**3GPP TSG-CT WG3 Meeting #138 *C3-246418***

**Orlando, US, 18 – 22 November, 2024 (Revision of C3-246214)**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.522** | **CR** | **1443** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  |
| *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)*.* |
|  |

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

|  |
| --- |
|  |
| ***Title:***  | Add connectivity Id to the traffic descriptor |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | UEP19 |  | ***Date:*** | 2024-11-19 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | Clause 4.15.6.10 of TS 23.502 specifies, for provisioning guidance of URSP determination, the service parameters which contain the traffic descirptor as defined in TS 23.503 Table 6.6.2.1-2 shall be considered in the service provisioning procedure.According to the table 6.6.2.1-2 of TS 23.503. the connectivity group ID is part of the traffic descriptor.Table 6.6.2.1-2: UE Route Selection Policy Rule

| Information name | Description | Category | PCF permitted to modify in a UE context | Scope |
| --- | --- | --- | --- | --- |
| Rule Precedence | Determines the order the URSP rule is enforced in the UE. | Mandatory(NOTE 1) | Yes | UE context |
| Indication for reporting URSP rule enforcement | Determines the need for reporting the URSP rule enforcement in the UE.(NOTE 10) | Optional | Yes | UE context |
| **Traffic descriptor** | *This part defines the Traffic descriptor components for the URSP rule.* | Mandatory(NOTE 3) |  |  |
| Application descriptors | It consists of OSId and OSAppId(s) (NOTE 2, NOTE 8). | Optional | Yes | UE context |
| IP descriptors(NOTE 6) | Destination IP 3 tuple(s) (IP address or IPv6 network prefix, port number, protocol ID of the protocol above IP) (NOTE 8, NOTE 12). | Optional | Yes | UE context |
| Domain descriptors | FQDN(s) or a regular expression which are used as a domain name matching criteria (NOTE 7, NOTE 8). | Optional | Yes | UE context |
| Non-IP descriptors(NOTE 6) | Descriptor(s) for destination information of non-IP traffic (NOTE 8, NOTE 12). | Optional | Yes | UE context |
| DNN | This is matched against the DNN information provided by the application (NOTE 8). | Optional | Yes | UE context |
| Connection Capabilities | This is matched against the information provided by a UE application when it requests a network connection with certain capabilities (NOTE 4, NOTE 8) or traffic categories (NOTE 5). | Optional | Yes | UE context |
| PIN ID | Matched against a PIN ID for a specific PIN configured in the PEGC (NOTE 9). | Optional | Yes | UE context |
| Connectivity Group ID | Matched against a Connectivity Group ID for a specific Connectivity Group configured in the 5G-RG (NOTE 11). | Optional | Yes | UE context |
| **List of Route Selection Descriptors** | A list of Route Selection Descriptors. The components of a Route Selection Descriptor are described in table 6.6.2.1-3. | Mandatory |  |  |
| NOTE 1: Rules in a URSP shall have different precedence values.NOTE 2: The information is used to identify the Application(s) that is(are) running on the UE's OS. The OSId does not include an OS version number. The OSAppId does not include a version number for the application.NOTE 3: At least one of the Traffic descriptor components shall be present.NOTE 4: The format and some values of Connection Capabilities, e.g. "ims", "mms", "internet", etc. are defined in TS 24.526 [19]. More than one Connection Capabilities value can be provided.NOTE 5: The format and values of Connection Capabilities Traffic Descriptor to match against standardized traffic categories are defined in TS 24.526 [19] according to the requirements in GSMA PRD NG.135 [39]. The reserved values of Connection Capabilities to match operator-specific traffic categories are specified in TS 24.526 [19]. Traffic categories requested by the UE application are independent from the UE's Operating System. Operator-specific traffic categories values are out of scope of 3GPP specifications. Details on how UE applications indicate traffic categories to the UE's Operating System are out of scope of 3GPP specifications.NOTE 6: A URSP rule cannot contain the combination of the Traffic descriptor components IP descriptors and Non-IP descriptors.NOTE 7: The match of this Traffic descriptor does not require successful DNS resolution of the FQDN provided by the UE Application.NOTE 8: Not applicable for PINE traffic.NOTE 9: The PCF delivers Traffic descriptor with PIN ID based on S-NSSAI/DNN as specified in clause 6.2.1.3. PIN ID only applies to traffic to/from PINEs. PIN ID and other Traffic descriptor components are mutually exclusive, i.e. if PIN ID is included in a URSP rule, then no other Traffic descriptor components are supported in the same URSP rule.NOTE 10: A URSP rule can contain this indication only if the URSP rule includes a Connection Capabilities Traffic descriptor.NOTE 11: Only applies to traffic to/from NAUN3 devices behind the 5G-RG (as defined in TS 23.316 [27]) and may only be combined with IP descriptors and/or non-IP descriptors in the same URSP rule.NOTE 12: May also be applied for traffic from NAUN3 devices behind the 5G-RG (as defined in TS 23.316 [27]). |

However, in stage 3, the traffic descriptor provisioned through the Service Parameter API is missing the connectivity group ID. |
| ***d*** |  |
| ***Summary of change:*** | Add the support to provision the Connectivity Group ID within traffic descriptor over the Service Parameter API |
|  |  |
| ***Consequences if not approved:*** | Connectivity Group ID is not supported over AF provisioning and not aligned with SA2 requirements. |
|  |  |
| ***Clauses affected:*** | 3.2, 5.11.2.3.8, 5.11.3, A.9 |
|  |  |
|  | **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 introduced new feature to the Open API ServiceParameter specification. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

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

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G-RG 5G Residential Gateway

A-KID AKMA Key IDentifier

A-TID AKMA Temporary UE IDentifier

A2X Aircraft-to-Everything

AAnF AKMA Anchor Function

ACS Auto-Configuration Server

AI/ML Artificial Intelligence/Machine Learning

AF Application Function

AKMA Authentication and Key Management for Applications

AM Access and Mobility management

ASTI Access Stratum TIme distribution

BAT Burst Arrival Time

BDT Background Data Transfer

CAPIF Common API Framework

CP Communication Pattern

DN Data Network

DNAI DN Access Identifier

DNN Data Network Name

EAS Edge Application Server

ECS Edge Configuration Server

EHE Edge Hosting Environment

FQDN Fully Qualified Domain Name

GMLC Global Mobile Location Centre

GPSI Generic Public Subscription Identifier

IPTV Internet Protocol Television

KAF AKMA Application Key

MBS Multicast/Broadcast Service

MB-SMF Multicast/Broadcast Session Management Function

MCC Mobile Country Code

MNC Mobile Network Code

MO-LR Mobile Originated Location Request

NAT Network Address Translation

NAPT Network Address Port Translation

NEF Network Exposure Function

NSAC Network Slice Admission Control

NSACF Network Slice Admission Control Function

PCF Policy Control Function

PEGC PIN Element with Gateway Capability

PCRF Policy and Charging Rule Function

PDTQ Planned Data Transfer with QoS requirements

PFD Packet Flow Description

PFDF Packet Flow Description Function

PIN Personal IoT Network

REST Representational State Transfer

RNAA Resource owner-aware Northbound API Access

RSLPPI Ranging and SideLink Positioning Privacy Indication

SCEF Service Capability Exposure Function

SFC Service Function Chain

S-NSSAI Single Network Slice Selection Assistance Information

SSM Source Specific IP Multicast address

TAI Traffic Area Identity

TMGI Temporary Mobile Group Identity

TNAP Trusted Network Access Point

TSC Time Sensitive Communication

TSCAI Time Sensitive Communication Assistance Information

TSCTSF Time Sensitive Communication and Time Synchronization Function

UDR Unified Data Repository

UP User Plane

UPF User Plane Function

URSP UE Route Selection Policy

WB Wide Band

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

##### 5.11.2.3.8 Type: TrafficDescriptorComponents

Table 5.11.2.3.8-1: Definition of type TrafficDescriptorComponents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| appDescs | map(AppDescriptor) | C | 1..N | Describes the operation systems and the corresponding applications for each operation systems. The key of map is osId. (NOTE 2) |  |
| flowDescs | array(string) | C | 1..N | Destination IP 3 tuple(s) (IP address or IPv6 network prefix, port number, protocol ID of the protocol above IP). The content of the string has the same encoding as the IPFilterRule AVP value as defined in IETF RFC 6733 [54], applicable only to the destination IP 3 tuple(s). (NOTE 3) |  |
| domainDescs | array(string) | C | 1..N | FQDN(s) or a regular expression which are used as a domain name matching criteria. (NOTE 4) |  |
| ethFlowDescs | array(EthFlowDescription) | C | 1..N | Descriptor(s) for destination information of non-IP traffic in which only ethernet flow description is defined. (NOTE 3) |  |
| dnns | array(Dnn) | C | 1..N | This is matched against the DNN information provided by the application. |  |
| connCaps | array(ConnectionCapabilities) | C | 1..N | This is matched against the information provided by a UE application when it requests a network connection with certain capabilities. |  |
| opSpecConnCaps | array(Bytes) | C | 1..N | Operator specific connection capabilities. Its encoding shall comply with the encoding defined inclause 5.2 of3GPP TS 24.526 [48]. | ExtConnCapability |
| pinId | string | C | 0..1 | This is matched against a PIN ID for a specific PIN configured in the PEGC.Its encoding shall comply with the UE policy part type URSP as defined inclause 5.2 of3GPP TS 24.526 [48].(NOTE 5) | PIN |
| connGroupId | string | C | 0..1 | This is matched against a Connectivity Group ID for a specific Connectivity Group configured in 5G-RG.(NOTE 6) | ConnGroup |
| NOTE 1: At least one attribute of the above Traffic descriptor components shall be present.NOTE 2: The information is used to identify the Application(s) that is(are) running on the UE's OS. The included "osId" attribute does not include an OS version number. The included "appIds" attribute does not include a version number for the application.NOTE 3: "flowDescs" attribute and "ethFlowDescs" attribute are mutually exclusive.NOTE 4: The match of this traffic descriptor component does not require successful DNS resolution of the FQDN provided by the UE Application.NOTE 5: The "pinId" attribute and other attributes are mutually exclusive.NOTE 6: The "connGroupId" attribute may be present only when the attribute "flowDescs" or "ethFlowDescs" are present and no other attributes are present in the same traffic descriptor components. |

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

### 5.11.3 Used Features

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

Table 5.11.3-1: Features used by ServiceParameter API

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | ProSe | This feature indicates the support of UE policy and N2 information provisioning for 5G ProSe. |
| 2 | enNB | Indicates the support of enhancements to the northbound interfaces. |
| 3 | AfNotifications | This feature indicates the support of AF subscribed event(s) notifications. |
| 4 | Notification\_websocket | The delivery of notifications over Websocket is supported as described in 3GPP TS 29.122 [4]. This feature requires that the Notification\_test\_event feature is also supported. |
| 5 | Notification\_test\_event | The testing of notification connection is supported as described in 3GPP TS 29.122 [4]. |
| 6 | AfGuideURSP | This feature indicates the support of AF guidance for URSP determination. |
| 7 | A2X | This feature indicates the support of A2X communication.  |
| 8 | ProSe\_Ph2 | This feature indicates the support of UE policy and N2 information provisioning for 5G ProSe UE-to-UE Relay function.This feature requires that the ProSe feature is also supported. |
| 9 | PIN | This feature indicates the support of Personal IoT Network requirements. |
| 10 | VPLMNSpecificURSP | This feature indicates the support of AF guidance on VPLMN-specific URSP rules.This feature requires that "AfGuideURSP" and "AfNotifications" features are also supported. |
| 11 | AfGuideTNAPs | This feature indicates the support of AF providing guidance to the HPLMN of the UE of the list of TNAP(s) collocated with the 5G-RG(s) of a specific user. |
| 12 | Ranging\_SL | This feature indicates the support of the ranging and sidelink positioning functionality.The following functionalities are supported:- Support the provisioning/update/deletion of ranging and sidelink positioning service parameters. |
| 13 | PduSessTypeChange | This feature indicates the support of the provisioning/update of the requested PDU Session type functionality as part of the Generic Group Management, Exposure and Communication Enhancements.The following functionalities are supported:- Support the provisioning/update of the requested PDU Session type as part of the information provided by the AF for guiding URSP determination.This feature requires the support of the "AfGuideURSP" feature. |
| 14 | ExtConnCapability | This feature indicates the support of:- The connection capabilities defined as traffic categories in GSMA PRD NG.135 [75].- Operator Specific traffic categories. |
| 15 | ConnGroup | This feature indicates the support of providing the Connectivity Group ID in the traffic descriptor for matching. |

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

# A.9 ServiceParameter API

openapi: 3.0.0

info:

 title: 3gpp-service-parameter

 version: 1.2.1

 description: |

 API for AF service paramter

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externalDocs:

 description: >

 3GPP TS 29.522 V18.7.0; 5G System; Network Exposure Function Northbound APIs.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/3gpp-service-parameter/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122.

paths:

 /{afId}/subscriptions:

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 get:

 summary: read all of the active subscriptions for the AF

 operationId: ReadAllSubscriptions

 tags:

 - Service Parameter Subscriptions

 parameters:

 - name: gpsis

 in: query

 description: The GPSI of the requested UE(s).

 required: false

 schema:

 type: array

 items:

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

 minItems: 1

 - name: ip-addrs

 in: query

 description: The IP address(es) of the requested UE(s).

 required: false

 schema:

 type: array

 items:

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

 minItems: 1

 - name: ip-domain

 in: query

 description: >

 The IPv4 address domain identifier. The attribute may only be provided

 if IPv4 address is included in the ip-addrs query parameter.

 required: false

 schema:

 type: string

 - name: mac-addrs

 in: query

 description: The MAC address(es) of the requested UE(s).

 required: false

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MacAddr48'

 minItems: 1

 responses:

 '200':

 description: OK.

 content:

 application/json:

 schema:

 type: array

 items:

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

 minItems: 0

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 post:

 summary: Creates a new subscription resource

 operationId: CreateAnSubscription

 tags:

 - Service Parameter Subscriptions

 requestBody:

 description: Request to create a new subscription resource

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Created (Successful creation of subscription)

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: Contains the URI of the newly created resource.

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 callbacks:

 notificationDestination:

 '{$request.body#/notificationDestination}':

 post:

 requestBody:

 description: >

 Notifications upon AF Service Parameter Authorization Update,

 and/or AF subscribed event notification of the outcome related

 to the invocation of service parameters provisioning.

 required: true

 content:

 application/json:

 schema:

 type: array

 items:

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

 minItems: 1

 responses:

 '204':

 description: Expected response to a successful callback processing without a body

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /{afId}/subscriptions/{subscriptionId}:

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of the subscription resource

 required: true

 schema:

 type: string

 get:

 summary: read an active subscriptions for the SCS/AS and the subscription Id

 operationId: ReadAnSubscription

 tags:

 - Individual Service Parameter Subscription

 responses:

 '200':

 description: OK (Successful get the active subscription)

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 put:

 summary: Fully updates/replaces an existing subscription resource

 operationId: FullyUpdateAnSubscription

 tags:

 - Individual Service Parameter Subscription

 requestBody:

 description: Parameters to update/replace the existing subscription

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: OK (Successful update of the subscription)

 content:

 application/json:

 schema:

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

 '204':

 description: OK (Successful update of the subscription)

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 summary: Partial updates/replaces an existing subscription resource

 operationId: PartialUpdateAnSubscription

 tags:

 - Individual Service Parameter Subscription

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: OK. The subscription was modified successfully.

 content:

 application/json:

 schema:

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

 '204':

 description: OK. The subscription was modified successfully.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Deletes an already existing subscription

 operationId: DeleteAnSubscription

 tags:

 - Individual Service Parameter Subscription

 responses:

 '204':

 description: No Content (Successful deletion of the existing subscription)

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 ServiceParameterData:

 description: Represents an individual Service Parameter subscription resource.

 type: object

 properties:

 afServiceId:

 type: string

 description: Identifies a service on behalf of which the AF is issuing the request.

 appId:

 type: string

 description: Identifies an application.

 dnn:

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

 snssai:

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

 externalGroupId:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/ExternalGroupId'

 anyUeInd:

 type: boolean

 description: >

 Identifies whether the AF request applies to any non-roaming UE. This attribute,

 when provided, shall set to "true" if applicable for any UE, otherwise, set to "false".

 roamUeNetDescs:

 type: array

 items:

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

 minItems: 1

 description: Each element identifies one or more PLMN IDs of inbound roamers.

 gpsi:

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

 ueIpv4:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 ueIpv6:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 ueMac:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MacAddr48'

 self:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Link'

 subNotifEvents:

 type: array

 items:

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

 minItems: 1

 description: >

 Identifies the AF subscribed event(s) notifications related to AF provisioned

 service parameters.

 notificationDestination:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 requestTestNotification:

 type: boolean

 description: >

 Set to true by the AF to request the NEF to send a test notification

 as defined in clause 5.2.5.3 of 3GPP TS 29.122. Set to false or omitted otherwise.

 websockNotifConfig:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/WebsockNotifConfig'

 paramOverPc5:

 $ref: '#/components/schemas/ParameterOverPc5'

 paramOverUu:

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

 paramForProSeDd:

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

 paramForProSeDc:

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

 paramForProSeU2NRelUe:

 $ref: '#/components/schemas/ParamForProSeU2NRelUe'

 paramForProSeRemUe:

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

 paramForProSeU2URelUe:

 $ref: '#/components/schemas/ParamForProSeU2URelUe'

 paramForProSeEndUe:

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

 paramForRangingSlPos:

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

 urspGuidance:

 type: array

 items:

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

 minItems: 1

 description: Contains the service parameter used to guide the URSP.

 vpsUrspGuidance:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains the service parameters used to guide the VPLMN-specific URSP

 rule(s).

 a2xParamsPc5:

 $ref: '#/components/schemas/A2xParamsPc5'

 a2xParamsUu:

 $ref: '#/components/schemas/A2xParamsUu'

 tnaps:

 type: array

 items:

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

 minItems: 1

 description: Contains the TNAP IDs collocated with the 5G-RG(s) of a specific user.

 mtcProviderId:

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

 suppFeat:

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

 ServiceParameterDataPatch:

 description: >

 Represents the parameters to request the modification of a service parameter

 subscription resource.

 type: object

 properties:

 paramOverPc5:

 $ref: '#/components/schemas/ParameterOverPc5Rm'

 paramOverUu:

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

 paramForProSeDd:

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

 paramForProSeDc:

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

 paramForProSeU2NRelUe:

 $ref: '#/components/schemas/ParamForProSeU2NRelUeRm'

 paramForProSeRemUe:

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

 paramForProSeU2URelUe:

 $ref: '#/components/schemas/ParamForProSeU2URelUeRm'

 paramForProSeEndUe:

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

 paramForRangingSlPos:

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

 urspGuidance:

 type: array

 items:

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

 minItems: 1

 description: Contains the service parameter used to guide the URSP.

 vpsUrspGuidance:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains the service parameters used to guide the VPLMN-specific

 URSP rule(s).

 nullable: true

 a2xParamsPc5:

 $ref: '#/components/schemas/A2xParamsPc5Rm'

 a2xParamsUu:

 $ref: '#/components/schemas/A2xParamsUuRm'

 tnaps:

 type: array

 items:

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

 minItems: 1

 description: Contains the TNAP IDs collocated with the 5G-RG(s) of a specific user.

 nullable: true

 subNotifEvents:

 type: array

 items:

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

 minItems: 1

 nullable: true

 description: >

 Identifies the AF subscribed event(s) notifications related to AF provisioned

 service parameters.

 notificationDestination:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 ParameterOverPc5:

 description: >

 Represents configuration parameters for V2X communications over PC5 reference point.

 type: string

 ParameterOverPc5Rm:

 description: >

 Represents the same as the ParameterOverPc5 data type but with the nullable:true property.

 type: string

 nullable: true

 ParameterOverUu:

 description: >

 Represents configuration parameters for V2X communications over Uu reference point.

 type: string

 ParameterOverUuRm:

 description: >

 Represents the same as the ParameterOverUu data type but with the nullable:true property.

 type: string

 nullable: true

 ParamForProSeDd:

 description: Represents the service parameters for 5G ProSe direct discovery.

 type: string

 ParamForProSeDdRm:

 description: >

 This data type is defined in the same way as the ParamForProSeDd data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 ParamForProSeDc:

 description: Represents the service parameters for 5G ProSe direct communications.

 type: string

 ParamForProSeDcRm:

 description: >

 This data type is defined in the same way as the ParamForProSeDc data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 ParamForProSeU2NRelUe:

 description: Represents the service parameters for 5G ProSe UE-to-network relay UE.

 type: string

 ParamForProSeU2NRelUeRm:

 description: >

 This data type is defined in the same way as the ParamForProSeU2NRelay data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 ParamForProSeRemUe:

 description: Represents the service parameters for 5G ProSe Remote UE.

 type: string

 ParamForProSeRemUeRm:

 description: >

 This data type is defined in the same way as the ParamForProSeRemUe data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 ParamForProSeU2URelUe:

 description: Represents the service parameters for 5G ProSe UE-to-UE relay UE.

 type: string

 ParamForProSeU2URelUeRm:

 description: >

 This data type is defined in the same way as the ParamForProSeU2URelay data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 ParamForProSeEndUe:

 description: Represents the service parameters for 5G ProSe End UE.

 type: string

 ParamForProSeEndUeRm:

 description: >

 This data type is defined in the same way as the ParamForProSeEndUe data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 ParamForRangingSlPos:

 description: Represents the service parameters for ranging and sidelink positioning.

 type: string

 ParamForRangingSlPosRm:

 description: >

 This data type is defined in the same way as the ParamForRangingslpos data type,

 but with the OpenAPI nullable property set to true.

 type: string

 nullable: true

 A2xParamsPc5:

 description: >

 Represents configuration parameters for A2X communications over PC5 reference point.

 type: string

 A2xParamsPc5Rm:

 description: >

 Represents the same as the A2xParamsPc5 data type but with the nullable:true property.

 type: string

 nullable: true

 A2xParamsUu:

 description: >

 Represents configuration parameters for A2X communications over Uu reference point.

 type: string

 A2xParamsUuRm:

 description: >

 Represents the same as the A2xParamsUu data type but with the nullable:true property.

 type: string

 nullable: true

 UrspRuleRequest:

 description: Contains parameters that can be used to guide the URSP.

 type: object

 properties:

 trafficDesc:

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

 relatPrecedence:

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

 visitedNetDescs:

 type: array

 items:

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

 minItems: 1

 description: >

 Each element identifies one or more PLMN IDs where AF guidance for VPLMN-specific

 URSP rule applies.

 routeSelParamSets:

 type: array

 items:

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

 minItems: 1

 description: >

 Sets of parameters that may be used to guide the Route Selection Descriptors of the

 URSP.

 RouteSelectionParameterSet:

 description: >

 Contains parameters that can be used to guide the Route Selection

 Descriptors of the URSP.

 type: object

 properties:

 dnn:

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

 snssai:

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

 precedence:

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

 spatialValidityAreas:

 type: array

 items:

 $ref: 'TS29522\_AMPolicyAuthorization.yaml#/components/schemas/GeographicalArea'

 minItems: 1

 description: >

 Indicates where the route selection parameters apply. It may correspond

 to a geographical area, for example using a geographic shape that

 is known to the AF and is configured by the operator to correspond to a list

 of or TAIs.

 spatialValidityTais:

 type: array

 items:

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

 minItems: 1

 description: >

 Indicates the TAIs in which the route selection parameters apply. This attribute is

 applicable only within the 5GC and it shall not be included in the request messages of

 untrusted AFs for URSP guidance.

 pduSessType:

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

 Event:

 anyOf:

 - type: string

 enum:

 - SUCCESS\_UE\_POL\_DEL\_SP

 - UNSUCCESS\_UE\_POL\_DEL\_SP

 - type: string

 description: >

 This string provides forward-compatibility with future extensions to the enumeration

 and is not used to encode content defined in the present version of this API.

 description: |

 Represents the AF subscribe to event notification of the outcome related to the

 invocation of AF provisioned service parameters.

 Possible values are:

 - SUCCESS\_UE\_POL\_DEL\_SP: Successful UE Policy Delivery related to

 the invocation of AF provisioned Service Parameters.

 - UNSUCCESS\_UE\_POL\_DEL\_SP: Unsuccessful UE Policy Delivery related to the invocation of AF

 provisioned Service Parameters.

 AfNotification:

 description: >

 Notifications upon AF Service Parameter Authorization Update e.g. to

 revoke the authorization, and/or AF subscribed event notification of the

 outcome related to the invocation of service parameter provisioning.

 type: object

 properties:

 subscription:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Link'

 reportEvent:

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

 authResult:

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

 gpsis:

 type: array

 items:

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

 minItems: 1

 dnn:

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

 snssai:

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

 eventInfo:

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

 required:

 - subscription

 anyOf:

 - required: [reportEvent]

 - required: [authResult]

 TrafficDescriptorComponents:

 description: Traffic descriptor components for the requested URSP.

 type: object

 properties:

 appDescs:

 type: object

 additionalProperties:

 $ref: 'TS29522\_5GLANParameterProvision.yaml#/components/schemas/AppDescriptor'

 minProperties: 1

 description: >

 Describes the operation systems and the corresponding applications for each

 operation systems. The key of map is osId.

 flowDescs:

 type: array

 items:

 type: string

 minItems: 1

 description: >

 Represents a 3-tuple with protocol, server ip and server port for UL/DL

 application traffic. The content of the string has the same encoding as the IPFilterRule

 AVP value as defined in IETF RFC 6733.

 domainDescs:

 type: array

 items:

 type: string

 minItems: 1

 description: >

 FQDN(s) or a regular expression which are used as a domain name matching

 criteria.

 ethFlowDescs:

 type: array

 items:

 $ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'

 minItems: 1

 description: >

 Descriptor(s) for destination information of non-IP traffic in which only

 ethernet flow description is defined.

 dnns:

 type: array

 items:

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

 minItems: 1

 description: This is matched against the DNN information provided by the application.

 connCaps:

 type: array

 items:

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

 minItems: 1

 description: >

 This is matched against the information provided by a UE application when it

 requests a network connection with certain capabilities.

 opSpecConnCaps:

 type: array

 items:

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

 minItems: 1

 maxItems: 128

 description: >

 Operator specific connection capabilities.

 pinId:

 type: string

 description: This is matched against a PIN ID for a specific PIN configured in the PEGC.

 connGroupId:

 type: string

 description: >

 This is matched against a Connectivity Group ID for a specific Connectivity Group

 configured in 5G-RG.

 oneOf:

 - required: [pinId]

 - anyOf:

 - required: [appDescs]

 - required: [flowDescs]

 - required: [domainDescs]

 - required: [ethFlowDescs]

 - required: [dnns]

 - required: [connCaps]

 - required: [opSpecConnCaps]

 NetworkDescription:

 description: >

 Represents the description of a PLMN, by the definition of the PLMN ID, the MCC (and

 applicable MNC(s)) or the indication of any PLMN.

 type: object

 properties:

 plmnId:

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

 mcc:

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

 mncs:

 type: array

 items:

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

 minItems: 1

 description: Represents the applicable MNC(s) for the indicated MCC.

 anyPlmnInd:

 type: boolean

 description: Indicates any PLMN.

 oneOf:

 - required: [plmnId]

 - required: [mcc]

 - required: [anyPlmnInd]

 AuthorizationResult:

 anyOf:

 - type: string

 enum:

 - AUTH\_REVOKED

 - type: string

 description: >

 This string provides forward-compatibility with future extensions to the enumeration

 and is not used to encode content defined in the present version of this API.

 description: |

 Represents the NEF notify the AF about the service parameters authorization updates result,

 e.g. to revoke an authorization.

 Possible values are:

 - AUTH\_REVOKED: Indicated the service parameters authorization is revoked.

 EventInfo:

 description: Indicates the event information.

 type: object

 properties:

 failureCause:

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

 plmnId:

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

 Failure:

 anyOf:

 - type: string

 enum:

 - UNSPECIFIED

 - UE\_NOT\_REACHABLE

 - UNKNOWN

 - UE\_TEMP\_UNREACHABLE

 - type: string

 description: >

 This string provides forward-compatibility with future extensions to the enumeration

 and is not used to encode content defined in the present version of this API.

 description: |

 Represents the failure reason for the unsuccessful result.

 Possible values are:

 - UNSPECIFIED: Indicates the PCF received the UE sent UE policy delivery service cause #111

 (Protocol error, unspecified).

 - UE\_NOT\_REACHABLE: Indicates the PCF received the notification from the AMF that the UE is

 not reachable.

 - UNKNOWN: Indicates unknown reasons upon no response from the UE, e.g. UPDS message type is

 not defined or not implemented by the UE, or not compatible with the UPDS state, in which

 the UE shall ignore the UPDS message.

 - UE\_TEMP\_UNREACHABLE: Indicates the PCF received the notification from the AMF that the UE

 is not reachable but the PCF will retry again.

 ConnectionCapabilities:

 anyOf:

 - type: string

 enum:

 - IMS

 - MMS

 - SUPL

 - INTERNET

 - IOT\_DELAY\_TOLERANT

 - IOT\_NON\_DELAY\_TOLERANT

 - DL\_STREAMING

 - UL\_STREAMING

 - VEHIC\_COMM

 - REAL\_TIME\_INTERACTIVE

 - UNIFIED\_COMM

 - BACKGROUND

 - MISS\_CRITICAL

 - TIME\_CRITICAL

 - LOW\_LAT\_LOSS\_TOL\_UNACK

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration and is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the information provided by a UE application when it requests a network

 connection with certain capabilities.

 Possible values are:

 - IMS: Indicates the connection capability to support IMS service.

 - MMS: Indicates the connection capability to support MMS service.

 - SUPL: Indicates the connection capability to support SUPL service.

 - INTERNET: Indicates the connection capability to support Internet service.

 - IOT\_DELAY\_TOLERANT: Indicates the connection capability to support IoT

 delay-tolerant services.

 - IOT\_NON\_DELAY\_TOLERANT: Indicates the connection capability to support IoT

 non-delay-tolerant services.

 - DL\_STREAMING: Indicates the connection capability to support downlink streaming

 services.

 - UL\_STREAMING: Indicates the connection capability to support uplink streaming services

 - VEHIC\_COMM: Indicates the connection capability to support vehicular communication

 services.

 - REAL\_TIME\_INTERACTIVE: Indicates the connection capability to support real time

 interactive services.

 - UNIFIED\_COMM: Indicates the connection capability to support unified communication

 services.

 - BACKGROUND: Indicates the connection capability to support background services.

 - MISS\_CRITICAL: Indicates the connection capability to support mission critical services.

 - TIME\_CRITICAL: Indicates the connection capability to support time critical services.

 - LOW\_LAT\_LOSS\_TOL\_UNACK: Indicates the connection capability to support low latency

 loss tolerant communications in un-acknowledged mode.

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