**3GPP TSG-CT WG4 Meeting #105-eC4-214xyz**

**E-Meeting, 17th – 27th August 2021 (was C4-214343)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0684** | **rev** | **1** | **Current version:** | **17.3.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Evolution of UPU delivery mechanism | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SBIProtoc17 | | | | |  | ***Date:*** | | | 2021-07-19 |
|  |  | | | |  | |  | | |  |
| ***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 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 and already agreed for the SoR procedure in TS 29.503, the encoding of *SorInfo* attribute was updated 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.  Similar upgrades are required for the UPU procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | *UpuInfo* attribute is modified to include *UpuTransparentContainer* attribute.  *AcknowledgeInfo* attribute is modified to include *UpuTransparentContainer* attribute.  AMF indicates its capability to receive UPU Information in transparent format via *SupportedFeatures* attribute. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Requires software changes to AMF if UPU Information format changes. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.6.1, 6.1.6.2.25, 6.1.6.2.33, 6.1.6.3.2, 6.1.8, A.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 introduces backward-compatible new features with impacts on the following APIs:  - TS29503\_Nudm\_SDM.yaml | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* 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 | |
| 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 | |  | |
| ProseSubscriptionData | | 6.1.6.2.76 | | ProSe Subscription Data | |
| AerialUeSubscriptionInfo | | 6.1.6.2.78 | | Aerial UE Subscription Information | |
| 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 | |
| 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 | |  | |
| GpsiType | | 6.1.6.3.17 | | Type of GPSI (MSISDN or External-ID) | |
| SorTransparentContainer | | 6.1.6.3.2 | |  | |
| AerialUeIndication | | 6.1.6.3.18 | | Indication on whether Aerial service for UE is allowed or not. | |
| UpuTransparentContainer | | 6.1.6.3.2 | |  | |

Editor's Note: Aerial UE subscription data for the UUAA-SM procedure shall be added after the requirement from stage 2 is clear.

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] | |  | |
| SliceMbr | | 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 | | 3GPP TS 29.571 [7] | | Scheduled Communication Time | |
| LocationArea | | 6.5.6.2.10 | |  | |
| StationaryIndication | | 3GPP TS 29.571 [7] | | Stationary Indication | |
| TrafficProfile | | 3GPP TS 29.571 [7] | | Traffic Profile | |
| ScheduledCommunicationType | | 3GPP TS 29.571 [7] | | Scheduled Communication Type | |
| BatteryIndication | | 3GPP TS 29.571 [7] | | Battery Indication | |
| AcsInfo | | 3GPP TS 29.571 [7] | | ACS Information | |
| IPv4AddrMask | | 3GPP TS 29.571 [7] | |  | |
| NefId | | 3GPP TS 29.510 [19] | |  | |
| Fqdn | | 3GPP TS 29.510 [19] | | Fully Qualified Domain Name | |
| PatchResult | | 3GPP TS 29.571 [7] | |  | |
| NrV2xAuth | | 3GPP TS 29.571 [7] | |  | |
| LteV2xAuth | | 3GPP TS 29.571 [7] | |  | |
| ProseServiceAuth | | 3GPP TS 29.571 [7] | |  | |
| BitRate | | 3GPP TS 29.571 [7] | |  | |
| MdtConfiguration | | 3GPP TS 29.571 [7] | |  | |
| Uint64 | | 3GPP TS 29.571 [7] | |  | |
| WirelineArea | | 3GPP TS 29.571 [7] | |  | |
| WirelineServiceAreaRestriction | | 3GPP TS 29.571 [7] | |  | |
| NfGroupId | | 3GPP TS 29.571 [7] | |  | |
| EcsServerAddr | | 3GPP TS 29.571 [7] | |  | |
| RedirectResponse | | 3GPP TS 29.571 [7] | | Response body of the redirect response message | |

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

##### 6.1.6.2.25 Type: AcknowledgeInfo

Table 6.1.6.2.25: Definition of type AcknowledgeInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| sorMacIue | SorMac | C | 0..1 | Shall be present when the Acknowledgement is sent to acknowledge receipt of SorInfo. Shall be absent when sorTransparentContainer is present. |  |
| upuMacIue | UpuMac | C | 0..1 | Shall be present when the Acknowledgement is sent to acknowledge receipt of UpuInfo. Shall be absent when upuTransparentContainer is present. |  |
| provisioningTime | DateTime | M | 1 | the provisioning time is used to correlate the acknowledgement with the modification request, to address glare cases when multiple modifications are ongoing simultaneously. |  |
| sorTransparentContainer | SorTransparentContainer | C | 0..1 | This attribute contains SoR transparent container as received from UE, encoded as defined in clause 6.1.6.3.2 and shall be present when sent to acknowledge receipt of SorInfo, if the UDM supports receiving SoR Transparent Container. | sorTransparentSupport |
| ueNotReachable | boolean | O | 0..1 | Transmission of SorInfo / UE Parameter Update data to the UE was not successful due to the UE not being reachable. default: false may be present if sorMacIue and upuMacIue and sorTransparentContainer are absent. |  |
| upuTransparentContainer | UpuTransparentContainer | C | 0..1 | This attribute contains UE Parameter Update transparent container as received from UE, encoded as defined in clause 6.1.6.3.2 and shall be present when sent to acknowledge receipt of UpuInfo, if the UDM supports receiving UE Parameter Update Transparent Container. | upuTransparentSupport |

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

##### 6.1.6.2.33 Type: UpuInfo

Table 6.1.6.2.33-1: Definition of type UpuInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| upuDataList | array(UpuData) | C | 1..N | This information defines the UE Parameters Update (UPU).  A secured packet with the Routing indicator update data is included and/or the Default configured NSSAI update data are included on Nudm.  An unsecured Routing indicator update data or secured packet with the Routing indicator update data, and/or the Default configured NSSAI update data are included on Nudr.  Shall be absent when the NF Consumer (e.g. AMF) supports receiving UE Parameters Update information encoded as transparent containers, and the upuTransparentContainer attribute is present. |  |
| upuRegInd | UpuRegInd | C | 0..1 | Contains the indication of whether the re-registration is requested.  Shall be absent when the NF Consumer (e.g. AMF) supports receiving UE Parameters Update information encoded as transparent containers, and the upuTransparentContainer attribute is present. |  |
| upuAckInd | UpuAckInd | C | 0..1 | Contains the indication of whether the acknowledgement from UE is needed.  Shall be absent when the NF Consumer (e.g. AMF) supports receiving UE Parameters Update information encoded as transparent containers, and the upuTransparentContainer attribute is present. |  |
| upuMacIausf | UpuMac | C | 0..1 | Contains the UPU-MAC-IAUSF. Shall be present when UpuInfo is sent within AccessAndMobilitySubscriptionData on Nudm, and shall be absent when sent on Nudr.  Shall be absent when the NF Consumer (e.g. AMF) supports receiving UE Parameters Update information encoded as transparent containers, and the upuTransparentContainer attribute is present. |  |
| counterUpu | CounterUpu | C | 0..1 | Contains the CounterUPU. Shall be present when UpuInfo is sent within AccessAndMobilitySubscriptionData on Nudm, and shall be absent when sent on Nudr.  Shall be absent when the NF Consumer (e.g. AMF) supports receiving UE Parameters Update information encoded as transparent containers, and the upuTransparentContainer attribute is present. |  |
| provisioningTime | DateTime | M | 1 | Point in time of provisioning of UPU by the UDR. |  |
| upuTransparentContainer | UpuTransparentContainer | C | 0..1 | This attribute contains protected UE Parameters Update transparent container encoded as defined in clause 6.1.6.3.2 and shall be present when sent on Nudm, if NF Consumer (e.g. AMF) supports receiving UE Parameters Update information encoded as transparent containers. Shall be absent when sent on Nudr or within PpData. | upuTransparentSupport |

\* \* \* 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". |
| 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) |
| 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). |
| UpuTransparentContainer | Bytes | String with format "byte" as defined in OpenAPI Specification [14], i.e. base64-encoded characters, encoding the "UE Parameters Update transparent container" IE as specified in clause 9.11.3.53A 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 information of 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 (clause 5.2.2.2.3). The UDM performs action as executes step 2c of 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 NF Producer (e.g. UDM). If the NF consumer does not support this feature, the NF Producer shall not include sorTransparentContainer, as defined in clause 6.1.6.2.26.  Corresponding flag is also used by UDM to register (in NRF) its support of receiving SoR Transparent Container instead of individual IEs from the NF Consumer (e.g. AMF). If the UDM does not support this feature, the NF Consumer shall not include sorTransparentContainer, as defined in clause 6.1.6.2.25. |
| 8 | Nsac | If the NF consumer does not support this feature, the UDM shall not include network slice admission control related information for S-NSSAI(s) in the message body with "200 OK" response (See clause 5.2.2.2.3). |
| X | upuTransparentSupport | This flag indicates NF Consumer (e.g. AMF) support of receiving UE Parameters Update Transparent Container instead of individual IEs from NF Producer (e.g. UDM). If the NF consumer does not support this feature, the NF Producer shall not include upuTransparentContainer, as defined in clause 6.1.6.2.33.  Corresponding flag is also used by UDM to register (in NRF) its support of receiving UE Parameters Update Transparent Container instead of individual IEs from the NF Consumer (e.g. AMF). If the UDM does not support this feature, the NF Consumer shall not include upuTransparentContainer, as defined in clause 6.1.6.2.25. |

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

## A.2 Nudm\_SDM API

*(... text not shown for clarity ...)*

AcknowledgeInfo:

type: object

required:

- provisioningTime

properties:

sorMacIue:

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

upuMacIue:

$ref: 'TS29509\_Nausf\_UPUProtection.yaml#/components/schemas/UpuMac'

securedPacket:

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

provisioningTime:

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

sorTransparentContainer:

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

ueNotReachable:

type: boolean

default: false

upuTransparentContainer:

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

*(... text not shown for clarity ...)*

UpuInfo:

type: object

properties:

upuDataList:

type: array

items:

$ref: 'TS29509\_Nausf\_UPUProtection.yaml#/components/schemas/UpuData'

minItems: 1

upuRegInd:

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

upuAckInd:

$ref: 'TS29509\_Nausf\_UPUProtection.yaml#/components/schemas/UpuAckInd'

upuMacIausf:

$ref: 'TS29509\_Nausf\_UPUProtection.yaml#/components/schemas/UpuMac'

counterUpu:

$ref: 'TS29509\_Nausf\_UPUProtection.yaml#/components/schemas/CounterUpu'

provisioningTime:

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

upuTransparentContainer:

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

required:

- provisioningTime

*(... text not shown for clarity ...)*

LcsClientId:

type: string

SorTransparentContainer:

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

UpuTransparentContainer:

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

IpIndex:

description: Represents the IP Index to be sent from UDM to the SMF (its value can be either an integer or a string)

anyOf:

- type: integer

- type: string

*(... text not shown for clarity ...)*

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