**3GPP TSG-RAN WG2 Meeting #109 electronic *R2-200xxxx***

**24 Feb – 6 Mar 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **4221** | **rev** | **1** | **Current version:** | 15.8.0 |  |
|  | | | | | | | | |
| *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:*** | UDC reconfiguration for RRC connection re-establishment case | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16 | | | | |  | ***Date:*** | | | 2020-02-14 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***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:*** | | In Rel-15, for the RRC reestablishment case, UDC can only be reconfigured via handover procedure.  In RAN2#107bis meeting, RAN2 agreed that network can reconfigure UDC via the first *RRCConnectionReconfiguration* message after successful completion of the RRC connection re-establishment procedure, this agreement need to be reflected in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Modify the field description of *uplinkDataCompression*. 2. Modify the description of *Rlc-AM4* to cover the RRC re-establishment case | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | For RRC reestablishment case, UDC can only be configured via handover procedure, the UDC enhancement which has been agreed by RAN2 is not supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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| --- | --- |
| ***This CR's revision history:*** |  |

Beginning of the change

### 6.3.2 Radio resource control information elements

*/ Unchanged partes are omitted/*

– *PDCP-Config*

The IE *PDCP-Config* is used to set the configurable PDCP parameters for data radio bearers.

***PDCP-Config* information element**

-- ASN1START

PDCP-Config ::= SEQUENCE {

discardTimer ENUMERATED {

ms50, ms100, ms150, ms300, ms500,

ms750, ms1500, infinity

} OPTIONAL, -- Cond Setup

rlc-AM SEQUENCE {

statusReportRequired BOOLEAN

} OPTIONAL, -- Cond Rlc-AM

rlc-UM SEQUENCE {

pdcp-SN-Size ENUMERATED {len7bits, len12bits}

} OPTIONAL, -- Cond Rlc-UM

headerCompression CHOICE {

notUsed NULL,

rohc SEQUENCE {

maxCID INTEGER (1..16383) DEFAULT 15,

profiles SEQUENCE {

profile0x0001 BOOLEAN,

profile0x0002 BOOLEAN,

profile0x0003 BOOLEAN,

profile0x0004 BOOLEAN,

profile0x0006 BOOLEAN,

profile0x0101 BOOLEAN,

profile0x0102 BOOLEAN,

profile0x0103 BOOLEAN,

profile0x0104 BOOLEAN

},

...

}

},

...,

[[ rn-IntegrityProtection-r10 ENUMERATED {enabled} OPTIONAL -- Cond RN

]],

[[ pdcp-SN-Size-v1130 ENUMERATED {len15bits} OPTIONAL -- Cond Rlc-AM2

]],

[[ ul-DataSplitDRB-ViaSCG-r12 BOOLEAN OPTIONAL, -- Need ON

t-Reordering-r12 ENUMERATED {

ms0, ms20, ms40, ms60, ms80, ms100, ms120, ms140,

ms160, ms180, ms200, ms220, ms240, ms260, ms280, ms300,

ms500, ms750, spare14, spare13, spare12, spare11, spare10,

spare9, spare8, spare7, spare6, spare5, spare4, spare3,

spare2, spare1} OPTIONAL -- Cond SetupS

]],

[[ ul-DataSplitThreshold-r13 CHOICE {

release NULL,

setup ENUMERATED {

b0, b100, b200, b400, b800, b1600, b3200, b6400, b12800,

b25600, b51200, b102400, b204800, b409600, b819200,

spare1}

} OPTIONAL, -- Need ON

pdcp-SN-Size-v1310 ENUMERATED {len18bits} OPTIONAL, -- Cond Rlc-AM3

statusFeedback-r13 CHOICE {

release NULL,

setup SEQUENCE {

statusPDU-TypeForPolling-r13 ENUMERATED {type1, type2} OPTIONAL, -- Need ON

statusPDU-Periodicity-Type1-r13 ENUMERATED {

ms5, ms10, ms20, ms30, ms40, ms50, ms60, ms70, ms80, ms90,

ms100, ms150, ms200, ms300, ms500, ms1000, ms2000, ms5000,

ms10000, ms20000, ms50000} OPTIONAL, -- Need ON

statusPDU-Periodicity-Type2-r13 ENUMERATED {

ms5, ms10, ms20, ms30, ms40, ms50, ms60, ms70, ms80, ms90,

ms100, ms150, ms200, ms300, ms500, ms1000, ms2000, ms5000,

ms10000, ms20000, ms50000} OPTIONAL, -- Need ON

statusPDU-Periodicity-Offset-r13 ENUMERATED {

ms1, ms2, ms5, ms10, ms25, ms50, ms100, ms250, ms500,

ms2500, ms5000, ms25000} OPTIONAL -- Need ON

}

} OPTIONAL -- Need ON

]],

[[ ul-LWA-Config-r14 CHOICE {

release NULL,

setup SEQUENCE {

ul-LWA-DRB-ViaWLAN-r14 BOOLEAN,

ul-LWA-DataSplitThreshold-r14 ENUMERATED {

b0, b100, b200, b400, b800, b1600, b3200, b6400,

b12800, b25600, b51200, b102400, b204800, b409600,

b819200 } OPTIONAL -- Need OR

}

} OPTIONAL, -- Need ON

uplinkOnlyHeaderCompression-r14 CHOICE {

notUsed-r14 NULL,

rohc-r14 SEQUENCE {

maxCID-r14 INTEGER (1..16383) DEFAULT 15,

profiles-r14 SEQUENCE {

profile0x0006-r14 BOOLEAN

},

...

}

} OPTIONAL -- Need ON

]],

[[ uplinkDataCompression-r15 SEQUENCE {

bufferSize-r15 ENUMERATED {kbyte2, kbyte4, kbyte8, spare1},

dictionary-r15 ENUMERATED {sip-SDP, operator} OPTIONAL, -- Need OR

...

} OPTIONAL,-- Cond Rlc-AM4

pdcp-DuplicationConfig-r15 CHOICE {

release NULL,

setup SEQUENCE {

pdcp-Duplication-r15 ENUMERATED {configured, activated}

}

} OPTIONAL -- Need ON

]]

}

-- ASN1STOP

| ***PDCP-Config* field descriptions** |
| --- |
| ***bufferSize***  Indicates the buffer size applied for UDC specified in TS 36.323 [8]. Value *kbyte2* means 2048 bytes, *kbyte4* means 4096 bytes and so on. E-UTRAN does not reconfigure *bufferSize* for a DRB except for handover cases. |
| ***dictionary***  Indicates which pre-defined dictionary is used for UDC as specified in TS 36.323 [8]. The value *sip-SDP* means that UE shall prefill the buffer with standard dictionary for SIP and SDP defined in TS 36.323 [8], and the value *operator* means that UE shall prefill the buffer with operator-defined dictionary. |
| ***discardTimer***  Indicates the discard timer value specified in TS 36.323 [8]. Value in milliseconds. Value ms50 means 50 ms, ms100 means 100 ms and so on. |
| ***headerCompression***  E-UTRAN does not reconfigure header compression for an MCG DRB except for upon handover and upon the first reconfiguration after RRC connection re-establishment. E-UTRAN does not reconfigure header compression for a SCG DRB except for upon SCG change involving PDCP re-establishment. For split and LWA DRBs E-UTRAN configures only *notUsed.* E-UTRAN only configures this field when neither *uplinkOnlyHeaderCompression* nor *uplinkDataCompression* is configured.  If *headerCompression* is configured, the UE shall apply the configured ROHC profile(s) in both uplink and downlink. |
| ***maxCID***  Indicates the value of the MAX\_CID parameter as specified in TS 36.323 [8]. The total value of MAX\_CIDs across all bearers for the UE should be less than or equal to the value of *maxNumberROHC-ContextSessions* parameter as indicated by the UE. |
| ***pdcp-Duplication***  Parameter for configuring PDCP duplication as specified in TS 36.323 [8]. Value *configured* indicates that PDCP duplication is configured but initially deactivated and value *activated* indicates that PDCP duplication is configured and activated upon configuration. For EN-DC, E-UTRAN configures PDCP duplication for MCG DRB only if PDCP duplication is not configured for any split DRB. |
| ***pdcp-SN-Size***  Indicates the PDCP Sequence Number length in bits. For RLC UM: value *len7bits* means that the 7-bit PDCP SN format is used and *len12bits* means that the 12-bit PDCP SN format is used. For RLC AM: value *len15bits* means that the 15-bit PDCP SN format is used, value *len18bits* means that the 18-bit PDCP SN format is used, otherwise if the field is not included upon setup of the PCDP entity 12-bit PDCP SN format is used, as specified in TS 36.323 [8]. |
| ***profiles***  The profiles used by both compressor and decompressor in both UE and E-UTRAN. The field indicates which of the ROHC profiles specified in TS 36.323 [8] are supported, i.e. value *true* indicates that the profile is supported. Profile 0x0000 shall always be supported when the use of ROHC is configured. If support of two ROHC profile identifiers with the same 8 LSB's is signalled, only the profile corresponding to the highest value shall be applied. E-UTRAN does not configure ROHC while *t-Reordering* is configured (i.e. for split DRBs, for LWA bearers or upon reconfiguration from split or LWA to MCG DRB). |
| ***statusFeedback***  Indicates whether the UE shall send PDCP Status Report periodically or by E-UTRAN polling as specified in TS 36.323 [8]. E-UTRAN configures this field only for LWA DRB. |
| ***statusPDU-TypeForPolling***  Indicates the PDCP Control PDU option when it is triggered by E-UTRAN polling. Value *type1* indicates using the legacy PDCP Control PDU for PDCP status reporting and value *type2* indicates using the LWA specific PDCP Control PDU for LWA status reporting as specified in TS 36.323 [8]. |
| ***statusPDU-Periodicity-Type1***  Indicates the value of the PDCP Status reporting periodicity for *type1* Status PDU, as specified in TS 36.323 [8]. Value in milliseconds. Value ms5 means 5 ms, ms10 means 10 ms and so on. |
| ***statusPDU-Periodicity-Type2***  Indicates the value of the PDCP Status reporting periodicity for *type2* Status PDU, as specified in TS 36.323 [8]. Value in milliseconds. Value ms5 means 5 ms, ms10 means 10 ms and so on. |
| ***statusPDU-Periodicity-Offset***  Indicates the value of the offset for *type2* Status PDU periodicity, as specified in TS 36.323 [8]. Value in milliseconds. Value ms1 means 1 ms, ms2 means 2 ms and so on. |
| ***t-Reordering***  Indicates the value of the reordering timer, as specified in TS 36.323 [8]. Value in milliseconds. Value ms0 means 0 ms and behaviour as specified in 7.3.2 applies, ms20 means 20 ms and so on. |
| ***rn-IntegrityProtection***  Indicates that integrity protection or verification shall be applied for all subsequent packets received and sent by the RN on the DRB. |
| ***statusReportRequired***  Indicates whether or not the UE shall send a PDCP Status Report upon re-establishment of the PDCP entity and upon PDCP data recovery as specified in TS 36.323 [8]. |
| ***ul-DataSplitDRB-ViaSCG***  Indicates whether the UE shall send PDCP PDUs via SCG as specified in TS 36.323 [8]. E-UTRAN only configures the field (i.e. indicates value *TRUE*) for split DRBs. For PDCP duplication, if this field is set to *TRUE*, the primary RLC entity is SCG RLC entity and the secondary RLC entity is MCG RLC entity. If this field is not configured or set to *FALSE*, the primary RLC entity is MCG RLC entity and the secondary RLC entity is SCG RLC entity. |
| ***ul-DataSplitThreshold***  Indicates the threshold value for uplink data split operation specified in TS 36.323 [8]. Value b100 means 100 Bytes, b200 means 200 Bytes and so on. E-UTRAN only configures this field for split DRBs. |
| ***ul-LWA-DRB-ViaWLAN***  Indicates whether the UE shall send PDCP PDUs via the LWAAP entity as specified in TS 36.323 [8]. E‑UTRAN only configures this field (i.e. indicates value *TRUE*) for LWA DRBs. |
| ***ul-LWA-DataSplitThreshold***  Indicates the threshold value for uplink data split operation as specified in TS 36.323 [8]. Value b0 means 0 Bytes, b100 means 100 Bytes and so on. E-UTRAN only configures this field for LWA DRBs. |
| ***uplinkDataCompression***  Indicates the UDCconfiguration that the UE shall apply**.** E-UTRAN does not configure *uplinkDataCompression* for a DRB, if *headerCompression* or *uplinkOnlyHeaderCompression* is already configured for the DRB. E-UTRAN does not configure *uplinkDataCompression* for the split and LWA DRBs*.*The maximum number of DRBs where *uplinkDataCompression* can be applied is two. In this version of the specification, for existing DRBs, E-UTRAN can configure *uplinkDataCompression* via handover procedure or the first *RRCConnectionReconfiguration* message after RRC connection re-establishment. |
| ***uplinkOnlyHeaderCompression***  Indicates the ROHC configuration that the UE shall apply uplink-only ROHC operations, see TS 36.323 [8]. E-UTRAN only configures this field when *headerCompression* is not configured.  E-UTRAN does not reconfigure header compression for an MCG DRB except for upon handover and upon the first reconfiguration after RRC connection re-establishment. E-UTRAN does not reconfigure header compression for a SCG DRB except for upon SCG change involving PDCP re-establishment. For split and LWA DRBs E-UTRAN configures only *notUsed*. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *Rlc-AM* | The field is mandatory present upon setup of a PDCP entity for a radio bearer configured with RLC AM. The field is optional, need ON, in case of reconfiguration of a PDCP entity at handover, at the first reconfiguration after RRC re-establishment or at SCG change involving PDCP re-establishment or PDCP data recovery for a radio bearer configured with RLC AM. Otherwise the field is not present. |
| *Rlc-AM2* | The field is optionally present, need OP, upon setup of a PDCP entity for a radio bearer configured with RLC AM. Otherwise the field is not present. |
| *Rlc-AM3* | The field is optionally present, need OP, upon setup of a PDCP entity for a radio bearer configured with RLC AM, if *pdcp-SN-Size-v1130* is absent. Otherwise the field is not present. |
| *Rlc-AM4* | The field is optionally present, need ON, upon setup of a PDCP entity for a radio bearer configured with RLC AM. The field is optional, need OP, in case of reconfiguration of a PDCP entity at handover, or at the first reconfiguration after RRC re-establishment. Otherwise the field is not present and the UE shall continue to use the existing value. |
| *Rlc-UM* | The field is mandatory present upon setup of a PDCP entity for a radio bearer configured with RLC UM. It is optionally present, Need ON, upon handover within E-UTRA, upon the first reconfiguration after re-establishment and upon SCG change involving PDCP re-establishment. Otherwise the field is not present. |
| *RN* | The field is optionally present when signalled to the RN, need OR. Otherwise the field is not present. |
| *Setup* | The field is mandatory present in case of radio bearer setup. Otherwise the field is optionally present, need ON. |
| *SetupS* | The field is mandatory present in case of setup of or reconfiguration to a split DRB or LWA DRB. The field is optionally present upon reconfiguration of a split DRB or LWA DRB or upon DRB type change from split to MCG DRB or from LWA to LTE only, need ON. Otherwise the field is not present. |

End of the change