**3GPP TSG-CT WG1 Meeting #134-eC1-22xxxx**

**E-Meeting, 17th – 25th February 2022 Revision of C1-221703**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.501** | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  |
| *For* [***HELP***](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:***  | The solution to CAG IDs of a PLMN beyond the limit of one Entry-IE part |
|  |  |
| ***Source to WG:*** | China Mobile, Huawei, HiSilicon, ZTE |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5GProtoc17 |  | ***Date:*** | 2022-02-09 |
|  |  |  |  |  |
| ***Category:*** | **C** |  | ***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:*** | As discussed in CT1#130/131/133-e meeting, in TS 24.501 9.11.3.18A, the “Length of entry contents” of CAG information list IE is one octet, which means there is a limit to the number of the CAG-IDs for one PLMN. On the other hand, there's no restriction on the number of the allowed CAG IDs in one PLMN on UDM side and SBI. And Rel-16 TS 38.413 defines the max number of allowed CAG IDs per PLMN can be 256 in the mobility restriction data for a UE. It is suggested to define a new IE(e.g. Extended CAG information list IE) in Rel-17 to support CAG IDs up to 256 per PLMN to align with RAN3.This CR related to C1-221704. |
|  |  |
| ***Summary of change:*** | To extend the 5GMM messages containing a new IE(i.e. the Extended CAG information list IE) to support CAG IDs up to 256 per PLMN. |
|  |  |
| ***Consequences if not approved:*** | Current CAG information list IE cannot support CAG IDs up to 256 per PLMN already defined in TS 38.413. |
|  |  |
| ***Clauses affected:*** | 8.2.7.1, 8.2.7.x(new), 8.2.9.1, 8.2.9.x(new), 8.2.14.1, 8.2.14.x(new), 8.2.18.1, 8.2.18.x(new), 8.2.19.1, 8.2.19.x(new), 9.11.3.1, 9.11.3.x(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:*** | 1. Add ZTE to the Source.
2. Update the IE encoding description in 9.11.3.x.
3. Correct the IE format in messege content.
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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.7.1 Message definition

The REGISTRATION ACCEPT message is sent by the AMF to the UE. See table 8.2.7.1.1.

Message type: REGISTRATION ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.7.1.1: REGISTRATION ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | Registration accept message identity | Message type9.7 | M | V | 1 |
|  | 5GS registration result | 5GS registration result9.11.3.6 | M | LV | 2 |
| 77 | 5G-GUTI | 5GS mobile identity9.11.3.4 | O | TLV-E | 14 |
| 4A | Equivalent PLMNs | PLMN list9.11.3.45 | O | TLV | 5-47 |
| 54 | TAI list | 5GS tracking area identity list9.11.3.9 | O | TLV | 9-114 |
| 15 | Allowed NSSAI | NSSAI9.11.3.37 | O | TLV | 4-74 |
| 11 | Rejected NSSAI | Rejected NSSAI9.11.3.46 | O | TLV | 4-42 |
| 31 | Configured NSSAI | NSSAI9.11.3.37 | O | TLV | 4-146 |
| 21 | 5GS network feature support | 5GS network feature support9.11.3.5 | O | TLV | 3-5 |
| 50 | PDU session status | PDU session status9.11.3.44 | O | TLV | 4-34 |
| 26 | PDU session reactivation result | PDU session reactivation result9.11.3.42 | O | TLV | 4-34 |
| 72 | PDU session reactivation result error cause | PDU session reactivation result error cause9.11.3.43 | O | TLV-E | 5-515 |
| 79 | LADN information | LADN information9.11.3.30 | O | TLV-E | 12-1715 |
| B- | MICO indication | MICO indication9.11.3.31 | O | TV | 1 |
| 9- | Network slicing indication | Network slicing indication9.11.3.36 | O | TV | 1 |
| 27 | Service area list | Service area list9.11.3.49 | O | TLV | 6-114 |
| 5E | T3512 value | GPRS timer 39.11.2.5 | O | TLV | 3 |
| 5D | Non-3GPP de-registration timer value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 16 | T3502 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 34 | Emergency number list | Emergency number list9.11.3.23 | O | TLV | 5-50 |
| 7A | Extended emergency number list | Extended emergency number list9.11.3.26 | O | TLV-E | 7-65538 |
| 73 | SOR transparent container | SOR transparent container9.11.3.51 | O | TLV-E | 20-n |
| 78 | EAP message | EAP message9.11.2.2 | O | TLV-E | 7-1503 |
| A- | NSSAI inclusion mode | NSSAI inclusion mode9.11.3.37A | O | TV | 1 |
| 76 | Operator-defined access category definitions | Operator-defined access category definitions9.11.3.38 | O | TLV-E | 3-8323 |
| 51 | Negotiated DRX parameters | 5GS DRX parameters9.11.3.2A | O | TLV | 3 |
| D- | Non-3GPP NW policies | Non-3GPP NW provided policies9.11.3.36A | O | TV | 1 |
| 60 | EPS bearer context status | EPS bearer context status9.11.3.23A | O | TLV | 4 |
| 6E | Negotiated extended DRX parameters | Extended DRX parameters9.11.3.26A | O | TLV | 3 |
| 6C | T3447 value | GPRS timer 39.11.2.5 | O | TLV | 3 |
| 6B | T3448 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 6A | T3324 value | GPRS timer 39.11.2.5 | O | TLV | 3 |
| 67 | UE radio capability ID | UE radio capability ID9.11.3.68 | O | TLV | 3-n |
| E- | UE radio capability ID deletion indication | UE radio capability ID deletion indication9.11.3.69 | O | TV | 1 |
| 39 | Pending NSSAI | NSSAI9.11.3.37 | O | TLV | 4-146 |
| 74 | Ciphering key data | Ciphering key data9.11.3.18C | O | TLV-E | 34-n |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 1B | Truncated 5G-S-TMSI configuration | Truncated 5G-S-TMSI configuration9.11.3.70 | O | TLV | 3 |
| 1C | Negotiated WUS assistance information | WUS assistance information9.11.3.71 | O | TLV | 3-n |
| 29 | Negotiated NB-N1 mode DRX parameters | NB-N1 mode DRX parameters9.11.3.73 | O | TLV | 3 |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI9.11.3.75 | O | TLV | 5-90 |
| 7C | Service-level-AA container | Service-level-AA container9.11.2.10 | O | TLV-E | 6-n |
| 33 | Negotiated PEIPS assistance information | PEIPS assistance information9.11.3.80 | O | TLV | 3-n |
| 34 | 5GS additional request result | 5GS additional request result9.11.3.81 | O | TLV | 3 |
| 35 | NSSRG information | NSSRG information9.11.3.82 | O | TLV | TBD |
| 14 | Disaster roaming wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| 15 | Disaster return wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| 13 | List of PLMNs to be used in disaster condition | List of PLMNs to be used in disaster condition9.11.3.83 | O | TLV | 2-n |
| xx | Extended CAG information list | Extended CAG information list9.11.3.x | O | TLV-E | 3-n |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.7.x Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.9.1 Message definition

The REGISTRATION REJECT message is sent by the AMF to the UE. See table 8.2.9.1.1.

Message type: REGISTRATION REJECT

Significance: dual

Direction: network to UE

Table 8.2.9.1.1: REGISTRATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | Registration reject message identity | Message type9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause9.11.3.2 | M | V | 1 |
| 5F | T3346 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 16 | T3502 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message9.11.2.2 | O | TLV-E | 7-1503 |
| 69 | Rejected NSSAI | Rejected NSSAI9.11.3.46 | O | TLV | 4-42 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI9.11.3.75 | O | TLV | 5-90 |
| 15 | Disaster return wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| xx | Extended CAG information list | Extended CAG information list9.11.3.x | O | TLV-E | 3-n |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.9.x Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.14.1 Message definition

The DEREGISTRATION REQUEST message is sent by the AMF to the UE. See table 8.2.14.1.1.

Message type: DEREGISTRATION REQUEST

Significance: dual

Direction: network to UE

Table 8.2.14.1.1: DEREGISTRATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | De-registration request message identity | Message type9.7 | M | V | 1 |
|  | De-registration type | De-registration type9.11.3.20 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
| 58 | 5GMM cause | 5GMM cause9.11.3.2 | O | TV | 2 |
| 5F | T3346 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 6D | Rejected NSSAI | Rejected NSSAI9.11.3.46 | O | TLV | 4-42 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI9.11.3.75 | O | TLV | 5-90 |
| 15 | Disaster return wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| xx | Extended CAG information list | Extended CAG information list9.11.3.x | O | TLV-E | 3-n |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.14.x Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.18.1 Message definition

The SERVICE REJECT message is sent by the AMF to the UE in order to reject the service request procedure. See table 8.2.18.1.1.

Message type: SERVICE REJECT

Significance: dual

Direction: network to UE

Table 8.2.18.1.1: SERVICE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | Service reject message identity | Message type9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause9.11.3.2 | M | V | 1 |
| 50 | PDU session status | PDU session status9.11.3.44 | O | TLV | 4-34 |
| 5F | T3346 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message9.11.2.2 | O | TLV-E | 7-1503 |
| 6B | T3448 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 15 | Disaster return wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| xx | Extended CAG information list | Extended CAG information list9.11.3.x | O | TLV-E | 3-n |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.18.x Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.19.1 Message definition

The CONFIGURATION UPDATE COMMAND message is sent by the AMF to the UE. See table 8.2.19.1.1.

Message type: CONFIGURATION UPDATE COMMAND

Significance: dual

Direction: network to UE

Table 8.2.19.1.1: CONFIGURATION UPDATE COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | Configuration update command message identity | Message type9.7 | M | V | 1 |
| D- | Configuration update indication | Configuration update indication9.11.3.18 | O | TV | 1 |
| 77 | 5G-GUTI | 5GS mobile identity9.11.3.4 | O | TLV-E | 14 |
| 54 | TAI list | 5GS tracking area identity list9.11.3.9 | O | TLV | 9-114 |
| 15 | Allowed NSSAI | NSSAI9.11.3.37 | O | TLV | 4-74 |
| 27 | Service area list | Service area list9.11.3.49 | O | TLV | 6-114 |
| 43 | Full name for network | Network name9.11.3.35 | O | TLV | 3-n |
| 45 | Short name for network | Network name9.11.3.35 | O | TLV | 3-n |
| 46 | Local time zone | Time zone9.11.3.52 | O | TV | 2 |
| 47 | Universal time and local time zone | Time zone and time9.11.3.53 | O | TV | 8 |
| 49 | Network daylight saving time | Daylight saving time9.11.3.19 | O | TLV | 3 |
| 79 | LADN information | LADN information9.11.3.30 | O | TLV-E | 3-1715 |
| B- | MICO indication | MICO indication9.11.3.31 | O | TV | 1 |
| 9- | Network slicing indication | Network slicing indication9.11.3.36 | O | TV | 1 |
| 31 | Configured NSSAI | NSSAI9.11.3.37 | O | TLV | 4-146 |
| 11 | Rejected NSSAI | Rejected NSSAI9.11.3.46 | O | TLV | 4-42 |
| 76 | Operator-defined access category definitions | Operator-defined access category definitions9.11.3.38 | O | TLV-E | 3-8323 |
| F- | SMS indication | SMS indication9.11.3.50A | O | TV | 1 |
| 6C | T3447 value | GPRS timer 39.11.2.5 | O | TLV | 3 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 67 | UE radio capability ID | UE radio capability ID9.11.3.68 | O | TLV | 3-n |
| A- | UE radio capability ID deletion indication | UE radio capability ID deletion indication9.11.3.69 | O | TV | 1 |
| 44 | 5GS registration result | 5GS registration result9.11.3.6 | O | TLV | 3 |
| 1B | Truncated 5G-S-TMSI configuration | Truncated 5G-S-TMSI configuration9.11.3.70 | O | TLV | 3 |
| C- | Additional configuration indication | Additional configuration indication9.11.3.74 | O | TV | 1 |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI9.11.3.75 | O | TLV | 5-90 |
| 7C | Service-level-AA container | Service-level-AA container9.11.2.10 | O | TLV-E | 6-n |
| 35 | NSSRG information | NSSRG information9.11.3.82 | O | TLV | TBD |
| 14 | Disaster roaming wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| 15 | Disaster return wait range | Registration wait range9.11.3.84 | O | TLV | 4 |
| 13 | List of PLMNs to be used in disaster condition | List of PLMNs to be used in disaster condition9.11.3.83 | O | TLV | 2-n |
| xx | Extended CAG information list | Extended CAG information list9.11.3.x | O | TLV-E | 3-n |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 8.2.19.x Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 9.11.3.1 5GMM capability

The purpose of the 5GMM capability information element is to provide the network with information concerning aspects of the UE related to the 5GCN or interworking with the EPS. The contents might affect the manner in which the network handles the operation of the UE.

The 5GMM capability information element is coded as shown in figure 9.11.3.1.1 and table 9.11.3.1.1.

The 5GMM capability is a type 4 information element with a minimum length of 3 octets and a maximum length of 15 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| 5GMM capability IEI | octet 1 |
| Length of 5GMM capability contents | octet 2 |
| SGC | 5G-IPHC-CP CIoT | N3 data | 5G-CP CIoT | RestrictEC | LPP | HO attach | S1 mode | octet 3 |
| RACS | NSSAA | 5G-LCS | V2XCNPC5 | V2XCEPC5 | V2X | 5G-UP CIoT | 5GSRVCC | octet 4\* |
| ProSe-l2relay | ProSe-dc | ProSe-dd | ER-NSSAI | 5G-EHC-CP CIoT | multipleUP | WUSA | CAG | octet 5\* |
| PR | RPR | PIV | NCR | NR-PSSI | ProSe-l3rmt | ProSe-l2rmt | ProSe-l3relay | octet 6\* |
| spare | spare | spare | spare | spare | Ex-CAG | MINT | NSSRG | octet 7\* |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | octet 8\*-15\* |
| Spare |

Figure 9.11.3.1.1: 5GMM capability information element

Table 9.11.3.1.1: 5GMM capability information element

|  |
| --- |
| EPC NAS supported (S1 mode) (octet 3, bit 1) |
| 0 |  |  |  | S1 mode not supported |
| 1 |  |  |  | S1 mode supported |
|  |
| ATTACH REQUEST message containing PDN CONNECTIVITY REQUEST message for handover support (HO attach) (octet 3, bit 2) |
| 0 |  |  |  | ATTACH REQUEST message containing PDN CONNECTIVITY REQUEST message with request type set to "handover" or "handover of emergency bearer services" to transfer PDU session from N1 mode to S1 mode not supported |
| 1 |  |  |  | ATTACH REQUEST message containing PDN CONNECTIVITY REQUEST message with request type set to "handover" or "handover of emergency bearer services" to transfer PDU session from N1 mode to S1 mode supported |
|  |
| LTE Positioning Protocol (LPP) capability (octet 3, bit 3) |
| 0 |  |  |  | LPP in N1 mode not supported |
| 1 |  |  |  | LPP in N1 mode supported (see 3GPP TS 36.355 [26]) |
|  |
| Restriction on use of enhanced coverage support (RestrictEC) (octet 3, bit 4)This bit indicates the capability to support restriction on use of enhanced coverage. |
| 0 |  |  |  | Restriction on use of enhanced coverage not supported |
| 1 |  |  |  | Restriction on use of enhanced coverage supported |
| Control plane CIoT 5GS optimization (5G-CP CIoT) (octet 3, bit 5)This bit indicates the capability for control plane CIoT 5GS optimization. |
| 0 |  |  |  | Control plane CIoT 5GS optimization not supported |
| 1 |  |  |  | Control plane CIoT 5GS optimization supported |
| N3 data transfer (N3 data) (octet 3, bit 6)This bit indicates the capability for N3 data transfer. |
| 0 |  |  |  | N3 data transfer supported |
| 1 |  |  |  | N3 data transfer not supported |
| IP header compression for control plane CIoT 5GS optimization (5G-IPHC-CP CIoT) (octet 3, bit 7)This bit indicates the capability for IP header compression for control plane CIoT 5GS optimization. |
| 0 |  |  |  | IP header compression for control plane CIoT 5GS optimization not supported |
| 1 |  |  |  | IP header compression for control plane CIoT 5GS optimization supported |
|  |
| Service gap control (SGC) (octet 3, bit 8) |
| 0 |  |  |  | service gap control not supported |
| 1 |  |  |  | service gap control supported |
|  |
| 5G-SRVCC from NG-RAN to UTRAN (5GSRVCC) capability (octet 4, bit 1) |
| 0 |  |  |  | 5G-SRVCC from NG-RAN to UTRAN not supported |
| 1 |  |  |  | 5G-SRVCC from NG-RAN to UTRAN supported (see 3GPP TS 23.216 [6A]) |
| User plane CIoT 5GS optimization (5G-UP CIoT) (octet 4, bit 2)This bit indicates the capability for user plane CIoT 5GS optimization. |
| 0 |  |  |  | User plane CIoT 5GS optimization not supported |
| 1 |  |  |  | User plane CIoT 5GS optimization supported |
|  |
| V2X capability (V2X) (octet 4, bit 3)  |
| This bit indicates the capability for V2X, as specified in 3GPP TS 24.587 [19B].Bit |
| 3 |  |  |  |  |
| 0 |  |  |  | V2X not supported |
| 1 |  |  |  | V2X supported |
|  |
| V2X communication over E-UTRA-PC5 capability (V2XCEPC5) (octet 4, bit 4) |
| This bit indicates the capability for V2X communication over E-UTRA-PC5, as specified in 3GPP TS 24.587 [19B]. |
| Bit |
| 4 |  |  |  |  |
| 0 |  |  |  | V2X communication over E-UTRA-PC5 not supported |
| 1 |  |  |  | V2X communication over E-UTRA-PC5 supported |
|  |
|

|  |
| --- |
| V2X communication over NR-PC5 capability (V2XCNPC5) (octet 4, bit 5) |
| This bit indicates the capability for V2X communication over NR-PC5, as specified in 3GPP TS 24.587 [19B]. |
| Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | V2X communication over NR-PC5 not supported |
| 1 |  |  |  | V2X communication over NR-PC5 supported |
|  |

 |
| Location Services (5G-LCS) notification mechanisms capability (octet 4, bit 6) |
| 0 |  |  |  | LCS notification mechanisms not supported |
| 1 |  |  |  | LCS notification mechanisms supported (see 3GPP TS 23.273 [6B]) |
| Network slice-specific authentication and authorization (NSSAA) (octet 4, bit 7)This bit indicates the capability to support network slice-specific authentication and authorization. |
| 0 |  |  |  | Network slice-specific authentication and authorization not supported |
| 1 |  |  |  | Network slice-specific authentication and authorization supported |
|  |
| Radio capability signalling optimisation (RACS) capability (octet 4, bit 8) |
| 0 |  |  |  | RACS not supported |
| 1 |  |  |  | RACS supported |
|  |
| Closed Access Group (CAG) capability (octet 5, bit 1) |
| 0 CAG not supported1 CAG supportedWUS assistance (WUSA) information reception capability (octet 5, bit 2)0 WUS assistance information reception not supported1 WUS assistance information reception supported |
|  |
| Multiple user-plane resources support (multipleUP) (octet 5, bit 3) |
| This bit indicates the capability to support multiple user-plane resources in NB-N1 mode. |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 |  |  |  | Multiple user-plane resources not supported |
| 1 |  |  |  | Multiple user-plane resources supported |

 |
| Ethernet header compression for control plane CIoT 5GS optimization (5G-EHC-CP CIoT) (octet 5, bit 4)0 Ethernet header compression for control plane CIoT 5GS optimization not supported1 Ethernet header compression for control plane CIoT 5GS optimization supported |
| Extended rejected NSSAI support (ER-NSSAI) (octet 5, bit 5) |
| This bit indicates the capability to support extended rejected NSSAI. |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 |  |  |  | Extended rejected NSSAI not supported |
| 1 |  |  |  | Extended rejected NSSAI supported |

 |
| ProSe direct discovery (ProSe-dd) (octet 5, bit 6)This bit indicates the capability for ProSe direct discovery.Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | ProSe direct discovery not supported |
| 1 |  |  |  | ProSe direct discovery supported |
| ProSe direct communication (ProSe-dc) (octet 5, bit 7)This bit indicates the capability for ProSe direct communication.

|  |
| --- |
| Bit |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 7 |  |  |  |  |
| 0 |  |  |  | ProSe direct communication not supported |
| 1 |  |  |  | ProSe direct communication supported  |

 |

ProSe layer-2 UE-to-network-relay (ProSe-l2relay) (octet 5, bit 8)This bit indicates the capability to act as a layer-2 ProSe UE-to-network relay UE |
| Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | Acting as a ProSe layer-2 UE-to-network relay UE not supported |
| 1 |  |  |  | Acting as a ProSe layer-2 UE-to-network relay UE supported |
| ProSe layer-3 UE-to-network-relay (ProSe-l3relay) (octet 6, bit 1)This bit indicates the capability to act as a layer-3 ProSe UE-to-network relay UEBit |
| 1 |  |  |  |  |
| 0 |  |  |  | Acting as a ProSe layer-3 UE-to-network relay UE not supported |
| 1 |  |  |  | Acting as a ProSe layer-3 UE-to-network relay UE supported |
| ProSe layer-2 UE-to-network-remote (ProSe-l2rmt) (octet 6, bit 2)This bit indicates the capability to act as a layer-2 ProSe UE-to-network remote UEBit |
| 2 |  |  |  |  |
| 0 |  |  |  | Acting as a ProSe layer-2 UE-to-network remote UE not supported |
| 1 |  |  |  | Acting as a ProSe layer-2 UE-to-network remote UE supported |
| ProSe layer-3 UE-to-network-remote (ProSe-l3rmt) (octet 6, bit 3)This bit indicates the capability to act as a layer-3 ProSe UE-to-network remote UE |
| 3 |  |  |  |  |
| 0 |  |  |  | Acting as a ProSe layer-3 UE-to-network remote UE not supported |
| 1 |  |  |  | Acting as a ProSe layer-3 UE-to-network remote UE supported |
|  |
| NR paging subgroup support indication (NR-PSSI) (octet 6, bit 4) |
| This bit indicates the capability to support NR paging subgrouping |
| 4 |  |  |  |  |
| 0 |  |  |  | NR paging subgrouping not supported |
| 1 |  |  |  | NR paging subgrouping supported |
|  |
| N1 NAS signalling connection release (NCR) (octet 6, bit 5) |
| This bit indicates whether N1 NAS signalling connection release is supported. |
| Bit |
| 5 |  |  |  |  |
| 0 |  |  |  | N1 NAS signalling connection release not supported |
| 1 |  |  |  | N1 NAS signalling connection release supported |
|  |
| Paging indication for voice services (PIV) (octet 6, bit 6) |
| This bit indicates whether paging indication for voice services is supported. |
| Bit |
| 6 |  |  |  |  |
| 0 |  |  |  | paging indication for voice services not supported |
| 1 |  |  |  | paging indication for voice services supported |
|  |
| Reject paging request (RPR) (octet 6, bit 7) |
| This bit indicates whether reject paging request is supported. |
| Bit |
| 7 |  |  |  |  |
| 0 |  |  |  | reject paging request not supported |
| 1 |  |  |  | reject paging request supported |
|  |
| Paging restriction (PR) (octet 6, bit 8) |
| This bit indicates whether paging restriction is supported. |
| Bit |
| 8 |  |  |  |  |
| 0 |  |  |  | paging restrictions not supported |
| 1 |  |  |  | paging restrictions supported |
|  |
| NSSRG (octet 7, bit 1) |
| This bit indicates the capability to support the NSSRG. |
| 0 |  |  |  | NSSRG not supported |
| 1 |  |  |  | NSSRG supported |
| Minimization of service interruption (MINT) (octet 7, bit 2) |
| This bit indicates the capability to support Minimization of service interruption (MINT) |
| 2 |  |  |  |  |
| 0 |  |  |  | MINT not supported |
| 1 |  |  |  | MINT supported |
|  |
|  |
| Extended CAG information list support (Ex-CAG) (octet 7, bit 3) |
| This bit indicates the capability to support extended CAG information list. |
| Bit |
| 3 |  |  |  |  |
| 0 |  |  |  | Extended CAG information list not supported |
| 1 |  |  |  | Extended CAG information list supported |
| bits 4-8 in octet 7 and bits in octets 8 to 15 are spare and shall be coded as zero, if the respective octet is included in the information element. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 9.11.3.x Extended CAG information list

The purpose of the Extended CAG information list information element is to provide "CAG information list" or to delete the "CAG information list" at the UE.

The Extended CAG information list information element is coded as shown in figures 9.11.3.x.1 and 9.11.3.x.2 and table 9.11.3.x.1.

The Extended CAG information list is a type 6 information element, with a minimum length of 3 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Extended CAG information list IEI | octet 1 |
| Length of Extended CAG information list contents | octet 2octet 3 |
| Entry 1 | octet 4\*octet a\* |
| Entry 2 | octet a+1\*octet b\* |
| … | octet b+1\*octet g\* |
| Entry n | octet g+1\*octet h\* |

Figure 9.11.3.x.1: Extended CAG information list information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of entry contents | octet q |
| octet q+1 |
| MCC digit 2 | MCC digit 1 | octet q+2 |
| MNC digit 3 | MCC digit 3 | octet q+3 |
| MNC digit 2 | MNC digit 1 | octet q+4 |
| 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | CAGonly | octet q+5 |
| CAG-ID 1 | octet q+6\*octet q+9\* |
| CAG-ID 2 | octet q+10\*octet q+13\* |
| … | octet q+14\*octet q+4m+1\* |
| CAG-ID m | octet q+4m+2\*octet q+4m+5\* |

Figure 9.11.3.x.2: Entry n

Table 9.11.3.x.1: Extended CAG information list information element

|  |
| --- |
| Value part of the Extended CAG information list information element (octet 4 to h)The value part of the Extended CAG information list information element consists of one or more entries.Entry n:Length of entry contents (octet q and q+1)MCC, Mobile country code (octet q+2 and bits 1 to 4 octet q+3)The MCC field is coded as in ITU-T Recommendation E.212 [42], annex A. |
|  |
| MNC, Mobile network code (bits 5 to 8 of octet q+3 and octet q+4)The coding of this field is the responsibility of each administration, but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, bits 5 to 8 of octet q+2 shall be coded as "1111". |
|  |
| The contents of the MCC and MNC digits are coded as octets 6 to 8 of the Temporary mobile group identity IE in figure 10.5.154 of 3GPP TS 24.008 [12]. |
|  |
| Indication that the UE is only allowed to access 5GS via CAG cells (CAGonly) (bit 1 of octet q+5) |
| Bit |
| 1 |  |
| 0 | "Indication that the UE is only allowed to access 5GS via CAG cells" is not set (i.e., the UE is allowed to access 5GS via non-CAG cells) |
| 1 | "Indication that the UE is only allowed to access 5GS via CAG cells" is set (i.e., the UE is not allowed to access 5GS via non-CAG cells) |
|  |
| CAG-ID m (octet q+4m+2 to octet q+4m+5)This field contains the 32 bit CAG-ID. The coding of the CAG-ID is defined as the CAG-Identifier in 3GPP TS 23.003 [4].NOTE 1: The Length of Extended CAG information list contents shall be 0 if no subscription data for CAG information list exists.NOTE 2: The Length of entry contents shall be 4 if there is no allowed CAG-ID for the PLMN.NOTE 3: For a given PLMN ID, there shall be up to one Entry containing the MCC value and the MNC value of the PLMN ID. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* END of CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*