**3GPP TSG-CT WG3 Meeting #108-eC3-201113**

[**E-Meeting**](https://www.3gpp.org/ftp/tsg_ct/WG3_interworking_ex-CN3/TSGC3_108_Sophia_Antipolis/)**, 19th -28th February 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **0123** | **rev** | **-** | **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:*** | Resources and data types of Nnef\_ServiceParameter Service | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eV2XARC | | | | |  | ***Date:*** | | | 2020-02-28 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Nnef\_ServiceParameter service is defined in stage 2 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Define the resources and data types of the Nnef\_ServiceParameter service. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Feature is not supported | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 5.x(new), 5.x.1(new), 5.x.2(new), 5.x.2.1(new), 5.x.2.2(new), 5.x.2.3(new), 5.x.2.3.1(new), 5.x.2.3.2(new), 5.x.2.3.3(new), 5.x.2.3.4(new), 5.x.2.3.5(new), 5.x.2.3.6(new), 5.x.2.3.7(new), 5.x.2.3.8(new), 5.x.2.3.9(new), 5.x.2.3.10(new), 5.x.2.3.11(new), 5.x.2.3.12(new), 5.x.2.3.13(new), 5.x.2.3.14(new), 5.x.2.3.15(new), 5.x.2.3.16(new), 5.x.2.3.17(new), 5.x.2.3.18(new), 5.x.2.3.19(new), 5.x.2.4(new), 5.x.2.4.1(new), 5.x.2.4.2(new), 5.x.2.4.3(new), 5.x.3(new), | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.502: "Procedures for the 5G system".

[3] 3GPP TS 23.501: "System Architecture for the 5G".

[4] 3GPP TS 29.122: "T8 reference point for northbound Application Programming Interfaces (APIs)".

[5] Open API Initiative, "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.

[6] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[7] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[8] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[9] 3GPP TS 29.521: "5G System; Binding Support Management Service; Stage 3".

[10] Void.

[11] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2".

[12] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3".

[13] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[14] 3GPP TS 33.122: "Security Aspects of Common API Framework for 3GPP Northbound APIs".

[15] Void.

[16] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".

[17] 3GPP TS 29.503: "5G System; Unified Data Management Services; Stage 3".

[18] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[19] 3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[20] 3GPP TS 29.504: "5G System; Unified Data Repository Services; Stage 3".

[21] 3GPP TR 21.900: "Technical Specification Group working methods".

[22] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[23] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Control Data, Application Data and Structured Data for Exposure; Stage 3".

[24] 3GPP TS 29.541: "5G System; Session Management Services for Non-IP Data Delivery (NIDD); Stage 3".

[25] 3GPP TS 29.502: "5G System, Session Management Services; Stage 3".

[26] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[27] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[28] 3GPP TS 23.316: "Wireless and wireline convergence access support for the 5G system (5GS)".

[29] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[x1] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".

[x2] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to Vehicle-to-Everything (V2X) services".

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

## 5.x ServiceParameter API

### 5.x.1 Resources

#### 5.x.1.1 Overview

This subclause describes the structure for the Resource URIs as shown in figure 5.x.1.1-1 and the resources and HTTP methods used for the ServiceParameter API.



Figure 5.9.1.1-1: Resource URI structure of the ServiceParameter API

Table 5.x.1.1-1 provides an overview of the resources and HTTP methods applicable for the ServiceParameter API.

Table 5.9.1.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method | Description |
| Service Parameter Subscripions | {apiRoot}/3gpp-serviceparameter/v1/{afId}/subscriptions | GET | Read all subscriptions for a given AF. |
| POST | Create a new service parameter subscription. |
| Individual Service Parameter Subscripion | {apiRoot}/3gpp-serviceparameter/v1/{afId}/subscriptions/{subscriptionId} | GET | Read an existing subscription identified by {subscriptionId} |
| PUT | Modify all of the properties of an existing subscription. identified by {subscriptionId} |
| PATCH | Modify some of the properties of an existing subscription identified by {subscriptionId} |
| DELETE | Delete the subscription identified by {subscriptionId} |

#### 5.x.1.2 Resource: Service Parameter Subscriptions

##### 5.x.1.2.1 Introduction

This resource allows a AF to read all active Service Parameter Subscriptions for the given AF, or create an new individual service parameter subscription in the NEF.

##### 5.x.1.2.2 Resource Definition

Resource URI: **{apiRoot}/3gpp-serviceparameter/v1/{afId}/subscriptions**

This resource shall support the resource URI variables defined in table 5.x.1.2.2-1.

Table 5.x.1.2.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | Subclause 5.2.4 of 3GPP TS 29.122 [4]. |
| afId | Identifier of the AF of type string. |

##### 5.x.1.2.3 Resource Methods

###### 5.x.1.2.3.1 General

The following subclauses specify the resource methods supported by the resource as described in subclause 5.x.1.2.3.

###### 5.x.1.2.3.2 GET

The GET method allows to read all active subscriptions for a given AF. The AF shall initiate the HTTP GET request message and the NEF shall respond to the message.

This method shall support the URI query parameters specified in table 5.x.1.2.3.2-1.

Table 5.x.1.2.3.2-1: URI query parameters supported by the GETmethod on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| N/A |  |  |  |  |

This method shall support the request data structures specified in table 5.x.1.2.3.2-2 and the response data structures and response codes specified in table 5.x.1.2.3.2-3.

Table 5.x.1.2.3.2-2: Data structures supported by the GETRequest Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| N/A |  |  |  |

Table 5.x.1.2.3.2-3: Data structures supported by theGET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| array(ServiceParameterData) | M | 0..N | 200 OK | All the subscription information for the AF in the request URI are returned. |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

###### 5.x.1.2.3.3 POST

The POST method creates a new resource to individual service parameter subscription for a given AF. The AF shall initiate the HTTP POST request message and the NEF shall respond to the message. The NEF shall construct the URI of the created resource.

This method shall support the request data structures specified in table 5.x.1.2.3.3-1 and the response data structures and response codes specified in table 5.x.1.2.3.3-2.

Table 5.x.1.2.3.3-1: Data structures supported by the POSTRequest Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServiceParameterData | M | 1 | Parameters to create a service parameter subscription resource. |

Table 5.x.1.2.3.3-2: Data structures supported by thePOST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| ServiceParameterData | M | 1 | 201 Created | The subscription resource was created successfully.  The URI of the created resource shall be returned in the "Location" HTTP header. |
| n/a |  |  | 204 No Content | The subscription resource was created successfully.  The URI of the created resource shall be returned in the "Location" HTTP header. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

#### 5.x.1.3 Resource: Individual Service Parameter Subscription

##### 5.x.1.3.1 Introduction

This resource allows a AF to read, update or delete an existing service parameter subscription.

##### 5.x.1.3.2 Resource Definition

Resource URI: **{apiRoot}/3gpp-serviceparameter/v1/{afId}/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 5.9.1.3.2-1.

Table 5.x.1.3.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | Subclause 5.2.4 of 3GPP TS 29.122 [4]. |
| afId | Identifier of the AF of type string. |
| subscriptionId | Identifier of the subscription resource of type string. |

##### 5.x.1.3.3 Resource Methods

###### 5.x.1.3.3.1 General

The following subclauses specify the resource methods supported by the resource as described in subclause 5.x.1.3.3.

###### 5.x.1.3.3.2 GET

The GET method allows to read the active subscription for a given AF and subscription Id. The AF shall initiate the HTTP GET request message and theNEF shall respond to the message.

This method shall support the URI query parameters specified in table 5.x.1.3.3.2-1.

Table 5.x.1.3.3.2-1: URI query parameters supported by theGETmethod on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| N/A |  |  |  |  |

This method shall support the request data structures specified in table 5.x.1.3.3.2-2 and the response data structures and response codes specified in table 5.x.1.3.3.2-3.

Table 5.x.1.3.3.2-2: Data structures supported by the GETRequest Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| N/A |  |  |  |

Table 5.x.1.3.3.2-3: Data structures supported by theGET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| ServiceParameterData | M | 1 | 200 OK | The information for the subscription in the request URI are returned. |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

###### 5.x.1.3.3.3 PUT

The PUT method modifies an existing resource to update a configuration. The AF shall initiate the HTTP PUT request message and the NEF shall respond to the message.

This method shall support the request data structures specified in table 5.9.1.3.3.3-1 and the response data structures and response codes specified in table 5.9.1.3.3.3-2.

Table 5.x.1.3.3.3-1: Data structures supported by the PUTRequest Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServiceParameterData | M | 1 | Modify an existing subscription. |

Table 5.x.1.3.3.3-2: Data structures supported by thePUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| ServiceParameterData | M | 1 | 200 OK | The subscription resource was updated successfully. |
| n/a |  |  | 204 No Content | The subscription resource was updated successfully. |
| NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

###### 5.x.1.3.3.4 DELETE

The DELETE method deletes an existing individual subscription for a given AF. The AF shall initiate the HTTP DELETE request message and the NEF shall respond to the message.

This method shall support the URI query parameters specified in table 5.x.1.3.3.4-1.

Table 5.x.1.3.3.4-1: URI query parameters supported by theDELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| N/A |  |  |  |  |

This method shall support the request data structures specified in table 5.x.1.3.3.4-2 and the response data structures and response codes specified in table 5.x.1.3.3.4-3.

Table 5.x.1.3.3.4-2: Data structures supported by the DELETERequest Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| N/A |  |  |  |

Table 5.x.1.3.3.4-3: Data structures supported by theDELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| N/A |  |  | 204 No Content | The subscription resource was terminated successfully. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

###### 5.x.1.3.3.5 PATCH

The PATCH method allows to change some properties of an existing resource to update a subscription. The AF shall initiate the HTTP PATCH request message and the NEF shall respond to the message.

This method shall support the request data structures specified in table 5.x.1.3.3.5-1 and the response data structures and response codes specified in table 5.x.1.3.3.5-2.

Table 5.9.1.3.3.5-1: Data structures supported by the PATCHRequest Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServiceParameterDataPatch | M | 1 | Partial update an existing subscription. |

Table 5.9.1.3.3.5-2: Data structures supported by thePATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| ServiceParameterDataPatch | M | 1 | 200 OK | The subscription resource was updated successfully. |
| n/a |  |  | 204 No Content | The subscription resource was updated successfully. |
| NOTE: The mandatory HTTP error status codes for the PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

### 5.x.2 Data Model

#### 5.x.2.1 General

This subclause specifies the application data model supported by the ServiceParameter API.

#### 5.x.2.2 Reused data types

The data types reused by the ServiceParameter API from other specifications are listed in table 5.9.2.2-1.

Table 5.x.2.2-1: Re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| DataTime | 3GPP TS 29.571 [8] |  |
| Dnn | 3GPP TS 29.571 [8] | Identifies a DNN. |
| ExternalGroupId | 3GPP TS 29.122 [4] | External Group Identifier for a user group. |
| Gpsi | 3GPP TS 29.571 [8] | Identifies a GPSI. |
| IPv4Addr | 3GPP TS 29.571 [8] | Identifies an IPv4 address. |
| IPv6Addr | 3GPP TS 29.571 [8] | Identifies an IPv6 address. |
| Link | 3GPP TS 29.122 [4] |  |
| MacAddr48 | 3GPP TS 29.571 [8] | Identifies an MAC address. |
| Pc5QosPara | 3GPP TS 29.571 [8] |  |
| RatType | 3GPP TS 29.571 [8] |  |
| Snssai | 3GPP TS 29.571 [8] | Identifies the S-NSSAI. |
| SupportedFeatures | 3GPP TS 29.571 [8] | Used to negotiate the applicability of the optional features defined in table 5.9.4-1. |
| Uinteger | 3GPP TS 29.571 [8] |  |

#### 5.x.2.3 Structured data types

##### 5.9.2.3.1 Introduction

This clause defines the structured data types to be used in resource representations.

##### 5.x.2.3.2 Type: ServiceParameterData

Table 5.x.2.3.2-1: Definition of type ServiceParameterData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| self | Link | C | 0..1 | Identifies the individual service parameter subscription resource URI.  Shall be present by the NEF in HTTP responses that include an object of ServiceParameterData type. |  |
| dnn | Dnn | O | 0..1 | Identifies a DNN. |  |
| snssai | Snssai | O | 0..1 | Identifies an S-NSSAI. |  |
| afServiceId | string | O | 0..1 | Identifies a service on behalf of which the AF is issuing the request. |  |
| appId | string | O | 0..1 | Identifies an application identifier. |  |
| gpsi | Gpsi | O | 0..1 | Identifies GPSI. |  |
| ueIpv4 | Ipv4Addr | O | 0..1 | The IPv4 address of the served UE. |  |
| ueIpv6 | Ipv6Addr | O | 0..1 | The IPv6 address of the served UE. |  |
| ueMac | MacAddr48 | O | 0..1 | The MAC address of the served UE. |  |
| exterGroupId | ExternalGroupId | O | 0..1 | Represents a group of users. |  |
| anyUeInd | boolean | O | 0..1 | Identifies whether the service parameters applies to any UE. This attribute shall set to "true" if applicable for any UE, otherwise, set to "false". |  |
| paramOverPc5 | ParameterOverPc5 | O | 0..1 | Contains the service parameter used over PC5 |  |
| paramOverUu | ParameterOverUu | O | 0..1 | Contains the service parameter used over Uu |  |
| suppFeat | SupportedFeatures | C | 0..1 | Indicates the list of Supported features used as described in subclause 5.8.  This parameter shall be supplied by the NF service consumer in the POST request that requested the creation of an individual SM policy resource. |  |
| NOTE 1: One of individual UE identifier (i.e. "gpsi", "ueIpv4", "ueIpv6" or "ueMac" attribute), External Group Identifier (i.e. "exterGroupId" attribute) or any UE indication (i.e. "anyUeInd" attribute) shall be included.  NOTE 2: Either the "afServiceId" attribute, "appId" attribute or the combination of "snssai" and "dnn" attributes shall be provided. | | | | | |

##### 5.x.2.3.3 Type: ParameterOverPc5

Table 5.x.2.3.3-1: Definition of type ParameterOverPc5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| expiry | DateTime | O | 0..1 | When present, it indicates the expiration time for the validity of the configuration parameters for V2X communication over PC5. If not present, the configuration paremeters are always valid until the AF removes them. |  |
| plmmRatServed | array(PlmnRatServed) | O | 1..N | Contains a list of PLMNs and RATs in which the UE is authorized to use V2X communication over PC5 when the UE is served by E-UTRA or served by NR. |  |
| authNotServed | boolean | O | 0..1 | When present ans set to TRUE, it indicates the UE is authorized to use V2X communication over PC5 when the UE is not served by E-UTRA and not served by NR. When not present or present and set to FALSE, it indicates the UE is not authorized to use V2X communication over PC5 when the UE is not served by E-UTRA and not served by NR. |  |
| radioParamsNotServed | array(RadioParameterNotServed) | O | 1..N | Contains a list of radio parameters for V2X communication over PC5 applicable when the UE is not served by E-UTRA, not served by NR and is located in the geographical area, with an indication of whether these radio parameters are "operator managed" or "non-operator managed" |  |
| serToTx | array(ServiceToTx) | O | 1..N | Contains a list of V2X service identifier to Tx profiles mapping rules. Each mapping rule contains one or more V2X service identifiers and a Tx profile |  |
| privacyParams | array(PrivacyParameter) | O | 1..N | Contains a list of V2X services requiring privacy. Each entry of the list contains one or more V2X service identifiers and one or more geographical areas where the privacy is required |  |
| configParaEutra | ConfigurationParametersEutra | O | 0..1 | Contains the configuration parameters for a V2X communication over PC5 in E-UTRA. |  |
| configParaNr | ConfigurationParametersNr | O | 0..1 | Contains the configuration parameters for a V2X communication over PC5 in NR. |  |

##### 5.x.2.3.4 Type: ParameterOverUu

Table 5.x.2.3.4-1: Definition of type ParameterOverUu

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| expiry | DateTime | O | 0..1 | Indicates the expiration time for the validity of the configuration parameters for V2X communication over Uu to 5GCN. |  |
| serToPduSess | array(ServicToPduSession) | O | 1..N | Contains a list of V2X service identifier to PDU session parameters mapping rules. Each mapping rule contains one or more V2X service identifiers of a the V2X service and one or more parameters for establishment of a PDU session for V2X communication over Uu for the V2X services |  |
| serToAppAddr | array(ServiceToApplicationServerAddress) | O | 1..N | Contains a list of V2X service identifier to V2X application server address mapping rules. |  |

##### 5.x.2.3.5 Type: PlmnRatServed

Table 5.x.2.3.5-1: Definition of type PlmmRatServed

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| plmn | Plmn | M | 1 | Contains a PLMN ID which the UE is authorized to use V2X communication over PC5 |  |
| rats | array(V2XRatType) | M | 1..N | Contains the RAT(s) in which the UE is authorized to use V2X communication over PC5. Only E-UTRAN and NR are applicable. |  |

##### 5.x.2.3.6 Type: RadioParameterNotServed

Table 5.x.2.3.6-1: Definition of type RadioParameterNotServed

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| radioParams | string | M | 1 | Contains the radio parameters for V2X communication over PC5 applicable when the UE is not served by E-UTRA, not served by NR |  |
| rat | V2xRatType | M | 1 | Contains the RAT which is not serving the UE. |  |
| geographicalArea | string | M | 1 | Refer to geographical Information.  See 23.032 [x1] subclause 7.3.2. Only the description of an ellipsoid point with uncertainty circle is allowed to be used.  Allowed characters are 0-9 and A-F; |  |
| operManaged | OperatorManaged | M |  | Indicates whether these radio parameters are "operator managed" or "non-operator managed". |  |

Editor’s note: The data type of "radioParams" attribute is FFS.

##### 5.x.2.3.7 Type: ServiceToTx

Table 5.x.2.3.7-1: Definition of type ServiceToTx

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serIds | array(string) | M | 1..N | Contains a list of V2X service identifier. |  |
| txProfile | string | M | 1 | Contains a Tx profile. |  |

Editor’s note: The data type of "txProfile" attribute is FFS.

##### 5.x.2.3.8 Type: PrivacyParameter

Table 5.x.2.3.8-1: Definition of type PrivacyParameter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serIds | array(string) | M | 1..N | Contains a list of V2X service identifier. |  |
| geographicalArea | string | M | 1 | Refer to geographical Information.  See 23.032 [x1] subclause 7.3.2. Only the description of an ellipsoid point with uncertainty circle is allowed to be used.  Allowed characters are 0-9 and A-F. |  |
| timer | DurationSec | M | 1 | Contains a privacy timer value. |  |

##### 5.x.2.3.9 Type: ConfigurationParametersEutra

Table 5.x.2.3.9-1: Definition of type ConfigurationParametersEutra

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serIdToLayer2Ids | array(ServiceIdToLayer2Id) | O | 1..N | Contains a list of V2X service identifier to destination layer-2 ID mapping rules. |  |
| ppppToPdbs | array(PpppToPdb) | O | 1..N | Contains a list of PPPP to PDB mapping rules |  |
| serIdToFrequs | array(ServiceIdToFrequency) | O | 1..N | Contains a list of V2X service identifier to V2X E-UTRA frequency mapping rules |  |
| serIdToPpprs | Array(ServiceIdToPppr) | O | 1..N | Contains a list of the V2X services authorized for ProSe Per-Packet Reliability (PPPR). |  |
| NOTE: At lease one of attributes shall be included. | | | | | |

##### 5.x.2.3.10 Type: ConfigurationParametersNr

Table 5.x.2.3.10-1: Definition of type ConfigurationParametersNr

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serIdToBroLayer2Ids | array(ServiceIdToLayer2Id) | O | 1..N | Contains a list of V2X service identifier to destination layer-2 ID for broadcast mapping rules. |  |
| serIdToGroLayer2Ids | array(ServiceIdToLayer2Id) | O | 1..N | Contains a list of V2X service identifier to destination layer-2 ID for groupcast mapping rules. |  |
| serIdToDefLayer2Ids | array(ServiceIdToLayer2Id) | O | 1..N | Contains a list of V2X service identifier to default destination layer-2 ID for unicast initial signaling mapping rules. |  |
| serIdToFrequs | array(ServiceIdToFrequency) | O | 1..N | Contains a list of V2X service identifier to V2X E-UTRA frequency mapping rules |  |
| pc5QosMappings | array(Pc5QosMapping) | O | 1..N | Contains a list of PC5 QoS mapping rules. |  |
| slrbConfigs | array(SlrbConfigurations) | O | 1..N | Contains a list of SLRB mapping rules applicable when the UE is not served by E-UTRA and is not served by NR. |  |
| NOTE: At lease one of attributes shall be included. | | | | | |

##### 5.x.2.3.11 Type: ServiceIdToLayer2Id

Table 5.x.2.3.11-1: Definition of type ServiceIdToLayer2Id

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serId | array(string) | M | 1..N | Contains a list of V2X service identifier |  |
| desLayer2Id | string | M | 1 | Contains a destination layer-2 ID. |  |

##### 5.x.2.3.12 Type: PpppToPdb

Table 5.x.2.3.12-1: Definition of type PpppToPdb

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pppp | Uinteger | M | 1 | Contains a ProSe Per-Packet Priority. |  |
| pdb | PacketDelBudget | M | 1 | Contains a Packet Delay Budget. |  |

##### 5.x.2.3.13 Type: ServiceIdToFrequency

Table 5.x.2.3.13-1: Definition of type ServiceIdToFrequency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serId | array(string) | M | 1..N | Contains a list of V2X service identifier |  |
| frequency | number | M | 1 | Contains a frequency in the unit of Khz. |  |
| geographicalArea | string | M | 1 | Refer to geographical Information.  See 23.032 [x1] subclause 7.3.2. Only the description of an ellipsoid point with uncertainty circle is allowed to be used.  Allowed characters are 0-9 and A-F. |  |

##### 5.x.2.3.14 Type: ServiceIdToPppr

Table 5.x.2.3.14-1: Definition of type ServiceIdToPppr

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serId | array(string) | M | 1..N | Contains a list of V2X service identifier |  |
| pppr | Uinteger | M | 1 | Contains a ProSe Per-Packet Reliability (PPPR) value. |  |

##### 5.x.2.3.15 Type: Pc5QosMapping

Table 5.x.2.3.15-1: Definition of type Pc5QosMapping

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serId | array(string) | M | 1..N | Contains a list of V2X service identifier |  |
| pc5QosFlowParam | Pc5QosFlowItem | M | 1 | Contains the authorized PC5 QoS parameter. |  |

##### 5.x.2.3.16 Type: SlrbConfigurations

Table 5.x.2.3.16-1: Definition of type Pc5QosMapping

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pc5QosPara | Pc5QosPara | M | 1 | Represents the PC5 QoS Parameters(see clause 5.4.2.2 of 3GPP TS 23.287 [x2]). |  |
| slrb | string | M | 1 | Contains a SLRB. |  |

Editor’s note: The data type of slrb is FFS.

##### 5.x.2.3.17 Type: ServiceToPduSession

Table 5.x.2.3.17-1: Definition of type ServicToPduSession

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serIds | array(string) | M | 1..N | Contains a list of V2X service identifier |  |
| pduSessionType | PduSessionType | O | 0..1 | Indicates the type of a PDU session. |  |
| sscMode | SscMode | O | 0..1 | Indicates the SSC Mode. |  |
| sliceInfo | array(Snssai) | O | 1..N | Identifies ta list of S-NSSAIs. |  |
| dnns | array(Dnn) | O | 1..N | Identifies a list of DNNs. |  |

##### 5.x.2.3.18 Type: ServiceToApplicationServerAddress

Table 5.x.2.3.18-1: Definition of type ServiceToApplicationServerAddress

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| serId | array(string) | M | 1..N | Contains a list of V2X service identifier |  |
| fqdn | Fqdn | O | 0..1 | Indicates a FQDN of the V2X application server. |  |
| ipv4Addr | Ipv4Addr | O | 0..1 | The IPv4 Address of the V2X application server. |  |
| ipv6Addr | Ipv6Addr | O | 0..1 | The IPv6 Address of the V2X application server. |  |
| udpPortNumber | Uinteger | O | 0..1 | UDP port number. |  |
| tcpPortNumber | Uinteger | O | 0..1 | TCP port number. |  |
| plmns | array(Plmn) | M | 1..N | A list of PLMNs. |  |
| geographicalArea | string | M | 1 | Refer to geographical Information.  See 23.032 [x1] subclause 7.3.2. Only the description of an ellipsoid point with uncertainty circle is allowed to be used.  Allowed characters are 0-9 and A-F. |  |
| NOTE: Either the FQDN (i.e. "fqdn" attribute) or IP endpoint ( i.e. a combination of "ipv4Adr" and "udpPortNumber" or "tcpPortNumber", or a combination of "ipv6Adr" and "udpPortNumber" or "tcpPortNumber") shall be included. | | | | | |

##### 5.x.2.3.19 Type: ServiceParameterDataPatch

Table 5.x.2.3.2-1: Definition of type ServiceParameterDataPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| paramOverPc5 | ParameterOverPc5Rm | O | 0..1 | Contains the service parameter used over PC5 |  |
| paramOverUu | ParameterOverUuRm | O | 0..1 | Contains the service parameter used over Uu |  |

Editor’s note: The data type of ParameterOverPc5Rm and ParameterOverUuRm are FFS.

#### 5.x.2.4 Simple data types and enumerations

##### 5.x.2.4.1 Introduction

This subclause defines simple data types and enumerations that can be referenced from data structures defined in the previous subclauses.

##### 5.x.2.4.2 Simple data types

The simple data types defined in table 5.x.2.4.2-1 shall be supported.

Table 5.x.2.4.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  |  |  |  |

##### 5.x.2.4.3 Enumeration: OperatorManaged

The enumeration OperatorManaged represents whether these radio parameters are "operator managed" or "non-operator managed". It shall comply with the provisions defined in table 5.x.2.4.3-1.

Table 5.x.2.4.3-1: Enumeration OperatorManaged

|  |  |
| --- | --- |
| Enumeration value | Description |
| OPERATOR\_MANAGED | The radio parameters are "operator managed". |
| NON\_OPERATOR\_MANAGED | The radio parameters are "non-operator managed". |

##### 5.x.2.4.4 Enumeration: V2xRatType

Table 5.x.2.4.4-1: Enumeration V2xRatType

|  |  |
| --- | --- |
| Enumeration value | Description |
| PC5\_LTE | Indicates the LTE RAT type over PC5 interface. |
| PC5\_NR | Indicates the NR RAT type over NR interface. |

### 5.x.3 Used Features

The table below defines the features applicable to the ServiceParameter API. Those features are negotiated as described in subclause 5.2.7 of 3GPP TS 29.122 [4].

Table 5.9.3-1: Features used by ServiceParameter API

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
|  |  |  |

\*\*\* End of Change \*\*\*