**3GPP TSG-RAN2 Meeting #127 *R2-240xxxx***

**Maastricht, Netherlands, 19th – 23rd August 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | 5040 | **rev** | **1** | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network | **X** | Core Network |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Correction to UE capabilities and configuration | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Google | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IoT\_NTN\_enh-Core, LTE\_UAV\_enh-Core, NR\_ENDC\_SON\_MDT\_enh2-Core | | | | |  | ***Date:*** | | | 2024-08-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | 1. The current text does not allow the LTE UEs indicate support of Release 18 in *accessStratumRelease* in *UE-EUTRA-Capability*. 2. The current text does not allow the NB-IoT UEs indicate support of Release 18 in *accessStratumRelease* in *UE-Capability-NB*. 3. The current text does not allow the network to indicate the *ue-ConfigRelease* to be Release 18. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Specify that *accessStratumRelease* in *UE-EUTRA-Capability* indicates the release supported by the UE. 2. Specify that *accessStratumRelease* in *UE-Capability-NB* indicates the release supported by the UE. 3. Add codepoint “*rel18”* in the *ue-ConfigRelease*. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | 1. The LTE UEs are not allowed to indicate support of Release 18 in *accessStratumRelease* in *UE-EUTRA-Capability*. 2. The NB-IoT UEs are not allowed to indicate support of Release 18 in *accessStratumRelease* in *UE-Capability-NB*. 3. The network cannot indicate that the UE is configured with Release 18 configurations in the *ue-ConfigRelease*.   **Impact analysis**  Impacted functionality:  IoT NTN, UAV, SON/MDT  Interoperability:  If the UE is implemented in accordance with the changes and the network is not, there is no interoperability foreseen. If the network is implemented in accordance with the changes and the UE is not, there is no interoperability foreseen. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.6, 6.7.3, 10.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

### 6.3.6 Other information elements

<unrelated part omitted>

#### – *UE-EUTRA-Capability*

The IE *UE-EUTRA-Capability* is used to convey the E-UTRA UE Radio Access Capability Parameters, see TS 36.306 [5], and the Feature Group Indicators for mandatory features (defined in Annexes B.1 and C.1) to the network. The IE *UE-EUTRA-Capability* is transferred in E-UTRA or in another RAT.

NOTE 0: For (UE capability specific) guidelines on the use of keyword OPTIONAL, see Annex A.3.5.

<unrelated part omitted>

| *UE-EUTRA-Capability* field descriptions | *FDD/ TDD diff* |
| --- | --- |
| ***accessStratumRelease***  This field indicates the release supported by the UE. NOTE 7. | - |

### 6.7.3 NB-IoT information elements

<unrelated part omitted>

#### – *UE-Capability-NB*

The IE *UE-Capability-NB* is used to convey the NB-IoT UE Radio Access Capability Parameters, see TS 36.306 [5]. The IE *UE-Capability-NB* is transferred in NB-IoT only.

<unrelated part omitted>

| *UE-Capability-NB* field descriptions | *FDD/TDD appl* | *FDD/TDD diff* |
| --- | --- | --- |
| ***accessStratumRelease***  This field indicates the release supported by the UE. | FDD/TDD | No |

### 10.2.2 Message definitions

<unrelated part omitted>

#### – *HandoverPreparationInformation*

This message is used to transfer the E-UTRA RRC information used by the target eNB or target ng-eNB during handover preparation or UE context retrieval, e.g. in case of resume or re-establishment, including UE capability information.

Direction: source eNB/ source RAN to target eNB or target ng-eNB

*HandoverPreparationInformation* message

-- ASN1START

HandoverPreparationInformation ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE{

handoverPreparationInformation-r8 HandoverPreparationInformation-r8-IEs,

spare7 NULL,

spare6 NULL, spare5 NULL, spare4 NULL,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

HandoverPreparationInformation-r8-IEs ::= SEQUENCE {

ue-RadioAccessCapabilityInfo UE-CapabilityRAT-ContainerList,

as-Config AS-Config OPTIONAL, -- Cond HO

rrm-Config RRM-Config OPTIONAL,

as-Context AS-Context OPTIONAL, -- Cond HO

nonCriticalExtension HandoverPreparationInformation-v920-IEs OPTIONAL

}

HandoverPreparationInformation-v920-IEs ::= SEQUENCE {

ue-ConfigRelease-r9 ENUMERATED {

rel9, rel10, rel11, rel12, v10j0, v11e0,

v1280, rel13, ..., rel14, rel15, rel16, rel17, rel18} OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v9d0-IEs OPTIONAL

}

HandoverPreparationInformation-v9d0-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING HandoverPreparationInformation-v9j0-IEs) OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v9e0-IEs OPTIONAL

}

-- Late non-critical extensions:

HandoverPreparationInformation-v9j0-IEs ::= SEQUENCE {

-- Following field is only for pre REL-10 late non-critical extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v10j0-IEs OPTIONAL

}

HandoverPreparationInformation-v10j0-IEs ::= SEQUENCE {

as-Config-v10j0 AS-Config-v10j0 OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v10x0-IEs OPTIONAL

}

HandoverPreparationInformation-v10x0-IEs ::= SEQUENCE {

-- Following field is only for late non-critical extensions from REL-10 to REL-12

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v13c0-IEs OPTIONAL

}

HandoverPreparationInformation-v13c0-IEs ::= SEQUENCE {

as-Config-v13c0 AS-Config-v13c0 OPTIONAL,

-- Following field is only for late non-critical extensions from REL-13

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical extensions:

HandoverPreparationInformation-v9e0-IEs ::= SEQUENCE {

as-Config-v9e0 AS-Config-v9e0 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1130-IEs OPTIONAL

}

HandoverPreparationInformation-v1130-IEs ::= SEQUENCE {

as-Context-v1130 AS-Context-v1130 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1250-IEs OPTIONAL

}

HandoverPreparationInformation-v1250-IEs ::= SEQUENCE {

ue-SupportedEARFCN-r12 ARFCN-ValueEUTRA-r9 OPTIONAL, -- Cond HO3

as-Config-v1250 AS-Config-v1250 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1320-IEs OPTIONAL

}

HandoverPreparationInformation-v1320-IEs ::= SEQUENCE {

as-Config-v1320 AS-Config-v1320 OPTIONAL, -- Cond HO2

as-Context-v1320 AS-Context-v1320 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1430-IEs OPTIONAL

}

HandoverPreparationInformation-v1430-IEs ::= SEQUENCE {

as-Config-v1430 AS-Config-v1430 OPTIONAL, -- Cond HO2

makeBeforeBreakReq-r14 ENUMERATED {true} OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1530-IEs OPTIONAL

}

HandoverPreparationInformation-v1530-IEs ::= SEQUENCE {

ran-NotificationAreaInfo-r15 RAN-NotificationAreaInfo-r15 OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v1540-IEs OPTIONAL

}

HandoverPreparationInformation-v1540-IEs ::= SEQUENCE {

sourceRB-ConfigIntra5GC-r15 OCTET STRING OPTIONAL, --Cond HO4

nonCriticalExtension HandoverPreparationInformation-v1610-IEs OPTIONAL

}

HandoverPreparationInformation-v1610-IEs ::= SEQUENCE {

as-Context-v1610 AS-Context-v1610 OPTIONAL, --Cond HO5

nonCriticalExtension HandoverPreparationInformation-v1620-IEs OPTIONAL

}

HandoverPreparationInformation-v1620-IEs ::= SEQUENCE {

as-Context-v1620 AS-Context-v1620 OPTIONAL, --Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1630-IEs OPTIONAL

}

HandoverPreparationInformation-v1630-IEs ::= SEQUENCE {

as-Context-v1630 AS-Context-v1630 OPTIONAL, --Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1700-IEs OPTIONAL

}

HandoverPreparationInformation-v1700-IEs ::= SEQUENCE {

as-Config-v1700 AS-Config-v1700 OPTIONAL, --Cond HO5

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *HandoverPreparationInformation* field descriptions |
| --- |
| ***as-Config***  The radio resource configuration. Applicable in case of intra-E-UTRA handover, resume or re-establishment. If the target receives an incomplete *MeasConfig* and/or *RadioResourceConfigDedicated* in the *as-Config*, the target eNB may decide to apply the full configuration option based on the *ue-ConfigRelease*. |
| ***as-Context***  Local E-UTRAN context required by the target eNB. |
| ***makeBeforeBreakReq***  To request the target eNB to add the *makeBeforeBreak* indication in the *mobilityControlInfo* in case of intra-frequency handover. |
| ***rrm-Config***  Local E-UTRAN context used depending on the target node's implementation, which is mainly used for the RRM purpose. May also be provided at inter-RAT handover from NR. |
| ***sourceRB-ConfigIntra5GC***  NR radio bearer config used at intra5GC handover, resume or re-establishment, as defined by *RadioBearerConfig* IE in TS 38.331 [82]. |
| ***ue-ConfigRelease***  Indicates the RRC protocol release or version applicable for the current UE configuration. This could be used by target eNB to decide if the full configuration approach should be used. If this field is not present, the target assumes that the current UE configuration is based on the release 8 version of RRC protocol. NOTE 1. |
| ***ue-RadioAccessCapabilityInfo***  For E-UTRA radio access capabilities, it is up to E-UTRA how the backward compatibility among *supportedBandCombinationReduced*, *supportedBandCombination* and *supportedBandCombinationAdd* is ensured. If *supportedBandCombinationReduced* and *supportedBandCombination*/*supportedBandCombinationAdd* are included into *ueCapabilityRAT-Container*, it can be assumed that the value of fields, *requestedBands*, *reducedIntNonContCombRequested* and *requestedCCsXL* are consistend with all supported band combination fields. NOTE 2 |
| ***ue-SupportedEARFCN***  Includes UE supported EARFCN of the handover target E-UTRA cell if the target E-UTRA cell belongs to multiple frequency bands. |

NOTE 1: The source typically sets the *ue-ConfigRelease* to the release corresponding with the current dedicated radio configuration. The source may however also consider the common radio resource configuration e.g. in case interoperability problems would appear if the UE temporary continues extensions of this part of the configuration in a target PCell not supporting them.

NOTE 2: The following table indicates per source RAT whether RAT capabilities are included or not.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source RAT | E-UTRA capabilites | UTRA capabilities | GERAN capabilities | MR DC capabilities | NR capabilities |
| UTRAN | Included | May be included, ignored by eNB if received | May be included | Excluded | Excluded |
| GERAN CS | Excluded | May be included, ignored by eNB if received | Included | Excluded | Excluded |
| GERAN PS | Excluded | May be included, ignored by eNB if received | Included | Excluded | Excluded |
| E-UTRAN | May be included if UE Radio Capability ID as specified in 23.502 [102] is used for the UE. Included otherwise. | May be included | May be included | May be included | May be included |
| NR | May be included if UE Radio Capability ID as specified in 23.502 [102] is used for the UE. Included otherwise. | Excluded | Excluded | May be included | May be included |

| Conditional presence | Explanation |
| --- | --- |
| *HO* | The field is mandatory present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA; otherwise the field is not present. |
| *HO2* | The field is optional present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA; otherwise the field is not present. |
| *HO3* | The field is optional present in case of handover from GERAN to E-UTRA, otherwise the field is not present. |
| *HO4* | The field is mandatory present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA/5GC and optional present in case of handover from NR to E-UTRA/5GC; otherwise the field is not present. |
| *HO5* | The field is optional present in case of handover within E-UTRA, or handover from NR to E-UTRA; otherwise the field is not present. |