3GPP TSG-RAN WG3 #114bis-e R3-221127

17-26 Jan 2022

Online

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **36.413** | **CR** | **1851** | **rev** | **1** | **Current version:** | **16.8.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | **x** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Multi-USIM BLCR to TS 36.413 |
|  |  |
| ***Source to WG:*** | ZTE, vivo, Ericsson, Nokia, Nokia Shanghai Bell, Samsung, Huawei |
| ***Source to TSG:*** | RAN3 |
|  |  |
| ***Work item code:*** | LTE\_NR\_MUSIM  |  | ***Date:*** | 2022-01-05 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | Support of Multi-SIM |
|  |  |
| ***Summary of change:*** | Rev1: 1. Add cosigned companies.
2. Add new IE Paging Cause
 |
|  |  |
| ***Consequences if not approved:*** | Multi-SIM cannot be supported |
|  |  |
| ***Clauses affected:*** | 9.1.6, 9.2.1.xx (new), ANS.1 |
|  |  |
|  | **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:*** | Rev0: R3-220219 |

### 9.1.6 PAGING

This message is sent by the MME and is used to page a UE in one or several tracking areas.

Direction: MME → eNB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | ignore |
| UE Identity Index value | M |  | 9.2.3.10 |  | YES | ignore |
| UE Paging Identity | M |  | 9.2.3.13 |  | YES | ignore |
| Paging DRX | O |  | 9.2.1.16 | If the *NB-IoT Paging DRX* IE is included, the *Paging DRX* IE is ignored. | YES | ignore |
| CN Domain | M |  | 9.2.3.22 |  | YES | ignore |
| **List of TAIs** |  | *1* |  |  | YES | ignore |
| >TAI List Item |  | *1 .. <maxnoofTAIs>* |  |  | EACH | ignore |
| >>TAI | M |  | 9.2.3.16 |  | - |  |
| CSG Id List |  | *0..1* |  |  | GLOBAL | ignore |
| >CSG Id |  | *1 .. <maxnoofCSGId>* | 9.2.1.62 |  | - |  |
| Paging Priority | O |  | 9.2.1.78 |  | YES | ignore |
| UE Radio Capability for Paging | O |  | 9.2.1.98 |  | YES | ignore |
| Assistance Data for Paging | O |  | 9.2.1.103 |  | YES | ignore |
| Paging eDRX Information | O |  | 9.2.1.111 |  | YES | ignore |
| Extended UE Identity Index Value | O |  | 9.2.3.46 |  | YES | ignore |
| NB-IoT Paging eDRX Information | O |  | 9.2.1.115 |  | YES | ignore |
| NB-IoT UE Identity Index value | O |  | 9.2.3.47 |  | YES | ignore |
| Enhanced Coverage Restricted | O |  | 9.2.1.123 |  | YES | ignore |
| CE-Mode-B Restricted | O |  | 9.2.1.129 |  | YES | ignore |
| Data size | O |  | INTEGER (1..4095, …)  | The unit is: bit | YES | ignore |
| WUS Assistance Information | O |  | 9.2.1.158 |  | YES | ignore |
| NB-IoT Paging DRX | O |  | 9.2.1.159x |  | YES | ignore |
| Paging Cause | O |  | 9.2.1.xx |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTAIs | Maximum no. of TAIs. Value is 256. |
| maxnoofCSGIds | Maximum no. of CSG Ids within the CSG Id List. Value is 256. |

#### 9.2.1.xx Paging Cause

This information element indicates the paging cause for paging a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Paging Cause | O |  | ENUMERATED (voice, …) | Indicates whether the *Paging* message is originated due to IMS voice. If this field is present, it implies that the corresponding paging entry is for IMS voice. If this field is not present but PagingRecord is presen, it implies that the corresponding paging entry is for a service other than IMS voice. |

Editor’s note: Whether the IE *Paging Cause* is mandatory or optional is FFS.

**ANS.1 Part**

9.3.3 PDU Definitions

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

--

-- PDU definitions for S1AP.

--

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

S1AP-PDU-Contents {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

 UEAggregateMaximumBitrate,

 BearerType,

 Cause,

<Skip unchanged part>

 ENB-EarlyStatusTransfer-TransparentContainer,

 WUS-Assistance-Information,

 NB-IoT-PagingDRX,

 PagingCause

FROM S1AP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-ContainerPairList{},

 ProtocolIE-SingleContainer{},

 S1AP-PRIVATE-IES,

 S1AP-PROTOCOL-EXTENSION,

 S1AP-PROTOCOL-IES,

 S1AP-PROTOCOL-IES-PAIR

FROM S1AP-Containers

 id-AssistanceDataForPaging,

 id-AerialUEsubscriptionInformation,

 id-uEaggregateMaximumBitrate,

 id-BearerType,

<Skip unchanged part>

 id-WUS-Assistance-Information,

 id-NB-IoT-PagingDRX,

 id-UERadioCapabilityForPaging-NR-Format,

 id-PagingCause

<Skip unchanged part>

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

--

-- Paging

--

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

Paging ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{PagingIEs}},

 ...

}

PagingIEs S1AP-PROTOCOL-IES ::= {

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

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

 { ID id-pagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE optional}|

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

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

 { ID id-CSG-IdList CRITICALITY ignore TYPE CSG-IdList PRESENCE optional}|

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

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

-- Extension for Release 13 to support Paging Optimisation and Coverage Enhancement paging –-

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

 { ID id-Paging-eDRXInformation CRITICALITY ignore TYPE Paging-eDRXInformation PRESENCE optional}|

 { ID id-extended-UEIdentityIndexValue CRITICALITY ignore TYPE Extended-UEIdentityIndexValue PRESENCE optional}|

 { ID id-NB-IoT-Paging-eDRXInformation CRITICALITY ignore TYPE NB-IoT-Paging-eDRXInformation PRESENCE optional}|

 { ID id-NB-IoT-UEIdentityIndexValue CRITICALITY ignore TYPE NB-IoT-UEIdentityIndexValue PRESENCE optional}|

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

 { ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

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

 { ID id-WUS-Assistance-Information CRITICALITY ignore TYPE WUS-Assistance-Information PRESENCE optional}|

 { ID id-NB-IoT-PagingDRX CRITICALITY ignore TYPE NB-IoT-PagingDRX PRESENCE optional}|

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

 ...

}

<Skip unchanged part>

### 9.3.4 Information Element Definitions

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

--

-- Information Element Definitions

--

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

<Skip unchanged part>

-- P

Packet-LossRate ::= INTEGER(0..1000)

PagingAttemptInformation ::= SEQUENCE {

 pagingAttemptCount PagingAttemptCount,

 intendedNumberOfPagingAttempts IntendedNumberOfPagingAttempts,

 nextPagingAreaScope NextPagingAreaScope OPTIONAL,

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

 ...

}

PagingAttemptInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

 ...

}

PagingAttemptCount ::= INTEGER (1..16, ...)

Paging-eDRXInformation ::= SEQUENCE {

 paging-eDRX-Cycle Paging-eDRX-Cycle,

 pagingTimeWindow PagingTimeWindow OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { Paging-eDRXInformation-ExtIEs} } OPTIONAL,

 ...

}

Paging-eDRXInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

 ...

}

Paging-eDRX-Cycle ::= ENUMERATED{hfhalf, hf1, hf2, hf4, hf6, hf8, hf10, hf12, hf14, hf16, hf32, hf64, hf128, hf256, ...}

PagingTimeWindow ::= ENUMERATED{s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11, s12, s13, s14, s15, s16, ...}

PagingDRX ::= ENUMERATED {

 v32,

 v64,

 v128,

 v256,

 ...

 }

PagingPriority ::= ENUMERATED {

 priolevel1,

 priolevel2,

 priolevel3,

 priolevel4,

 priolevel5,

 priolevel6,

 priolevel7,

 priolevel8,

 ...

}

PagingProbabilityInformation ::= ENUMERATED {p00, p05, p10, p15, p20, p25, p30, p35, p40, p45, p50, p55, p60, p65, p70, p75, p80, p85, p90, p95, p100, ...}

PagingCause::= SEQUENCE {

 pagingCause::= ENUMERATED {voice, ...} OPTIONAL,

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

 ...

}

PagingCause-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

 ...

}

<Skip unchanged part>

### 9.3.6 Constant Definitions

<Skip unchanged part>

--

-- IEs

--

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

id-MME-UE-S1AP-ID ProtocolIE-ID ::= 0

id-HandoverType ProtocolIE-ID ::= 1

id-Cause ProtocolIE-ID ::= 2

<Skip unchanged part>

id-WUS-Assistance-Information ProtocolIE-ID ::= 323

id-NB-IoT-PagingDRX ProtocolIE-ID ::= 324

id-TraceCollectionEntityURI ProtocolIE-ID ::= 325

id-EmergencyIndicator ProtocolIE-ID ::= 326

id-UERadioCapabilityForPaging-NR-Format ProtocolIE-ID ::= 327

id-PagingCause ProtocolIE-ID ::= xxx

END