**SA WG2 Meeting #146eS2-2105391**

**Aug 16 – 27, 2021; Elbonia (revision of S2-2104684r4)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **23.502** | **CR** | **2858** | **rev** | **1** | **Current version:** | **17.1.0** |  |
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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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | 4G <-> 5GS mobility corrections to cope with areas of GERAN/UTRAN-only coverage |
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| ***Source to WG:*** | Vodafone |
| ***Source to TSG:*** | S2 |
|  |  |
| ***Work item code:*** | 5GS\_Ph1, TEI17 |  | ***Date:*** | 2021-07-30 |
|  |  |  |  |  |
| ***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:*** | This CR aims to align TS 23.502 with the changes that were made in CR 2970r1 in S2-2105154 that was approved at SA plenary #92e and is now included in v17.1.0 of TS 23.501.\*\*\*\*\*\*\*\*To reduce the number of times that the UE performs Attach in 2G/3G, and, to allow PS handover from 4G to 3G to continue to work, it is useful if the EPC’s knowledge of any 2G/3G TI is not lost at mobility between EPS and 5GS. This can be solved by using allowing N26 to carry the TI in the same way as it is done on S10 (MME-MME) interface.The TI is stored in the session management context in the SMF |
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| ***Summary of change:*** | It is clarified that the TI is part of the session management context. |
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| ***Consequences if not approved:*** | Lack of assigned TI will cause connected mode and idle mode mobility from 4G to 3G/2G to fail. Following subsequent PDP context re-activation in 2G/3G, extra signalling in EPS is then needed to avoid EPS to 5GS mobility failing... And failure of mobility from EPS to 5GS would lead to 5GS PDN context establishment and mobility failing at the next EPS to 2G/3G event.. |
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| ***Clauses affected:*** | 5.2.8.2.10 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** |  | **x** |  Test specifications |  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications |  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** | No changes are proposed to “4.11.1.2.1 5GS to EPS handover using N26 interface” because step 3 in it is that “The AMF sends a Forward Relocation Request as in step 3 in clause 5.5.1.2.2 (S1-based handover, normal) in TS 23.401 [13],….” And TS 23.401 says that the 2G/3G TI is sent as part of the EPS Bearer Context.For similar reasons, changes are not proposed to other signalling flows. |

*FIRST CHANGE*

##### 5.2.8.2.10 Nsmf\_PDUSession\_ContextRequest service operation

**Service operation name:** Nsmf\_PDUSession\_ContextRequest.

**Description:** This service operation is used by the NF Consumer to request for SM Context (e.g. during EPS IWK, HO, SM Context transfer indication), or during mobility procedure with I-SMF changes or may be triggered by OAM.

**Input, Required:** SM Context ID, SM context type.

**Input, Optional:** Target MME Capability, EBI list not to be transferred, PDU Session ID (include PDU Session ID when available), SMF transfer indication, indication of no NG-RAN change.

**Output, Required:** One of the following:

- SM Context Container.

- Endpoint where SM Context can be retrieved.

**Output, Optional:** Small Data Rate Control Status.

The SM context type indicates the type of SM context to be requested, e.g. PDN Connection Context, 5G SM Context or both. If the SM context type is PDN Connection Context, the SM Context included in the SM Context container is the PDN Connection Context. If the SM context type is all, the SM Context included in the SM Context container includes both the PDN Connection Context and the 5G SM Context.

Table 5.2.8.2.10-1 illustrates the SM Context that may be transferred between I-SMF(s) or between V-SMF(s) in home-routed roaming case.

Table 5.2.8.2.10-1: SM Context of a PDU Session transferred between I-SMF(s) or between V-SMF(s)

| Field | Description |
| --- | --- |
| SUPI | SUPI (Subscription Permanent Identifier) is the subscriber's permanent identity in 5GS. |
| Trace Requirements (does not apply to V-SMF) | Trace reference: Identifies a record or a collection of records for a particular trace. |
|  | Trace type: Indicates the type of trace |
|  | OMC identity: Identifies the OMC that shall receive the trace record(s). |
| S-NSSAI | The S-NSSAI of the PDU Session for the serving PLMN. |
| HPLMN S-NSSAI | The S-NSSAI of the PDU Session for the HPLMN (Home-Routed PDU Session) |
| Network Slice Instance id | The network Slice Instance information for the PDU Session |
| DNN | The associated DNN for the PDU Session. |
| AMF Information | The associated AMF instance identifier and GUAMI. |
| Access Type | The current access type for this PDU Session. |
| RAT Type | RAT Type for this PDU Session. |
| PDU Session ID | The identifier of the PDU Session. |
| H-SMF Information or SMF Information | The associated H-SMF identifier and H-SMF address for the HR PDU Session ( applies only for a V-SMF), or the SMF identifier and SMF address for PDU Session (applies for I-SMF). |
| Context ID of the PDU Session in H-SMF or Context ID of the PDU Session in SMF | The context ID of the PDU Session in H-SMF or in SMF. |
| Forwarding Indication | An indication on whether forwarding tunnel needs be established in order to forward buffered DL data. |
| Uplink Tunnel Info of UPF controlled by the SMF / H-SMF | The Tunnel Information to be used to send UL traffic towards the UPF controlled by the SMF / H-SMF that interfaces the UPF controlled by the I-SMF. |
| Tunnel Info of NG-RAN | The N3 Tunnel Information in the NG-RAN for the PDU Session. This information is transferred if the target I/V-SMF indicates no NG-RAN change. |
| **AF Coordination Information:** |
| Source DNAI | The DNAI from where the UE is moving. |
| UE IP address in Source DNAI | The UE IP address in the Source DNAI. |
| **For each notification correlation ID:** |
| Uplink buffering indication | Uplink buffering indication as received from the AF for this notification correlation id during Early Notification. |
| **For each QoS Flow in the PDU Session:** |
| 5G QoS Identifier (5QI) | Identifier for the authorized QoS parameters for the service data flow. |
| ARP | The Allocation and Retention Priority for the service data flow consisting of the priority level, the pre-emption capability and the pre-emption vulnerability |
| GFBR | Guaranteed Flow Bit Rate (GFBR) - UL and DL |
| MFBR | Maximum Flow Bit Rate (MFBR) - UL and DL |
| Priority Level | Indicates a priority in scheduling resources among QoS Flows. |
| Averaging Window  | Represents the duration over which the guaranteed and maximum bitrate shall be calculated.  |
| Maximum Data Burst Volume | Denotes the largest amount of data that is required to be transferred within a period of 5G-AN PDB.  |
| Reflective QoS Control  | Indicates to apply reflective QoS for the SDF in the TFT. |
| QoS Notification Control (QNC) | Indicates whether notifications are requested from 3GPP RAN when the GFBR can no longer (or can again) be guaranteed for a QoS Flow during the lifetime of the QoS Flow. |
| Maximum Packet Loss Rate | Maximum Packet Loss Rate - UL and DL. |
| **Mapped EPS Bearer Context for Each QFI to support interworking with EPS:** |
| EPS Bearer Id | An EPS bearer identity uniquely identifies an EPS bearer for one UE accessing via E-UTRAN |
| TI | The GERAN/UTRAN Transaction ID (if any) that is associated with the EPS Bearer ID  |
| Mapped EPS Bearer QoS | ARP, GBR, MBR, QCI. |
| PGW-U tunnel Information | PGW-U S5/S8 GTP-U tunnel IP address and TEID information. |
| TFT | Traffic Flow Template |

*End of CHANGES*