**3GPP TSG-CT WG4 Meeting #96eC4-200990**

**E-Meeting, 17th – 28th February 2020 *was* C4-200594**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0331** | **rev** | **2** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *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:*** | Retrieve the status of Enhanced Coverage Restriction | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_CIoT | | | | |  | ***Date:*** | | | 2020-02-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | For Enhanced Coverage Restriction Control via NEF, NEF can query the status of Enhanced Coverage Restriction from the UDM except enabling/disabling the Enhanced Coverage Restriction, see 4.27 Procedures for Enhanced Coverage Restriction Control via NEF in TS 23.502 and agreed CR S2-2000730 in S2#136AH. In S2-2000730, S2 has agreed changing the SDM operation to PP operation for NEF to provision Enhanced Coverage Restriction data, therefore retrieving the Enhanced Coverage Restriction data is best to be provided by PP service.  Querying the status of Enhanced Coverage Restriction by NEF from the UDM is not supported yet. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the Enhanced Coverage Restriction Data Retrieva service operation for SDM service.  Add EnhancedCoverageRestrictionData resource and get Method on this resource of SDM service.  Define new data model EnhancedCoverageRestrictionData that is used in GET Response Body of newly defined get method. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 2 solution won't be implemented. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.2.2.1, 5.2.2.2.x(new), 6.1.3.1, 6.1.3.x(new), 6.1.3.x.1(new), 6.1.3.x.2(new), 6.1.3.x.3(new), 6.1.3.x.3.1(new) (new), 6.1.6.1, 6.1.6.2.xx(new), 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 will introduce backward compatible new features in the OpenAPI specification file of TS29503\_Nudm\_SDM.yaml, TS29505\_Subscription\_Data.yaml. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1:   1. Add information about agreed stage 2 CR for changing the SDM operation to PP operation in ***Reason for change*** of cover page. 2. Change P column of “pp-types” query parameters from O to M because stage 2 only specified allowing to get the enhanced coverage but not full PP Data, to align the stage 2 3. Revise Nudm\_pp API accordingly.   Rev2:  Change from PP service to SDM service to provide the retrieval UE’s subscribed Enhance Coverage Restrication Data, the change include service operation, Resource, Data Model and API. | | | | | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The start of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 5.2.2.2.1 General

The following procedures using the Get service operation are supported:

- Slice Selection Subscription Data Retrieval

- Access and Mobility Subscription Data Retrieval

- SMF Selection Subscription Data Retrieval

- Session Management Subscription Data Retrieval

- SMS Subscription Data Retrieval

- SMS Management Subscription Data Retrieval

- UE Context in SMF Data Retrieval

- UE Context in SMSF Data Retrieval

- Retrieval Of Multiple Data Sets

- Identifier Translation

- Shared Subscription Data Retrieval

- Trace Data Retrieval

- LCS Privacy Data Retrieval

- LCS Mobile Originated Data Retrieval

- Enhanced Coverage Restriction Data Retrieval

When the feature SharedData (see clause 6.1.8) is supported and the retrieved UE-individual data (i.e. data other than Shared Subscription Data) contain SharedDataIds, the NF service consumer shall also retrieve the shared data identified by the received shared data Ids unless the identified shared data are already available at the NF service consumer. The order of sequence of sharedDataIds within UE-individual data is significant: Individual data take precedence over shared data; shared data "SharedDataX" identified by a sharedDataId X takes precedence over shared data "SharedDataY" identified by a sharedDataId Y if X appears before Y within the list of SharedDataIds in the UE-individual data.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 5.2.2.2.x Enhanced Coverage Restriction Data Retrieval

Figure 5.2.2.2.x-1 shows a scenario where the NF service consumer (e.g. NEF) sends a request to the UDM to retrieve a UE's subscribed Enhanced Coverage Restriction data (see also 3GPP TS 23.502 [3] figure 4.27.1-1 step 3 and 7). The request contains the identifier of the UE (/{supi}), the type of the requested information (/am-data/ecr-data) and query parameters (supported-features).



Figure 5.2.2.2.x-1: NF service consumer retrieves Enhance Coverage Restriction Data

1. The NF service consumer (e.g. NEF) sends a GET request to the resource that represents a UE's subscribed Enhanced Coverage Restriction data, with query parameters indicating the supported-features.

2a. On success, the UDM responds with "200 OK", the message body containing the UE's subscribed Enhanced Coverage Restriction data as relevant for the requesting NF service consumer.

2b. If there is no valid subscribed Enhanced Coverage Restriction data for the UE, HTTP status code "404 Not Found" shall be returned including additional error information in the response body (in the "ProblemDetails" element).

On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the GET response body.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 6.1.3.1 Overview



Figure 6.1.3.1-1: Resource URI structure of the nudm-sdm API

Table 6.1.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.1.3.1-1: Resources and methods overview

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Resource name (Archetype) | Resource URI | | HTTP method or custom operation | | Description | |
| Supi (Document) | /{supi} | | GET | | Retrieve UE's subscription data | |
| Nssai (Document) | /{supi}/nssai | | GET | | Retrieve the UE's subscribed Network Slice Selection Assistance Information | |
| AccessAndMobilitySubscriptionData (Document) | /{supi}/am-data | | GET | | Retrieve the UE's subscribed Access and Mobility Data | |
| SorAck (Document) | /{supi}/am-data/sor-ack | | PUT | | Providing acknowledgement of Steering of Roaming | |
| UpuAck (Document) | | /{supi}/am-data/upu-ack | | PUT | | Providing acknowledgement of UE parameters update | |
| CagAck (Document) | | /{supi}/am-data/cag-ack | | PUT | | Providing acknowledgement of UE CAG configuration update | |
| EnhancedCoverageRestrictionData | | /{supi}/am-data/ecr-data | | GET | | Retrieve the UE's subscribed Enhance Coverage Restriction Data | |
| SmfSelectionSubscriptionData (Document) | /{supi}/smf-select-data | | GET | | Retrieve the UE's subscribed SMF Selection Data | |
| UeContextInSmfData (Document) | /{supi}/ue-context-in-smf-data | | GET | | Retrieve the UE's Context in SMF Data | |
| SessionManagementSubscriptionData (Document) | /{supi}/sm-data | | GET | | Retrieve the UE's session management subscription data | |
| SMSSubscriptionData (Document) | /{supi}/sms-data | | GET | | Retrieve the UE's SMS subscription data | |
| SMSManagementSubscriptionData (Document) | /{supi}/sms-mng-data | | GET | | Retrieve the UE's SMS management subscription data | |
| LcsPrivacySubscriptionData (Document) | /{supi}/lcs-privacy-data | | GET | | Retrieve the UE's LCS privacy subscription data | |
| LcsMobileOriginatedSubscriptionData (Document) | /{supi}/lcs-mo-data | | GET | | Retrieve the UE's LCS Mobile Originated subscription data | |
| SdmSubscriptions (Collection) | /{supi}/sdm-subscriptions | | POST | | Create a subscription | |
| Individual subscription (Document) | /{supi}/sdm-subscriptions/{subscriptionId} | | DELETE | | Delete the subscription identified by {subscriptionId}, i.e. unsubscribe | |
| PATCH | | Modify the sdm-subscription identified by {subscriptionId} | |
| IdTranslationResult (Document) | /{ueId}/id-translation-result | | GET | | Retrieve a UE's SUPI or GPSI | |
| UeContextInSmsfData (Document) | /{supi}/ue-context-in-smsf-data | | GET | | Retrieve the UE's Context in SMSF Data | |
| TraceData  (Document) | /{supi}/trace-data | | GET | | Retrieve Trace Configuration Data | |
| SharedData (Collection) | /shared-data | | GET | | Retrieve shared data | |
| SharedDataSubscriptions (Collection) | /shared-data-subscriptions | | POST | | Create a subscription | |
| SharedDataIndividual subscription (Document) | /shared-data-subscriptions/{subscriptionId} | | DELETE | | Delete the subscription identified by {subscriptionId}, i.e. unsubscribe | |
| PATCH | | Modify the shared data subscription identified by {subscriptionId} | |
| GroupIdentifiers  (Document) | /group-data/group-identifiers | | GET | | Retrieve group identifiers | |
| SnssaisAck (Document) | /{supi}/am-data/subscribed-snssais-ack | | PUT | | Providing acknowledgement of UE for subscribed S-NSSAIs | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 6.1.3.x Resource: EnhancedCoverageRestrictionData

##### 6.1.3.x.1 Description

This resource represents the subscribed Enhance Coverage Restriction Data for a SUPI.

##### 6.1.3.x.2 Resource Definition

Resource URI: {apiRoot}/nudm-sdm/{apiVersion}/{supi}/am-data/ecr-data

This resource shall support the resource URI variables defined in table 6.1.3.x.2-1.

Table 6.1.3.x.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | See clause 6.1.1 |
| apiVersion | See clause 6.1.1 |
| supi | Represents the Subscription Permanent Identifier (see 3GPP TS 23.501 [2] clause 5.9.2)  pattern: "(imsi-[0-9]{5,15}|nai-.+|.+)" |

##### 6.1.3.x.3 Resource Standard Methods

###### 6.1.3.x.3.1 GET

This method shall support the URI query parameters specified in table 6.1.3.x.3.1-1.

Table 6.1.3.x.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| supported-features | SupportedFeatures | O | 0..1 | see 3GPP TS 29.500 [4] clause 6.6 |

This method shall support the request data structures specified in table 6.1.3.x.3.1-2 and the response data structures and response codes specified in table 6.1.3.x.3.1-3.

Table 6.1.3.x.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.1.3.x.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| EnhancedCoverageRestrictionData | M | 1 | 200 OK | Upon success, a response body containing the Access and Mobility Subscription Data shall be returned. |
| ProblemDetails | O | 0..1 | 404 Not Found | The "cause" attribute may be used to indicate one of the following application errors:  - USER\_NOT\_FOUND  - DATA\_NOT\_FOUND |
| NOTE: In addition common data structures as listed in table 6.1.7-1 are supported. | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next 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 structured data types defined for the Nudm\_SDM service API. For simple data types defined for the Nudm\_SDM service API see table 6.1.6.3.2-1.

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 | |
| UeContextInSmfData | | 6.1.6.2.16 | | UE Context In SMF Data | |
| PduSession | | 6.1.6.2.17 | |  | |
| 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 | |
| SmsManagementSubscriptionData | | 6.1.6.2.14 | | SMS Management Subscription Data | |
| IdTranslationResult | | 6.1.6.2.18 | | SUPI that corresponds to a given GPSI | |
| IpAddress | | 6.1.6.2.22 | | IP address (IPv4, or IPv6, or IPv6 prefix) | |
| 3GppChargingCharacteristics | | 6.1.6.3.2 | | 3GPP Charging Characteristics | |
| IwkEpsInd | | 6.1.6.3.2 | | Interworking with EPS Indication | |
| ModificationNotification | | 6.1.6.2.21 | |  | |
| 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 | |
| UpuInfo | | 6.1.6.2.33 | | UE Parameters Update 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 | |
| SdmSubsModification | | 6.1.6.2.31 | | Modification instruction for a subscription to notifications | |
| EmergencyInfo | | 6.1.6.2.32 | | Information about emergency session | |
| EpsIwkPgw | | 6.1.6.2.11 | | Information of the PGW-C+SMF selected by the AMF for EPS interworking with N26 interface. | |
| GroupIdentifiers | | 6.1.6.2.34 | |  | |
| ExtGroupId | | 6.1.6.3.2 | |  | |
| 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 | |  | |
| EcRestrictionData | | 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 | |
| FrameRouteInfo | | 6.1.6.2.54 | | Frame Route Information | |
| EnhancedCoverageRestrictionData | | 6.1.6.2.xx | | Enhanced Coverage Restriction Data | |

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; 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] | |  | |
| Ipv4Address | | 3GPP TS 29.571 [7] | |  | |
| Ipv6Address | | 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] | |  | |
| Tmbr | | 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] | |  | |
| Ipv6Prefix | | 3GPP TS 29.571 [7] | |  | |
| NefId | | 3GPP TS 29.510 [19] | |  | |
| PlmnEcInfo | | 6.5.6.2.13 | |  | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 6.1.6.2.xx Type: EnhancedCoverageRestrictionData

Table 6.1.6.2.xx-1: Definition of type EnhancedCoverageRestrictionData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| plmnEcInfoList | array(PlmnEcInfo) | O | 1..N | It may indicate a complete list of serving PLMNs where Enhanced Coverage Restriction shall be allowed and the detailed enhanced coverage restriction configuration under per the PLMN. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## A.2 Nudm\_SDM API

openapi: 3.0.0

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

/{supi}/am-data:

get:

summary: retrieve a UE's Access and Mobility Subscription Data

operationId: GetAmData

tags:

- Access and Mobility Subscription Data Retrieval

parameters:

- name: supi

in: path

description: Identifier of the UE

required: true

schema:

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

- name: supported-features

in: query

description: Supported Features

schema:

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

- name: plmn-id

in: query

description: serving PLMN ID

content:

application/json:

schema:

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

- name: If-None-Match

in: header

description: Validator for conditional requests, as described in RFC 7232, 3.2

schema:

type: string

- name: If-Modified-Since

in: header

description: Validator for conditional requests, as described in RFC 7232, 3.3

schema:

type: string

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

headers:

Cache-Control:

description: Cache-Control containing max-age, as described in RFC 7234, 5.2

schema:

type: string

ETag:

description: Entity Tag, containing a strong validator, as described in RFC 7232, 2.3

schema:

type: string

Last-Modified:

description: Timestamp for last modification of the resource, as described in RFC 7232, 2.2

schema:

type: string

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

description: Unexpected error

/{supi}/am-data/ecr-data:

get:

summary: retrieve a UE's subscribed Enhanced Coverage Restriction Data

operationId: GetEcrData

tags:

- Enhanced Coverage Restriction Data Retrieval

parameters:

- name: supi

in: path

description: Identifier of the UE

required: true

schema:

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

- name: supported-features

in: query

description: Supported Features

schema:

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

- name: If-None-Match

in: header

description: Validator for conditional requests, as described in RFC 7232, 3.2

schema:

type: string

- name: If-Modified-Since

in: header

description: Validator for conditional requests, as described in RFC 7232, 3.3

schema:

type: string

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

headers:

Cache-Control:

description: Cache-Control containing max-age, as described in RFC 7234, 5.2

schema:

type: string

ETag:

description: Entity Tag, containing a strong validator, as described in RFC 7232, 2.3

schema:

type: string

Last-Modified:

description: Timestamp for last modification of the resource, as described in RFC 7232, 2.2

schema:

type: string

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

description: Unexpected error

/{supi}/smf-select-data:

get:

summary: retrieve a UE's SMF Selection Subscription Data

operationId: GetSmfSelData

tags:

- SMF Selection Subscription Data Retrieval

parameters:

- name: supi

in: path

description: Identifier of the UE

required: true

schema:

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

- name: supported-features

in: query

description: Supported Features

schema:

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

- name: plmn-id

in: query

description: serving PLMN ID

content:

application/json:

schema:

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

- name: If-None-Match

in: header

description: Validator for conditional requests, as described in RFC 7232, 3.2

schema:

type: string

- name: If-Modified-Since

in: header

description: Validator for conditional requests, as described in RFC 7232, 3.3

schema:

type: string

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

headers:

Cache-Control:

description: Cache-Control containing max-age, as described in RFC 7234, 5.2

schema:

type: string

ETag:

description: Entity Tag, containing a strong validator, as described in RFC 7232, 2.3

schema:

type: string

Last-Modified:

description: Timestamp for last modification of the resource, as described in RFC 7232, 2.2

schema:

type: string

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

description: Unexpected error

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

SuggestedPacketNumDl:

type: object

required:

- suggestedPacketNumDl

properties:

suggestedPacketNumDl:

type: integer

minimum: 1

validityTime:

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

FrameRouteInfo:

type: object

properties:

ipv4Mask:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4AddrMask'

ipv6Prefix:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

EnhancedCoverageRestrictionData:

type: object

properties:

plmnEcInfoList:

type: array

items:

$ref: 'TS29503\_Nudm\_PP.yaml#/components/schemas/PlmnEcInfo'

minItems: 1

# SIMPLE TYPES:

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

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The end of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*