**3GPP TSG-WG SA2 Meeting #166S2-24xxxxx**

**Orlando, USA, November 18 – 22, 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.502** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Energy related subscription data and policy control | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | S2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EnergySys | | | | |  | ***Date:*** | | | 2024-11-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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:*** | | Clause 8.2 of TR 23.700-66 includes the following conclusions for Key Issue #2 "Subscription and policy control to support energy efficiency and energy saving as service criteria":  “- The following information is stored as part of the subscription data in the UDM/UDR:  - Energy saving subscription information per UE to assist the network to perform energy saving strategies for the UE.  - The PCF may receive UE subscription data and notification related to the energy related information to trigger making policy decisions (reusing the existing parameters) based on operator policy.  NOTE 1: Further details and what additional energy related information can be taken into account for policy control will be defined during the normative work.  NOTE 2: Further details, more parameters and associated procedures will be defined during the normative work.  NOTE 3: The interaction for PCF with CHF for policy control and charging (e.g. how the PCC rules are determined based on energy criteria) will be considered in the normative phase, based on collaboration with SA WG5. ” | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add energy saving subscription information to the Policy Data in the UDR. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The PCF cannot retrieve energy saving subscription information to make policy decisions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.12.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* Start of Change \* \* \* \*

##### 5.2.12.2.1 General

The operations defined for Nudr\_DM service use following set of parameters defined in this clause:

- Data Set Identifier: uniquely identifies the requested set of data within the UDR (see clause 4.2.5).

- Data Subset Identifier: it uniquely identifies the data subset within each Data Set Identifier. As specified in the procedures in clause 4, e.g. subscription data can consist of subsets particularised for specific procedures like mobility, session, etc.

- Data Keys defined in Table 5.2.12.2.1-1

For Nudr\_DM\_Subscribe and Nudr\_DM\_Notify operations:

- The Target of Event Reporting is made up of a Data Key and possibly a Data Sub Key both defined in Table 5.2.12.2.1-1. When a Data Sub Key is defined in the table but not present in the Nudr\_DM\_Subscribe this means that all values of the Data Sub Key are targeted.

- The Data Set Identifier plus (if present) the (set of) Data Subset Identifier(s) corresponds to a (set of) Event ID(s) as defined in clause 4.15.1

An NF Service Consumer may include an indicator when it invokes Nudr\_DM Query/Create/Update service operation to subscribe the changes of the data, to avoid a separate Nudr\_DM\_Subscribe service operation.

Depending on the use case, it is possible to use a Data Key and/or one or multiple Data sub keys to further identify the corresponding data, as defined in Table 5.2.12.2.1-1 below.

Table 5.2.12.2.1-1: Data keys

|  |  |  |  |
| --- | --- | --- | --- |
| Data Set | Data Subset | 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 | PDU Session ID or DNN |
| Subscription Data (see clause 5.2.3.3.1) | SMS Management Subscription data | SUPI | Serving PLMN ID and optionally NID |
|  | SMS Subscription data | SUPI | Serving PLMN ID and optionally NID |
|  | Session Management Subscription data | SUPI | S-NSSAI |
|  |  |  | DNN |
|  |  |  | Serving PLMN ID and optionally NID |
|  | Slice Selection Subscription data | SUPI | Serving PLMN ID and optionally NID |
|  | Group Data  (NOTE 5) | Internal Group Identifier or  External Group Identifier | - |
|  | Identifier translation | GPSI |  |
|  |  | SUPI | Application Port ID, MTC Provider Information, AF Identifier |
|  | Intersystem continuity Context | SUPI | DNN |
|  | LCS privacy | SUPI | - |
|  | LCS mobile origination | SUPI | - |
|  | UE reachability | SUPI | - |
|  | Group Identifier Translation | Internal Group Identifier or  External Group Identifier | - |
|  | UE context in SMSF data | SUPI | - |
|  | V2X Subscription data | SUPI | - |
|  | A2X Subscription data | SUPI | - |
|  | ProSe Subscription data | SUPI | - |
|  | Ranging/SL Positioning subscription data | SUPI | - |
|  | User consent | SUPI | Purpose |
|  | ECS Address Configuration Information (See Table 4.15.6.3d-1) | SUPI, Internal group identifier or external group identifier or any UE | DNN, S-NSSAI, (Serving) PLMN ID (NOTE 7) |
|  | MBS Subscription data  (see clause 6.4.3 of TS 23.247 [78]) | SUPI | - |
|  | Ranging/Sidelink Positioning Subscription data | SUPI | - |
|  | Ranging/Sidelink Positioning privacy | SUPI | - |
|  | Operator Determined Barring data (see clause 2.3 of TS 23.015 [90] and TS 29.505 [91]) | SUPI | - |
|  | Shared data | Shared Data ID | - |
| Application data | Packet Flow Descriptions (PFDs) (NOTE 11) | Application Identifier |  |
|  | AF traffic influence request information for traffic routing | AF transaction internal ID |  |
|  | (See clause 5.6.7 and clause 6.3.7.2 of TS 23.501 [2]) | For non-roaming and LBO:  S-NSSAI and DNN , accompanied with Internal Group Identifier(s) and/or Subscriber Category(s) or SUPI or "any UE" indication  For HR-SBO:  HPLMN S-NSSAI and DNN and either: HPLMN ID and IP address, or SUPI, or "any UE" indication and HPLMN ID.  (NOTE 4) (NOTE 6) (NOTE 12) |  |
|  | AF traffic influence request information for service function chaining | AF transaction internal ID |  |
|  | (See clause 5.6.16 and clause 6.3.7.2 of TS 23.501 [2]) | S-NSSAI and DNN  and  Internal Group Identifier or SUPI or "any UE" indication (NOTE 4) |  |
|  | Background Data Transfer  (NOTE 3) | Internal Group Identifier or SUPI |  |
|  | Service specific information (See clause 4.15.6.7) | S-NSSAI and DNN  or  Internal Group Identifier or SUPI or "any UE" indication (NOTE 4) or "PLMN ID(s) of inbound roamer" |  |
|  | UE ID mapping information (See clause 4.3.5 of TS 23.586 [88]) | GPSI or Application Layer ID |  |
|  | EAS Deployment Information  (See clause 7.1 of TS 23.548 [74]) | DNN and/or S-NSSAI | Application Identifier and/or Internal Group Identifier |
|  | ECS Address Configuration Information (See Table 4.15.6.3d-1)  (NOTE 13) | DNN, S-NSSAI and "any UE" indication |  |
|  | AM influence information (See clause 4.15.6.9.3) | AF transaction internal ID |  |
|  |  | S-NSSAI and DNN  and/or  Internal Group Identifier or SUPI or "any UE" indication or any inbound roaming UEs (NOTE 4, NOTE 8) |  |
|  | AF request for QoS information (See clause 4.15.6.14) | AF transaction internal ID |  |
|  |  | S-NSSAI and DNN  and/or  Internal Group Identifier or SUPI or "any UE" indication (NOTE 4) |  |
| Policy Data | UE context policy control data  (See clause 6.2.1.3 of TS 23.503 [20]) | SUPI |  |
|  | PDU Session policy control data | SUPI | S-NSSAI |
|  | (See clause 6.2.1.3 of TS 23.503 [20]) |  | DNN |
|  | Policy Set Entry data  (See clause 6.2.1.3 of TS 23.503 [20]) | SUPI (for the UDR in HPLMN) |  |
|  |  | PLMN ID (for the UDR in VPLMN) |  |
|  | Remaining allowed Usage data | SUPI | S-NSSAI |
|  | (See clause 6.2.1.3 of TS 23.503 [20]) |  | DNN |
|  | Sponsored data connectivity profiles (See clause 6.2.1.6 of TS 23.503 [20]) | Sponsor Identity |  |
|  | Background Data Transfer data  (See clause 6.2.1.6 of TS 23.503 [20]) | Background Data Transfer Reference ID. (NOTE 2) |  |
|  |  | None. (NOTE 1) |  |
|  | Network Slice Specific Control Data  (See clause 6.2.1.3 of TS 23.503 [20]) | S-NSSAI |  |
|  | 5G VN Group Specific Control Data (See clause 6.2.1.3 of TS 23.503 [20]) | S-NSSAI and DNN  and/or  Internal Group Identifier |  |
|  | Operator Specific Data | SUPI or GPSI |  |
|  | Planned Data Transfer with QoS requirements data  (See clause 6.2.1.6 of TS 23.503 [20]) | PDTQ Reference ID. (NOTE 10) |  |
|  | None. (NOTE 9) |  |
| Energy saving policy control data (See clause 6.2.1.3 of TS 23.503 [20]) | SUPI |  |
| Exposure Data | Access and Mobility Information | SUPI or GPSI | PDU Session ID or |
| (see clause 5.2.12.1) | Session Management information | SUPI or GPSI | UE IP address or DNN |
|  | DNAI mapping information | DNN and/or S-NSSAI |  |
| NOTE 1: Retrieval of the stored Background Data Transfer data for all ASP identifiers in the UDR requires Data Subset but no Data Key or Data Subkey(s).  NOTE 2: Update of a Background Data Transfer data in the UDR requires a Data key to refer to a Background Data Transfer data as input data.  NOTE 3: The Background Data Transfer includes the Background Data Reference ID and the ASP Identifier that requests to apply the Background Data Reference ID to the UE(s). Furthermore, the Background Data Transfer includes the relevant information received from the AF as defined in clause 6.1.2.4 of TS 23.503 [20].  NOTE 4: When the Data Key targets "any UE", then the request to UDR applies on Application data that applies on all subscribers of the PLMN. For encoding, see TS 29.519 [82].  NOTE 5: Group Data includes 5G VN group configuration, DNN and S-NSSAI specific Group Parameters and any other data related to a group stored in the UDR.  NOTE 6: If a list of Internal Group IDs is used, the AF traffic influence request information request applies to the UEs that belong to every one of these groups, i.e. a single UE needs to be a member of every group in the list of Internal Group IDs.  NOTE 7: When the Data Key targets "PLMN ID", then the request to UDR applies on subscription data about subscribers roaming in this PLMN.  NOTE 8: In LBO roaming scenarios, when the AF request targets "any inbound roaming UEs", the AM influence information applies to the roaming subscribers from a PLMN or from any PLMN.  NOTE 9: Retrieval of the stored Planned Data Transfer with QoS requirements data for all ASP identifiers in the UDR requires Data Subset but no Data Key or Data Subkey(s).  NOTE 10: Update of a Planned Data Transfer with QoS requirements data in the UDR requires a Data key to refer to a Planned Data Transfer with QoS requirements data as input data.  NOTE 11: Each PFD (as defined in TS 23.503 [20]) may be complimented with a source NF type which indicates the type of NF that has generated the PFD (i.e. AF or NWDAF). Absence of a source NF type indicates that the AF is the source of the PFD.  NOTE 12: Further information about HR-SBO case and how these keys are used, see clause 4.3.6.1.  NOTE 13: The ECS Address Configuration Information as part of application data is used for HR roaming case as defined in clause 6.5.2.6 of TS 23.548 [74]. | | | |

The content of the UDR storage for (Data Set Id= Application Data, Data Subset Id = AF TrafficInfluence request information) is specified in clause 5.6.7, Table 5.6.7-1 of TS 23.501 [2]. This information is written by the NEF and read by the PCF(s). PCF(s) may also subscribe to changes onto this information.

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