**3GPP TSG-CT WG1 Meeting #130-eC1-213259**

**Electronic meeting, 20-28 May 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.501** | **CR** | **3258** | **rev** | **-** | **Current version:** | **17.2.1** |  |
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| *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:***  | Update of registration procedure for SNPN case |
|  |  |
| ***Source to WG:*** | vivo |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | eNPN |  | ***Date:*** | 2021-5-6 |
|  |  |  |  |  |
| ***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)* |
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| ***Reason for change:*** | 1) TS 23.501 CR#2562(S2-2102974) was agreed during SA2 #144e April 12 -- April 16 2021 which defines the usage of UE identify in the Registration Request message when the UE is registering with an SNPN.Quote from S2-2102974:*If the UE is registering with an SNPN, when the UE is performing an Initial Registration the UE shall indicate its UE identity in the Registration Request message as follows, listed in decreasing order of preference:**i) a native 5G-GUTI assigned by the same SNPN to which the UE is attempting to register, if available;**ii) a native 5G-GUTI assigned by any other SNPN along with the NID of the SNPN that assigned the 5G-GUTI, if available;* *iii) Otherwise, the UE shall include its SUCI in the Registration Request as defined in TS 33.501 [15].*2) In S2-2102974, it is also agreed that if the UE is registering with an SNPN, the UE shall also provide the NID of the SNPN that assigned the 5G-GUTI to network.Quote from S2-2102974:*The following are the cleartext IEs, as defined in TS 24.501 [25] that can be sent by the UE in the Registration Request message if the UE has no NAS security context:**- Registration type**- SUCI or 5G-GUTI or PEI**- Security parameters**- additional GUTI**- 4G Tracking Area Update**- the indication that the UE is moving from EPS.**- if the UE is registering with an SNPN, the NID of the SNPN that assigned the 5G-GUTI**NOTE: The NID is provided when the 5G-GUTI is assigned by another SNPN than the selected SNPN.*It is proposed to align TS 24.501 with the SA2 requiement. |
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| ***Summary of change:*** | 1. It is proposed to define the usage of UE identify in the Registration Request message when the UE is registering with an SNPN to align with SA2;
2. It is proposed to clarify that if the UE is registering with an SNPN, the UE shall also provide the NID of the SNPN that assigned the 5G-GUTI to network to align with SA2.
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| ***Consequences if not approved:*** | Stage 3 is not aligned with the stage 2 requirement. |
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| ***Clauses affected:*** | 4.14.2, 8.2.6.1, 8.2.6.X(new), 9.11.3.X(new) |
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|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS/TR 23.502 CR 2641  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\* start of change \*\*\*\*\*

### 4.14.2 Stand-alone non-public network

If the UE is not SNPN enabled, the UE is always considered to be not operating in SNPN access operation mode. If the UE is SNPN enabled, the UE can operate in SNPN access operation mode. Details of activation and deactivation of SNPN access operation mode at the SNPN enabled UE are up to UE implementation.

The functions and procedures of NAS described in the present document are applicable to an SNPN and an SNPN enabled UE unless indicated otherwise. The key differences brought by the SNPN to the NAS layer are as follows:

a) instead of the PLMN selection process, the SNPN selection process is performed by a UE operating in SNPN access operation mode (see 3GPP TS 23.122 [5] for further details on the SNPN selection);

b) a "permanently forbidden SNPNs" list and a "temporarily forbidden SNPNs" list are managed per access type independently (i.e. 3GPP access or non-3GPP access) by a UE operating in SNPN access operation mode instead of forbidden PLMN lists;

c) inter-system change to and from S1 mode is not supported;

d) emergency services are not supported in SNPN access operation mode;

e) CAG is not supported in SNPN access operation mode;

f) with respect to the 5GMM cause values:

1) 5GMM cause values #74 "Temporarily not authorized for this SNPN" and #75 "Permanently not authorized for this SNPN" are supported whereas these 5GMM cause values cannot be used in a PLMN; and

2) 5GMM cause values #11 "PLMN not allowed", #31 "Redirection to EPC required", #73 "Serving network not authorized", and #76 "Not authorized for this CAG or authorized for CAG cells only" are not supported whereas these 5GMM cause values can be used in a PLMN;

NOTE 1: The network does not send 5GMM cause value #13 to the UE operating in SNPN access operation mode in this release of specification.

g) a list of "5GS forbidden tracking areas for roaming" and a list of "5GS forbidden tracking areas for regional provision of service" are managed per SNPN (see 3GPP TS 23.122 [5]);

h) when accessing SNPN services via a PLMN using 3GPP access, access to 5GCN of the SNPN is performed using 5GMM procedures for non-3GPP access, 5GMM parameters for non-3GPP access, the UE is performing access to SNPN over non-3GPP access and the UE is not operating in SNPN access mode over 3GPP access. When accessing PLMN services via a SNPN using 3GPP access, access to 5GCN of the PLMN is performed using 5GMM procedures for non-3GPP access, 5GMM parameters for non-3GPP access, the UE is not performing access to SNPN over non-3GPP access, and the UE is operating in SNPN access mode over 3GPP access. From the UE's NAS perspective, accessing PLMN services via an SNPN and accessing SNPN services via a PLMN are treated as untrusted non-3GPP access. If the UE is accessing the PLMN using non-3GPP access, the access to 5GCN of the SNPN via PLMN is not specified in this release of the specification;

NOTE 2: The term "non-3GPP access" in an SNPN refers to the case where the UE is accessing SNPN services via a PLMN.

i) when registered to an SNPN, the UE shall use only the UE policies provided by the registered SNPN;

j) equivalent SNPN is not supported;

k) neither the default configured NSSAI nor the network slicing indication is supported in SNPNs;

l) roaming is not supported in SNPN access operation mode;

m) handover between SNPNs and handover between an SNPN and a PLMN are not supported;

n) CIoT 5GS optimizations are not supported;

o) accessing SNPN services using non-3GPP access is not supported, except when accessing SNPN services via a PLMN using 3GPP access as specified in item h;

p) when registering or registered to an SNPN, the UE shall handle the 5GS mobile identity as described in subclause 5.5.1.2.2. and

q) when registering or registered to an SNPN, the UE shall only consider a last visited registered TAI visited in the same SNPN as an available last visited registered TAI.

\*\*\*\*\* next of changes \*\*\*\*\*

#### 8.2.6.1 Message definition

The REGISTRATION REQUEST message is sent by the UE to the AMF. See table 8.2.6.1.1.

Message type: REGISTRATION REQUEST

Significance: dual

Direction: UE to network

Table 8.2.6.1.1: REGISTRATION 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 |
|  | Registration request message identity | Message type9.7 | M | V | 1 |
|  | 5GS registration type | 5GS registration type9.11.3.7 | M | V | 1/2 |
|  | ngKSI | NAS key set identifier9.11.3.32 | M | V | 1/2 |
|  | 5GS mobile identity | 5GS mobile identity9.11.3.4 | M | LV-E | 6-n |
| C- | Non-current native NAS key set identifier | NAS key set identifier9.11.3.32 | O | TV | 1 |
| 10 | 5GMM capability | 5GMM capability9.11.3.1 | O | TLV | 3-15 |
| 2E | UE security capability | UE security capability9.11.3.54 | O | TLV | 4-10 |
| 2F | Requested NSSAI | NSSAI9.11.3.37 | O | TLV | 4-74 |
| 52 | Last visited registered TAI | 5GS tracking area identity9.11.3.8 | O | TV | 7 |
| 17 | S1 UE network capability | S1 UE network capability9.11.3.48 | O | TLV | 4-15 |
| 40 | Uplink data status | Uplink data status9.11.3.57 | O | TLV | 4-34 |
| 50 | PDU session status | PDU session status9.11.3.44 | O | TLV | 4-34 |
| B- | MICO indication | MICO indication9.11.3.31 | O | TV | 1 |
| 2B | UE status | UE status9.11.3.56 | O | TLV | 3 |
| 77 | Additional GUTI | 5GS mobile identity9.11.3.4 | O | TLV-E | 14 |
| 25 | Allowed PDU session status | Allowed PDU session status9.11.3.13 | O | TLV | 4-34 |
| 18 | UE's usage setting | UE's usage setting9.11.3.55 | O | TLV | 3 |
| 51 | Requested DRX parameters | 5GS DRX parameters9.11.3.2A | O | TLV | 3 |
| 70 | EPS NAS message container | EPS NAS message container9.11.3.24 | O | TLV-E | 4-n |
| 74 | LADN indication | LADN indication9.11.3.29 | O | TLV-E | 3-811 |
| 8- | Payload container type | Payload container type9.11.3.40 | O | TV | 1 |
| 7B | Payload container | Payload container9.11.3.39 | O | TLV-E | 4-65538 |
| 9- | Network slicing indication | Network slicing indication9.11.3.36 | O | TV | 1 |
| 53 | 5GS update type | 5GS update type9.11.3.9A | O | TLV | 3 |
| 41 | Mobile station classmark 2 | Mobile station classmark 29.11.3.31C | O | TLV | 5 |
| 42 | Supported codecs | Supported codec list9.11.3.51A | O | TLV | 5-n |
| 71 | NAS message container | NAS message container9.11.3.33 | O | TLV-E | 4-n |
| 60 | EPS bearer context status | EPS bearer context status9.11.3.23A | O | TLV | 4 |
| 6E | Requested extended DRX parameters | Extended DRX parameters9.11.3.26A | 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 |
| 35 | Requested mapped NSSAI | Mapped NSSAI9.11.3.31B | O | TLV | 3-42 |
| 48 | Additional information requested | Additional information requested9.11.3.12A | O | TLV | 3 |
| 1A | Requested WUS assistance information | WUS assistance information9.11.3.71 | O | TLV | 3-n |
| A- | N5GC indication | N5GC indication9.11.3.72 | O | T | 1 |
| 30 | Requested NB-N1 mode DRX parameters | NB-N1 mode DRX parameters9.11.3.73 | O | TLV | 3 |
| XX | NID | Network identifier9.11.3.X | O | TLV | 8 |

\*\*\*\*\* next of changes \*\*\*\*\*

#### 8.2.6.X NID

The UE may include this IE if the UE accesses to an SNPN using credentials from any other SNPN.

\*\*\*\*\* next of changes \*\*\*\*\*

#### 9.11.3.X NID

See subclause 9.2.7 in 3GPP TS 24.502 [18].

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