**3GPP TSG-RAN WG3 Meeting #122 *R3-237770***

**Chicago, US, 13-17 Nov, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.473** | **CR** | **1232** | **rev** | **1** | **Current version:** | **17.6.0** |  |
|  | | | | | | | | |
| *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:*** | Introduction of early capability restriction for Multi-SIM | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, ZTE, Samsung, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_DualTxRx\_MUSIM-Core | | | | |  | ***Date:*** | | | 2023-11-13 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In order to indicate the early temporary capability restriction, it was agreed in RAN2 that the UE can indicate to network B using the *RRCSetupComplete* message (for RRC idle UE) during RRC connection setup procedure that its capabilities are temporarily restricted while the UE is already in RRC connected state in network A as follows, when it is allowed by network B in SIB1. This has been captured in the RAN2 running CR R2-2311294, and stage 3 CR R2-2309790.   |  | | --- | | RRCSetupComplete-v18xy-IEs ::= SEQUENCE {  musim-CapabilityRestrictionIndication-r18 ENUMERATED {true} OPTIONAL,  nonCriticalExtension SEQUENCE{} OPTIONAL  } |   In the CU/DU split architecture, when the CU receives the capability restriction indication from the UE, it should deliver it to the DU so that the DU can decide the restricted lower layer configurations, e.g., the MIMO layers. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | - Introduce the “*musim-CapabilityRestrictionIndication*” IE in the CU to DU RRC Information in the UE context setup request message. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The gNB-DU is not aware of the musim-CapabilityRestrictionIndication sent from the UE, and unable to perform early temporary capability restriction. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.3.1.2, 9.3.1.25, 9.4.5; 9.4.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specification | | | | 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: R3-237770  Update the section and cover page so that the “*musim-CapabilityRestrictionIndication*” IE is included in the UE context setup request message, instead of in the UE context modification request message. | | | | | | | | |

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| **Change Begins** |

### 8.3.1 UE Context Setup

#### 8.3.1.1 General

The purpose of the UE Context Setup procedure is to establish the UE Context including, among others, SRB,DRB, BH RLC channel, Uu Relay RLC channel, PC5 Relay RLC channel, and SL DRB configuration. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: UE Context Setup Request procedure: Successful Operation

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If the *TwoPHRModeMCG* IE or the *TwoPHRModeSCG* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use this value as described in TS 38.331 [8].

If the *MBSInterestIndication* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

If the *ncd-SSB-RedCapInitialBWP-SDT* IE is contained in the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

If the *musim-CapabilityRestrictionIndication* IE is contained in the *CU to DU RRC Information* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

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#### 9.3.1.25 CU to DU RRC Information

This IE contains the RRC Information that are sent from gNB-CU to gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| CG-ConfigInfo | O |  | OCTET STRING | Includes the *CG-ConfigInfo* message, as defined in TS 38.331 [8]. | - |  |
| UE-CapabilityRAT-ContainerList | O |  | OCTET STRING | This IE is used in the NG-RAN and it includes *the UE-CapabilityRAT-ContainerList* IE, as defined in TS 38.331 [8]. | - |  |
| MeasConfig | O |  | OCTET STRING | Includes the *MeasConfig* IE, as defined in TS 38.331 [8] (without the *MeasGapConfig* IE).  For EN-DC/NGEN-DC operation, includes the list of FR2 frequencies for which the gNB-CU requests the gNB-DU to generate gaps.  For NG-RAN, NE-DC and MN for NR-NR DC, includes the list of FR1 and/or FR2 frequencies, for which the gNB-CU requests the gNB-DU to generate gaps and the gap type (per-UE or per-FR). | - |  |
| Handover Preparation Information | O |  | OCTET STRING | Includes the *HandoverPreparationInformation* message, as defined in TS 38.331 [8]. | YES | ignore |
| CellGroupConfig | O |  | OCTET STRING | Includes the *CellGroupConfig* IE, as defined in TS 38.331 [8]. | YES | ignore |
| Measurement Timing Configuration | O |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message defined in TS 38.331 [8].  In EN-DC/NGEN-DC, it is included when the gaps for FR2 are requested to be configured by the MeNB. For MN in NR-NR DC,it is included when the gaps for FR2 and/or FR1 are requested by the SgNB | YES | ignore |
| UEAssistanceInformation | O |  | OCTET STRING | Includes the *UEAssistanceInformation* message, as defined in TS 38.331 [8]. | YES | ignore |
| CG-Config | O |  | OCTET STRING | Includes the *CG-Config* message, as defined in TS 38.331 [8]. | YES | ignore |
| UEAssistanceInformationEUTRA | O |  | OCTET STRING | Includes the *UEAssistanceInformation* message, as defined in TS 36.331 [41]. | YES | ignore |
| Location Measurement Information | O |  | OCTET STRING | Includes the *LocationMeasurementInfo* IE, as defined in TS 38.331[8] | YES | ignore |
| MUSIM-GapConfig | O |  | OCTET STRING | Includes the *MUSIM-GapConfig* IE as defined in TS 38.331 [8]. | YES | reject |
| SDT-MAC-PHY-CG-Config | O |  | OCTET STRING | Includes the *SDT-MAC-PHY-CG-Config* IE, as defined in TS 38.331 [8]. | YES | ignore |
| MBSInterestIndication | O |  | OCTET STRING | Includes the *MBSInterestIndication* message as defined in TS 38.331 [8]. | YES | ignore |
| NeedForGapsInfoNR | O |  | OCTET STRING | Includes the *NeedForGapsInfoNR* IE, as defined in TS 38.331 [8]. | YES | ignore |
| NeedForGapNCSG-InfoNR | O |  | OCTET STRING | Includes the *NeedForGapNCSG-InfoNR* IE, as defined in TS 38.331 [8]. | YES | ignore |
| NeedForGapNCSG-InfoEUTRA | O |  | OCTET STRING | Includes the *NeedForGapNCSG-InfoEUTRA* IE, as defined in TS 38.331 [8]. | YES | ignore |
| ConfigRestrictInfoDAPS | O |  | OCTET STRING | Includes the *ConfigRestrictInfoDAPS-r16* IE as defined in TS 38.331 [8]. This IE is used at the source node if DAPS HO is configured. | YES | ignore |
| musim-CapabilityRestrictionIndication | O |  | ENUMERATED (true, …) | Corresponds to the *musim-CapabilityRestrictionIndication-r18* IE, as defined in TS 38.331 [8]. | YES | ignore |

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### 9.4.5 Information Element Definitions

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-- Information Element Definitions

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id-TwoPHRModeSCG,

id-ncd-SSB-RedCapInitialBWP-SDT,

id-nrofSymbolsExtended,

id-repetitionFactorExtended,

id-startRBHopping,

id-startRBIndex,

id-transmissionCombn8,

id-ServCellInfoList,

id-MusimCapabilityRestrictionIndication,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

maxnoofBPLMNsNR,

maxnoofDLUPTNLInformation,

maxnoofNrCellBands,

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

CUtoDURRCInformation ::= SEQUENCE {

cG-ConfigInfo CG-ConfigInfo OPTIONAL,

uE-CapabilityRAT-ContainerList UE-CapabilityRAT-ContainerList OPTIONAL,

measConfig MeasConfig OPTIONAL,

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

...

}

CUtoDURRCInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

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

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

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

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

{ ID id-CG-Config CRITICALITY ignore EXTENSION CG-Config PRESENCE optional }|

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

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

{ ID id-MUSIM-GapConfig CRITICALITY reject EXTENSION MUSIM-GapConfig PRESENCE optional }|

{ ID id-SDT-MAC-PHY-CG-Config CRITICALITY ignore EXTENSION SDT-MAC-PHY-CG-Config PRESENCE optional }|

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

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

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

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

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

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

...

}

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

MultiplexingInfo ::= SEQUENCE{

iAB-MT-Cell-List IAB-MT-Cell-List,

iE-Extensions ProtocolExtensionContainer { {MultiplexingInfo-ExtIEs} } OPTIONAL

}

MultiplexingInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

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

M2Configuration ::= ENUMERATED {true, ...}

M5Configuration ::= SEQUENCE {

m5period M5period,

m5-links-to-log M5-Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M5Configuration-ExtIEs} } OPTIONAL,

...

}

M5Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-M5ReportAmount CRITICALITY ignore EXTENSION M5ReportAmount PRESENCE optional },

...

}

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### 9.4.7 Constant Definitions

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-- Constant definitions

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id-startRBHopping ProtocolIE-ID ::= 704

id-startRBIndex ProtocolIE-ID ::= 705

id-transmissionCombn8 ProtocolIE-ID ::= 706

id-ServCellInfoList ProtocolIE-ID ::= 707

id-MusimCapabilityRestrictionIndication ProtocolIE-ID ::= aaa -- to be allocated

END

-- ASN1STOP

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| **Change Ends** |