**3GPP TSG-RAN3 Meeting #109-e R3-205707**

**E-meeting, 17 - 28 August 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.423** | **CR** | **0419** | **rev** | **2** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | SON Corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SON\_MDT-Core | | | | |  | ***Date:*** | | | 2020-08-22 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Based on latest RAN2 specification, the reconnectCellId includes gNB, ng-eNB and eNB cells. The Re-establishment cell CGI IE in the HANDOVER REPORT message which is also used to indicate re-connected cell ID only includes NG-RAN Cell identity.  It is beneficial to also allow to include eNB cell in order to be forward compatilbe. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Extend Re-establishment cell CGI IE to also cover E-UTRAN CGI in the HANDOVER REPORT message.  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has impact on the Handover Report with previous version of the specification (same release).  This CR has an impact under functional and protocol point of view.  The impact can be considered isolated.  This CR is not backward compatible | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Different information in the RLF report and in this associated explicit IE | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.4.8, 9.3.1.17, 9.2.2.X, 9.2.2.Y, 9.3.4, 9.3.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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: Removed non-essential corrections and only kept the NBC part. Corrected definition of the new IEs. Updated cover page.  Rev2: Revised the coverpage and modified the change to be a single new IE | | | | | | | | |

*Start of the change*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[3] 3GPP TS 38.420: "NG-RAN; Xn General Aspects and Principles".

[4] 3GPP TS 38.422: "NG-RAN; Xn Signalling Transport".

[5] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP) ".

[6] 3GPP TS 25.921: "Guidelines and principles for protocol description and error handling".

[7] 3GPP TS 23.501: "System Architecture for the 5G System".

[8] 3GPP TS 37.340: "Evolved Universal Terrestrial Radio Access (E-UTRA) and NR; Multi-connectivity; Stage 2".

[9] 3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

[10] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) Protocol specification".

[11] 3GPP TS 38.323: "NR; Packet Data Convergence Protocol (PDCP) specification".

[12] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[13] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[14] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC) protocol specification".

[15] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER) ".

[16] ITU-T Recommendation X.680 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[17] ITU-T Recommendation X.681 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".

[18] 3GPP TS 29.281: "General Packet Radio Service (GPRS); Tunnelling Protocol User Plane (GTPv1-U)".

[19] 3GPP TS 38.424: "NG-RAN; Xn data transport".

[20] 3GPP TS 38.414: "NG-RAN; NG data transport".

[21] 3GPP TS 38.412: "NG-RAN; NG Signalling Transport".

[22] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[23] 3GPP TS 32.422: "Trace control and configuration management".

[24] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[25] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception ".

[26] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation".

[27] 3GPP TS 36.101: "User Equipment (UE) radio transmission and reception".

[28] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[29] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

[30] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[31] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[32] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[33] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[34] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode".

[35] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[36] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[37] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[38] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[39] 3GPP TS 38.211: "NR; Physical channels and modulation".

[40] 3GPP TS 38.213: "NR; Physical layer procedures for control".

[41] 3GPP TS 38.473: "NG-RAN; F1 application protocol (F1AP)".

[42] 3GPP TS 38.314: "NR; Layer 2 measurements".

[43] 3GPP TS 37.320: " Radio measurement collection for Minimization of Drive Tests (MDT),"

[44] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[45] 3GPP TS 38.211: "NR; Physical channels and modulation".

[ref1] 3GPP TS 36.423: " Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 application protocol (X2AP)".

*Next change*

9.1.3.17 HANDOVER REPORT

This message is sent by NG-RAN node1 to NG-RAN node2 to report a handover failure event, or other critical mobility problem.

Direction: NG-RAN node 1 → NG-RAN node 2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.2.3.1 |  | YES | ignore |
| Handover Report Type | M |  | ENUMERATED (HO too early, HO to wrong cell, Inter-system ping-pong…) |  | YES | ignore |
| Handover Cause | M |  | Cause  9.2.3.2 | Indicates handover cause employed for handover from NG-RAN node 2 | YES | ignore |
| Source cell CGI | M |  | Global NG-RAN Cell Identity  9.2.2.27 | NG-RAN CGI of source cell for handover procedure (in NG-RAN node 2) | YES | ignore |
| Target cell CGI | M |  | Global NG-RAN Cell Identity  9.2.2.27 | NG-RAN CGI of target cell for handover procedure (in NG-RAN node 1).  If the Handover Report Type is set to “Inter-system ping-pong”, it contains the target cell of the inter system handover from the other system to NG-RAN node 1 cell | YES | ignore |
| Re-establishment cell CGI | C-  ifHandoverReportType HoToWrongCell |  | Global Cell Identity  9.2.2.X | CGI of cell where UE attempted re-establishment or where UE successfully re- connected after the failure | YES | ignore |
| Target cell in E-UTRAN | C-  ifHandoverReportType Intersystempingpong |  | OCTET STRING | Encoded according to *Global Cell ID* in the *Last Visited E-UTRAN Cell Information* IE, as defined in in TS 36.413 [31] | YES | ignore |
| Source cell C-RNTI | O |  | BIT STRING (SIZE (16)) | C-RNTI allocated at the source NG-RAN node (in NG-RAN node 2) | YES | ignore |
| Mobility Information | O |  | BIT STRING (SIZE (32)) | Information provided in the HANDOVER REQUEST message from NG-RAN node 2. | YES | ignore |
| UE RLF Report Container | O |  | 9.2.2.59 | The UE RLF Report Container IE received in the FAILURE INDICATION message. | YES | ignore |

|  |  |
| --- | --- |
| **Condition** | **Explanation** |
| ifHandoverReportType HoToWrongCell | This IE shall be present if the *Handover Report Type* IE is set to the value "HO to wrong cell" |
|  |  |
| ifHandoverReportType Intersystempingpong | This IE shall be present if the *Handover Report Type* IE is set to the value "Inter-system ping-pong" |

*next change*

#### 9.2.2.X Global Cell Identity

This IE is used to globally identify an NG-RAN cell or an E-UTRAN cell (see TS 36.300 [12]).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| PLMN Identity | M |  | 9.2.2.4 |  |
| CHOICE *Cell Type* | M |  |  |  |
| *>NG-RAN E-UTRA* |  |  |  |  |
| >>E-UTRA Cell Identity | M |  | BIT STRING (SIZE(28)) | The leftmost bits of the *E-UTRA Cell Identity* IE correspond to the ng-eNB ID (defined in subclause 9.2.2.2). |
| *>NG-RAN NR* |  |  |  |  |
| >>NR Cell Identity | M |  | BIT STRING (SIZE(36)) | The leftmost bits of the *NR* *Cell Identity* IE correspond to the gNB ID (defined in subclause 9.2.2.1). |
| *>E-UTRAN* |  |  |  |  |
| >>E-UTRAN Cell Identity | M |  | BIT STRING (SIZE(28)) | The leftmost bits of the *E-UTRAN Cell Identity* IE value correspond to the eNB ID (defined in section 9.2.22 in TS 36.423 [ref1]). |

*next change*

9.3.4 PDU Definitions

*<partially omitted>*

E-UTRA-CGI,

ExpectedUEBehaviour,

FiveGCMobilityRestrictionListContainer,

GlobalCell-ID,

GlobalNG-RANNode-ID,

GlobalNG-RANCell-ID,

*<partially omitted>*

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

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-- HANDOVER REPORT

--

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

HandoverReport ::= SEQUENCE {

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

...

}

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

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

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

{ ID id-SourceCellCGI CRITICALITY ignore TYPE GlobalNG-RANCell-ID PRESENCE mandatory }|

{ ID id-TargetCellCGI CRITICALITY ignore TYPE GlobalNG-RANCell-ID PRESENCE mandatory }|

{ ID id-ReEstablishmentCellCGI CRITICALITY ignore TYPE GlobalCell-ID PRESENCE conditional }|

-- This IE shall be present if the *Handover Report Type* IE is set to the value "HO to wrong cell"

{ ID id-TargetCellinEUTRAN CRITICALITY ignore TYPE TargetCellinEUTRAN PRESENCE conditional }|

-- This IE shall be present if the *Handover Report Type* IE is set to the value "Inter-system ping-pong"

{ ID id-SourceCellCRNTI CRITICALITY ignore TYPE C-RNTI PRESENCE optional }|

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

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

...

}

*next change*

9.3.5 Information Element definitions

-- ASN1START

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

--

-- Information Element Definitions

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

*<partially omitted>*

CellToReport ::= SEQUENCE (SIZE(1..maxnoofCellsinNG-RANnode)) OF CellToReport-Item

CellToReport-Item ::= SEQUENCE {

cell-ID GlobalNG-RANCell-ID,

sSBToReport-List SSBToReport-List,

sliceToReport-List SliceToReport-List,

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

...

}

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

...

}

Cell-Type-Choice ::= CHOICE {

ng-ran-e-utra E-UTRA-Cell-Identity,

ng-ran-nr NR-Cell-Identity,

e-utran E-UTRA-Cell-Identity,

choice-extension ProtocolIE-Single-Container { { Cell-Type-Choice-ExtIEs} }

}

Cell-Type-Choice-ExtIEs XNAP-PROTOCOL-IES ::= {

...

}

CompositeAvailableCapacityGroup ::= SEQUENCE {

compositeAvailableCapacityDownlink CompositeAvailableCapacity,

compositeAvailableCapacityUplink CompositeAvailableCapacity,

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

...

}

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

...

}

*<partially omitted>*

GNB-RadioResourceStatus ::= SEQUENCE {

ssbAreaRadioResourceStatus-List SSBAreaRadioResourceStatus-List,

iE-Extensions ProtocolExtensionContainer { { GNB-RadioResourceStatus-ExtIEs} },

...

}

GNB-RadioResourceStatus-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

GNB-RadioResourceStatus ::= SEQUENCE {

ssbAreaRadioResourceStatus-List SSBAreaRadioResourceStatus-List,

iE-Extensions ProtocolExtensionContainer { { GNB-RadioResourceStatus-ExtIEs} },

...

}

GNB-RadioResourceStatus-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

GlobalCell-ID ::= SEQUENCE {

plmn-id PLMN-Identity,

cell-type Cell-Type-Choice,

iE-Extensions ProtocolExtensionContainer { { GlobalCell-ID-ExtIEs} } OPTIONAL,

...

}

GlobalCell-ID-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

GlobalngeNB-ID ::= SEQUENCE {

plmn-id PLMN-Identity,

enb-id ENB-ID-Choice,

iE-Extensions ProtocolExtensionContainer { {GlobaleNB-ID-ExtIEs} } OPTIONAL,

...

}

GlobaleNB-ID-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

*End of the change*