**3GPP TSG-CT WG1 Meeting #129-eC1-21xxxx was C1-212176**

**Electronic meeting, 19-23 April 2021**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.301** | **CR** | **3515** | **rev** | **1** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Introducing the Release request indication IE and the Paging restriction IE for MUSIM in EPS | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MUSIM | | | | |  | ***Date:*** | | | 2021-04-06 |
|  |  | | | |  | |  | | |  |
| ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As per stage-2 CR S2-2101102, the UE shall support an IE to indicate to the network that UE needs to leave i.e. it needs to have the connection released. Also, the UE shall be able to optionally request from the network to restrict sending paging for certain services. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introducing the Release request indication IE and the Paging restriction IE and including them in TAU and EXTENDED SERVICE REQUEST messages definitions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage-3 spec will not be compatible with stage-2 requirements, and the MUSIM Coordinated Leaving feature will not be supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.15.1, 8.2.15.5 (new), 8.2.15.6 (new), 8.2.29.1, 8.2.29.34 (new), 8.2.29.35 (new), 9.9.3.x (new), 9.9.3.y (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\*\*\*\*\* First change \*\*\*\*\*

8.2.15.1 Message definition

This message is sent by the UE to the network

- to initiate a CS fallback or 1xCS fallback call or respond to a mobile terminated CS fallback or 1xCS fallback request from the network; or

- to request the establishment of a NAS signalling connection and of the radio and S1 bearers for packet services, if the UE needs to provide additional information that cannot be provided via a SERVICE REQUEST message.

See table 8.2.15.1.

Message type: EXTENDED SERVICE REQUEST

Significance: dual

Direction: UE to network

**Table 8.2.15.1: EXTENDED SERVICE REQUEST message content**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **IEI** | | **Information Element** | | **Type/Reference** | | **Presence** | | **Format** | | **Length** | |
|  | | Protocol discriminator | | Protocol discriminator  9.2 | | M | | V | | 1/2 | |
|  | | Security header type | | Security header type  9.3.1 | | M | | V | | 1/2 | |
|  | | Extended service request message identity | | Message type  9.8 | | M | | V | | 1 | |
|  | | Service type | | Service type  9.9.3.27 | | M | | V | | 1/2 | |
|  | | NAS key set identifier | | NAS key set identifier  9.9.3.21 | | M | | V | | 1/2 | |
|  | | M-TMSI | | Mobile identity  9.9.2.3 | | M | | LV | | 6 | |
| B- | | CSFB response | | CSFB response  9.9.3.5 | | C | | TV | | 1 | |
| 57 | | EPS bearer context status | | EPS bearer context status  9.9.2.1 | | O | | TLV | | 4 | |
| D- | | Device properties | | Device properties  9.9.2.0A | | O | | TV | | 1 | |
| X | | Release request indication | | Release request indication  9.9.3.x | | O | | TV | | 2 | |
| Y | | Paging restriction | | Paging restriction  9.9.3.y | | O | | TLV | | 3-5 | |

\*\*\*\*\* Next change \*\*\*\*\*

#### 8.2.15.5 Release request indication

The UE may include this IE if it operates in MUSIM mode and requests from the network to release the NAS signalling connection.

\*\*\*\*\* Next change \*\*\*\*\*

#### 8.2.15.6 Paging restriction

The UE may include this IE if it operates in MUSIM mode and requests from the network to restrict sending paging messages to the UE with certain paging causes.

\*\*\*\*\* Next change \*\*\*\*\*

8.2.29.1 Message definition

The purposes of sending the tracking area update request by the UE to the network are described in subclause 5.5.3.1. See table 8.2.29.1.

Message type: TRACKING AREA UPDATE REQUEST

Significance: dual

Direction: UE to network

**Table 8.2.29.1: TRACKING AREA UPDATE REQUEST message content**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **IEI** | | **Information Element** | | **Type/Reference** | | **Presence** | | **Format** | | **Length** | |
|  | | Protocol discriminator | | Protocol discriminator  9.2 | | M | | V | | 1/2 | |
|  | | Security header type | | Security header type  9.3.1 | | M | | V | | 1/2 | |
|  | | Tracking area update request message identity | | Message type  9.8 | | M | | V | | 1 | |
|  | | EPS update type | | EPS update type  9.9.3.14 | | M | | V | | 1/2 | |
|  | | NAS key set identifier | | NAS key set identifier  9.9.3.21 | | M | | V | | 1/2 | |
|  | | Old GUTI | | EPS mobile identity  9.9.3.12 | | M | | LV | | 12 | |
| B- | | Non-current native NAS key set identifier | | NAS key set identifier  9.9.3.21 | | O | | TV | | 1 | |
| 8- | | GPRS ciphering key sequence number | | Ciphering key sequence number  9.9.3.4a | | O | | TV | | 1 | |
| 19 | | Old P-TMSI signature | | P-TMSI signature  9.9.3.26 | | O | | TV | | 4 | |
| 50 | | Additional GUTI | | EPS mobile identity  9.9.3.12 | | O | | TLV | | 13 | |
| 55 | | NonceUE | | Nonce  9.9.3.25 | | O | | TV | | 5 | |
| 58 | | UE network capability | | UE network capability  9.9.3.34 | | O | | TLV | | 4-15 | |
| 52 | | Last visited registered TAI | | Tracking area identity  9.9.3.32 | | O | | TV | | 6 | |
| 5C | | DRX parameter | | DRX parameter  9.9.3.8 | | O | | TV | | 3 | |
| A- | | UE radio capability information update needed | | UE radio capability information update needed  9.9.3.35 | | O | | TV | | 1 | |
| 57 | | EPS bearer context status | | EPS bearer context status  9.9.2.1 | | O | | TLV | | 4 | |
| 31 | | MS network capability | | MS network capability  9.9.3.20 | | O | | TLV | | 4-10 | |
| 13 | | Old location area identification | | Location area identification  9.9.2.2 | | O | | TV | | 6 | |
| 9- | | TMSI status | | TMSI status  9.9.3.31 | | O | | TV | | 1 | |
| 11 | | Mobile station classmark 2 | | Mobile station classmark 2  9.9.2.4 | | O | | TLV | | 5 | |
| 20 | | Mobile station classmark 3 | | Mobile station classmark 3  9.9.2.5 | | O | | TLV | | 2-34 | |
| 40 | | Supported Codecs | | Supported Codec List  9.9.2.10 | | O | | TLV | | 5-n | |
| F- | | Additional update type | | Additional update type 9.9.3.0B | | O | | TV | | 1 | |
| 5D | | Voice domain preference and UE's usage setting | | Voice domain preference and UE's usage setting  9.9.3.44 | | O | | TLV | | 3 | |
| E- | | Old GUTI type | | GUTI type  9.9.3.45 | | O | | TV | | 1 | |
| D- | | Device properties | | Device properties  9.9.2.0A | | O | | TV | | 1 | |
| C- | | MS network feature support | | MS network feature support  9.9.3.20A | | O | | TV | | 1 | |
| 10 | | TMSI based NRI container | | Network resource identifier container  9.9.3.24A | | O | | TLV | | 4 | |
| 6A | | T3324 value | | GPRS timer 2  9.9.3.16 | | O | | TLV | | 3 | |
| 5E | | T3412 extended value | | GPRS timer 3  9.9.3.16B | | O | | TLV | | 3 | |
| 6E | | Extended DRX parameters | | Extended DRX parameters  9.9.3.46 | | O | | TLV | | 3 | |
| 6F | | UE additional security capability | | UE additional security capability  9.9.3.53 | | O | | TLV | | 6 | |
| 6D | | UE status | | UE status  9.9.3.54 | | O | | TLV | | 3 | |
| 17 | | Additional information requested | | Additional information requested  9.9.3.55 | | O | | TV | | 2 | |
| 32 | | N1 UE network capability | | N1 UE network capability  9.9.3.57 | | O | | TLV | | 3-15 | |
| 34 | | UE radio capability ID availability | | UE radio capability ID availability  9.9.3.58 | | O | | TLV | | 3 | |
| 35 | | Requested WUS assistance information | | WUS assistance information  9.9.3.62 | | O | | TLV | | 3-n | |
| 36 | | DRX parameter in NB-S1 mode | | NB-S1 DRX parameter  9.9.3.63 | | O | | TLV | | 3 | |
| X | | Release request indication | | Release request indication  9.9.3.x | | O | | TV | | 2 | |
| Y | | Paging restriction | | Paging restriction  9.9.3.y | | O | | TLV | | 3-5 | |

\*\*\*\*\* Next change \*\*\*\*\*

#### 8.2.29.34 Release request indication

The UE may include this IE if it operates in MUSIM mode and requests from the network to release the NAS signalling connection.

\*\*\*\*\* Next change \*\*\*\*\*

#### 8.2.29.35 Paging restriction

The UE may include this IE if it operates in MUSIM mode and requests from the network to restrict sending paging messages to the UE with certain paging causes.

\*\*\*\*\* Next change \*\*\*\*\*

#### 9.9.3.x Release request indication

The purpose of the Release request indication information element is to provide an indication to the network whether the UE operating in MUSIM mode requests from the network to release the NAS signalling connection.

The Release request indication information element is coded as shown in figure 9.9.3.x.1 and table 9.9.3.x.1.

The Additional information requested is a type 3 information element with a length of 2 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Release request indication IEI | | | | | | | | octet 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | Release request indication | octet 2 |
| Spare | | | | | | |

Figure 9.9.3.x.1: Release request indication information element

Table 9.9.3.x.1: Release request indication information element

|  |  |
| --- | --- |
| Release request indication (octet 2, bit 1) | |
|  | |
| Bit | |
| 1 | |
| 0 | release is not requested |
| 1 | release is requested |
|  | |
| Bits 8 to 2 of octet 2 are spare and shall be coded as zero. | |
|  | |

\*\*\*\*\* Next change \*\*\*\*\*

#### 9.9.3.y Paging restriction

The purpose of the Paging restriction information element is to request from the network to restrict sending paging messages with certain paging causes to the UE operating in MUSIM mode.

The Paging restriction information element is coded as shown in figure 9.9.3.y.1, figure 9.9.3.y.2 and table 9.9.3.y.1.

The Paging restriction is a type 4 information element with a minimum length of 3 octets and a maximum length of 5 octets.

Editor's note: The final Paging restriction values is FFS and waiting for SA2 decision.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Paging restriction IEI | | | | | | | | octet 1 |
| Length of Paging restriction contents | | | | | | | | octet 2 |
| 0  spare | 0  spare | 0  spare | 0  spare | 0  spare | Paging restriction type | | | octet 3 |

Figure 9.9.3.y.1: Paging restriction information element for Paging restriction type set to "Paging is restricted for all causes" or " Paging is restricted for all causes expect for voice services (MMTel voice or CS domain voice)”

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Paging restriction IEI | | | | | | | | octet 1 |
| Length of Paging restriction contents | | | | | | | | octet 2 |
| 0  spare | 0  spare | 0  spare | 0  spare | 0  spare | Paging restriction type | | | octet 3 |
| EBI  (7) | EBI  (6) | EBI  (5) | EBI  (4) | EBI  (3) | EBI  (2) | EBI  (1) | EBI  (0) | octet 4 |
| EBI  (15) | EBI  (14) | EBI  (13) | EBI  (12) | EBI  (11) | EBI  (10) | EBI  (9) | EBI  (8) | octet 5\* |

Figure 9.9.3.y.2: Paging restriction information element for Paging restriction type set to "Paging is restricted for all causes except for certain PDN Connection(s)" or "Paging is restricted for all causes except for certain PDN Connection(s) and voice service (MMTel voice or CS domain voice)”

Table 9.9.3.y.1: Paging restriction information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Paging restriction type (octet 3) | | | | |
| Bits | | | | |
| **3** | **2** | **1** |  |  |
| 0 | 0 | 0 |  | Paging is not restricted |
| 0 | 0 | 1 |  | Paging is restricted for all causes |
| 0 | 1 | 0 |  | Paging is restricted for all causes expect for voice services (MMTel voice or CS domain voice) |
| 0 | 1 | 1 |  | Paging is restricted for all causes except for certain PDN Connection(s) |
| 1 | 0 | 0 |  | Paging is restricted for all causes except for certain PDN Connection(s) and voice service (MMTel voice or CS domain voice) |
| 1 | 1 | 1 |  | reserved |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |
| Bits 8 to 4 of octet 3 are spare and shall be coded as zero.  EBI(x) shall be coded as follows:  EBI(0):  Bit 1 of octet 4 is spare and shall be coded as zero.  EBI(1) – EBI(15):  0 indicates that the Paging restriction type is not applicable for the corresponding PDN Connection.  1 indicates that the Paging restriction type is not applicable for the corresponding PDN Connection. | | | | |
|  | | | | |

\*\*\*\*\* End of changes \*\*\*\*\*