3GPP TSG-RAN WG3 Meeting #125 *R3-244650*

Maastricht, NL, 19th – 23th Aug 2024

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.473** | **CR** | **1415** | **rev** | **2** | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](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 |  |
|  | | | | | | | | | | | | | | | | | |
| ***Title:*** | Introduction of barring exemption for (e)RedCap and 2RX XR UEs | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | |
| ***Source to WG:*** | China Telecom, ZTE, China Unicom, Nokia, Qualcomm Incorporated, Ericson, Huawei, CMCC, CATT | | | | | | | | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | |
| ***Work item code:*** | TEI18 | | | | | | | | |  | ***Date:*** | | | 2024-08-21 | | | |
|  |  | | | | |  | | | | |  | | |  | | | |
| ***Category:*** | **B** |  | | | | | | | | | ***Release:*** | | | Rel-18 | | | |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | | | | |
|  |  | | | | | | | | | | | | | | | | |
| ***Reason for change:*** | | In the RAN2 #125bis meeting, RAN2 sent an LS R3-243012 to RAN3, to introduce a mechanism to allow RedCap UEs to have access to the cell to make an emergency call or receive emergency information broadcast.  However, in the RAN2 #126 meeting, RAN2 re-discussed this mechanism and decided to use a common solution for (e)RedCap and 2RX XR UEs.  Agreements  1 NES (i.e. ingoring MIB barring) will not be considered in our common solution discussion. FFS if anything specific for NES will need to be done. If anything needs to be done, it would not be part of the common solution.  2 For Rel-18, we introduce 1 bit that enables EM call for RedCap, eRedCap, and 2Rx XR. One RRC Rel-18 with magic sentence that it is early implementable in Rel-17. A CR for 38.304 doesn’t need to have the magic sentence.  3 This replaces the previous agreement and we will notify RAN3 verbally via delegates  Based on the above RAN2 agreement, the endorsed CRs included in the LS R3-243012 are withdrawn, and a set of new RAN2 CRs are agreed in R2-2405956, R2-2405957 and R2-2405958.  So that, RAN3 shall enhance TS38.423 and TS38.473 accordingly. | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | |
| ***Summary of change:*** | | Add a new IE in the in the IE”Served Cell Information” for (e)RedCap and 2RX XR UEs to have access to the cell to make an emergency call or receive emergency information broadcast.  .  **Impact analysis**  Impact assessment towards the previous version of the specification (same release):  This CR has isolated impact with the previous version of the specification (same release).  This CR has impact on the functional point of view, the impact can be considered isolated because it only impacts the barring exemption for (e)RedCap and 2RX XR UEs for emergency calls. | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | |
| ***Consequences if not approved:*** | | The (e)RedCap and 2RX XR UEs cannot make emergency calls in a cell where access for these UE are enabled but these UEs with 1Rx or 2Rx branches are barred. | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | |
| ***Clauses affected:*** | | 9.3.1.10 | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | |
|  | | **Y** | | **N** |  | | | | | | |  | | | | | |
| ***Other specs*** | | **X** | |  | Other core specifications | | | | | | | TS 38.331 CR 4570  TS 38.304 CR 0380  TS 38.423 CR 1322 | | | | | |
| ***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: R3-243159  Rev 2: update the WI code, procedure texts and fix ASN.1 | | | | | | | | | | | | | | | |

<<<<<<<<<<<<<<<<<<<< Start of the Changes >>>>>>>>>>>>>>>>>>>>

### 8.2.3 F1 Setup

#### 8.2.3.1 General

The purpose of the F1 Setup procedure is to exchange application level data needed for the gNB-DU and the gNB-CU to correctly interoperate on the F1 interface. This procedure shall be the first F1AP procedure triggered for the F1-C interface instance after a TNL association has become operational.

NOTE: If F1-C signalling transport is shared among multiple F1-C interface instances, one F1 Setup procedure is issued per F1-C interface instance to be setup, i.e. several F1 Setup procedures may be issued via the same TNL association after that TNL association has become operational.

NOTE: Exchange of application level configuration data also applies between the gNB-DU and the gNB-CU in case the DU does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [7]. How to use this information when this option is used is not explicitly specified.

The procedure uses non-UE associated signalling.

This procedure erases any existing application level configuration data in the two nodes and replaces it by the one received. This procedure also re-initialises the F1AP UE-related contexts (if any) and erases all related signalling connections in the two nodes like a Reset procedure would do.

#### 8.2.3.2 Successful Operation



Figure 8.2.3.2-1: F1 Setup procedure: Successful Operation

The gNB-DU initiates the procedure by sending a F1 SETUP REQUEST message including the appropriate data to the gNB-CU. The gNB-CU responds with a F1 SETUP RESPONSE message including the appropriate data.

---------------------------------------------Skip unchanged part-----------------------------------

If the *RedCap Broadcast Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving RedCap UEs.

If the *eRedCap Broadcast Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving eRedCap UEs.

If the *TAI NSAG Support List* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, use this information as specified in TS 23.501 [21].

If both the *RRC Terminating IAB-Donor gNB-ID* IE and the *BAP Address* IE are included in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, consider that the BAP address indicated by the *BAP Address* IE is assigned by the gNB-CU of the RRC-terminating IAB-donor indicated by the *RRC Terminating IAB-Donor gNB-ID* IE, and use this BAP address and gNB-ID for the subsequent IAB Transport Migration Management procedure towards the RRC-terminating IAB-donor of the mobile IAB-node, as specified in TS 38.423 [28].

If the F1 SETUP REQUEST message contains the *Mobile* *IAB-MT User Location Information* IE, the gNB-CU shall, if supported, take it into account when reporting UE location information to the AMF for a UE served by the mobile IAB-node.

If the *XR Broadcast Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, consider the indicated cell does not allow 2Rx XR UEs in case of subsequent outgoing mobility involving XR UEs.

If the *NCGI to be Updated List* IE is included in the F1 SETUP RESPONSE message, the gNB-DU shall, if supported, change the NCGI of the cell indicated by the *Old NCGI* IE to the NCGI indicated by the *New NCGI* IE.

If the *Barring Exemption for Emergency Call Information* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU may store and use this information to indicate the cell allows emergency bearer services who would otherwise consider the cell as barred as specified in TS 38.304 [24].

<<<<<<<<<<<<<<<<<<<< Next of the Changes >>>>>>>>>>>>>>>>>>>>

### 8.2.4 gNB-DU Configuration Update

#### 8.2.4.1 General

The purpose of the gNB-DU Configuration Update procedure is to update application level configuration data needed for the gNB-DU and the gNB-CU to interoperate correctly on the F1 interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non-UE associated signalling.

NOTE: Update of application level configuration data also applies between the gNB-DU and the gNB-CU in case the DU does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [7]. How to use this information when this option is used is not explicitly specified.

#### 8.2.4.2 Successful Operation



Figure 8.2.4.2-1: gNB-DU Configuration Update procedure: Successful Operation

The gNB-DU initiates the procedure by sending a GNB-DU CONFIGURATION UPDATE message to the gNB-CU including an appropriate set of updated configuration data that it has just taken into operational use. The gNB-CU responds with GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If an information element is not included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall interpret that the corresponding configuration data is not changed and shall continue to operate the F1-C interface with the existing related configuration data.

---------------------------------------------Skip unchanged part-----------------------------------

If the *RedCap Broadcast Information* IE is contained in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving RedCap UEs.

If the *eRedCap Broadcast Information* IE is contained in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store and use this information to determine a suitable target in case of subsequent outgoing mobility involving eRedCap UEs.

If the *TAI NSAG Support List* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, use this information as specified in TS 23.501 [21].

If the *gNB-DU Name* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-DU. If the *Extended gNB-DU Name* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-DU and shall ignore the *gNB-DU Name* IE if also included.

If the *RRC Terminating IAB-Donor Related Info* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, consider that the BAP address indicated by the *Mobile IAB-MT BAP Address* IE is assigned by the gNB-CU of the RRC-terminating IAB-donor indicated by the *RRC Terminating IAB-Donor gNB-ID* IE, and it shall use this BAP address and gNB ID for the subsequent IAB Transport Migration Management procedure towards the RRC-terminating IAB-donor of the mobile IAB-node as needed, as specified in TS 38.423 [28].

If the GNB-DU CONFIGURATION UPDATE message contains the *Mobile IAB-MT User Location Information* IE, the gNB-CU shall, if supported, take it into account when reporting UE location information to the AMF for a UE served by the mobile IAB-node.

If the *XR Broadcast Information* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, consider the indicated cell does not allow 2Rx XR UEs in case of subsequent outgoing mobility involving XR UEs.

If the *Barring Exemption for Emergency Call Information* IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store and use this information to indicate the cell allows emergency bearer services who would otherwise consider the cell as barred as specified in TS 38.304 [24].

<<<<<<<<<<<<<<<<<<<< Next of the Changes >>>>>>>>>>>>>>>>>>>>

#### 9.3.1.10 Served Cell Information

This IE contains cell configuration information of a cell in the gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| NR CGI | M |  | 9.3.1.12 |  | - |  |
| NR PCI | M |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| 5GS TAC | O |  | 9.3.1.29 | 5GS Tracking Area Code | - |  |
| Configured EPS TAC | O |  | 9.3.1.29a |  | - |  |
| ---------------------------------------------Skip unchanged part----------------------------------- | | | | | | |
| RedCap Broadcast Information | O |  | BIT STRING (SIZE(8)) | The presence of this IE indicates that the intraFreqReselectionRedCap IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8].  Each position in the bitmap indicates which RedCap UEs are allowed access, according to the setting of RedCap barring indicators in SIB1, see TS 38.331 [8].  First bit = 1Rx, second bit = 2Rx,  third bit = halfDuplex,  other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed”. | YES | ignore |
| eRedCap Broadcast Information | O |  | BIT STRING (SIZE(8)) | The presence of this IE indicates that the *intraFreqReselection-eRedCap* IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8].  Each position in the bitmap indicates which eRedCap UEs are allowed access, according to the setting of the barring indicators in SIB1, see TS 38.331 [8].  First bit = 1Rx,  second bit = 2Rx, third bit=half-duplex,  other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed”. | YES | ignore |
| XR Broadcast Information | O |  | ENUMERATED (true, …) | Corresponds to information provided in the *cellBarred2RxXR* contained in the *SIB1* message as defined in TS 38.331 [8]. | YES | ignore |
| Barring Exemption for Emergency Call Information | O |  | ENUMERATED (true, …) | Corresponds to information provided in the *barringExemptEmergencyCall*  contained in the *SIB1* message as defined in 38.331 [10]. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofBPLMNs | Maximum no. of Broadcast PLMN Ids. Value is 6. |
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6. |
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in an NR cell. Value is 12. |
| maxnoofNR-UChannelIDs | Maximum no. NR-U Channel IDs in a cell. Value is 16. |
| maxnoofMBSFSAs | Maximum no. of MBS FSAs by a cell. Value is 256. |

<<<<<<<<<<<<<<<<<<<< Next of the Changes >>>>>>>>>>>>>>>>>>>>

9.4.5 Information Element Definitions

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-- Information Element Definitions

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

F1AP-IEs {

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

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

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

---------------------------------------------Skip unchanged part-----------------------------------

id-AggregatedPosSRSResourceSetList,

id-ValidityAreaSpecificSRSInformation,

id-PeerUE-ID,

id-MeasBasedOnAggregatedResources,

id-SIB23-message,

id-PointA,

id-SCS-SpecificCarrier,

id-NR-PCI,

id-E-CID-MeasuredResultsAssociatedInfoList,

id-XR-Bcast-Information,

id-MaxDataBurstVolume,

id-BarringExemptionforEmerCallInfo,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

maxnoofBPLMNsNR,

---------------------------------------------Skip unchanged part-----------------------------------

BAPRoutingID ::= SEQUENCE {

bAPAddress BAPAddress,

bAPPathID BAPPathID,

iE-Extensions ProtocolExtensionContainer { { BAPRoutingIDExtIEs } } OPTIONAL

}

BAPRoutingIDExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BarringExemptionforEmerCallInfo ::== ENUMERATED {true, ...}

BCBearerContextF1U-TNLInfo ::= CHOICE {

locationindpendent MBSF1UInformation,

locationdependent LocationDependentMBSF1UInformation,

choice-extension ProtocolIE-SingleContainer {{BCBearerContextF1U-TNLInfo-ExtIEs}}

}

---------------------------------------------Skip unchanged part-----------------------------------

Served-Cell-Information ::= SEQUENCE {

nRCGI NRCGI,

nRPCI NRPCI,

fiveGS-TAC FiveGS-TAC OPTIONAL,

configured-EPS-TAC Configured-EPS-TAC OPTIONAL,

servedPLMNs ServedPLMNs-List,

nR-Mode-Info NR-Mode-Info,

measurementTimingConfiguration OCTET STRING,

iE-Extensions ProtocolExtensionContainer { {Served-Cell-Information-ExtIEs} } OPTIONAL,

...

}

Served-Cell-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

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

{ ID id-ExtendedServedPLMNs-List CRITICALITY ignore EXTENSION ExtendedServedPLMNs-List PRESENCE optional }|

{ ID id-Cell-Direction CRITICALITY ignore EXTENSION Cell-Direction PRESENCE optional }|

{ ID id-BPLMN-ID-Info-List CRITICALITY ignore EXTENSION BPLMN-ID-Info-List PRESENCE optional }|

{ ID id-Cell-Type CRITICALITY ignore EXTENSION CellType PRESENCE optional}|

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

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

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

{ ID id-IAB-Info-IAB-DU CRITICALITY ignore EXTENSION IAB-Info-IAB-DU PRESENCE optional}|

{ ID id-SSB-PositionsInBurst CRITICALITY ignore EXTENSION SSB-PositionsInBurst PRESENCE optional }|

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

{ ID id-SFN-Offset CRITICALITY ignore EXTENSION SFN-Offset PRESENCE optional }|

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

{ ID id-Supported-MBS-FSA-ID-List CRITICALITY ignore EXTENSION Supported-MBS-FSA-ID-List PRESENCE optional }|

{ ID id-Redcap-Bcast-Information CRITICALITY ignore EXTENSION Redcap-Bcast-Information PRESENCE optional }|

{ ID id-ERedcap-Bcast-Information CRITICALITY ignore EXTENSION ERedcap-Bcast-Information PRESENCE optional }|

{ ID id-XR-Bcast-Information CRITICALITY ignore EXTENSION XR-Bcast-Information PRESENCE optional }|

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

...

}

---------------------------------------------Skip unchanged part-----------------------------------

9.4.7 Constant Definitions

-- ASN1START

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

--

-- Constant definitions

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

F1AP-Constants {

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

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

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

---------------------------------------------Skip unchanged part-----------------------------------

id-SRSInformation ProtocolIE-ID ::= 832

id-ValidityAreaSpecificSRSInformation ProtocolIE-ID ::= 833

id-E-CID-MeasuredResultsAssociatedInfoList ProtocolIE-ID ::= 834

id-XR-Bcast-Information ProtocolIE-ID ::= 835

id-MaxDataBurstVolume ProtocolIE-ID ::= 836

id-TAInformation-List ProtocolIE-ID ::= 837

id-NonIntegerDRXCycle ProtocolIE-ID ::= 838

id-PointA ProtocolIE-ID ::= 839

id-SCS-SpecificCarrier ProtocolIE-ID ::= 840

id-NR-PCI ProtocolIE-ID ::= 841

id-PeerUE-ID ProtocolIE-ID ::= 842

id-EarlySyncServingCellInformation ProtocolIE-ID ::= 843

id-RANSharingAssistanceInformation ProtocolIE-ID ::= 844

id-LTMCFRAResourceConfig-List ProtocolIE-ID ::= 845

id-F1U-PathFailure ProtocolIE-ID ::= 846

id-MeasBasedOnAggregatedResources ProtocolIE-ID ::= 847

id-SIB23-message ProtocolIE-ID ::= 848

id-BarringExemptionforEmerCallInfo ProtocolIE-ID ::= xxx

END

-- ASN1STOP

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