**3GPP TSG-CT4 Meeting #101-e C4-205xxx**

**E-Meeting, 3rd Nov 2020 - 13th Nov 2020 Revision of C4-205112**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0500** | **rev** | **1** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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:*** | Evolution of SoR delivery mechanism – UDM API Changes | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eCPSOR\_CON-CT | | | | |  | ***Date:*** | | | 2020-11-04 |
|  |  | | | |  | |  | | |  |
| ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As detailed in Discussion Paper C4-205111, this CR proposes to modify the encoding of *SorInfo* attribute so that SoR information can be transparently passed to UE without requiring any software changes to AMF (which may be in VPLMN) in case SoR information is extended to include new information.  *SoRInfo* attribute is also modified to allow SOR-AF provide the information in transparent format. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * *SorInfo* attribute is modified to include *SorTransparentContainer, SorHeader and SorTransparentInfo* attributes. * AMF indicates its capability to receive SoR Information in transparent format via *SupportedFeatures* attribute. * UDM indicates its capability (in NRF) to receive SoR Information in transparent format in PpData via *SupportedFeatures* attribute * AUSF indicates its capability to receive SoR Information in transparent format in AuthEvent | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | * Requires software changes to AMF/UDM/AUSF if SoR Information format changes. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.6.1, 6.1.6.2.26, 6.1.6.3.2, 6.1.8, 6.3.6.2.7, 6.5.8, A.2, A.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 makes Backward Compatible Changes to OpenAPI file for Nudm\_SDM API, Nudm\_UEAU API, Nudm\_ParameterProvision API | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1: a) Changed WI from SBIProtoc17 to eCPSOR\_CON-CT  b) Removed backward incompatible changes and added feature negotiation mechanism instead. | | | | | | | | |

\* \* \* First Change \* \* \* \*

#### 6.1.6.1 General

This clause specifies the application data model supported by the API.

Table 6.1.6.1-1 specifies the data types defined for the Nudm\_SDM service API.

Table 6.1.6.1-1: Nudm\_SDM specific Data Types

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data type | | | Clause defined | | | Description | | |
| Nssai | | | 6.1.6.2.2 | | | Network Slice Selection Assistance Information | | |
| SdmSubscription | | | 6.1.6.2.3 | | | A subscription to notifications | | |
| AccessAndMobilitySubscriptionData | | | 6.1.6.2.4 | | | Access and Mobility Subscription Data | | |
| SmfSelectionSubscriptionData | | | 6.1.6.2.5 | | | SMF Selection Subscription Data | | |
| DnnInfo | | | 6.1.6.2.6 | | | Data Network Name and associated information (LBO roaming allowed flag) | | |
| SnssaiInfo | | | 6.1.6.2.7 | | | S-NSSAI and associated information (DNN Info) | | |
| SessionManagementSubscriptionData | | | 6.1.6.2.8 | | | User subscribed session management data | | |
| DnnConfiguration | | | 6.1.6.2.9 | | | User subscribed data network configuration | | |
| PduSessionTypes | | | 6.1.6.2.11 | | | Default/allowed session types for a data network | | |
| SscModes | | | 6.1.6.2.12 | | | Default/allowed SSC modes for a data network | | |
| SmsSubscriptionData | | | 6.1.6.2.13 | | |  | | |
| SmsManagementSubscriptionData | | | 6.1.6.2.14 | | | SMS Management Subscription Data | | |
| SubscriptionDataSets | | | 6.1.6.2.15 | | |  | | |
| UeContextInSmfData | | | 6.1.6.2.16 | | | UE Context In SMF Data | | |
| PduSession | | | 6.1.6.2.17 | | |  | | |
| IdTranslationResult | | | 6.1.6.2.18 | | | SUPI that corresponds to a given GPSI | | |
| ModificationNotification | | | 6.1.6.2.21 | | |  | | |
| IpAddress | | | 6.1.6.2.22 | | | IP address (IPv4, or IPv6, or IPv6 prefix) | | |
| UeContextInSmsfData | | | 6.1.6.2.23 | | |  | | |
| SmsfInfo | | | 6.1.6.2.24 | | |  | | |
| AcknowledgeInfo | | | 6.1.6.2.25 | | |  | | |
| SorInfo | | | 6.1.6.2.26 | | | Steering Of Roaming Information | | |
| SharedData | | | 6.1.6.2.27 | | | Subscription Data shared by multiple UEs | | |
| PgwInfo | | | 6.1.6.2.28 | | | Information about the DNNs/APNs and PGW-C+SMF FQDNs used in interworking with EPS | | |
| TraceDataResponse | | | 6.1.6.2.29 | | | Contains Trace Data or a shared data Id identifying shared Trace Data | | |
| SteeringContainer | | | 6.1.6.2.30 | | |  | | |
| SdmSubsModification | | | 6.1.6.2.31 | | | Modification instruction for a subscription to notifications | | |
| EmergencyInfo | | | 6.1.6.2.32 | | | Information about emergency session | | |
| UpuInfo | | | 6.1.6.2.33 | | | UE Parameters Update Information | | |
| GroupIdentifiers | | | 6.1.6.2.34 | | |  | | |
| NiddInformation | | | 6.1.6.2.35 | | | Non-IP Data Delivery information | | |
| CagData | | | 6.1.6.2.36 | | |  | | |
| CagInfo | | | 6.1.6.2.37 | | |  | | |
| DataSetName | | | 6.1.6.3.3 | | |  | | |
| PduSessionContinuityInd | | | 6.1.6.3.7 | | |  | | |
| AdditionalSnssaiData | | | 6.1.6.2.38 | | | Additional information specific to a slice | | |
| VnGroupData | | | 6.1.6.2.39 | | |  | | |
| AppDescriptor | | | 6.1.6.2.40 | | |  | | |
| AppPortId | | | 6.1.6.2.41 | | | Application Port Id | | |
| LcsPrivacyData | | | 6.1.6.2.42 | | |  | | |
| Lpi | | | 6.1.6.2.43 | | |  | | |
| UnrelatedClass | | | 6.1.6.2.44 | | |  | | |
| PlmnOperatorClass | | | 6.1.6.2.45 | | |  | | |
| ValidTimePeriod | | | 6.1.6.2.46 | | |  | | |
| LcsMoData | | | 6.1.6.2.47 | | |  | | |
| EcRestrictionDataWb | | | 6.1.6.2.48 | | | Enhance Coverage Restriction Data | | |
| ExpectedUeBehaviourData | | | 6.1.6.2.49 | | | Expected UE Behaviour Data | | |
| MaximumResponseTime | | | 6.1.6.2.50 | | | Maximum Response Time | | |
| MaximumLatency | | | 6.1.6.2.51 | | | Maximum Latency | | |
| SuggestedPacketNumDl | | | 6.1.6.2.52 | | | Suggested Number of Downlink Packets | | |
| SmfRegistrationInfo | | | 6.1.6.2.53 | | |  | | |
| FrameRouteInfo | | | 6.1.6.2.54 | | | Frame Route Information | | |
| SorUpdateInfo | | | 6.1.6.2.55 | | |  | | |
| EnhancedCoverageRestrictionData | | | 6.1.6.2.56 | | | Enhanced Coverage Restriction Data | | |
| EdrxParameters | | | 6.1.6.2.57 | | | eDRX Parameters | | |
| PtwParameters | | | 6.1.6.2.58 | | | Paging Time Window Parameters | | |
| OperationMode | | | 6.1.6.3.12 | | | Operation Mode | | |
| SorUpdateIndicator | | | 6.1.6.3.13 | | | SoR Update Indicator | | |
| ExternalUnrelatedClass | | | 6.1.6.2.62 | | |  | | |
| AfExternal | | | 6.1.6.2.63 | | |  | | |
| LcsClientExternal | | | 6.1.6.2.64 | | |  | | |
| LcsClientGroupExternal | | | 6.1.6.2.65 | | |  | | |
| ServiceTypeUnrelatedClass | | | 6.1.6.2.66 | | |  | | |
| UeId | | | 6.1.6.2.67 | | |  | | |
| DefaultUnrelatedClass | | | 6.1.6.2.68 | | |  | | |
| UeContextInAmfData | | | 6.1.6.2.70 | | |  | | |
| V2xSubscriptionData | | | 6.1.6.2.71 | | | V2X Subscription Data | | |
| LcsBroadcastAssistanceTypesData | | | 6.1.6.2.72 | | | LCS Broadcast Assistance Data Types | | |
| DatasetNames | | | 6.1.6.2.73 | | | Data Set Names | | |
| PlmnRestriction | | | 6.1.6.2.74 | | |  | | |
| DefaultDnnIndicator | | | 6.1.6.3.2 | | |  | | |
| LboRoamingAllowed | | | 6.1.6.3.2 | | |  | | |
| UeUsageType | | | 6.1.6.3.2 | | |  | | |
| MpsPriorityIndicator | | | 6.1.6.3.2 | | |  | | |
| McsPriorityIndicator | | | 6.1.6.3.2 | | |  | | |
| 3GppChargingCharacteristics | | | 6.1.6.3.2 | | | 3GPP Charging Characteristics | | |
| DlPacketCount | | | 6.1.6.3.2 | | |  | | |
| MicoAllowed | | | 6.1.6.3.2 | | |  | | |
| SmsSubscribed | | | 6.1.6.3.2 | | |  | | |
| SharedDataId | | | 6.1.6.3.2 | | |  | | |
| IwkEpsInd | | | 6.1.6.3.2 | | | Interworking with EPS Indication | | |
| SecuredPacket | | | 6.1.6.3.2 | | |  | | |
| UpuRegInd | | | 6.1.6.3.2 | | |  | | |
| ExtGroupId | | | 6.1.6.3.2 | | |  | | |
| NbIoTUePriority | | | 6.1.6.3.2 | | |  | | |
| CodeWord | | | 6.1.6.3.2 | | |  | | |
| AfId | | | 6.1.6.3.2 | | |  | | |
| LcsClientId | | | 6.1.6.3.2 | | |  | | |
| DataSetName | | | 6.1.6.3.3 | | |  | | |
| PduSessionContinuityInd | | | 6.1.6.3.7 | | |  | | |
| LocationPrivacyInd | | | 6.1.6.3.8 | | |  | | |
| PrivacyCheckRelatedAction | | | 6.1.6.3.9 | | |  | | |
| LcsClientClass | | | 6.1.6.3.10 | | |  | | |
| LcsMoServiceClass | | | 6.1.6.3.11 | | |  | | |
| OperationMode | | | 6.1.6.3.12 | | |  | | |
|  | | |  | | |  | | |
| CodeWordInd | | | 6.1.6.3.14 | | |  | | |
| MdtUserConsent | | | 6.1.6.3.15 | | | MDT User Consent | | |
| SharedDataTreatmentInstruction | | | 6.1.6.3.16 | | |  | | |
| SorHeader | | | 6.1.6.3.2 | | |  | | |
| SorTransparentInfo | | | 6.1.6.3.2 | | |  | | |
| SorTransparentContainer | | | 6.1.6.3.2 | | |  | | |

Table 6.1.6.1-2 specifies data types re-used by the Nudm\_SDM service API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nudm\_SDM service API.

Table 6.1.6.1-2: Nudm\_SDM re-used Data Types

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Data type | | Reference | | Comments | |
| Dnn | | 3GPP TS 29.571 [7] | | Data Network Name with Network Identifier only; this type is used as key in a map of:  - DnnConfigurations; see clause 6.1.6.2.8;  - EpsIwkPgws; see clause 6.2.6.2.2;  - ExpectedUeBehaviourData; see clause 6.1.6.2.8; | |
| DurationSec | | 3GPP TS 29.571 [7] | | Time value in seconds | |
| ProblemDetails | | 3GPP TS 29.571 [7] | | Common data type used in response bodies | |
| Snssai | | 3GPP TS 29.571 [7] | | Single NSSAI | |
| Uri | | 3GPP TS 29.571 [7] | | Uniform Resource Identifier | |
| Gpsi | | 3GPP TS 29.571 [7] | | Generic Public Subscription Identifier | |
| RatType | | 3GPP TS 29.571 [7] | | Radio Access Technology Type | |
| Area | | 3GPP TS 29.571 [7] | |  | |
| ServiceAreaRestriction | | 3GPP TS 29.571 [7] | |  | |
| CoreNetworkType | | 3GPP TS 29.571 [7] | |  | |
| SupportedFeatures | | 3GPP TS 29.571 [7] | | see 3GPP TS 29.500 [4] clause 6.6 | |
| PlmnId | | 3GPP TS 29.571 [7] | | PLMN Identity | |
| PduSessionType | | 3GPP TS 29.571 [7] | |  | |
| SubscribedDefaultQos | | 3GPP TS 29.571 [7] | | Subscribed Default QoS | |
| Ambr | | 3GPP TS 29.571 [7] | |  | |
| PduSessionId | | 3GPP TS 29.571 [7] | | PduSessionId is used as key in a map of PduSessions; see clause 6.1.6.2.16. | |
| NfInstanceId | | 3GPP TS 29.571 [7] | |  | |
| Supi | | 3GPP TS 29.571 [7] | |  | |
| RfspIndex | | 3GPP TS 29.571 [7] | |  | |
| SscMode | | 3GPP TS 29.571 [7] | |  | |
| Ipv4Addr | | 3GPP TS 29.571 [7] | |  | |
| Ipv6Addr | | 3GPP TS 29.571 [7] | |  | |
| Ipv6Prefix | | 3GPP TS 29.571 [7] | |  | |
| SorMac | | 3GPP TS 29.509 [24] | |  | |
| SteeringInfo | | 3GPP TS 29.509 [24] | |  | |
| AckInd | | 3GPP TS 29.509 [24] | |  | |
| CounterSor | | 3GPP TS 29.509 [24] | |  | |
| UpuMac | | 3GPP TS 29.509 [24] | |  | |
| UpuData | | 3GPP TS 29.509 [24] | |  | |
| UpuAckInd | | 3GPP TS 29.509 [24] | |  | |
| CounterUpu | | 3GPP TS 29.509 [24] | |  | |
| TraceData | | 3GPP TS 29.571 [7] | | Trace control and configuration parameters | |
| NotifyItem | | 3GPP TS 29.571 [7] | |  | |
| UpSecurity | | 3GPP TS 29.571 [7] | |  | |
| ServiceName | | 3GPP TS 29.510 [19] | |  | |
| OdbPacketServices | | 3GPP TS 29.571 [7] | |  | |
| GroupId | | 3GPP TS 29.571 [7] | | This type is also used as key of a map in attributes:  - vnGroupInfo and sharedVnGroupDataIds; see clause 6.1.6.2.4, 6.1.6.2.8, 6.1.6.2.27; | |
| DateTime | | 3GPP TS 29.571 [7] | |  | |
| CagId | | 3GPP TS 29.571 [7] | |  | |
| StnSr | | 3GPP TS 29.571 [7] | | Session Transfer Number for SRVCC | |
| CMsisdn | | 3GPP TS 29.571 [7] | | Correlation MSISDN | |
| OsId | | 3GPP TS 29.519 [33] | |  | |
| Uint16 | | 3GPP TS 29.571 [7] | |  | |
| RgWirelineCharacteristics | | 3GPP TS 29.571 [7] | |  | |
| GeographicArea | | 3GPP TS 29.572 [34] | |  | |
| LcsServiceType | | 3GPP TS 29.572 [34] | |  | |
| ScheduledCommunicationTime | | 6.5.6.2.9 | |  | |
| LocationArea | | 6.5.6.2.10 | |  | |
| StationaryIndication | | 6.5.6.3.3 | |  | |
| TrafficProfile | | 6.5.6.3.4 | |  | |
| ScheduledCommunicationType | | 6.5.6.3.5 | |  | |
| BatteryIndication | | 6.5.6.2.14 | |  | |
| ScheduledCommunicationTime | | 6.5.6.2.9 | |  | |
| LocationArea | | 6.5.6.2.10 | |  | |
| StationaryIndication | | 6.5.6.3.3 | |  | |
| TrafficProfile | | 6.5.6.3.4 | |  | |
| ScheduledCommunicationType | | 6.5.6.3.5 | |  | |
| BatteryIndication | | 6.5.6.3.14 | |  | |
| AcsInfo | | 3GPP TS 29.571 [7] | | ACS Information | |
| IPv4AddrMask | | 3GPP TS 29.571 [7] | |  | |
| NefId | | 3GPP TS 29.510 [19] | |  | |
| PatchResult | | 3GPP TS 29.571 [7] | |  | |
| NrV2xAuth | | 3GPP TS 29.571 [7] | |  | |
| LteV2xAuth | | 3GPP TS 29.571 [7] | |  | |
| BitRate | | 3GPP TS 29.571 [7] | |  | |
| MdtConfiguration | | 3GPP TS 29.571 [7] | |  | |
| Uint64 | | 3GPP TS 29.571 [7] | |  | |

\* \* \* Next Change \* \* \* \*

##### 6.1.6.2.26 Type: SorInfo

Table 6.1.6.2.26: Definition of type SorInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| ackInd | AckInd | M | 1 | Contains the indication on whether an acknowledgement from UE is to be requested to the UE. |  |
| sorMacIausf | SorMac | C | 0..1 | Contains the SoR-MAC-IAUSF. Shall be present when SorInfo is sent within AccessAndMobilitySubscriptionData on Nudm, and shall be absent when sent on Nudr or within PpData. Shall we absent when sorTransparentContainer is present. |  |
| countersor | CounterSor | C | 0..1 | Contains the CounterSoR. Shall be present when SorInfo is sent within AccessAndMobilitySubscription on Nudm, and shall be absent when sent on Nudr or within PpData.  Shall we absent when sorTransparentContainer is present. |  |
| steeringContainer | SteeringContainer | C | 0..1 | When present, this information contains the information needed to update the "Operator Controlled PLMN Selector with Access Technology" list stored in the USIM either as an array of preferred PLMN/AccessTechnologies combinations in priority order (with the first entry in the array indicating the highest priority and the last entry indicating the lowest) or a secured packet.  If no change of the "Operator Controlled PLMN Selector with Access Technology" list stored in the USIM is needed, then this attribute shall be absent.  This attribute shall be present when SorInfo is sent within PpData.  Shall be absent when sorTransparentContainer or sorTransparentInfo is present. |  |
| provisioningTime | DateTime | M | 1 | Point in time of SorInfo provisioning at the UDR or SOR-AF. |  |
| sorHeader | SorHeader | C | 0..1 | This attribute contains SoR Header encoded as defined in clause 6.2.6.3.2 and shall be present within PpData if UDM supports receiving SoR Information encoded as transparent containeers. Shall be absent when SorInfo is sent within AccessAndMobilitySubscriptionData on Nudm or on Nudr. | sorTransparentInformation |
| sorTransparentInfo | SorTransparentInfo | C | 0..1 | This attribute contains unprotected SoR information encoded as defined in clause 6.2.6.3.2 and shall be present within PpData if UDM supports receiving SoR Information encoded as transparent containeers. Shall be absent when SorInfo is sent within AccessAndMobilitySubscriptionData on Nudm or on Nudr. | sorTransparentInformation |
| sorTransparentContainer | SorTransparentContainer | C | 0..1 | This attribute contains protected SoR transparent container encoded as defined in clause 6.2.6.3.2 and shall be present when sent within AccessAndMobilitySubscriptionData on Nudm, if NF Consumer (e.g. AMF) supports receiving SoR information encoded as transparent containers. Shall be absent when sent on Nudr or within PpData. | sorTransparentSupport |

\* \* \* Next Change \* \* \* \*

##### 6.1.6.3.2 Simple data types

The simple data types defined in table 6.1.6.3.2-1 shall be supported.

Table 6.1.6.3.2-1: Simple data types

|  |  |  |
| --- | --- | --- |
| Type Name | Type Definition | Description |
| DefaultDnnIndicator | boolean | Indicates whether a DNN is the default DNN |
| LboRoamingAllowed | boolean | This flag indicates whether local breakout is allowed when roaming. |
| UeUsageType | integer | Indicates the usage characteristics of the UE, enables the selection of a specific Dedicated Core Network for EPS interworking |
| MpsPriorityIndicator | boolean | Indicates whether UE is subscribed to multimedia priority service |
| McsPriorityIndicator | boolean | Indicates whether UE is subscribed to mission critical service |
| 3GppChargingCharacteristics | string | 16-bit string identifying charging characteristics as specified in 3GPP TS 32.255 [11] Annex A and 3GPP TS 32.298 [12] clause 5.1.2.2.7, in hexadecimal representation. Each character in the string shall take a value of "0" to "9" or "A" to "F" and shall represent 4 bits. The most significant character representing the 4 most significant bits of the charging characteristics shall appear first in the string, and the character representing the 4 least significant bits of the charging characteristics shall appear last in the string.  Example:  The charging characteristic 0x123A shall be encoded as "123A". |
| DlPacketCount | integer | An integer within the range -1 to n.  The following values are defined:  0: "Extended DL Data Buffering NOT REQUESTED"  -1: "Extended DL Data Buffering REQUESTED, without a suggested number of packets"  n>0: "Extended DL Data Buffering REQUESTED, with a suggested number of n packets" |
| MicoAllowed | boolean | Indicates whether MICO mode is allowed for the UE. |
| SmsSubscribed | boolean | Indicates whether the UE subscription allows SMS delivery over NAS. |
| SharedDataId | string | Identifies globally and uniquely a piece of subscription data shared by multiple UEs. The value shall start with the HPLMN id (MCC/MNC) followed by a hyphen followed by a local Id as allocated by the home network operator.  pattern: "^[0-9]{5,6}-.+$" |
| IwkEpsInd | boolean | Indicates whether Interworking with EPS is supported |
| SecuredPacket | string | Indicates the secured packet as specified in 3GPP TS 24.501 [27]. It is encoded using base64 and represented as a String.  Format: base64 |
| UpuRegInd | boolean | true indicates that re-registration is requested after the successful UE parameters update. |
| ExtGroupId | string | String containing a External Group ID.  Pattern: "^extgroupid-[^@]+@[^@]+$" |
| NbIoTUePriority | integer | Unsigned integer indicating the NB-IoT UE Priority (see clause 5.31.17 of 3GPP TS 23.501 [8]), the value is between 0 and 255 and lower value indicates higher priority. |
| CodeWord | string | Indicates the codeword as specified in 3GPP TS 23.273 [38] clause 5.4.2.2.3. |
| AfId | string | AF Identifier (see 3GPP TS 23.273 [38] clause 5.4.2.2.3) |
| LcsClientId | string | Lcs Client Identifier (see 3GPP TS 23.273 [38] clause 5.4.2.2.3) |
| SorHeader | Bytes | String with format "byte" as defined in OpenAPI Specification [14], i.e. base64-encoded characters, encoding the "SOR Header" IE as specified in clause 9.11.3.51 of 3GPP TS 24.501 [27] (octet 4). |
| SorTransparentInfo | Bytes | String with format "byte" as defined in OpenAPI Specification [14], i.e. base64-encoded characters, encoding the "SOR transparent container" IE as specified in clause 9.11.3.51 of 3GPP TS 24.501 [27] (starting from octet 23). |
| SorTransparentContainer | Bytes | String with format "byte" as defined in OpenAPI Specification [14], i.e. base64-encoded characters, encoding the "SOR transparent container" IE as specified in clause 9.11.3.51 of 3GPP TS 24.501 [27] (starting from octet 1). |

\* \* \* Next Change \* \* \* \*

### 6.1.8 Feature Negotiation

The optional features in table 6.1.8-1 are defined for the Nudm\_SDM API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

Table 6.1.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | SharedData | When receiving a Nudm\_SDM\_Get service operation request to retrieve a UE's individual subscription data, and the request does not contain a supported-features query parameter indicating support of this feature, the UDM shall not include Shared Data Ids in the response. Instead the UDM may – based on operator policy – take no further action (i.e. allow the UE to get services based on only the UE's individual subscription data), or send the shared data as individual data (this may result in notifications of individual subscription data change – if so subscribed – when shared data, which are sent as individual data, are modified, and/or when the UE's Shared Data IDs are modified). |
| 2 | ImmediateReport | When a NF consumer detects the UDM support ImmediateReport feature, it can indicate an immediateReport flag when invoking Nudm\_SDM\_Subscribe service operation. If UDM supports ImmediateReport received Nudm\_SDM\_Subscribe service operation request, it shall return the resource representation(s) of the monitored resource(s) in the service operation response body. |
| 3 | PatchReport | If some of the modifications included in the PATCH request are not successfully implemented, the UDM reports the result of PATCH request execution to the consumer. See clause 5.2.7.2 of 3GPP TS 29.500 [4]. |
| 4 | Nssaa | If the NF consumer does not support this feature, the UDM shall not include S-NSSAI(s) subject to Network Slice-Specific Authentication and Authorization in the message body with "200 OK" response (See clause 5.2.2.2.2). |
| 5 | CAGFeature | If the NF consumer does not support this feature, the UDM shall not include CAG information list in the message body with "200 OK" response (sub clause 5.2.2.2.3). The UDM performs action as executes step 2c of sub clause 5.3.2.2.2 and 5.3.2.2.3 if UE is allowed to access 5GS via CAG cell(s) only. |
| 6 | SharedDataTreatment | This feature is an extension to the SharedData feature, i.e. support of SharedDataTreatment requires support of SharedData.  When receiving a Nudm\_SDM\_Get service operation request to retrieve a UE's individual subscription data, and the request does not contain a supported-features query parameter indicating support of this feature, the UDM shall not include SharedDataTreatments in the SharedData returned in the response. Instead the UDM may – based on operator policy – take no further action (i.e. allow the UE to get services based on default treatment (i.e. individual data take precedence), or send the shared data which have non-default treatment as individual data. |
| 7 | sorTransparentSupport | This flag indicates NF Consumer (e.g. AMF) support of receiving SoR Transparent Container instead of individual IEs from UDM. If the NF consumer does not support this feature, the UDM shall not include sorTransparentContainer as part of sorInfo attribute as defined in clause 6.1.6.2.26. |

\* \* \* Next Change \* \* \* \*

##### 6.3.6.2.7 Type: AuthEvent

Table 6.3.6.2.7-1: Definition of type AuthEvent

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| nfInstanceId | NfInstanceId | M | 1 | Identifier of the NF instance where the authentication occurred (e.g. AUSF) |
| success | Success | M | 1 | true indicates success; false indicates no success.  Set to false in case of authentication result removal. |
| timeStamp | DateTime | M | 1 | time stamp of the authentication |
| authType | AuthType | M | 1 | string Authentication Type |
| servingNetworkName | ServingNetworkName | M | 1 | See 3GPP TS 33.501 [6] clause 6.1.1.4 |
| authRemovalInd | Boolean | O | 0..1 | When present, it shall indicate the authentication result in the UDM shall be removed.  This IE shall be set as follows:  - true: authentication result in the UDM shall be removed;  - false (default): authentication result in the UDM shall not be removed. |
| sorTransparentSupport | Boolean | O | 0..1 | When present, it shall indicate if AUSF supports receiving SoR information in transparent containers instead of individual IEs:  - true: SoR information can be provided in transparent containers;  - false (default): AUSF information cannot be provided in transparent containers |

\* \* \* Next Change \* \* \* \*

### 6.5.8 Feature Negotiation

The optional features in table 6.5.8-1 are defined for the Nudm\_PP API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

Table 6.5.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | PatchReport | If some of the modifications included in the PATCH request are not successfully implemented, the UDM reports the result of PATCH request execution to the consumer. See clause 5.2.7.2 of 3GPP TS 29.500 [4]. |
| 2 | sorTransparentInformation | This flag used by UDM to register (in NRF) its support of receiving SoR Transparent Information instead of individual IEs from SOR-AF. |

\* \* \* Next Change \* \* \* \*

## A.2 Nudm\_SDM API

openapi: 3.0.0

info:

version: '2.2.0.alpha-1'

title: 'Nudm\_SDM'

description: |

Nudm Subscriber Data Management Service.

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\*\*\*\*\*\*\*\*skipped for clarity\*\*\*\*\*\*\*\*

SorInfo:

type: object

properties:

steeringContainer:

$ref: '#/components/schemas/SteeringContainer'

ackInd:

$ref: 'TS29509\_Nausf\_SoRProtection.yaml#/components/schemas/AckInd'

sorMacIausf:

$ref: 'TS29509\_Nausf\_SoRProtection.yaml#/components/schemas/SorMac'

countersor:

$ref: 'TS29509\_Nausf\_SoRProtection.yaml#/components/schemas/CounterSor'

provisioningTime:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

sorHeader:

$ref: '#/components/schemas/SorHeader'

sorTransparentInfo:

$ref: '#/components/schemas/SorTransparentInfo'

sorTransparentContainer:

$ref: '#/components/schemas/SorTransparentContainer'

required:

- ackInd

- provisioningTime

\*\*\*\*\*\*\*\*skipped for clarity\*\*\*\*\*\*\*\*

# SIMPLE TYPES:

UeUsageType:

type: integer

MpsPriorityIndicator:

type: boolean

…

…

SorHeader:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Bytes'

SorTransparentInfo:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Bytes'

SorTransparentContainer:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Bytes'

\*\*\*\*\*\*\*\*skipped for clarity\*\*\*\*\*\*\*\*

\* \* \* Next Change \* \* \* \*

## A.4 Nudm\_UEAU API

openapi: 3.0.0

info:

version: '1.1.1'

title: 'Nudm\_UEAU'

description: |

UDM UE Authentication Service.

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\*\*\*\*\*\*\*\*skipped for clarity\*\*\*\*\*\*\*\*

AuthEvent:

type: object

required:

- nfInstanceId

- success

- timeStamp

- authType

- servingNetworkName

properties:

nfInstanceId:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

success:

$ref: '#/components/schemas/Success'

timeStamp:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

authType:

$ref: '#/components/schemas/AuthType'

servingNetworkName:

$ref: '#/components/schemas/ServingNetworkName'

authRemovalInd:

type: boolean

default: false

sorTransparentSupport:

type: boolean

default: false

\*\*\*\*\*\*\*\*skipped for clarity\*\*\*\*\*\*\*\*

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