connection release.

If the *PDU Session Resource List* IE is included in the UE CONTEXT RELEASE REQUEST message, the AMF shall handle this information as specified in TS 23.502 [10].

**Interactions with UE Context Release procedure:**

The UE Context Release procedure should be initiated upon reception of a UE CONTEXT RELEASE REQUEST message with the *Cause* IE set to a value different than "User inactivity". The UE Context Release procedure should be initiated upon reception of a UE CONTEXT RELEASE REQUEST message with the *Cause* IE set to "User inactivity" and there is no downlink signaling, as specified in TS 23.502 [10]. If the UE was configured with DC radio resources at the time UE Context Release Request procedure was triggered, and the PSCell information was available, the NG-RAN node shall store the PSCell information in the UE context.

*next change*

#### 8.3.4.2 Successful Operation



Figure 8.3.4.2-1: UE context modification: successful operation

Upon receipt of the UE CONTEXT MODIFICATION REQUEST message the NG-RAN node shall

- if supported, store the received IAB Authorization information in the UE context. If the *IAB Authorized* IE is set to "not authorized" for an IAB-MT, the NG-RAN node shall, if supported, initiate actions to ensure that the IAB node will not serve any UE(s).

- if supported, store the received Mobile IAB Authorization information in the UE context. If the *Mobile* *IAB Authorized* IE is set to "not authorized" for a mobile IAB-MT, the NG-RAN node shall, if supported, initiate actions to ensure that the mobile IAB-node will not serve any UE(s).

\*\* unmodified text skipped \*\*

If the *Core Network Assistance Information for RRC INACTIVE* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the NG-RAN node shall, if supported, replace the previously provided Core Network Assistance Information for RRC INACTIVE and use it for the RRC\_INACTIVE state decision and RNA configuration for the UE and RAN paging if any for a UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *MICO All PLMN* IE is included in the *Core Network Assistance Information* *for RRC INACTIVE* IE the NG-RAN node shall, if supported, consider that the registration area for the UE is the full PLMN and ignore the *TAI List for RRC Inactive* IE. If the *Paging Cause Indication for Voice Service* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store and use it as specified in TS 38.300 [8]. If the *PEIPS Assistance Information* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and use it for paging subgrouping the UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *CN MT Communication Handling* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and may subsequently request, based on implementation, the CN for MT communication handling as described in TS 23.502 [10].

*next change*

#### 8.4.1.2 Successful Operation



Figure 8.4.1.2-1: Handover preparation: successful operation

The source NG-RAN node initiates the handover preparation by sending the HANDOVER REQUIRED message to the serving AMF. When the source NG-RAN node sends the HANDOVER REQUIRED message, it shall start the timer TNGRELOCprep. The source NG-RAN node shall indicate the appropriate cause value for the handover in the *Cause* IE.

Upon reception of the HANDOVER REQUIRED message the AMF shall, for each PDU session indicated in the *PDU Session ID* IE, transparently transfer the *Handover Required Transfer* IE to the SMF associated with the concerned PDU session. If the UE is a mobile IAB-MT which does not have any PDU sessions activated, the AMF shall ignore the *PDU Session Resource List* IE, and behave as specified in TS 23.502 [10].

In case of intra-system handover, the information in the *Source to Target Transparent Container* IE shall be encoded according to the definition of the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE.

If the *DL Forwarding* IE is included for a given QoS flow in the *PDU Session Resource Information Item* IE within the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE of the HANDOVER REQUIRED message and it is set to "DL forwarding proposed", it indicates that the source NG-RAN node proposes forwarding of downlink data for that QoS flow.

If the *UL Forwarding* IE is included for a given QoS flow in the *PDU Session Resource Information Item* IE within the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE of the HANDOVER REQUIRED message and it is set to "UL forwarding proposed", it indicates that the source NG-RAN node proposes forwarding of uplink data for that QoS flow.

If the *DRBs to QoS Flows Mapping List* IE is included in the *PDU Session Resource Information Item* IE within the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE of the HANDOVER REQUIRED message, it implicitly indicates that the source NG-RAN node proposes forwarding of downlink data for those DRBs.

If the *QoS Flow Mapping Indication* IE for a QoS flow is included in the *Associated QoS Flow List* IE within the *DRBs to QoS Flows Mapping List* IE within the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE of the HANDOVER REQUIRED message, it indicates that the source NG-RAN node has mapped only the uplink or downlink of the QoS flow to the DRB.

*next change*

#### 8.4.2.2 Successful Operation



Figure 8.4.2.2-1: Handover resource allocation: successful operation

The AMF initiates the procedure by sending the HANDOVER REQUEST message to the target NG-RAN node.

\*\* unmodified text skipped \*\*

In case of intra-system handover, if the target NG-RAN node receives the *Direct Forwarding Path Availability* IE set to "direct path available" within the *PDU Session Resource Setup Request Transfer* IE, the target NG-RAN node shall, if supported, assign the UP transport layer information for intra-system direct data forwarding from the appropriate address space, if applicable.

\*\* unmodified text skipped \*\*

In case of inter-system handover from E-UTRAN, if the target cell is a CAG cell, the target NG-RAN node shall include the *NPN Access Information* IE in the HANDOVER REQUEST ACKNOWLEDGE message, and the AMF shall consider that the included information is associated to the target cell and to the UE’s serving PLMN Identity, and use it as specified in TS 23.501 [9].

\*\* unmodified text skipped \*\*

If the *Core Network Assistance Information for RRC INACTIVE* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, store this information in the UE context and use it for the RRC\_INACTIVE state decision and RNA configuration for the UE and RAN paging if any for a UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *MICO All PLMN* IE is included in the *Core Network Assistance Information* *for RRC INACTIVE* IE the NG-RAN node shall, if supported, consider that the registration area for the UE is the full PLMN and ignore the *TAI List for RRC Inactive* IE. If the *Paging Cause Indication for Voice Service* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store and use it as specified in TS 38.300 [8]. If the *PEIPS Assistance Information* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and use it for paging subgrouping the UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *CN MT Communication Handling* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and may subsequently request, based on implementation, the CN for MT communication handling as described in TS 23.502 [10].

\*\* unmodified text skipped \*\*

If the *DAPS Request Information* IE is included for a DRB in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE within the HANDOVER REQUEST message, the target NG-RAN node shall consider that the request concerns a DAPS Handover for that DRB, as described in TS 38.300 [8]. The target NG-RAN node shall include the *DAPS Response information List* IE in the *Target NG-RAN Node to Source NG-RAN Node Transparent Container* IE within the HANDOVER REQUEST ACKNOWLEDGE message, containing the *DAPS Response Information* IE for each DRB requested to be configured with DAPS Handover.

*next change*

#### 8.4.2.4 Abnormal Conditions

\*\* unmodified text skipped \*\*

If the *PNI-NPN Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE in the HANDOVER REQUEST message, and the *Area Scope of MDT* IE is set to "PNI-NPN Based MDT", the NG-RAN node shall, if supported, use the *Area Scope of MDT* IE to derive the MDT area scope for MDT measurement collection in PNI-NPN areas, and ignore the *PNI-NPN Area Scope of MDT* IE.

*next change*

#### 8.4.4.2 Successful Operation



Figure 8.4.4.2-1: Path switch request: successful operation

The NG-RAN node initiates the procedure by sending the PATH SWITCH REQUEST message to the AMF. Upon reception of the PATH SWITCH REQUEST message the AMF shall, for each PDU session indicated in the *PDU Session ID* IE, transparently transfer the *Path Switch Request Transfer* IE to the SMF associated with the concerned PDU session.

\*\* unmodified text skipped \*\*

If the *Core Network Assistance Information for RRC INACTIVE* IE is included in the PATH SWITCH REQUEST ACKNOWLEDGE message, the NG-RAN node shall, if supported, store this information in the UE context and use it for the RRC\_INACTIVE state decision and RNA configuration for the UE and RAN paging if any for a UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *MICO All PLMN* IE is included in the *Core Network Assistance Information* *for RRC INACTIVE* IE the NG-RAN node shall, if supported, consider that the registration area for the UE is the full PLMN and ignore the *TAI List for RRC Inactive* IE. If the *Paging Cause Indication for Voice Service* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store and use it as specified in TS 38.300 [8]. If the *PEIPS Assistance Information* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and use it for paging subgrouping the UE in RRC\_INACTIVE state, as specified in TS 38.300 [8]. If the *CN MT Communication Handling* IE is included in the *Core Network Assistance Information for RRC INACTIVE* IE, the NG-RAN node shall, if supported, store it and may subsequently request, based on implementation, the CN for MT communication handling as described in TS 23.502 [10].

*next change*

#### 8.3.12.3 Unsuccessful Operation



Figure 8.3.12.3-1: UE Context resume: unsuccessful operation.

If the AMF is not able to resume a single PDU session, it releases the UE-associated logical NG-connection by sending the UE CONTEXT RESUME FAILURE message to the NG-RAN node. Upon reception of the UE CONTEXT RESUME FAILURE message the NG-RAN node shall release the RRC connection as specified in TS 36.331 [21] and release all related signalling and user data transport resources.

#### 8.3.12.4 Abnormal Conditions

Void.

*next change*

### 8.3.13 MT Communication Handling

#### 8.3.13.1 General

The purpose of the MT Communication Handling procedure is to request the AMF to activate or deactivate the CN based MT communication handling for a UE in RRC\_INACTIVE state with eDRX beyond 10.24 seconds as specified in TS 23.501 [9]. The procedure uses UE-associated signalling.

#### 8.3.13.2 Successful Operation



Figure 8.3.13.2-1: MT Communication Handling procedure. Successful operation.

The NG-RAN node initiates the procedure by sending the MT COMMUNICATION HANDLING REQUEST message to the AMF.

If the *5GC Action* IE included in the MT COMMUNICATION HANDLING REQUEST message is set to "HLCom Activate", the AMF shall activate MT communication handling as specified in TS 23.501 [9] and take into account the *NR Paging Long eDRX Information for RRC INACTIVE* IE when applying MT communication handling as specified in TS 38.304 [12] and TS 23.502 [10].

If the *5GC Action* IE included in the MT COMMUNICATION HANDLING REQUEST message is set to "HLCom Deactivate", the AMF shall deactivate MT communication handling as specified in TS 23.501 [9].

#### 8.3.13.3 Unsuccessful Operation



Figure 8.3.13.3-1: MT Communication Handling: unsuccessful operation.

If the AMF is not able to activate CN based MT communication handling for the UE configured with eDRX cycle value longer than 10.24 seconds in RRC\_INACTIVE state, it shall send a MT COMMUNICATION HANDLING FAILURE message to the NG-RAN node.

#### 8.3.13.4 Abnormal Conditions

Void.

*next change*

### 8.4.9 Uplink RAN Early Status Transfer

#### 8.4.9.1 General

The purpose of the Uplink RAN Early Status Transfer procedure is to transfer the COUNT of the first downlink SDU that the source NG-RAN node forwards to the target NG-RAN node, from the source NG-RAN node to the target NG-RAN node via the AMF during NG DAPS Handover, or the COUNT for discarding of already forwarded downlink SDUs for respective DRB(s) during NG-based handover with time-based trigger condition. The procedure uses UE-associated signalling.

*next change*

### 8.4.10 Downlink RAN Early Status Transfer

#### 8.4.10.1 General

The purpose of the Downlink RAN Early Status Transfer procedure is to transfer the COUNT of the first downlink SDU that the source NG-RAN node forwards to the target NG-RAN node, from the source NG-RAN node to the target NG-RAN node via the AMF during NG DAPS Handover, or the COUNT for discarding of already forwarded downlink SDUs for respective DRB during NG-based handover with time-based trigger condition. The procedure uses UE-associated signalling.

*next change*

#### 8.8.2.2 Successful Operation

\*\* unmodified text skipped \*\*

If the NG-RAN node receives the *Inter-system* *SON Information* IE containing the *Inter-system SON Information Request* IE or the *Inter-system SON Information Reply* IE, it may use it as specified in TS 38.300 [8]. If the *Reporting System* IE in the *Inter-system SON Information Request* IE is set to "No Reporting", the DOWNLINK RAN CONFIGURATION TRANSFER message shall be ignored.

*next change*

#### 8.9.2.2 Successful Operation



Figure 8.9.2.2-1: PWS Cancel procedure: successful operation

The AMF initiates the procedure by sending a PWS CANCEL REQUEST message to the NG-RAN node.

If the NG-RAN node receives a PWS CANCEL REQUEST message and broadcast of the warning message identified by the *Message Identifier* and *Serial Number* IE is ongoing in an area indicated within the *Warning Area List* IE, the NG-RAN node shall stop broadcasting the warning message within that area and discard the warning message for that area.

If the *Warning Area* *List* IE is not included in the PWS CANCEL REQUEST message, the NG-RAN node shall stop broadcasting and discard the warning message identified by the *Message Identifier* IE and the *Serial Number* IE in all of the cells in the NG-RAN node.

The NG-RAN node shall acknowledge the PWS CANCEL REQUEST message by sending the PWS CANCEL RESPONSE message, with the *Message Identifier* IE and the *Serial Number* IE copied from the PWS CANCEL REQUEST message and shall, if there is an area to report where an ongoing broadcast was stopped successfully, include the *Broadcast Cancelled Area List* IE.

If an area included in the *Warning Area List* IE in the PWS CANCEL REQUEST message does not appear in the *Broadcast Cancelled Area List* IE, the AMF shall consider that the NG-RAN node had no ongoing broadcast to stop for the same Message Identifier and Serial Number in that area.

If the *Broadcast Cancelled Area List* IE is not included in the PWS CANCEL RESPONSE message, the AMF shall consider that the NG-RAN node had no ongoing broadcast to stop for the same Message Identifier and Serial Number.

If the *Cancel-All Warning Messages Indicator* IE is present in the PWS CANCEL REQUEST message, then the NG-RAN node shall stop broadcasting and discard all warning messages for the area as indicated in the *Warning Area List* IE or in all the cells of the NG-RAN node if the *Warning Area List* IE is not included. The NG-RAN node shall acknowledge the PWS CANCEL REQUEST message by sending the PWS CANCEL RESPONSE message, with the *Message Identifier* IE and the *Serial Number* IE copied from the PWS CANCEL REQUEST message and shall, if there is area to report where an ongoing broadcast was stopped successfully, include the *Broadcast Cancelled Area List* IE with the *Number of Broadcasts* IE set to 0.

*next change*

#### 8.11.1.3 Abnormal Conditions

If the *PNI-NPN Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE in the TRACE START message, and the *Area Scope of MDT* IE is set to "PNI-NPN Based MDT", the NG-RAN node shall, if supported, use the *Area Scope of MDT* IE to derive the MDT area scope for MDT measurement collection in PNI-NPN areas, and ignore the *PNI-NPN Area Scope of MDT* IE.

*next change*

#### 8.11.2.1 General

The purpose of the Trace Failure Indication procedure is to allow the NG-RAN node to inform the AMF that a Trace Start procedure or a Deactivate Trace procedure or an ongoing trace has failed due to an interaction with a handover procedure or, while the UE is in RRC\_INACTIVE state, due to reception of multiple trace activations. The procedure uses UE-associated signalling.

*next change*

#### 8.12.1.3 Abnormal Conditions

**Interactions with Location Reporting Failure Indication procedure:**

If the NG-RAN node receives a LOCATION REPORTING CONTROL message containing several *Location Reporting Reference ID* IE set to the same value, the NG-RAN node shall send the LOCATION REPORTING FAILURE INDICATION message with an appropriate cause value.

If the *Location Reporting Request Type* IE in the received LOCATION REPORTING CONTROL message contains the *Event Type* IE set to neither "UE presence in the area of interest" nor "change of serving cell and UE presence in the area of interest", but the *Area of Interest List* IE is present, the NG-RAN node shall ignore the *Area of Interest List* IE. and proceed with the Location Reporting Procedure.

*next change*

#### 8.15.1.2 Successful Operation



Figure 8.15.1.2-1: Secondary RAT data usage report

The NG-RAN node initiates the procedure by sending the SECONDARY RAT DATA USAGE REPORT message to the AMF.

If the *Handover Flag* IE is included in the SECONDARY RAT DATA USAGE REPORT message, it indicates that for each PDU session the AMF should buffer the *Secondary RAT Data Usage Report Transfer* IE since the secondary RAT data usage report is sent due to handover as defined in TS 23.502 [10].

For each PDU session for which the *Secondary RAT Usage Information List* IE is included in the *Secondary RAT Data Usage Transfer* IE, the SMF shall handle this information as specified in TS 23.502 [10].

The NG-RAN node shall, if supported, report in the SECONDARY RAT DATA USAGE REPORT message location information of the UE in the *User Location Information* IE.

*next change*

#### 8.17.5.2 Successful Operation



Figure 8.17.5.2-1: Broadcast Session Transport, successful operation.

The NG-RAN node initiates the procedure by sending a BROADCAST SESSION TRANSPORT REQUEST message to the AMF. The AMF responds with a BROADCAST SESSION TRANSPORT RESPONSE message.

*next change*

#### 9.2.2.7 UE CONTEXT MODIFICATION REQUEST

This message is sent by the AMF to provide UE Context information changes to the NG-RAN node.

Direction: AMF → NG-RAN node

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| RAN Paging Priority | O |  | 9.3.3.15 |  | YES | ignore |
| Security Key | O |  | 9.3.1.87 |  | YES | reject |
| Index to RAT/Frequency Selection Priority | O |  | 9.3.1.61 |  | YES | ignore |
| UE Aggregate Maximum Bit Rate | O |  | 9.3.1.58 |  | YES | ignore |
| UE Security Capabilities | O |  | 9.3.1.86 |  | YES | reject |
| Core Network Assistance Information for RRC INACTIVE | O |  | 9.3.1.15 |  | YES | ignore |
| Emergency Fallback Indicator | O |  | 9.3.1.26 |  | YES | reject |
| New AMF UE NGAP ID | O |  | AMF UE NGAP ID  9.3.3.1 |  | YES | reject |
| RRC Inactive Transition Report Request | O |  | 9.3.1.91 |  | YES | ignore |
| New GUAMI | O |  | GUAMI  9.3.3.3 |  | YES | reject |
| CN Assisted RAN Parameters Tuning | O |  | 9.3.1.119 |  | YES | ignore |
| SRVCC Operation Possible | O |  | 9.3.1.128 |  | YES | ignore |
| IAB Authorized | O |  | 9.3.1.129 |  | YES | ignore |
| NR V2X Services Authorized | O |  | 9.3.1.146 |  | YES | ignore |
| LTE V2X Services Authorized | O |  | 9.3.1.147 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.3.1.148 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| LTE UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.3.1.149 | This IE applies only if the UE is authorized for LTE V2X services. | YES | ignore |
| PC5 QoS Parameters | O |  | 9.3.1.150 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| UE Radio Capability ID | O |  | 9.3.1.142 |  | YES | reject |
| RG Level Wireline Access Characteristics | O |  | OCTET STRING | Specified in TS 23.316 [34]. Indicates the wireline access technology specific QoS information corresponding to a specific wireline access subscription. | YES | ignore |
| Time Synchronisation Assistance Information | O |  | 9.3.1.220 |  | YES | ignore |
| QMC Configuration Information | O |  | 9.3.1.223 |  | YES | ignore |
| QMC Deactivation | O |  | 9.3.1.222 |  | YES | ignore |
| UE Slice Maximum Bit Rate List | O |  | 9.3.1.231 |  | YES | ignore |
| Management Based MDT PLMN Modification List | O |  | MDT PLMN Modification List  9.3.1.243 |  | YES | ignore |
| 5G ProSe Authorized | O |  | 9.3.1.233 |  | YES | ignore |
| 5G ProSe UE PC5 Aggregate Maximum Bit Rate | O |  | NR UE Sidelink Aggregate Maximum Bit Rate  9.3.1.148 | This IE applies only if the UE is authorized for 5G ProSe services. | YES | ignore |
| 5G ProSe PC5 QoS Parameters | O |  | 9.3.1.234 | This IE applies only if the UE is authorized for 5G ProSe services. | YES | ignore |
| Network Controlled Repeater Authorized | O |  | 9.3.1.245 |  | YES | ignore |
| Aerial UE Subscription Information | O |  | 9.3.1.246 |  | YES | ignore |
| NR A2X Services Authorized | O |  | 9.3.1.247 |  | YES | ignore |
| LTE A2X Services Authorized | O |  | 9.3.1.248 |  | YES | ignore |
| NR A2X UE PC5 Aggregate Maximum Bit Rate | O |  | NR UE Sidelink Aggregate Maximum Bit Rate 9.3.1.148 | This IE applies only if the UE is authorized for NR A2X services. | YES | ignore |
| LTE A2X UE PC5 Aggregate Maximum Bit Rate | O |  | LTE UE Sidelink Aggregate Maximum Bit Rate 9.3.1.149 | This IE applies only if the UE is authorized for LTE A2X services. | YES | ignore |
| A2X PC5 QoS Parameters | O |  | 9.3.1.249 | This IE applies only if the UE is authorized for A2X services. | YES | ignore |
| Mobile IAB Authorized | O |  | 9.3.1.259 |  | YES | ignore |

*next change*

#### 9.2.2.12 AMF CP RELOCATION INDICATION

This message is sent by the AMF to inform the NG-RAN node that the UE is to be relocated as described in TS 38.300 [8].

Direction: AMF → NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| S-NSSAI | O |  | 9.3.1.24 |  | YES | ignore |
| Allowed NSSAI | O |  | 9.3.1.31 | Indicates the S-NSSAIs permitted by the network | YES | ignore |
| Partially Allowed NSSAI | O |  | 9.3.1.261 | Indicates the S-NSSAIs partially permitted by the network. | YES | ignore |

*next change*

#### 9.2.2.22 MT COMMUNICATION HANDLING REQUEST

This message is sent by the NG-RAN node to the AMF to request activating or deactivating CN based MT communication handling for UEs in RRC\_INACTIVE state with long eDRX beyond 10.24 seconds as specified in TS 23.501 [9].

Direction: NG-RAN node → AMF

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| CHOICE *5GC Action* | M |  |  |  | YES | reject |
| >*HLCom Activate* |  |  |  |  |  |  |
| >>NR Paging Long eDRX Information for RRC INACTIVE | M |  | 9.3.3.64 |  | - |  |
| >*HLCom Deactivate* |  |  |  |  |  |  |
| >>UE Reachability Indication | M |  | ENUMERATED (true, …) |  | - |  |

*next change*

#### 9.2.3.16 UPLINK RAN EARLY STATUS TRANSFER

This message is sent by the source NG-RAN node to transfer the COUNT value(s) of the first forwarded downlink SDU(s) during NG DAPS Handover, and during NG-based handover with time-based trigger condition.

Direction: NG-RAN node → AMF.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| Early Status Transfer Transparent Container | M |  | 9.3.1.190 |  | YES | reject |

#### 9.2.3.17 DOWNLINK RAN EARLY STATUS TRANSFER

This message is sent by the AMF to transfer the COUNT value(s) of the first forwarded downlink SDU(s) during NG DAPS Handover, and during NG-based handover with time-based trigger condition.

Direction: AMF → NG-RAN node

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| Early Status Transfer Transparent Container | M |  | 9.3.1.190 |  | YES | reject |

*next change*

#### 9.2.6.7 AMF CONFIGURATION UPDATE

This message is sent by the AMF to transfer updated information for an NG-C interface instance.

Direction: AMF → NG-RAN node

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF Name | O |  | 9.3.3.21 |  | YES | reject |
| **Served GUAMI List** |  | *0..1* |  |  | YES | reject |
| **>Served GUAMI Item** |  | *1..<maxnoofServedGUAMIs>* |  |  | - |  |
| >>GUAMI | M |  | 9.3.3.3 |  | - |  |
| >>Backup AMF Name | O |  | AMF Name  9.3.3.21 |  | - |  |
| >>GUAMI Type | O |  | ENUMERATED (native, mapped, …) |  | YES | ignore |
| Relative AMF Capacity | O |  | 9.3.1.32 |  | YES | ignore |
| **PLMN Support List** |  | *0..1* |  |  | YES | reject |
| **>PLMN Support Item** |  | *1..<maxnoofPLMNs>* |  |  | - |  |
| >>PLMN Identity | M |  | 9.3.3.5 |  | - |  |
| >>Slice Support List | M |  | 9.3.1.17 | Supported S-NSSAIs per PLMN or per SNPN. | - |  |
| >>NPN Support | O |  | 9.3.3.44 | If the *NID* IE is included, it identifies a SNPN together with the *PLMN Identity* IE. | YES | reject |
| >>Extended Slice Support List | O |  | 9.3.1.191 | Additional Supported S-NSSAIs per PLMN or per SNPN. | YES | reject |
| >>Onboarding Support | O |  | ENUMERATED (true, ...) | Indication of onboarding support. | YES | ignore |
| **AMF TNL Association to Add List** |  | *0..1* |  |  | YES | ignore |
| **>AMF TNL Association to Add Item** |  | *1..<maxnoofTNLAssociations>* |  |  | - |  |
| >>AMF TNL Association Address | M |  | CP Transport Layer Information  9.3.2.6 | AMF Transport Layer information used to set up the new TNL association. | - |  |
| >>TNL Association Usage | O |  | 9.3.2.9 |  | - |  |
| >>TNL Address Weight Factor | M |  | 9.3.2.10 |  | - |  |
| **AMF TNL Association to Remove List** |  | *0..1* |  |  | YES | ignore |
| **>AMF TNL Association to Remove Item** |  | *1..<maxnoofTNLAssociations>* |  |  | - |  |
| >>AMF TNL Association Address | M |  | CP Transport Layer Information  9.3.2.6 | Transport Layer Address of the AMF. | - |  |
| >>TNL Association Transport Layer Address NG-RAN | O |  | CP Transport Layer Information  9.3.2.6 | Transport Layer Address of the NG-RAN node. | YES | reject |
| **AMF TNL Association to Update List** |  | *0..1* |  |  | YES | ignore |
| **>AMF TNL Association to Update Item** |  | *1..<maxnoofTNLAssociations>* |  |  | - |  |
| >>AMF TNL Association Address | M |  | CP Transport Layer Information  9.3.2.6 | AMF Transport Layer information used to identify the TNL association to be updated. | - |  |
| >>TNL Association Usage | O |  | 9.3.2.9 |  | - |  |
| >>TNL Address Weight Factor | O |  | 9.3.2.10 |  | - |  |
| Extended AMF Name | O |  | 9.3.3.51 |  | YES | ignore |

*next change*

#### 9.2.17.8 MULTICAST SESSION ACTIVATION FAILURE

This message is sent by the NG-RAN node to the AMF to indicate that the requested activation of the MBS session resources has failed.

Direction: NG-RAN node → AMF

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| MBS Session ID | M |  | 9.3.1.206 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

*next change*

#### 9.3.1.2 Cause

\*\* unmodified text skipped \*\*

|  |  |
| --- | --- |
| Radio Network Layer cause | Meaning |
| Unspecified | Sent for radio network layer cause when none of the specified cause values applies. |
| TXnRELOCOverall expiry | The timer guarding the handover that takes place over Xn has abnormally expired. |
| Successful handover | Successful handover. |
| Release due to NG-RAN generated reason | Release is initiated due to NG-RAN generated reason. |
| Release due to 5GC generated reason | Release is initiated due to 5GC generated reason. |
| Handover cancelled | The reason for the action is cancellation of Handover. |
| Partial handover | Provides a reason for the handover cancellation. The HANDOVER COMMAND message from AMF contained *PDU Session Resource to Release List* IEor *QoS flow to Release List* and the source NG-RAN node estimated service continuity for the UE would be better by not proceeding with handover towards this particular target NG-RAN node. |
| Handover failure in target 5GC/ NG-RAN node or target system | The handover failed due to a failure in target 5GC/NG-RAN node or target system. |
| Handover target not allowed | Handover to the indicated target cell is not allowed for the UE in question. |
| TNGRELOCoverall expiry | The reason for the action is expiry of timer TNGRELOCoverall. |
| TNGRELOCprep expiry | Handover Preparation procedure is cancelled when timer TNGRELOCprep expires. |
| Cell not available | The concerned cell is not available. |
| Unknown target ID | Handover rejected because the target ID is not known to the AMF. |
| No radio resources available in target cell | Load on target cell is too high. |
| Unknown local UE NGAP ID | The action failed because the receiving node does not recognise the local UE NGAP ID. |
| Inconsistent remote UE NGAP ID | The action failed because the receiving node considers that the received remote UE NGAP ID is inconsistent. |
| Handover desirable for radio reasons | The reason for requesting handover is radio related. |
| Time critical handover | Handover is requested for time critical reason i.e., this cause value is reserved to represent all critical cases where the connection is likely to be dropped if handover is not performed. |
| Resource optimisation handover | The reason for requesting handover is to improve the load distribution with the neighbour cells. |
| Reduce load in serving cell | Load on serving cell needs to be reduced. When applied to handover preparation, it indicates the handover is triggered due to load balancing. |
| User inactivity | The action is requested due to inactivity on all user data radio bearers (i.e., DRBs and, if applicable, MRBs as per section 16.10.5.2 in TS 38.300 [8]), e.g., NG is requested to be released in order to optimise the radio resources. For L2 U2N Relay UE, this action is requested due to user inactivity on all PDU sessions of L2 U2N Relay UE and its served remote UE(s). |
| Radio connection with UE lost | The action is requested due to losing the radio connection to the UE. |
| Radio resources not available | No requested radio resources are available. |
| Invalid QoS combination | The action was failed because of invalid QoS combination. |
| Failure in the radio interface procedure | Radio interface procedure has failed. |
| Interaction with other procedure | The action is due to an ongoing interaction with another procedure. |
| Unknown PDU Session ID | The action failed because the PDU Session ID is unknown in the NG-RAN node. |
| Unknown QoS Flow ID | The action failed because the QoS Flow ID is unknown in the NG-RAN node. |
| Multiple PDU Session ID instances | The action failed because multiple instances of the same PDU Session had been provided to/from the NG-RAN node. |
| Multiple QoS Flow ID instances | The action failed because multiple instances of the same QoS flow had been provided to the NG-RAN node. |
| Encryption and/or integrity protection algorithms not supported | The NG-RAN node is unable to support any of the encryption and/or integrity protection algorithms supported by the UE. |
| NG intra-system handover triggered | The action is due to a NG intra-system handover that has been triggered. |
| NG inter-system handover triggered | The action is due to a NG inter-system handover that has been triggered. |
| Xn handover triggered | The action is due to an Xn handover that has been triggered. |
| Not supported 5QI value | The QoS flow setup failed because the requested 5QI is not supported. |
| UE context transfer | The action is due to a UE resumes from the NG-RAN node different from the one which sent the UE into RRC\_INACTIVE state. |
| IMS voice EPS fallback or RAT fallback triggered | The setup of QoS flow is failed due to EPS fallback or RAT fallback for IMS voice using handover or redirection. |
| UP integrity protection not possible | The PDU session cannot be accepted according to the required user plane integrity protection policy. |
| UP confidentiality protection not possible | The PDU session cannot be accepted according to the required user plane confidentiality protection policy. |
| Slice(s) not supported | Slice(s) not supported. |
| UE in RRC\_INACTIVE state not reachable | The action is requested due to RAN paging failure. |
| Redirection | The release is requested due to inter-system redirection or intra-system redirection. |
| Resources not available for the slice(s) | The requested resources are not available for the slice(s). |
| UE maximum integrity protected data rate reason | The request is not accepted in order to comply with the maximum data rate for integrity protection supported by the UE. |
| Release due to CN-detected mobility | The context release is requested by the AMF because the UE is already served by another CN node (same or different system), or another NG interface of the same CN node. |
| N26 interface not available | The action failed due to a temporary failure of the N26 interface. |
| Release due to pre-emption | Release is initiated due to pre-emption. |
| Multiple Location Reporting Reference ID Instances | The action failed because multiple areas of interest are set with the same Location Reporting Reference ID. |
| RSN not available for the UP | The redundant user plane resources indicated by RSN are not available. |
| NPN access denied | Access was denied, or release is requested, for NPN reasons. |
| CAG only access denied | Access was denied because the cell is a non-CAG cell and UE is only allowed to access CAG cells. |
| Insufficient UE Capabilities | The procedure can’t proceed due to insufficient UE capabilities. |
| RedCap UE not supported | The action failed because target NG-RAN node does not support RedCap UE. |
| Unknown MBS Session ID | The action failed because the MBS Session ID is unknown. |
| Indicated MBS Service Area Information not served by the gNB | The action failed because none of the cells in the indicated MBS Service Area Information are served by the NG-RAN node. |
| Inconsistent slice info for the session | The action failed because the slice info of the multicast session is inconsistent. |
| Misaligned association for the multicast and unicast sessions or flows | The action failed because the Associated Unicast QoS Flow ID has already been used, or the Associated Unicast QoS Flow ID is not defined, or the Associated Unicast QoS Flow ID is not released, or multiple MBS QoS flows associated to the same unicast QoS flow, or same multicast session associated to multiple PDU Sessions. |

|  |  |
| --- | --- |
| Transport Layer cause | Meaning |
| Transport resource unavailable | The required transport resources are not available. |
| Unspecified | Sent when none of the specified cause values applies but still the cause is Transport Network Layer related. |

|  |  |
| --- | --- |
| NAS cause | Meaning |
| Normal release | The release is normal. |
| Authentication failure | The action is due to authentication failure. |
| Deregister | The action is due to deregister. |
| Unspecified | Sent when none of the specified cause values applies but still the cause is NAS related. |
| UE not in PLMN serving area | The release is due to the UE not being within the serving area of its current PLMN (for NTN). |
| Mobile IAB not authorized | The release is due to the NG-RAN node having completed the operation for a non-authorized mobile IAB-node. |

|  |  |
| --- | --- |
| Protocol cause | Meaning |
| Transfer syntax error | The received message included a transfer syntax error. |
| Abstract syntax error (reject) | The received message included an abstract syntax error and the concerning criticality indicated "reject". |
| Abstract syntax error (ignore and notify) | The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify". |
| Message not compatible with receiver state | The received message was not compatible with the receiver state. |
| Semantic error | The received message included a semantic error. |
| Abstract syntax error (falsely constructed message) | The received message contained IEs or IE groups in wrong order or with too many occurrences. |
| Unspecified | Sent when none of the specified cause values applies but still the cause is Protocol related. |

|  |  |
| --- | --- |
| Miscellaneous cause | Meaning |
| Control processing overload | Control processing overload. |
| Not enoughuser plane processing resources | Not enough resources are available related to user plane processing. |
| Hardware failure | Action related to hardware failure. |
| O&M intervention | The action is due to O&M intervention. |
| Unknown PLMN or SNPN | The AMF does not identify any PLMN or SNPN provided by the NG-RAN node. |
| Unspecified failure | Sent when none of the specified cause values applies and the cause is not related to any of the categories Radio Network Layer, Transport Network Layer, NAS or Protocol. |

*next change*

#### 9.3.1.25 Target ID

This IE identifies the target for the handover.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *Target ID* | M |  |  |  | - |  |
| *>NG-RAN* |  |  |  |  |  |  |
| >>Global RAN Node ID | M |  | 9.3.1.5 |  | - |  |
| >>Selected TAI | M |  | TAI  9.3.3.11 |  | - |  |
| >>Selected Target SNPN Identity | O |  | NID  9.3.3.42 | This IE together with the *PLMN Identity* IE included in the *Selected TAI* IE indicates the target SNPN. | YES | reject |
| *>E-UTRAN* |  |  |  |  |  |  |
| >>Global eNB ID | M |  | Global ng-eNB ID  9.3.1.8 |  | - |  |
| >>Selected EPS TAI | M |  | EPS TAI  9.3.3.17 |  | - |  |
| *>Target RNC-ID* |  |  |  |  | YES | reject |
| >>LAI | M |  | 9.3.3.30 |  | - |  |
| >>RNC-ID | M |  | 9.3.1.123 | This IE is ignored if the *Extended RNC-ID* IE is included in the *Target ID* IE. | - |  |
| >>Extended RNC-ID | O |  | 9.3.1.124 | The *Extended RNC-ID* IE is used if the RNC identity has a value larger than 4095. | - |  |
| *>Target Home eNB ID* |  |  |  |  | YES | reject |
| >>PLMN Identity | M |  | 9.3.3.5 |  | - |  |
| >>Home eNB ID | M |  | BIT STRING (SIZE(28)) | Equal to the *E-UTRA Cell Identity* IE contained in the *E-UTRA CGI* IE of the cell served by the eNB. | - |  |
| >>Selected EPS TAI | M |  | EPS TAI  9.3.3.17 |  | - |  |

*next change*

#### 9.3.1.29 Source NG-RAN Node to Target NG-RAN Node Transparent Container

This IE is produced by the source NG-RAN node and is transmitted to the target NG-RAN node. For inter-system handovers to 5G, the IE is transmitted from the external handover source to the target NG-RAN node.

This IE is transparent to the 5GC.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| RRC Container | M |  | OCTET STRING | Includes the *HandoverPreparationInformation* message as defined in TS 38.331 [18] if the target is a gNB.  Includes the *HandoverPreparationInformation* message as defined in TS 36.331 [21] if the target is an ng-eNB. | - |  |
| **PDU Session Resource Information List** |  | *0..1* |  | For intra-system handovers in NG-RAN. | - |  |
| **>PDU Session Resource Information Item** |  | *1..<maxnoofPDUSessions>* |  |  | - |  |
| >>PDU Session ID | M |  | 9.3.1.50 |  | - |  |
| **>>QoS Flow Information List** |  | *1* |  |  | - |  |
| **>>>QoS Flow Information Item** |  | *1..<maxnoofQoSFlows>* |  |  | - |  |
| >>>>QoS Flow Identifier | M |  | 9.3.1.51 |  | - |  |
| >>>>DL Forwarding | O |  | 9.3.1.33 |  | - |  |
| >>>>UL Forwarding | O |  | 9.3.1.118 |  | YES | ignore |
| >>>>Source Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the sending node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| >>>>Source Node Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the source SN node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| >>DRBs to QoS Flows Mapping List | O |  | 9.3.1.34 |  | - |  |
| **E-RAB Information List** |  | *0..1* |  | For inter-system handovers to 5G. | - |  |
| **>E-RAB Information Item** |  | *1..<maxnoofE-RABs>* |  |  | - |  |
| >>E-RAB ID | M |  | 9.3.2.3 |  | - |  |
| >>DL Forwarding | O |  | 9.3.1.33 |  | - |  |
| >>Source Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the sending node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| >>Source Node Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the source SN node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| Target Cell ID | M |  | NG-RAN CGI  9.3.1.73 |  | - |  |
| Index to RAT/Frequency Selection Priority | O |  | 9.3.1.61 |  | - |  |
| UE History Information | M |  | 9.3.1.95 |  | - |  |
| SgNB UE X2AP ID | O |  | 9.3.1.127 | Allocated at the Source en-gNB | YES | ignore |
| UE History Information from UE | O |  | 9.3.1.166 |  | YES | ignore |
| Source Node ID | O |  | 9.3.1.195 | Source SN ID | YES | ignore |
| UE Context Reference at Source | O |  | RAN UE NGAP ID  9.3.3.2 |  | YES | ignore |
| **MBS Active Session Information Source to Target List** |  | *0..1* |  |  | YES | ignore |
| **>MBS Active Session Information Source to Target Item** |  | *1..<maxnoofMBSSessionsofUE>* |  |  | - |  |
| >>MBS Session ID | M |  | 9.3.1.206 |  | - |  |
| >>MBS Area Session ID | O |  | 9.3.1.207 | If included, this IE indicates the MBS Area Session ID of the UE at the NG-RAN node from which the UE context is transferred | - |  |
| >>MBS Service Area | O |  | 9.3.1.208 | Included if available in source NG-RAN node. | - |  |
| >>MBS QoS Flows To Be Setup List | M |  | 9.3.1.236 |  | - |  |
| **>>MBS Mapping and Data Forwarding Request List** |  | *0..1* |  |  | - |  |
| **>>>MBS Mapping and Data Forwarding Request Item** |  | *1..<maxnoofMRBs>* |  |  | - |  |
| >>>>MRB ID | M |  | 9.3.1.218 | Contains the MRB ID value allocated at the source NG-RAN node. | - |  |
| **>>>>MBS QoS Flow List** |  | *1..<maxnoofMBSQoSflows>* |  |  | - |  |
| >>>>>MBS QoS Flow Identifier | M |  | QoS Flow Identifier  9.3.1.51 |  | - |  |
| >>>>MRB Progress Information | O |  | 9.3.1.219 | The SN information of the last packet which has already been delivered for the MRB. | - |  |
| QMC Configuration Information | O |  | 9.3.1.223 | Used for passing the QoE measurement information from the source NG-RAN node to the target NG-RAN node. | YES | ignore |
| **NGAP IE Support Information Request List** |  | *0..1* |  |  | YES | ignore |
| **>NGAP IE Support Information Request Item** |  | *1..<maxnoofIESupportInfo>* |  |  | - |  |
| >>NGAP Protocol IE-Id | M |  | 9.3.1.239 |  | - |  |
| **Candidate Relay UE Information List** |  | *0..1* |  |  | YES | reject |
| **>Candidate Relay UE Information Item** |  | *1..<maxnoofCandidateRelayUEs>* |  |  | - |  |
| >>Candidate Relay UE ID | M |  | BIT STRING (SIZE(24)) | Includes the *SL-SourceIdentity* for the candidate relay UE as defined in TS 38.331 [18]. | - |  |
| **Time Based Handover Information** |  | *0..1* |  | This IE only applies to NTN. | YES | ignore |
| >Handover Window Start | M |  | INTEGER (0..549755813887) | Corresponds to information provided in *t1-Threshold* contained in the *ReportConfigNR* IE as defined in TS 38.331 [18] | - |  |
| >Handover Window Duration | M |  | INTEGER (1..6000) | Corresponds to information provided in the *duration* contained in the *condEventT1* contained in the *ReportConfigNR* IE as defined in TS 38.331 [18] | - |  |

*next change*

#### 9.3.1.43 Broadcast Completed Area List

This IE indicates the areas where either resources are available to perform the broadcast or where broadcast is performed successfully.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Broadcast Completed Area* | M |  |  |  |
| *>Cell ID Broadcast* *E-UTRA* |  |  |  |  |
| **>>Completed Cell List** |  | 1..<*maxnoofCellIDforWarning*> |  |  |
| >>>E-UTRA CGI | M |  | 9.3.1.9 |  |
| *>TAI Broadcast E-UTRA* |  |  |  |  |
| **>>TAI Broadcast** |  | 1..<*maxnoofTAIforWarning*> |  |  |
| >>>TAI | M |  | 9.3.3.11 |  |
| **>>>Completed Cell in TAI List** |  | 1..<*maxnoofCellinTAI*> |  |  |
| >>>>E-UTRA CGI | M |  | 9.3.1.9 |  |
| *>Emergency Area ID Broadcast E-UTRA* |  |  |  |  |
| **>>Emergency Area ID Broadcast** |  | 1..<*maxnoofEmergencyAreaID*> |  |  |
| >>>Emergency Area ID | M |  | 9.3.1.48 |  |
| **>>>Completed Cell in Emergency Area ID List** |  | 1..<*maxnoofCellinEAI*> |  |  |
| >>>>E-UTRA CGI | M |  | 9.3.1.9 |  |
| *>Cell ID Broadcast NR* |  |  |  |  |
| **>>Completed Cell List** |  | 1..<*maxnoofCellIDforWarning*> |  |  |
| >>>NR-CGI | M |  | 9.3.1.7 |  |
| *>TAI Broadcast NR* |  |  |  |  |
| **>>TAI Broadcast** |  | 1..<*maxnoofTAIforWarning*> |  |  |
| >>>TAI | M |  | 9.3.3.11 |  |
| **>>>Completed Cell in TAI List** |  | 1..<*maxnoofCellinTAI*> |  |  |
| >>>>NR-CGI | M |  | 9.3.1.7 |  |
| *>Emergency Area ID Broadcast NR* |  |  |  |  |
| **>>Emergency Area ID Broadcast** |  | 1..<*maxnoofEmergencyAreaID*> |  |  |
| >>>Emergency Area ID | M |  | 9.3.1.48 |  |
| **>>>Completed Cell in Emergency Area ID List** |  | 1..<*maxnoofCellinEAI*> |  |  |
| >>>>NR-CGI | M |  | 9.3.1.7 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellIDforWarning | Maximum no. of Cell ID subject for warning message broadcast. Value is 65535. |
| maxnoofTAIforWarning | Maximum no. of TAI subject for warning message broadcast. Value is 65535. |
| maxnoofEmergencyAreaID | Maximum no. of Emergency Area ID subject for warning message broadcast. Value is 65535. |
| maxnoofCellinTAI | Maximum no. of Cell ID within a TAI. Value is 65535. |
| maxnoofCellinEAI | Maximum no. of Cell ID within an Emergency Area. Value is 65535. |

#### 9.3.1.44 Broadcast Cancelled Area List

This IE indicates the areas where broadcast was stopped successfully.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Broadcast Cancelled Area* | M |  |  |  |
| *>Cell ID Cancelled E-UTRA* |  |  |  |  |
| **>>Cancelled Cell List** |  | 1..<*maxnoofCellIDforWarning*> |  |  |
| >>>E-UTRA CGI | M |  | 9.3.1.9 |  |
| >>>Number of Broadcasts | M |  | 9.3.1.45 |  |
| *>TAI Cancelled E-UTRA* |  |  |  |  |
| **>>TAI Cancelled** |  | 1..<*maxnoofTAIforWarning*> |  |  |
| >>>TAI | M |  | 9.3.3.11 |  |
| **>>>Cancelled Cell in TAI List** |  | 1..<*maxnoofCellinTAI*> |  |  |
| >>>>E-UTRA CGI | M |  | 9.3.1.9 |  |
| >>>>Number of Broadcasts | M |  | 9.3.1.45 |  |
| *>Emergency Area ID Cancelled E-UTRA* |  |  |  |  |
| **>>Emergency Area ID Cancelled** |  | 1..<*maxnoofEmergencyAreaID*> |  |  |
| >>>Emergency Area ID | M |  | 9.3.1.48 |  |
| **>>>Cancelled Cell in Emergency Area ID List** |  | 1..<*maxnoofCellinEAI*> |  |  |
| >>>>E-UTRA CGI | M |  | 9.3.1.9 |  |
| >>>>Number of Broadcasts | M |  | 9.3.1.45 |  |
| *>Cell ID Cancelled NR* |  |  |  |  |
| **>>Cancelled Cell List** |  | 1..<*maxnoofCellIDforWarning*> |  |  |
| >>>NR-CGI | M |  | 9.3.1.7 |  |
| >>>Number of Broadcasts | M |  | 9.3.1.45 |  |
| *>TAI Cancelled NR* |  |  |  |  |
| **>>TAI Cancelled** |  | 1..<*maxnoofTAIforWarning*> |  |  |
| >>>TAI | M |  | 9.3.3.11 |  |
| **>>>Cancelled Cell in TAI List** |  | 1..<*maxnoofCellinTAI*> |  |  |
| >>>>NR-CGI | M |  | 9.3.1.7 |  |
| >>>>Number of Broadcasts | M |  | 9.3.1.45 |  |
| *>Emergency Area ID Cancelled NR* |  |  |  |  |
| **>>Emergency Area ID Cancelled** |  | 1..<*maxnoofEmergencyAreaID*> |  |  |
| >>>Emergency Area ID | M |  | 9.3.1.48 |  |
| **>>>Cancelled Cell in Emergency Area ID List** |  | 1..<*maxnoofCellinEAI*> |  |  |
| >>>>NR-CGI | M |  | 9.3.1.7 |  |
| >>>>Number of Broadcasts | M |  | 9.3.1.45 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellIDforWarning | Maximum no. of Cell ID subject for warning message broadcast. Value is 65535. |
| maxnoofTAIforWarning | Maximum no. of TAI subject for warning message broadcast. Value is 65535. |
| maxnoofEmergencyAreaID | Maximum no. of Emergency Area ID subject for warning message broadcast. Value is 65535. |
| maxnoofCellinTAI | Maximum no. of Cell ID within a TAI. Value is 65535. |
| maxnoofCellinEAI | Maximum no. of Cell ID within an Emergency Area. Value is 65535. |

*next change*

#### 9.3.1.65 Location Reporting Request Type

This IE indicates the type of location request to be handled by the NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Event Type | M |  | ENUMERATED (direct, change of serving cell, UE presence in the area of interest, stop change of serving cell, stop UE presence in the area of interest, cancel location reporting for the UE, … change of serving cell and UE presence in the area of interest) |  | - |  |
| Report Area | M |  | ENUMERATED (cell, …) |  | - |  |
| **Area of Interest List** |  | *0..1* |  |  | - |  |
| **>Area of Interest Item** |  | *1..<maxnoofAoI>* |  |  | - |  |
| >>Area of Interest | M |  | 9.3.1.66 |  | - |  |
| >>Location Reporting Reference ID | M |  | 9.3.1.76 |  | - |  |
| Location Reporting Reference ID to be Cancelled | C- ifEventTypeisStopUEPresinAoI |  | Location Reporting Reference ID  9.3.1.76 |  | - |  |
| Additional Location Information | O |  | ENUMERATED (Include PSCell, ...) |  | YES | ignore |
| **Additional Cancelled Location Reporting Reference ID List** |  | *0..1* |  |  | YES | reject |
| **>Additional Cancelled Location Reporting Reference ID Item** |  | *1..<maxnoofAoIMinusOne>* |  |  | - |  |
| >>Location Reporting Reference ID to be Cancelled | M |  | Location Reporting Reference ID  9.3.1.76 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofAoI | Maximum no. of areas of interest. Value is 64. |
| maxnoofAoIMinusOne | Maximum no. of areas of interest minus one. Value is 63. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifEventTypeisStopUEPresinAoI | This IE shall be present if the *Event Type* IE is set to "stop UE presence in the area of interest". |

*next change*

#### 9.3.1.108 RAN Status Transfer Transparent Container

This IE is produced by the source NG-RAN node and is transmitted to the target NG-RAN node. It is used for intra 5GC NG-based handover.

*next change*

#### 9.3.1.135 Extended Packet Delay Budget

This IE indicates the Packet Delay Budget for a QoS flow.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Extended Packet Delay Budget | M |  | INTEGER (1..65535, …, 65536..109999) | Upper bound value for the delay that a packet may experience expressed in unit of 0.01ms. |

*next change*

#### 9.3.1.140 Enhanced Coverage Restriction

This IE provides information on the restriction information of using Coverage Enhancement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Enhanced Coverage Restriction | M |  | ENUMERATED (restricted, ...) | Indicates whether the UE is restricted to use coverage enhancement.  Value “restricted” indicates that the UE is not allowed to use coverage enhancement. |

*Next change*

#### 9.3.1.152 Alternative QoS Parameters Set Index

This IE indicates the QoS parameters set which can currently be fulfilled.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Alternative QoS Parameters Set Index | M |  | INTEGER (1..8, ...) | Indicates the index of the item within the *Alternative QoS Parameters Set List* IE corresponding to the currently fulfilled alternative QoS parameters set. |

#### 9.3.1.153 Alternative QoS Parameters Set Notify Index

This IE indicates the QoS parameters set which can currently be fulfilled.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Alternative QoS Parameters Set Notify Index | M |  | INTEGER (0..8, ...) | Indicates the index of the item within the *Alternative QoS Parameters Set List* IE corresponding to the currently fulfilled alternative QoS parameters set. Value 0 indicates that NG-RAN cannot even fulfil the lowest alternative parameters set. |

*next change*

#### 9.3.1.169 MDT Configuration-NR

This IE defines the MDT configuration parameters of NR.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| MDT Activation | M |  | ENUMERATED (Immediate MDT only, Logged MDT only, Immediate MDT and Trace, …) |  | - |  |
| CHOICE*Area Scope of MDT* | M |  |  |  | - |  |
| *>Cell based* |  |  |  | If *PNI-NPN Area Scope of MDT* IE is present, this IE covers non-CAG cells only, where non-CAG cells refer to cells that only provide public access. |  |  |
| **>>Cell ID List for MDT** |  | *1..<maxnoofCellIDforMDT>* |  |  | - |  |
| >>>NR CGI | M |  | 9.3.1.7 |  | - |  |
| *>TA based* |  |  |  | If *PNI-NPN Area Scope of MDT* IE is present, this IE covers non-CAG cells only, where non-CAG cells refer to cells that only provide public access. |  |  |
| **>>TA List for MDT** |  | *1..<maxnoofTAforMDT>* |  |  | - |  |
| >>>TAC | M |  | 9.3.3.10 | The TAI is derived using the current serving PLMN. | - |  |
| *>PLMN wide* |  |  | NULL |  |  |  |
| *>TAI based* |  |  |  | If *PNI-NPN Area Scope of MDT* IE is present, this IE covers non-CAG cells only, where non-CAG cells refer to cells that only provide public access. |  |  |
| **>>TAI List for MDT** |  | *1..<maxnoofTAforMDT>* |  |  | - |  |
| >>>TAI | M |  | 9.3.3.11 |  | - |  |
| *>PNI-NPN Based MDT* |  |  |  |  | YES | ignore |
| **>>CAG List for MDT** |  | *1..<maxnoofCAGforMDT>* |  |  | - |  |
| >>>PLMN ID | M |  | 9.3.3.5 |  | - |  |
| >>>CAG ID | M |  | 9.3.3.43 |  | - |  |
| *>SNPN Cell Based MDT* |  |  |  |  | YES | ignore |
| **>>SNPN Cell ID List for MDT** |  | *1..<maxnoofCellIDforMDT>* |  |  | - |  |
| >>>NR CGI | M |  | 9.3.1.7 |  | - |  |
| >>>NID | M |  | 9.3.3.42 | Identifies an SNPN together with the PLMNIdentity in the *NR CGI* IE. | - |  |
| *>SNPN TAI Based MDT* |  |  |  |  | YES | ignore |
| **>>SNPN TAI List for MDT** |  | *1..<maxnoofTAforMDT>* |  |  | - |  |
| >>>TAI | M |  | 9.3.3.11 |  | - |  |
| >>>NID | M |  | 9.3.3.42 | Identifies an SNPN together with the PLMNIdentity in the *TAI* IE. | - |  |
| *>SNPN Based MDT* |  |  |  |  | YES | ignore |
| **>>SNPN List for MDT** |  | *1..<maxnoofMDTSNPNs>* |  |  | - |  |
| >>>PLMN Identity | M |  | 9.3.3.5 |  | - |  |
| >>>NID | M |  | 9.3.3.42 | Identifies an SNPN together with the *PLMN Identity* IE. | - |  |
| CHOICE *MDT Mode* | M |  |  |  | - |  |
| *>Immediate MDT* |  |  |  |  |  |  |
| >>Measurements to Activate | M |  | BITSTRING  (SIZE(8)) | Each position in the bitmap indicates a MDT measurement, as defined in TS 37.320 [41].  First Bit = M1,  Second Bit= M2,  Third Bit = M4,  Fourth Bit = M5,  Fifth Bit = M6,  Sixth Bit = M7,  Seventh Bit = logging of M1 from event triggered measurement reports according to existing RRM configuration,  other bits reserved for future use.  Value “1” indicates “activate” and value “0” indicates “do not activate”. | - |  |
| >>M1 Configuration | C-ifM1 |  | 9.3.1.171 |  | - |  |
| >>M4 Configuration | C-ifM4 |  | 9.3.1.172 |  | - |  |
| >>M5 Configuration | C-ifM5 |  | 9.3.1.173 |  | - |  |
| >>M6 Configuration | C-ifM6 |  | 9.3.1.174 |  | - |  |
| >>M7 Configuration | C-ifM7 |  | 9.3.1.175 |  | - |  |
| >>Bluetooth Measurement Configuration | O |  | 9.3.1.177 |  | - |  |
| >>WLAN Measurement Configuration | O |  | 9.3.1.178 |  | - |  |
| >>MDT Location Information | O |  | 9.3.1.176 |  | - |  |
| >>Sensor Measurement Configuration | O |  | 9.3.1.179 |  | - |  |
| *>Logged MDT* |  |  |  |  |  |  |
| >>Logging Interval | M |  | ENUMERATED (320ms, 640ms, 1280ms, 2560ms, 5120ms, 10240ms, 20480ms, 30720ms, 40960ms, 61440ms, infinity, …) | Corresponds to the *LoggingInterval* IE as defined in TS 38.331 [18]. | - |  |
| >>Logging Duration | M |  | ENUMERATED (10, 20, 40, 60, 90,120, …) | Corresponds to the *LoggingDuration* IE as defined in TS 38.331 [18]. Unit: [minute]. | - |  |
| >>CHOICE *Report Type* | M |  |  |  | - |  |
| *>>>Periodical* |  |  | NULL |  |  |  |
| *>>>Event Triggered* |  |  |  |  |  |  |
| >>>>Event Trigger Logged MDT Configuration | M |  | 9.3.1.180 |  | - |  |
| >>Bluetooth Measurement Configuration | O |  | 9.3.1.177 |  | - |  |
| >>WLAN Measurement Configuration | O |  | 9.3.1.178 |  | - |  |
| >>Sensor Measurement Configuration | O |  | 9.3.1.179 |  | - |  |
| >>Area Scope of Neighbour Cells | O |  | 9.3.1.182 |  | - |  |
| >>Early Measurement | O |  | ENUMERATED  (true, ...) | This IE indicates whether the UE is allowed to log measurements on early measurement related frequencies in logged MDT as specified in TS 38.331 [18]. | YES | ignore |
| Signalling Based MDT PLMN List | O |  | MDT PLMN List  9.3.1.168 |  | - |  |
| PNI-NPN Area Scope of MDT | O |  | 9.3.3.65 | This IE is ignored if the *Area Scope of MDT* IE is set to "PLMN Wide" | YES | ignore |

*next change*

#### 9.3.1.190 Early Status Transfer Transparent Container

The *Early Status Transfer Transparent Container* IE is an information element that is produced by the source NG-RAN node and is transmitted to the target NG-RAN node. This IE is used for the NG DAPS handover case, and for the NG-based handover with time-based trigger condition case.

This IE is transparent to the 5GC.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| \*\* unmodified text skipped \*\* |  |  |  |  |  |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs allowed towards one UE. Value is 32. |

*next change*

#### 9.3.1.209 MBS Service Area Information

This IE contains MBS service area information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **MBS Service Area Cell List** |  | *0..<maxnoofCellsforMBS>* |  |  |
| >NR CGI | M |  | 9.3.1.7 |  |
| **MBS Service Area TAI List** |  | *0..<maxnoofTAIforMBS>* |  |  |
| >TAI | M |  | 9.3.3.11 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellsforMBS | Maximum no. of cells allowed within one MBS Service Area. Value is 8192. |
| maxnoofTAIforMBS | Maximum no. of TAs allowed within one MBS Service Area. Value is 1024. |

*next change*

#### 9.3.1.233 5G ProSe Authorized

This IE provides information on the authorization status of the UE to use the 5G ProSe services.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| 5G ProSe Direct Discovery | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Direct Discovery | - |  |
| 5G ProSe Direct Communication | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Direct Communication | - |  |
| 5G ProSe Layer-2 UE-to-Network Relay | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 UE-to-Network Relay | - |  |
| 5G ProSe Layer-3 UE-to-Network Relay | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-3 UE-to-Network Relay | - |  |
| 5G ProSe Layer-2 Remote UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 Remote UE | - |  |
| 5G ProSe Layer-2 Multipath | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the 5G ProSe Layer-2 Remote UE is authorized for 5G ProSe multipath transmission | YES | ignore |
| 5G ProSe Layer-2 UE-to-UE Relay | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 UE-to-UE Relay UE | YES | ignore |
| 5G ProSe Layer-2 UE-to-UE Remote | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized for 5G ProSe Layer-2 UE-to-UE Remote UE. | YES | ignore |

*next change*

#### 9.3.1.246 Aerial UE Subscription Information

This IE is used by the NG-RAN node to know if the UE is allowed to use aerial function, refer to TS 23.501 [9].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Aerial UE Subscription Information | M |  | ENUMERATED (allowed, not allowed,…) |  |

*next change*

#### 9.3.1.256 Periodicity Range

This IE indicates the periodicity range for the TSC QoS flow as defined in TS 23.501 [9].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Periodicity Range* | M |  |  |  |
| >*Periodicity Bound* |  |  |  |  |
| >>Periodicity Lower Bound | M |  | Periodicity  9.3.1.132 |  |
| >>Periodicity Upper Bound | M |  | Periodicity  9.3.1.132 |  |
| >*Periodicity List* |  |  |  |  |
| >>**Allowed Periodicity List** |  | *1..<maxnoofPeriodicities>* |  |  |
| >>>Allowed Periodicity | M |  | Periodicity  9.3.1.132 |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofPeriodicities* | Maximum no. of allowed periodicities. Value is 8. |

*next change*

#### 9.3.1.267 ECN Marking or Congestion Information Reporting Status

This IE contains a list of QoS flows with activation status information for NG-RAN node to perform ECN marking or to report information for ECN marking or to report congestion information reporting.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **ECN Marking or Congestion Information Reporting Status Item** |  | *1..<maxnoofQoSFlows >* |  |  |
| >QoS Flow Identifier | M |  | 9.3.1.51 |  |
| >Activation Status | M |  | ENUMERATED (active, not Active, …) | Indicates whether ECN marking at NG-RAN or reporting information for ECN marking at UPF or congestion information reporting is active or not active. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofQoSFlows | Maximum no. of QoS flows allowed within one PDU session. Value is 64. |

*next change*

#### 9.3.2.2 UP Transport Layer Information

This IE is used to provide the NG UP transport layer information associated with a PDU session for an NG-RAN node – UPF pair. In this release it corresponds to an IP address and a GTP Tunnel Endpoint Identifier.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *UP Transport Layer Information* | M |  |  |  |
| *>GTP tunnel* |  |  |  |  |
| >>Endpoint IP Address | M |  | Transport Layer Address  9.3.2.4 |  |
| >>GTP-TEID | M |  | 9.3.2.5 |  |

*next change*

#### 9.3.2.6 CP Transport Layer Information

This IE is used to provide the NG control plane transport layer information associated with an NG-RAN node – AMF pair.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *CP Transport Layer Information* | M |  |  |  | - |  |
| *>Endpoint-IP-address* |  |  |  |  |  |  |
| >>Endpoint IP Address | M |  | Transport Layer Address  9.3.2.4 |  | - |  |
| *>Endpoint-IP-address-and-port* |  |  |  |  | YES | reject |
| >>Endpoint IP Address | M |  | Transport Layer Address  9.3.2.4 |  | - |  |
| >>Port Number | M |  | OCTET STRING (SIZE(2)) |  | - |  |

*next change*

#### 9.3.2.9 TNL Association Usage

This IE indicates the usage of the TNL association.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| TNL Association Usage | M |  | ENUMERATED (ue, non-ue, both, …) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. |

*next change*

#### 9.3.2.16 Shared NG-U Multicast TNL Information

This IE provides the shared NG UP transport layer information associated with an MBS session at the 5GC.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| IP Multicast Address | M |  | Transport Layer Address  9.3.2.4 |  |
| IP Source Address | M |  | Transport Layer Address  9.3.2.4 |  |
| GTP-TEID at 5GC | M |  | GTP-TEID  9.3.2.5 |  |

*next change*

#### 9.3.3.23 UE Identity Index Value

This IE is used by the NG-RAN node to calculate the Paging Frame as specified in TS 38.304 [12] and TS 36.304 [29].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *UE Identity Index Value* | M |  |  |  |
| *>Index Length 10* |  |  |  |  |
| >>Index Length 10 | M |  | BIT STRING (SIZE(10)) | Coded as specified in TS 38.304 [12] and TS 36.304 [29]. |

*next change*

#### 9.3.3.34 Inter-system SON Information

This IE identifies the nature of the configuration information transferred.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *Inter-system SON Information* | M |  |  |  | - |  |
| *>Inter-system SON Information Report* |  |  |  |  |  |  |
| >>Inter-system SON Information Report | M |  | 9.3.3.36 |  | - |  |
| *>Inter-system SON Information Request* |  |  |  |  | YES | ignore |
| >>Inter-system SON Information Request | M |  | 9.3.3.54 |  | - |  |
| *>Inter-system SON Information Reply* |  |  |  |  | YES | ignore |
| >>Inter-system SON Information Reply | M |  | 9.3.3.55 |  | - |  |

#### 9.3.3.35 SON Information Report

This IE contains the configuration information to be transferred.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *SON Information Report* | M |  |  |  | - |  |
| *>Failure Indication Information* |  |  |  |  |  |  |
| >>Failure Indication | M |  | 9.3.3.37 |  | - |  |
| *>HO Report Information* |  |  |  |  |  |  |
| >>HO Report | M |  | 9.3.3.39 |  | - |  |
| *>Successful HO Report Information* |  |  |  |  | YES | ignore |
| **>>Successful HO Report List** |  | *1* |  |  | - |  |
| **>>>Successful HO Report Item** |  | *1..<maxnoofSuccessfulHOReports>* |  |  | - |  |
| >>>>Successful HO Report Container | M |  | OCTET STRING | Includes the *SuccessHO-Report* IE as defined in TS 38.331 [18]. | - |  |
| *>Successful PSCell Change Report Information* |  |  |  |  | YES | ignore |
| **>>Successful PSCell Change Report List** |  | *1* |  |  | - |  |
| **>>>Successful PSCell Change Report Item** |  | *1..<maxnoofSuccessfulPSCellChangeReports>* |  |  | - |  |
| >>>>Successful PSCell Change Report Container | M |  | OCTET STRING | Includes the *SuccessPSCell-Report* IE as defined in TS 38.331 [18]. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSuccessfulHOReports | Maximum no. of Successful HO Reports. Value is 64. |
| maxnoofSuccessfulPSCellChangeReports | Maximum no. of Successful PSCell Change Reports. Value is 64. |

#### 9.3.3.36 Inter-system SON Information Report

This IE contains the configuration information to be transferred.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *Inter-system* *SON Information Report* | M |  |  |  | - |  |
| *>HO Report Information* |  |  |  |  |  |  |
| >>Inter-system HO Report | M |  | 9.3.3.40 |  | - |  |
| *>Failure Indication Information* |  |  |  |  |  |  |
| >>Inter-system Failure Indication | M |  | 9.3.3.38 |  | - |  |
| *>Energy Savings Indication* |  |  |  |  | YES | ignore |
| >>Inter-system Cell State Indication | M |  | 9.3.3.57 |  | - |  |
| *>Resource Status Report* |  |  |  |  | YES | ignore |
| >>Inter-system Resource Status Report | M |  | 9.3.3.60 |  | - |  |

#### 9.3.3.37 Failure Indication

This IE contains the failure indication to be transferred.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| UE RLF Report Container | M |  | 9.3.3.41 |  |

*next change*

#### 9.3.3.64 NR Paging Long eDRX Information for RRC INACTIVE

This IE indicates the NR Paging long eDRX parameters as defined in TS 38.304 [12].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| NR Paging Long eDRX Cycle for RRC INACTIVE | M |  | ENUMERATED (hf2, hf4, hf8, hf16, hf32, hf64, hf128, hf256, hf512, hf1024, …) | TeDRX, RAN defined in TS 38.304 [12].  Unit: [number of hyperframes]. |
| NR Paging Time Window for RRC\_INACTIVE | M |  | ENUMERATED (s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11, s12, s13, s14, s15, s16, s17, s18, s19, s20, s21, s22, s23, s24, s25, s26, s27, s28, s29, s30, s31, s32, …) | Unit: [1.28 seconds] |

*end of changes*