**3GPP TSG-SA WG2 Meeting #163 S2-240xxxx**

**Jeju Island, South Korea, 27th – 31th May 2024 revision of S2-2406580\_5823**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.502** | **CR** | **4805** | **rev** | **5** | **Current version:** | **18.5.0** |  |
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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:*** | Corrections to Nnef\_UEId Service | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | AT&T, [Ericsson], Samsung | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI18, EDGEAPP | | | | |  | ***Date:*** | | | 2024-05-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The text *“…AF is allowed and authorized*” requires a reference to the appropriate clause in TS 33.501 (clause 12.4 annex V) to further indicate how AF authorization and user consent, as needed, can be obtained (based on different OAuth 2.0 flows) to allow retrieval of the MSISDN by a trusted/authorized AF.  The text: “*The AF is HPLMN or SNPN operator owned and operated within the operator domain and the AF does not re-expose the GPSI in MSISDN format outside the operator domain)*” is removed so that an AF whether operator-owned or 3rd party-owned (e.g. a bank) so long as it is considered trusted and has obtained appropriate authorization and user consent can receive the MSISDN using Nnef\_UEid service.  Rev4:  The following user consent issues on the MSISDN exposure are identified (more details in discussion paper S2-2406579): (i) user consent for MSISDN exposure is not given in the core network, and (ii) upon revocation of the user consent for MSISDN exposure, the notification for user consent revocation to the AF is not supported. To address these issues, this CR proposes to specify that the user consent shall be given for MSISDN exposure and its corresponding user consent revocation shall be supported with the following changes:   * Add a user consent-related condition for MSISDN exposure * Update Nnef\_UE\_Id Get by including user consent revocation notification address information as input parameter | | | | | | | | |
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| ***Summary of change:*** | | Clarifies the conditions on the usage of the MSISDN retrieval (clause 4.15.10A) to allow the usage of Nnef\_UEId Service for retrieving MSISDN by a trusted and authorized AF by adding reference to TS 33.501. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misleading condition limits the usage of the MSISDN retrieval (through Nnef\_UEId Service) only to the operator-owned AFs and not to the trusted and authorized 3rd-party AFs. | | | | | | | | |
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| ***Clauses affected:*** | | 4.15.10A, 5.2.3.3.1, 5.2.6.27 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Related discussion paper is available (S2-2406579). | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | In Rev5, the text in SA3 LS has been implemented, and further clarification on user consent check and revocation is added. | | | | | | | | |

\*\*\* 1st Change \*\*\*

### 4.15.10A MSISDN retrieval

This clause contains the detailed description and procedures for UE ID retrieval in the GPSI format of MSISDN as defined in TS 23.003 [33] byAFs. Depending on operator policy and local regulation, GPSI in MSISDN format may be exposed through the NEF to an authenticated and authorized AF, in which the selected AF is decided by the operator. Depending on operator policy and local regulation, user consent may be required when exposing MSISDN. Based on operator’s policy, the following options can be used for user consent:

- AF dynamically obtains the user consent for MSISDN exposure based on RNAA defined in clause 6.5.3 of TS 33.122 [] if CAPIF is supported; or

NOTE : When RNAA is used, user consent revocation for MSISDN exposure can be used as described in TS 33.122 [].

- The operator obtains and stores the user consent for MSISDN exposure in UDM

The figure and procedures of clause 4.15.10 shall be applicable for MSISDN retrieval with the following differences:

- description of the AF specific UE ID retrieval is replaced as the MSISDN retrieval; and

- description of the AF specific UE Identifier represented as an External Identifier is replaced as the UE Identifier in the GPSI form of MSISDN.

\*\*\* 2nd Change \*\*\*

##### 5.2.3.3.1 General

Subscription data types used in the Nudm\_SubscriberDataManagement Service are defined in Table 5.2.3.3.1-1 below.

Table 5.2.3.3.1-1: UE Subscription data types

| Subscription data type | Field | Description |
| --- | --- | --- |
| Access and Mobility Subscription data (data needed for UE | GPSI List | List of the GPSI (Generic Public Subscription Identifier) used both inside and outside of the 3GPP system to address a 3GPP subscription (see NOTE 9). |
| Registration and Mobility Management) | Internal Group ID-list | List of the subscribed internal group(s) that the UE belongs to. |
|  | Subscribed UE-AMBR | The maximum aggregated uplink and downlink MBRs to be shared across all Non-GBR QoS Flows according to the subscription of the user. |
|  | Subscribed UE-Slice-MBR(s) | List of maximum aggregated uplink and downlink MBRs to be shared across all GBR and Non-GBR QoS Flows related to the same S-NSSAI according to the subscription of the user. There is a single uplink and a single downlink value per S-NSSAI. |
|  | Subscribed S-NSSAIs | The Network Slices that the UE subscribes to. In the roaming case, it indicates the subscribed Network Slices applicable to the Serving PLMN (NOTE 11).  For a subscribed S-NSSAI subject to NSAC for the registered number of UE, the applicable NSAC admission mode is included as described in clause 4.2.11.5.2. |
|  | Default S-NSSAIs | The Subscribed S-NSSAIs marked as default S-NSSAI. In the roaming case, only those applicable to the Serving PLMN (NOTE 12). |
|  | Slice Usage Policy information | Includes:  - indication the S-NSSAI is on demand; and  - slice deregistration inactivity timer value.  The AMF uses this information as described in clause 5.15.15 of TS 23.501 [2].  (NOTE 22) |
|  | S-NSSAIs subject to Network Slice-Specific Authentication and Authorization | The Subscribed S-NSSAIs marked as subject to NSSAA. When present, the GPSI list shall include at least one GPSI. |
|  | Network Slice Simultaneous Registration Group Information | Optionally, for each S-NSSAI in the Subscribed S-NSSAIs, one or more value of Network Slice Simultaneous Registration Group(s) (NOTE 11) associated with the S-NSSAI. |
|  | Network Slice validity time information | Optionally, if the Subscribed S-NSSAI is temporarily available network slice, one validity time is associated with this S-NSSAI. |
|  | UE Usage Type | As defined in clause 5.15.7.2 of TS 23.501 [2]. |
|  | RAT restriction | 3GPP and non-3GPP Radio Access Technology(ies) not allowed the UE to access. |
|  | Forbidden area | Defines areas in which the UE is not permitted to initiate any communication with the network. |
|  | Service Area Restriction | Indicates Allowed Areas in which the UE is permitted to initiate communication with the network and Non-allowed areas in which the UE and the network are not allowed to initiate Service Request or SM signalling to obtain user services. |
|  | Core Network type restriction | Defines whether UE is allowed to connect to 5GC and/or EPC for this PLMN. |
|  | CAG information | The CAG information includes Allowed CAG list and optionally an indication whether the UE is only allowed to access 5GS via CAG cells and each entry in the Allowed CAG list may also be associated with time validity information as defined in clause 5.30.3 of TS 23.501 [2]. |
|  | CAG information Subscription Change Indication | When present, indicates to the serving AMF that the CAG information in the subscription data changed and the UE must be updated. |
|  | RFSP Index | An index to specific RRM configuration in the NG-RAN. |
|  | Subscribed Periodic Registration Timer | Indicates a subscribed Periodic Registration Timer value, which may be influenced by e.g. network configuration parameter as specified in clause 4.15.6.3a. |
|  | Subscribed Active Time | Indicates a subscribed active time value, which may be influenced by e.g. network configuration parameter as specified in clause 4.15.6.3a. |
|  | MPS priority | Indicates the user is subscribed to MPS as indicated in clause 5.16.5 of TS 23.501 [2]. |
|  | MCX priority | Indicates the user is subscribed to MCX as indicated in clause 5.16.6 of TS 23.501 [2]. |
|  | AMF-Associated Expected UE Behaviour parameters | Information on expected UE movement and communication characteristics. See clause 4.15.6.3 |
|  | Steering of Roaming | List of preferred PLMN/access technology combinations and/or Credentials Holder controlled prioritized lists of preferred SNPNs and GINs and/or Credentials Holder controlled prioritized lists of preferred SNPNs and GINs for accessing Localized Services (see NOTE 21) or HPLMN/Credentials Holder indication that no change of the above list(s) stored in the UE is needed (see NOTE 3).  Optionally includes an indication that the UDM requests an acknowledgement of the reception of this information from the UE. |
|  | SoR Update Indicator for Initial Registration | An indication whether the UDM requests the AMF to retrieve SoR information when the UE performs Registration with NAS Registration Type "Initial Registration". |
|  | SoR Update Indicator for Emergency Registration | An indication whether the UDM requests the AMF to retrieve SoR information when the UE performs Registration with NAS Registration Type "Emergency Registration". |
|  | Network Slicing Subscription Change Indicator | When present, indicates to the serving AMF that the subscription data for network slicing changed and the UE configuration must be updated. |
|  | Provide the UE with the full set of subscribed S-NSSAIs | Indicates the AMF to provide the UE with the full set of subscribed S-NSSAIs even if they do not share a common NSSRG. |
|  | Tracing Requirements | Trace requirements about a UE (e.g. trace reference, address of the Trace Collection Entity, etc.) is defined in TS 32.421 [39]. |
|  | Inclusion of NSSAI in RRC Connection Establishment Allowed | When present, it is used to indicate that the UE is allowed to include NSSAI in the RRC connection Establishment in clear text for 3GPP access. |
|  | Service Gap Time | Used to set the Service Gap timer for Service Gap Control (see clause 5.31.16 of TS 23.501 [2]). |
|  | Subscribed DNN list | List of the subscribed DNNs for the UE (NOTE 1). Used to determine the list of LADN available to the UE as defined in clause 5.6.5 of TS 23.501 [2]. |
|  | LADN Service Area | List of Tracking Areas configured per DNN and S-NSSAI within which UE is permitted to initiate Service Request or SM signalling. |
|  | UDM Update Data | Includes a set of parameters see clause 4.20.1 for parameters possible to deliver) to be delivered from UDM to the UE via NAS signalling as defined in clause 4.20 (NOTE 3).  Optionally includes an indication that the UDM requests an acknowledgement of the reception of this information from the UE and an indication for the UE to re-register. |
|  | NB-IoT UE priority | Numerical value used by the NG-RAN to prioritise between UEs accessing via NB-IoT. |
|  | Enhanced Coverage Restriction | Specifies whether CE mode B is restricted for the UE, or both CE mode A and CE mode B are restricted for the UE, or both CE mode A and CE mode B are not restricted for the UE. |
|  | NB-IoT Enhanced Coverage Restriction | Indicates whether Enhanced Coverage for NB-IoT UEs is restricted or not. |
|  | IAB-Operation allowed | Indicates that the subscriber is allowed for IAB-operation as specified in clause 5.35.2 of TS 23.501 [2]. |
|  | MBSR Operation allowed | Indicates the subscriber is allowed for MBSR operation as specified in clause 5.35A.4 of TS 23.501 [2]. If present, additional location information (i.e. a list of TAIs or Area Codes that can be interpreted by AMF into TAIs ) and/or time information (including one or more time windows, and/or one or more recurring time periods) may also be present to restrict the MBSR operation to be within the location and time provided. |
|  | Charging Characteristics | It contains the Charging Characteristics as defined in Annex A of TS 32.256 [71].  This information, when provided, shall override any corresponding predefined information at the AMF. |
|  | Extended idle mode DRX cycle length | Indicates a subscribed extended idle mode DRX cycle length value. |
|  | PCF Selection Assistance info | list of combination of DNN and S-NSSAI that indicates that the same PCF needs to be selected for AM Policy Control and SM Policy Control (NOTE 10). |
|  | AerialUESubscriptionInfo | Aerial UE Subscription Information. It contains an Indication on whether Aerial service for the UE is allowed or not. |
|  | 5G Access Stratum-based Time Synchronization Service Data | Includes the Access Stratum Time Synchronization Service Authorization to indicate whether the UE should be provisioned with 5G system internal clock timing information over access stratum.  Optionally includes an Uu time synchronization error budget.  Optionally includes one or more periods of start and stop times defining the times when the UE should be provisioned with 5G system internal clock timing information.  Optionally includes a Time Synchronization Coverage Area comprising a list of TAs where the UE shall be provisioned with 5G system internal clock timing information (NOTE 19).  Optionally includes a clock quality detail level to indicate whether and which clock quality information to provide to the UE. It comprises one of the following values: clock quality metrics or acceptable/not acceptable indication.  Optionally includes the clock quality acceptance criteria for the UE. It may be defined based on one or more of the following attributes: time source, traceability to UTC and to GNSS, synchronization state, clock accuracy, frequency stability. |
|  | Routing Indicator | Routing Indicator assigned to the SUPI. |
|  | ODB for Packet services | Operator Determined Barring for Packet Oriented Services. See TS 23.015 [90] and TS 29.503 [52] for the handling of ODB for Packet service parameter. |
|  | QMC Configuration information | The content of QMC Configuration information (e.g. QoE reference, QoE collection entity address, etc.) is defined in TS 28.405 [92]. |
|  | NCR-Operation allowed | Indicates that the subscriber is allowed for NCR-operation as specified in clause 5.xx of TS 23.501 [2]. |
| Slice Selection Subscription data (data needed for | Subscribed S-NSSAIs | The Network Slices that the UE subscribes to. In roaming case, it indicates the subscribed network slices applicable to the serving PLMN (NOTE 11). |
| Slice Selection as described in clause 4.2.2.2.3 and | Default S-NSSAIs | The Subscribed S-NSSAIs marked as default S-NSSAI. In the roaming case, only those applicable to the Serving PLMN (NOTE 12). |
| in clause 4.11.0a.5) | S-NSSAIs subject to Network Slice-Specific Authentication and Authorization | The Subscribed S-NSSAIs marked as subject to NSSAA. |
|  | Network Slice Simultaneous Registration Group (NSSRG) Information | Optionally, for each S-NSSAI in the Subscribed S-NSSAIs, the one or more value of Network Slice Simultaneous Registration Group(s) (NOTE 11) associated with the S-NSSAI. |
|  | Network Slice validity time information | Optionally, if the Subscribed S-NSSAI is temporarily available network slice, one validity time is associated with this S-NSSAI. |
| SMF Selection | SUPI | Key |
| Subscription data (data needed for SMF | **SMF Selection Subscription data contains one or more S-NSSAI level subscription data:** | |
| Selection as described | S-NSSAI | Indicates the value of the S-NSSAI. |
| in clause 6.3.2 of | Subscribed DNN list | List of the subscribed DNNs for the UE (NOTE 1). |
| TS 23.501 [2]) | Default DNN | The default DNN if the UE does not provide a DNN (NOTE 2). |
|  | DNN(s) subject to aerial services | List of DNNs that are used for aerial services (e.g. UAS operations or C2, etc.) as described in TS 23.256 [80]. (see NOTE 13). |
|  | LBO Roaming Information | Indicates whether LBO roaming is allowed per DNN, or per (S-NSSAI, subscribed DNN). (NOTE 16) |
|  | HR-SBO allowed indication | Indicates whether Session Breakout for HR Session in VPLMN is allowed per DNN, or per (S-NSSAI, subscribed DNN).  (NOTE 17) |
|  | Interworking with EPS indication list | Indicates whether EPS interworking is supported per (S-NSSAI, subscribed DNN). |
|  | Same SMF for Multiple PDU Sessions to the same DNN and S-NSSAI | Indication whether the same SMF for multiple PDU Sessions to the same DNN and S-NSSAI is required. |
|  | Invoke NEF indication | When present, indicates, per S-NSSAI and per DNN, that NEF based infrequent small data transfer shall be used for the PDU Session (see NOTE 8). |
|  | SMF information for static IP address/prefix | When static IP address/prefix is used, this may be used to indicate the associated SMF information per (S-NSSAI, DNN). |
| UE context in SMF | SUPI | Key. |
| data | PDU Session Id(s) | List of PDU Session Id(s) for the UE. |
|  | **For emergency PDU Session Id:** | |
|  | Emergency Information | The SMF+PGW-C FQDN for emergency session used for interworking with EPC. |
|  | **For each non-emergency PDU Session Id:** | |
|  | DNN | DNN for the PDU Session. |
|  | SMF | Allocated SMF for the PDU Session. Includes SMF IP Address and SMF NF Id. |
|  | SMF+PGW-C FQDN | The S5/S8 SMF+PGW-C FQDN used for interworking with EPS (see NOTE 5). |
|  | PCF ID | The PCF ID serving the PDU Session/PDN Connection. |
| SMS Management Subscription data (data needed by | SMS parameters | Indicates SMS parameters subscribed for SMS service such as SMS teleservice, SMS barring list |
| SMSF for SMSF Registration) | Trace Requirements | Trace requirements about a UE (e.g. trace reference, address of the Trace Collection Entity, etc.) is defined in TS 32.421 [39].  This information is only sent to a SMSF in HPLMN. |
|  | Routing Indicator | Routing Indicator assigned to the SUPI. |
| SMS Subscription data | SMS Subscription | Indicates subscription to any SMS delivery service over NAS irrespective of access type. |
| (data needed in AMF) |  |  |
| UE Context in SMSF data | SMSF Information | Indicates SMSF allocated for the UE, including SMSF address and SMSF NF ID. |
|  | Access Type | 3GPP or non-3GPP access through this SMSF |
| Session Management Subscription data (data needed for PDU | GPSI List | List of the GPSI (Generic Public Subscription Identifier) used both inside and outside of the 3GPP system to address a 3GPP subscription. |
| Session Establishment) | Internal Group ID-list | List of the subscribed internal group(s) that the UE belongs to. |
|  | Trace Requirements | Trace requirements about a UE (e.g. trace reference, address of the Trace Collection Entity, etc…) is defined in TS 32.421 [39].  This information is only sent to a SMF in the HPLMN or one of its equivalent PLMN(s). |
|  | Routing Indicator | Routing Indicator assigned to the SUPI. |
|  | **Session Management Subscription data contains one or more S-NSSAI level subscription data:** | |
|  | S-NSSAI | Indicates the value of the S-NSSAI.  For a subscribed S-NSSAI subject to NSAC for the established PDU session number, the applicable NSAC admission mode is included as described in clause 4.2.11.5.2. |
|  | Subscribed DNN list | List of the subscribed DNNs for the S-NSSAI (NOTE 1). |
|  | Slice Usage Policy information | Includes:  - indication the S-NSSAI is on demand; and  - PDU Session inactivity timer value.  The SMF uses this information as described in clause 5.15.15 of TS 23.501 [2].  (NOTE 22). |
|  | ODB for Packet services | Operator Determined Barring for Packet Oriented Services. See TS 23.015 [90] and TS 29.503 [52] for the handling of ODB for Packet service parameter. |
|  | **For each DNN in S-NSSAI level subscription data:** | |
|  | DNN | DNN for the PDU Session. |
|  | Aerial service indication | Indicates whether the DNN is used for aerial services (e.g. UAS operations or C2, etc.) as described in TS 23.256 [80]. |
|  | Framed Route information | Set of Framed Routes. A Framed Route refers to a range of IPv4 addresses / IPv6 Prefixes to associate with a PDU Session established on this (DNN, S-NSSAI).  See NOTE 4. |
|  | IP Index information | Information used for selecting how the UE IP address is to be allocated (see clause 5.8.2.2.1 of TS 23.501 [2]). |
|  | Allowed PDU Session Types | Indicates the allowed PDU Session Types (IPv4, IPv6, IPv4v6, Ethernet and Unstructured) for the DNN, S-NSSAI. See NOTE 6. |
|  | Default PDU Session Type | Indicates the default PDU Session Type for the DNN, S-NSSAI. |
|  | Allowed SSC modes | Indicates the allowed SSC modes for the DNN, S-NSSAI. |
|  | Default SSC mode | Indicate the default SSC mode for the DNN, S-NSSAI. |
|  | Interworking with EPS indication | Indicates whether interworking with EPS is supported for this DNN and S-NSSAI. |
|  | 5GS Subscribed QoS profile | The QoS Flow level QoS parameter values (5QI and ARP) for the DNN, S-NSSAI (see clause 5.7.2.7 of TS 23.501 [2]). |
|  | Charging Characteristics | It contains Charging Characteristics as defined in Annex A clause A.1 of TS 32.255 [45]. This information, when provided, shall override any corresponding predefined information at the SMF. |
|  | Subscribed-Session-AMBR | The maximum aggregated uplink and downlink MBRs to be shared across all Non-GBR QoS Flows in each PDU Session, which are established for the DNN, S-NSSAI. |
|  | Static IP address/prefix | Indicate the static IP address/prefix for the DNN, S-NSSAI. |
|  | User Plane Security Policy | Indicates the security policy for integrity protection and encryption for the user plane. |
|  | PDU Session continuity at inter RAT mobility | Provides for this DDN, S-NSSAI how to handle a PDU Session when UE the moves to or from NB-IoT. Possible values are: maintain the PDU session; disconnect the PDU session with a reactivation request; disconnect PDU session without reactivation request; or to leave it to local VPLMN policy. |
|  | NEF Identity for NIDD | When present, indicates, per S-NSSAI and per DNN, the identity of the NEF to anchor Unstructured PDU Session. When not present for the S-NSSAI and DNN, the PDU session terminates in UPF (see NOTE 8). |
|  | NIDD information | Information such as External Group Identifier, External Identifier, MSISDN, or AF Identifier used for SMF-NEF Connection. |
|  | SMF-Associated Expected UE Behaviour parameters | Parameters on expected characteristics of a PDU Session their corresponding validity times as specified in clause 4.15.6.3. |
|  | SMF-Associated Application-Specific Expected UE Behaviours parameters | Parameters characterise the foreseen behaviour of a UE for a specific application as specified in clause 4.15.6.3f. |
|  | Suggested number of downlink packets | Parameters on expected PDU session characteristics as specified in clauses 4.15.3.2.3b and 4.15.6.3a. |
|  | ATSSS information | Indicates whether MA PDU session establishment is allowed. |
|  | Secondary authentication indication | Indicates that whether the Secondary authentication/authorization (as defined in clause 5.6 of TS 23.501 [2]) is required for PDU Session Establishment or PDN Connection Establishment as specified in clause 4.3.2.3 and clause H.2. (see NOTE 14) |
|  | DN-AAA Server UE IP address allocation indication | Indicates that whether the SMF is required to request the UE IP address from the DN-AAA Server (as defined in clause 5.6 of TS 23.501 [2]) for PDU Session Establishment or or PDN Connection Establishment as specified in clause 4.3.2.3 and clause H.2. |
|  | DN-AAA Server addressing information | If at least one of secondary DN-AAA authentication, DN-AAA authorization or DN-AAA UE IP address allocation is required by subscription data, the subscription data may also contain DN-AAA Server addressing information. |
|  | Edge Configuration Server Address Configuration Information | Consists of one or more ECS Configuration Information as defined in clause 8.3.2.1 of TS 23.558 [83]. The ECS Configuration Information sent by UDM to SMF is associated with the PLMN ID where the UE is roaming on. (see NOTE 20) |
|  | API based secondary authentication indication | Indicates that whether the API based Secondary authentication/authorization (as defined in clause 5.2.3 of TS 23.256 [80]) is required for PDU Session Establishment or PDN Connection Establishment as specified in clause 4.3.2.3 and clause H.2 (see NOTE 14). |
|  | UE authorization for EAS discovery via EASDF | Indicates whether the UE is authorized to use 5GC assisted EAS discovery via EASDF (as defined in TS 23.548 [74]). |
|  | HR-SBO authorization indication | Indicates whether the VPLMN is authorized for Home Routed Session Breakout (HR-SBO) (see NOTE 17 and NOTE 18). |
| Identifier translation | SUPI | Corresponding SUPI for input GPSI. |
|  | (Optional) MSISDN | Corresponding GPSI (MSISDN) for input GPSI (External Identifier). This is optionally provided for legacy SMS infrastructure not supporting MSISDN-less SMS. The presence of an MSISDN should be interpreted as an indication to the NEF that MSISDN shall be used to identify the UE when sending the SMS to the SMS-SC via T4. |
|  | GPSI | Corresponding GPSI for input SUPI and associated application information (e.g. Application Port ID) (NOTE 15). |
| Intersystem continuity Context | (DNN, PGW FQDN) list | For each DNN, indicates the SMF+PGW-C which support interworking with EPC. |
| LCS privacy  (data needed by GMLC) | LCS privacy profile data | Provides information for LCS privacy classes and Location Privacy Indication (LPI) as defined in clause 5.4.2 of TS 23.273 [51] |
| LCS mobile origination  (data needed by AMF) | LCS Mobile Originated Data | When present, indicates to the serving AMF which LCS mobile originated services are subscribed as defined in clause 7.1 of TS 23.273 [51]. |
| User consent (see TS 23.288 [50]) | User consent for UE data collection | Indicates whether the user has given consent for exposing MSISDN, collecting, distributing and analysing UE related data. User consent is provided per purpose (e.g. analytics, model training, MSISDN exposure). |
| UE reachability | UE reachability information | Provides, per PLMN, the list of NF IDs or the list of NF sets or the list of NF types authorized to request notification for UE's reachability (NOTE 7). |
| V2X Subscription data (see TS 23.287 [73]) | NR V2X Services Authorization | Indicates whether the UE is authorized to use the NR sidelink for V2X services as Vehicle UE, Pedestrian UE, or both. |
|  | LTE V2X Services Authorization | Indicates whether the UE is authorized to use the LTE sidelink for V2X services as Vehicle UE, Pedestrian UE, or both. |
|  | NR UE-PC5-AMBR | AMBR of UE's NR sidelink (i.e. PC5) communication for V2X services. |
|  | LTE UE-PC5-AMBR | AMBR of UE's LTE sidelink (i.e. PC5) communication for V2X services. |
| A2X Subscription data (see TS 23.256 [80]) | NR A2X Services Authorization | Indicates whether the UE is authorized to use the NR sidelink for A2X services. |
|  | LTE A2X Services Authorization | Indicates whether the UE is authorized to use the LTE sidelink for A2X services. |
|  | NR UE-PC5-AMBR for A2X | AMBR of UE's NR sidelink (i.e. PC5) communication for A2X services. |
|  | LTE UE-PC5-AMBR for A2X | AMBR of UE's LTE sidelink (i.e. PC5) communication for A2X services. |
| ProSe Subscription data (see TS 23.304 [77]) | ProSe Service Authorization | Indications for whether the UE is authorised to use the 5G ProSe service(s), including:  - use 5G ProSe Direct Discovery;  - use 5G ProSe Direct Communication;  - act as a 5G ProSe Remote UE;  - serve as a 5G ProSe UE-to-Network Relay;  - use multi-path communication via direct Uu path and via 5G ProSe Layer-2 UE-to-Network Relay as a 5G ProSe Layer-2 Remote UE;  - act as a 5G ProSe End UE; and  - serve as a 5G ProSe UE-to-UE Relay. |
|  | ProSe NR UE-PC5-AMBR | AMBR of UE's NR sidelink (i.e. PC5) communication for ProSe services. |
| MBS Subscription data (see TS 23.247 [78]) | MBS Service Authorization | Indicates whether the UE is authorized to use Multicast MBS service. May also indicate the multicast MBS Session which the UE is allowed to join if the UE is authorized to use multicast MBS Service. |
|  | MBS Assistance Information | Include MBS assistance information for a UE that joins a multicast group. |
| Time Synchronization Subscription data (see clause 5.27.1.11 of TS 23.501 [2]) | AF Request Authorization Information | Includes the AF Request Authorization to indicate whether the UE is authorized for an AF-requested 5G access stratum-based time distribution and (g)PTP-based time distribution services (per DNN/S-NSSAI). The indication is provided separately for each service.  Optionally includes a list of TA(s) which specifies the Authorized Time Synchronization Coverage Area in which an AF may request time synchronization services (NOTE 19).  Optionally, one or more periods of authorized start and stop times, which indicates the allowed time period during which an AF may request time synchronization services.  Optionally, authorized Uu time synchronization error budget, which indicates the limit the AF may request.  Optionally includes information to determine whether the AF may request  - to provide clock quality metric information to the UE;  - to provide an acceptable/not acceptable indication to the UE.  Optionally includes one or more sets of the clock quality acceptance criteria for the UE that the AF may request. Clock quality acceptance criteria may be defined using TSS attributes from Table 5.27.1.12-1 of TS 23.501 [2]. |
|  | Subscribed Time Synchronization Service ID(s) | Each containing the DNN/S-NSSAI and a reference to a PTP instance configuration pre-configured at the TSCTSF.  Optionally, for each PTP instance configuration, one or more periods of start and stop times defining active times of time synchronization service for the PTP instance.  Optionally, for each PTP instance configuration, a Time Synchronization Coverage Area defining a list of TAs where the (g)PTP-based time synchronization is available for the UEs in the PTP instance (NOTE 19).  Optionally, for each PTP instance configuration, Uu time synchronization error budget. |
| Ranging/Sidelink Positioning Subscription data (see TS 23.586 [88]) | Ranging/SL Positioning Service Authorization | Indicates whether the UE is authorized to use Ranging/SL Positioning Service. |
| NOTE 1: The Subscribed DNN list can include a wildcard DNN.  NOTE 2: The default DNN shall not be a wildcard DNN.  NOTE 3: The Steering of Roaming information and UDM Update Data are protected using the mechanisms defined in TS 33.501 [15].  NOTE 4: Framed Route information and Framed Route(s) are defined in TS 23.501 [2].  NOTE 5: Depending on the scenario PGW-C FQDN may be for S5/S8, or for S2b (ePDG case).  NOTE 6: The Allowed PDU Session Types configured for a DNN which supports interworking with EPC should contain only the PDU Session Type corresponding to the PDN Type configured in the APN that corresponds to the DNN.  NOTE 7: Providing a list of NF types or a list of NF sets may be more appropriate for some deployments, e.g. in highly dynamic NF lifecycle management deployments.  NOTE 8: For a S-NSSAI and a DNN, the "Invoke NEF Indication" shall be present in the SMF selection subscription data if and only if the "NEF Identity for NIDD" Session Management Subscription Data includes a NEF Identity. When the "NEF Identity for NIDD" Session Management Subscription Data includes a NEF Identity for a S-NSSAI and DNN, the "Control Plane Only Indicator" will always be set for PDU Sessions to this S-NSSAI and DNN (see clause 5.31.4.1 of TS 23.501 [2]).  NOTE 9: When multiple GPSIs are included in the GPSI list, any GPSI in the list can be used in NSSAA procedures.  NOTE 10: The same PCF can be selected to serve the UE and to serve one or multiple PDU sessions, each of them is indicated in the list of S-NSSAI, DNN combinations in the PCF Selection Assistance Info. Providing one combination of DNN and S-NSSAI in the PCF Selection Assistance Info is assumed if interworking with EPS is needed. In case multiple PDU sessions to one DNN, S-NSSAI are established in EPS, it is appropriate to select same PCF by configuration or by using existing method, e.g. same PCF selection in usage monitoring.  NOTE 11: If Network Slice Simultaneous Registration Group information is present and the VPLMN does not support the subscription-based restrictions to simultaneous registration of network slices, the subset of the Subscribed S-NSSAIs defined in clause 5.15.12 of TS 23.501 [2], are included, without providing the NSSRG information.  NOTE 12: The Default S-NSSAIs (if more than one is present) are associated with common NSSRG values if NSSRG information is present. At least one Default S-NSSAI shall be present in a subscription including NSSRG information.  NOTE 13: When UUAA is performed in the AMF (as in clause 5.2.2 of TS 23.256 [80]) and UUAA-MM status is FAILED or PENDING, the AMF shall reject PDU session establishment requests from the UE for a DNN that is subject to aerial services.  NOTE 14: For a DNN in S-NSSAI either a DN-AAA based secondary authentication, or an API based secondary authentication can be configured. When API based authentication of the PDU session is required, Secondary authentication indication shall not be present.  NOTE 15: A GPSI may be associated with Application Port ID, MTC Provider Information and/or AF Identifier.  NOTE 16: For non-roaming UE (e.g. accessing SNPN with CH credentials), LBO roaming information does not apply.  NOTE 17: This information applies only for HR PDU Session.  NOTE 18: This information is only valid for the current serving network. When Session Breakout for HR Session is authorized, usage of corresponding EAS Deployment Information and AF traffic influence in VPLMN is also authorized.  NOTE 19: The subscribed Time Synchronization Coverage Area shall be inside of the Allowed Areas as per UE's service area restriction.  NOTE 20: For roaming UE in a visited PLMN, the corresponding PLMN ID is provided with Edge Configuration Server (ECS) Address Configuration Information.  NOTE 21: The entries in the Credentials Holder controlled prioritized lists of preferred SNPNs and GINs for accessing Localized Services are associated with a time validity information and optionally a location validity information indicating the conditions allowing the UE to access to localized services in the SNPN or/and location assistance information used to aid the UE where to search for the SNPN as specified in clause 5.30.2.3 of TS 23.501 [2].  NOTE 22: Only for an S-NSSAI dedicated to a single AF is associated with Slice Usage Policy information. For roaming UE, Slice Usage Policy information does not apply. | | |

Table 5.2.3.3.1-2: Group Subscription data types

| Subscription data type | Field | Description |
| --- | --- | --- |
| Group Identifier translation | External Group Identifier | Identifies external group of UEs that the UE belongs to as defined in TS 23.682 [23]. |
|  | Internal Group Identifier | Identifies internal group of UEs that the UE belongs to as defined in TS 23.501 [2]. |
|  | SUPI list | Corresponding SUPI list for input External Group Identifier. |
| Group Data  (NOTE 1) | Internal Group Identifier | Internal identifiers of the group of UEs that the Group Data belongs to. |
|  | Group data | In the case of 5G VN related groups the content of this information contains parameters defined in clause 4.15.6.3b.  In the case of DNN and S-NSSAI specific parameters in the Groups, the content of this information contains parameters defined in clause 4.15.6.3e. |
| NOTE 1: Group Data within Group Subscription Data can be managed using the Shared Data feature defined in TS 29.503 [52]. In that case, Shared Data is identified using Shared Data identifier and can contain additional information than the one defined in this table. | | |

At least a mandatory key is required for each Subscription Data Type to identify the corresponding data. Depending on the use case, for some Subscription Data Types it is possible to use one or multiple sub keys to further identify the corresponding data, as defined in Tables 5.2.3.3.1-3 and 5.2.3.3.1-4 below.

Table 5.2.3.3.1-3: UE Subscription data types keys

|  |  |  |
| --- | --- | --- |
| Subscription Data Types | Data Key | Data Sub Key |
| Access and Mobility Subscription data | SUPI | Serving PLMN ID and optionally NID |
| SMF Selection Subscription data | SUPI | Serving PLMN ID and optionally NID |
| UE context in SMF data | SUPI | S-NSSAI |
| SMS Management Subscription data | SUPI | Serving PLMN ID and optionally NID |
| SMS Subscription data | SUPI | Serving PLMN ID and optionally NID |
| UE Context in SMSF data | SUPI | - |
| Session Management Subscription data | SUPI | S-NSSAI |
|  |  | DNN |
|  |  | Serving PLMN ID and optionally NID |
| Identifier translation | GPSI | - |
|  | SUPI | Application Port ID, MTC Provider Information, AF Identifier |
| Slice Selection Subscription data | SUPI | Serving PLMN ID and optionally NID |
| Intersystem continuity Context | SUPI | DNN |
| LCS privacy | SUPI | - |
| LCS mobile origination | SUPI | - |
| User consent | SUPI | Purpose |
| UE reachability | SUPI | - |
| V2X Subscription data | SUPI | - |
| ProSe Subscription data | SUPI | - |
| MBS Subscription data | SUPI | - |
| A2X Subscription data | SUPI | - |
| Ranging/Sidelink Positioning Subscription data | SUPI | - |

Table 5.2.3.3.1-4: Group Subscription data types keys

|  |  |  |
| --- | --- | --- |
| Subscription Data Types | Data Key | Data Sub Key |
| Group Identifier translation | External Group Identifier | - |
|  | Internal Group Identifier | - |
| Group Data | Internal Group Identifier | - |

Wireline access specific subscription data parameters are specified in TS 23.316 [53].

\*\*\* 3rd Change \*\*\*

#### 5.2.6.27 Nnef\_UEId service

##### 5.2.6.27.1 General

See clause 4.15.10 and clause 4.3.6.5.

##### 5.2.6.27.2 Nnef\_UEId\_Get operation

**Service operation name:** Nnef\_UEId\_Get

**Description:** Get the UE identifier.

**Inputs, Required:** GPSI or UE address (i.e. IPv4/IPv6 address or MAC address) or External Group Identifier(s), user consent revocation notification target address (e.g., callback URI).

NOTE 1: External Group Identifier(s) cannot be used for HR-SBO sessions.

NOTE 2: The user consent revocation notification target address can be used for notifying the AF that the user consent is revoked for MSISDN exposure after the AF retrieved the MSISDN. Upon the notification of user consent revocation for MSISDN exposure, the AF shall halt processing the MSISDN and delete the MSISDN.

**Inputs, Optional:** DNN, S-NSSAI, Port number (e.g. TCP or UDP port), IP domain, Application port ID, MTC Provider Information, AF Identifier.

**Outputs, Required:** Result, GPSI either as an AF specific UE Identifier represented in the form of an External Identifier, or in the form of a MSISDN or SUPI or Internal Group Identifier(s).

NOTE 3: SUPI can only be exposed to roaming partners.

NOTE 4: The AF specific UE Identifier in GPSI form of MSISDN can only be exposed to an AF when allowed and authorized by the operator as described in clause 4.15.10A.

**Outputs, Optional:** None.

\*\*\* End of Changes \*\*\*