**3GPP TSG-RAN WG3 #119bis R3-232012**

**17th – 26th April 2023**

**Online**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.423** | **CR** | 1015 | **rev** | **1** | **Current version:** | **17.4.0** |  |
|  |
| *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 the UE hashed ID to 38.423 |
|  |  |
| ***Source to WG:*** | ZTE, Nokia, Nokia Shanghai Bell, China Telecom, CATT, Huawei, Ericsson, Qualcomm |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | LTE\_eMTC5-Core, NR\_redcap-Core |  | ***Date:*** | 2023-04-07 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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 Rel-17, NR supports to configure eDRX for RedCap UE in RRC INACTIVE/IDLE. If IDLE eDRX cycle is longer than 10.24s, the PH, PTW\_start and PTW\_end shall be calculated for paging as specified in TS 38.304, and the UE\_ID\_H (13 most significant bits of the Hashed ID) is needed for these calculation. However, the UE hashed ID information is missing in Xn paging message. |
|  |  |
| ***Summary of change:*** | Introduce the UE hashed ID IE into the Xn paging message. Impact Analysis:This change only impacts the PH, PTW calculation for paging UE configured with long eDRX cycle.This CR is BC. |
|  |  |
| ***Consequences if not approved:*** | NG-RAN cannot determine the PH and PTW, which can cause the UE to fail to be paged. |
|  |  |
| ***Clauses affected:*** | 8.2.5.2, 9.1.1.7, 9.2.3.x (new), 9.3.4 9.3.5 9.3.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **Y** |  |  Other core specifications  | TS 38.473 CR 1146TS 38.413 CR 0976 |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev0: R3-231362 |

<<<<<<<<<<<<<<<<<<<< START OF CHANGES >>>>>>>>>>>>>>>>>>>>

#### 8.2.5.2 Successful operation



Figure 8.2.5.2-1: RAN Paging: successful operation

The RAN Paging procedure is triggered by the NG-RAN node1 by sending the RAN PAGING message to the NG-RAN node2,in which the necessary information e.g. UE RAN Paging Identity should be provided.

If the *Paging Priority* IE is included in the RAN PAGING message, the NG-RAN node2 may use it to prioritize paging.

If the *Assistance Data for RAN Paging* IE is included in the RAN PAGING message, the NG-RAN node2 may use it according to TS 38.300 [9].

If the *UE Radio Capability for Paging* IE is included in the RAN PAGING message, the NG-RAN node2 may use it to apply specific paging schemes.

If the *Extended UE Identity Index Value* IE is included in the RAN PAGING message, the NG-RAN node2 may use it according to TS 36.304 [34], and for eDRX or the UE\_ID based subgrouping according to TS 38.304 [33]. When available, NG-RAN node1 may include the *Extended UE Identity Index Value* IE in the RAN PAGING message towards the NG-RAN node2.

When available, the NG-RAN node1 shall include the *E-UTRA Paging eDRX Information* IE in the RAN PAGING message towards the NG-RAN node2. If the *E-UTRA Paging eDRX Information* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 36.304 [34].

When available, the NG-RAN node1 shall include the *UE Specific DRX* IE in the RAN PAGING message towards the NG-RAN node2. If the *UE specific DRX* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 36.304 [34].

When available, the NG-RAN node1 shall include the *NR Paging eDRX Information* IE in the RAN PAGING message towards the NG-RAN node2. If the *NR Paging eDRX Information* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 38.304 [33].

If the *NR* *Paging eDRX Information for RRC INACTIVE* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 38.304 [33].

When available, the NG-RAN node1 shall include the *Paging Cause* IE in the RAN PAGING message towards the NG-RAN node2. If the *Paging Cause* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 38.331 [10].

When available, the NG-RAN node1 shall include the *Hashed UE Identity Index Value* IE in the RAN PAGING message towards the NG-RAN node2. If the *Hashed UE Identity Index Value* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 38.304 [33] or TS 36.304 [34].

If the *PEIPS Assistance Information* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 38.300 [9].

<<<<<<<<<<<<<<<<<<<< NEXT OF CHANGES >>>>>>>>>>>>>>>>>>>>

#### 9.1.1.7 RAN PAGING

This message is sent by the NG-RAN node1 to NG-RAN node2 to page a UE.

Direction: NG-RAN node1 → NG-RAN node2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| CHOICE *UE Identity Index Value* | M |  |  |  | YES | reject |
| *>Length-10* |  |  |  |  |  |  |
| >>Index Length-10 | M |  | BIT STRING (SIZE(10)) | Coded as specified in TS 38.304 [33] and TS 36.304 [34]. | – |  |
| UE RAN Paging Identity | M |  | 9.2.3.43 |  | YES | ignore |
| Paging DRX | M |  | 9.2.3.66 | Includes the RAN paging cycle as defined in TS 36.304 [34] and 38.304 [33]. | YES | ignore |
| RAN Paging Area | M |  | 9.2.3.38 |  | YES | reject |
| Paging Priority | O |  | 9.2.3.44 |  | YES | ignore |
| Assistance Data for RAN Paging | O |  | 9.2.3.41 |  | YES | ignore |
| UE Radio Capability for Paging | O |  | 9.2.3.91 |  | YES | ignore |
| Extended UE Identity Index Value | O |  | 9.2.3.141 | Coded as specified in TS 36.304 [34] and 38.304 [33]. | YES | ignore |
| E-UTRA Paging eDRX Information | O |  | 9.2.3.142 |  | YES | ignore |
| UE specific DRX | O |  | 9.2.3.143 | Includes the UE specific paging cycle as defined in TS 36.304 [34] and 38.304 [33]. | YES | ignore |
| NR Paging eDRX Information | O |  | 9.2.3.161 |  | YES | ignore |
| NR Paging eDRX Information for RRC INACTIVE | O |  | 9.2.3.162 |  | YES | ignore |
| Paging Cause | O |  | ENUMERATED (voice, …) |  | YES | ignore |
| PEIPS Assistance Information | O |  | 9.2.3.166 |  | YES | ignore |
| Hashed UE Identity Index Value | O |  | 9.2.3.x |  | YES | ignore |

#### 9.2.3.x Hashed UE Identity Index Value

This IE is the 13 Most Significant Bits (MSBs) of the Hashed ID defined in TS 38.304 [33] or TS 36.304 [34].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Hashed UE Identity Index Value | M |  | BIT STRING (SIZE(13, …)) |  |

<<<<<<<<<<<<<<<<<<<< NEXT OF CHANGES >>>>>>>>>>>>>>>>>>>>

### 9.3.4 PDU Definitions

-- ASN1START

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

--

-- PDU definitions for XnAP.

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

//////////////Skip unchanged part/////////////////

 SDTDataForwardingDRBList,

 PEIPSassistanceInformation,

 UESliceMaximumBitRateList,

 PagingCause,

 MDTPLMNModificationList,

 F1-terminatingIAB-donorIndicator,

 SRB-ID,

 AdditionalListofPDUSessionResourceChangeConfirmInfo-SNterminated,

 HashedUEIdentityIndexValue

//////////////Skip unchanged part/////////////////

 id-SDTPartialUEContextInfo,

 id-SDTDataForwardingDRBList,

 id-PEIPSassistanceInformation,

 id-UESliceMaximumBitRateList,

 id-S-NG-RANnodeUE-Slice-MBR,

 id-ManagementBasedMDTPLMNModificationList,

 id-F1-terminatingIAB-donorIndicator,

 id-AdditionalListofPDUSessionResourceChangeConfirmInfo-SNterminated,

 id-HashedUEIdentityIndexValue,

//////////////Skip unchanged part/////////////////

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

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-- RAN PAGING

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

RANPaging ::= SEQUENCE {

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

 ...

}

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

 { ID id-UEIdentityIndexValue CRITICALITY reject TYPE UEIdentityIndexValue PRESENCE mandatory}|

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

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

 { ID id-RANPagingArea CRITICALITY reject TYPE RANPagingArea PRESENCE mandatory}|

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

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

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

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

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

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

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

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

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

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

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

 ...

}

//////////////Skip unchanged part/////////////////

### 9.3.5 Information Element definitions

-- ASN1START

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

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-- Information Element Definitions

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

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//////////////Skip unchanged part/////////////////

HashedUEIdentityIndexValue ::= BIT STRING (SIZE(13, ...))

//////////////Skip unchanged part/////////////////

### 9.3.7 Constant definitions

-- ASN1START

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

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-- Constant definitions

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

//////////////Skip unchanged part/////////////////

id-BeamMeasurementsReportConfiguration ProtocolIE-ID ::= 367

id-CoverageModificationCause ProtocolIE-ID ::= 368

id-AdditionalListofPDUSessionResourceChangeConfirmInfo-SNterminated ProtocolIE-ID ::= 369

id-UERLFReportContainerLTEExtension ProtocolIE-ID ::= 370

id-ExcessPacketDelayThresholdConfiguration ProtocolIE-ID ::= 371

id-HashedUEIdentityIndexValue ProtocolIE-ID ::= xxx

END

-- ASN1STOP

<<<<<<<<<<<<<<<<<<<< END OF CHANGES >>>>>>>>>>>>>>>>>>>>