**3GPP TSG-CT WG4 Meeting #115eC4-231304r1**

**E-Meeting, 17th– 21st April 2023 (revision of C4-231404)**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.503** | **CR** | **1050** | **rev** | **1** | **Current version:** | **18.1.0** |  |
|  |
| *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:***  | Updates in Nudm\_ParameterProvision API |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | TEI18, eNPN |  | ***Date:*** | 2023-03-23 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** |  Rel-18 |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | TS 23.501 supporting NPN including SNPN and PNI-NPN, and PNI-NPN may be specific DNN and/or S-NSSAI and may including CAG information in UE subscription data, which may be enhanced in Nudm\_PP API upon the PNI-NPN owner may be outside of 3GPP core network not supporting the UDM local configuration for NPN UE subscription data.Also, the data type re-use table need to add the missing data types already reused. |
|  |  |
| ***Summary of change:*** | Updates in PpData types to support SNPN and PNI-NPN.Adding the missing reused data types in the reuse data typetable. |
|  |  |
| ***Consequences if not approved:*** | Not supporting NPN of SNPN and PNI-NPN, missing reuse data types in the reuse data table. |
|  |  |
| ***Clauses affected:*** | 6.5.6.1, 6.5.6.2.2, 6.5.6.2.9(new), A.6 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces backward compatible corrections with impacts on the following APIs:- TS29503\_Nudm\_PP.yaml |
|  |  |
| ***This CR's revision history:*** |  |

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

#### 6.5.6.1 General

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

Table 6.5.6.1-1 specifies the data types defined for the Nudm\_PP service API.

Table 6.5.6.1-1: Nudm\_PP specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| PpData | 6.5.6.2.2 | Parameter Provision Data |
| CommunicationCharacteristics | 6.5.6.2.3 | Communication Characteristics |
| PpSubsRegTimer | 6.5.6.2.4 |  |
| PpActiveTime | 6.5.6.2.5 |  |
| 5GVnGroupConfiguration | 6.5.6.2.6 |  |
| 5GVnGroupData | 6.5.6.2.7 |  |
| ExpectedUeBehaviour | 6.5.6.2.8 | Expected UE Behaviour Parameters |
| LocationArea | 6.5.6.2.10 | Location Area |
| NetworkAreaInfo | 6.5.6.2.11 | Network Area Information |
| EcRestriction | 6.5.6.2.12 |  |
| PlmnEcInfo | 6.5.6.2.13 |  |
| PpDlPacketCountExt | 6.5.6.2.14 |  |
| PpMaximumResponseTime | 6.5.6.2.15 |  |
| PpMaximumLatency | 6.5.6.2.16 |  |
| LcsPrivacy | 6.5.6.2.17 |  |
| UmtTime | 6.5.6.2.18 |  |
| PpDataEntry | 6.5.6.2.19 | Provisioning Parameter Data Entry |
| CommunicationCharacteristicsAF | 6.5.6.2.20 | Communication Characteristics per AF |
| EcsAddrConfigInfo | 6.5.6.2.21 | ECS Address Configuration Information |
| 5MbsAuthorizationInfo | 6.5.6.2.22 | 5MBS Session Authorization Information |
| NpnData | 6.5.6.2.23 | Identifies NPN related data. |
| ReferenceId | 6.5.6.3.2 |  |
| PpDlPacketCount | 6.5.6.3.2 |  |

Table 6.5.6.1-2 specifies data types re-used by the Nudm\_PP service API from other APIs, including a reference and when needed, a short description of their use within the Nudm\_PP service API.

Table 6.5.6.1-2: Nudm\_PP re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| DurationSec | 3GPP TS 29.571 [7] | Time value in seconds |
| DurationSecRm | 3GPP TS 29.571 [7] | Time value in seconds; nullable |
| SupportedFeatures | 3GPP TS 29.571 [7] |  |
| NfInstanceId | 3GPP TS 29.571 [7] |  |
| ProblemDetails | 3GPP TS 29.571 [7] |  |
| Gpsi | 3GPP TS 29.571 [7] |  |
| ExtGroupId | 6.1.6.3.2 |  |
| GroupId | 3GPP TS 29.571 [7] |  |
| IpAddress | 6.1.6.2.22 |  |
| TimeOfDay | 3GPP TS 29.571 [7] |  |
| DayOfWeek | 3GPP TS 29.571 [7] |  |
| PatchResult | 3GPP TS 29.571 [7] |  |
| DateTime | 3GPP TS 29.571 [7] |  |
| Ecgi | 3GPP TS 29.571 [7] | an EUTRA cell identifier |
| Ncgi | 3GPP TS 29.571 [7] | an NR cell identifier |
| GlobalRanNodeId | 3GPP TS 29.571 [7] | an identity of the NG-RAN node |
| Tai | 3GPP TS 29.571 [7] | a tracking area identity |
| GeographicArea | 3GPP TS 29.572 [34] | Identifies the geographical information of the user(s). |
| CivicAddress | 3GPP TS 29.572 [34] | Identifies the civic address information of the user(s). |
| PduSessionType | 3GPP TS 29.571 [7] |  |
| AppDescriptor | 6.1.6.2.40 |  |
| AcsInfoRm | 3GPP TS 29.571 [7] |  |
| StnSrRm | 3GPP TS 29.571 [7] | Session Transfer Number for SRVCC |
| Supi | 3GPP TS 29.571 [7] |  |
| Lpi | 6.1.6.2.43 |  |
| MtcProviderInformation | 3GPP TS 29.571 [7] | MTC Provider Information |
| Dnn | 3GPP TS 29.571 [7] | Identifies a DNN. |
| Snssai | 3GPP TS 29.571 [7] | Identifies an S-NSSAI. |
| PlmnIdNid | 3GPP TS 29.571 [7] | Identifies the PLMN Identifier or the SNPN Identifier. |
| CagInfo | 6.1.6.2.37 | Represents Closed Access Group Information. |
| StationaryIndicationRm | 3GPP TS 29.571 [7] |  |
| ScheduledCommunicationTimeRm | 3GPP TS 29.571 [7] |  |
| ScheduledCommunicationTypeRm | 3GPP TS 29.571 [7] |  |
| TrafficProfileRm | 3GPP TS 29.571 [7] |  |
| BatteryIndicationRm | 3GPP TS 29.571 [7] |  |
| EcsServerAddr | 3GPP TS 29.571 [7] |  |
| Fqdn | 3GPP TS 29.571 [7] | Fully Qualified Domain Name |
| SpatialValidityCond | 3GPP TS 29.571 [7] |  |
| MbsSessionId | 3GPP TS 29.571 [7] | 5MBS Session Identifier |

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

##### 6.5.6.2.2 Type: PpData

Table 6.5.6.2.2-1: Definition of type PpData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| supportedFeatures | SupportedFeatures | O | 0..1 |  |
| communicationCharacteristics | CommunicationCharacteristics | O | 0..1 | communication characteristics |
| expectedUeBehaviour | ExpectedUeBehaviour | O | 0..1 | Expected UE Behaviour Parameters |
| ecRestriction | EcRestriction | O | 0..1 | Enhanced Coverage Restriction Parameters |
| acsInfo | AcsInfoRm | O | 0..1 | Identifies the ACS Information (see TS 23.316 [37] clause 9.6.3); nullable. |
| stnSr | StnSrRm | O | 0..1 | Session Transfer Number for SRVCC |
| lcsPrivacy | LcsPrivacy | O | 0..1 | LCS Privacy Parameters (see clause 5.4.3 of 3GPP TS 23.273 [38]) |
| sorInfo | SorInfo | O | 0..1 | Steering of Roaming information to be conveyed to a UESee NOTE°1 and NOTE°2. |
| 5mbsAuthorizationInfo | 5MbsAuthorizationInfo | O | 0..1 | When present, this IE shall include the 5MBS Session Authorization Information as specified in 3GPP TS 23.247 [59] |
| npnData | NpnData | O | 0..1 | Identifies NPN related data. |
| NOTE 1: If the UDM is not able to immediately (after conducting integrity protection with the AUSF) convey the received Steering of Roaming information to the concerned UE for any reason (e.g. no AMF registered for the UE), it shall discard it.NOTE 2: The behaviour of the UDM at reception of Steering of Roaming information within PpData is specified in Annex C.3 of 3GPP°TS°23.122°[20]. |

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

##### 6.5.6.2.23 Type: NpnData

Table 6.5.6.2.23-1: Definition of type NpnData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| dnn | Dnn | O | 0..1 | Identifies a DNN, the DNN shall be the DNN Network Identifier only. |
| snssai | Snssai | O | 0..1 | Identifies an S-NSSAI. |
| plmnId | PlmnIdNid | O | 0..1 | Identifies the PLMN Identifier or the SNPN Identifier.It may be present when the reported event is "PLMN\_CHG" and which is allowed to be exposured to the AF based on the local policy or local configuration. See NOTE°3. |
| cagInfo | CagInfo | O | 0..1 | Identfies the Close Access Group Information. See NOTE°3. |
| NOTE: For NPN usage, the SNPN "nid" attribute within the "plmnId” attribute and the PNI-NPN "cagInfo" attribute are mutually exclusive. |

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

# A.6 Nudm\_PP API

openapi: 3.0.0

info:

 version: '1.3.0-alpha.1'

 title: 'Nudm\_PP'

 description: |

 Nudm Parameter Provision Service.

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externalDocs:

 description: 3GPP TS 29.503 Unified Data Management Services, version 18.0.0

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.503/'

servers:

 - url: '{apiRoot}/nudm-pp/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501.

security:

 - oAuth2ClientCredentials:

 - nudm-pp

 - {}

paths:

 /{ueId}/pp-data:

 patch:

 summary: provision parameters

 operationId: Update

 tags:

 - Subscription Data Update

 parameters:

 - name: ueId

 in: path

 description: Identifier of the UE

 required: true

 schema:

 anyOf:

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

 - $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - name: supported-features

 in: query

 description: Features required to be supported by the target NF

 schema:

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

 requestBody:

 content:

 application/merge-patch+json:

 schema:

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

 required: true

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 '204':

 description: Expected response to a valid request

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 /5g-vn-groups/{extGroupId}:

 put:

 summary: create a 5G VN Group

 operationId: Create 5G VN Group

 tags:

 - 5G VN Group Creation

 parameters:

 - name: extGroupId

 in: path

 description: External Identifier of the Group

 required: true

 schema:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 requestBody:

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/5GVnGroupConfiguration'

 required: true

 responses:

 '201':

 description: Expected response to a valid request

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 delete:

 summary: delete a 5G VN Group

 operationId: Delete 5G VN Group

 tags:

 - 5G VN Group Deletion

 parameters:

 - name: extGroupId

 in: path

 description: External Identifier of the Group

 required: true

 schema:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - name: mtc-provider-info

 in: query

 description: MTC Provider Information that originated the service operation

 schema:

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

 - name: af-id

 in: query

 description: AF ID that originated the service operation

 schema:

 type: string

 responses:

 '204':

 description: Expected response to a valid request

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 patch:

 summary: modify a 5G VN Group

 operationId: Modify 5G VN Group

 tags:

 - 5G VN Group Modification

 parameters:

 - name: extGroupId

 in: path

 description: External Identifier of the group

 required: true

 schema:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - name: supported-features

 in: query

 description: Features required to be supported by the target NF

 schema:

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

 requestBody:

 content:

 application/merge-patch+json:

 schema:

 $ref: '#/components/schemas/5GVnGroupConfiguration'

 required: true

 responses:

 '204':

 description: Expected response to a valid request

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 get:

 summary: get 5G VN Group

 operationId: Get 5G VN Group

 tags:

 - 5G VN Group Modification

 parameters:

 - name: extGroupId

 in: path

 description: External Identifier of the group

 required: true

 schema:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/5GVnGroupConfiguration'

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '406':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 /{ueId}/pp-data-store/{afInstanceId}:

 put:

 summary: Create a Provisioning Parameter Data Entry

 operationId: Create PP Data Entry

 tags:

 - ParameterProvisioningDataEntry (Document)

 parameters:

 - name: ueId

 in: path

 description: Identifier of the UE

 required: true

 schema:

 anyOf:

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

 - $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - type: string

 pattern: '^anyUE$'

 - name: afInstanceId

 in: path

 description: Application Function Instance Identifier

 required: true

 schema:

 type: string

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '201':

 description: Indicating a successful creation of the resource

 content:

 application/json:

 schema:

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

 '204':

 description: Indicating a successful update of the resource

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 delete:

 summary: Delete a Provisioning Parameter Data Entry

 operationId: Delete PP Data Entry

 tags:

 - ParameterProvisioningDataEntry (Document)

 parameters:

 - name: ueId

 in: path

 description: Identifier of the UE

 required: true

 schema:

 anyOf:

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

 - $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - type: string

 pattern: '^anyUE$'

 - name: afInstanceId

 in: path

 description: Application Function Instance Identifier

 required: true

 schema:

 type: string

 responses:

 '204':

 description: Expected response to a valid request

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

 get:

 summary: get Parameter Provisioning Data Entry

 operationId: Get PP Data Entry

 tags:

 - ParameterProvisioningDataEntry (Document)

 parameters:

 - name: ueId

 in: path

 description: Identifier of the UE

 required: true

 schema:

 anyOf:

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

 - $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - type: string

 pattern: '^anyUE$'

 - name: afInstanceId

 in: path

 description: Application Function Instance Identifier

 required: true

 schema:

 type: string

 - name: supported-features

 in: query

 description: Features required to be supported by the target NF

 schema:

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

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 '400':

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

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

 '406':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

 description: Unexpected error

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 nudm-pp: Access to the nudm-pp API

 schemas:

# COMPLEX TYPES:

 PpData:

 type: object

 properties:

 communicationCharacteristics:

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

 supportedFeatures:

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

 expectedUeBehaviourParameters:

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

 ecRestriction:

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

 acsInfo:

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

 stnSr:

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

 lcsPrivacy:

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

 sorInfo:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/SorInfo'

 5mbsAuthorizationInfo:

 $ref: '#/components/schemas/5MbsAuthorizationInfo'

 npnData:

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

 nullable: true

 NpnData:

 type: object

 properties:

 dnn:

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

 snssai:

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

 cagInfo:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/CagInfo'

 plmnId:

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

 nullable: true

 CommunicationCharacteristics:

 type: object

 properties:

 ppSubsRegTimer:

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

 ppActiveTime:

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

 ppDlPacketCount:

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

 ppDlPacketCountExt:

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

 ppMaximumResponseTime:

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

 ppMaximumLatency:

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

 nullable: true

 PpSubsRegTimer:

 type: object

 required:

 - subsRegTimer

 - afInstanceId

 - referenceId

 properties:

 subsRegTimer:

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

 afInstanceId:

 type: string

 referenceId:

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

 validityTime:

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

 mtcProviderInformation:

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

 nullable: true

 PpActiveTime:

 type: object

 required:

 - activeTime

 - afInstanceId

 - referenceId

 properties:

 activeTime:

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

 afInstanceId:

 type: string

 referenceId:

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

 validityTime:

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

 mtcProviderInformation:

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

 nullable: true

 5GVnGroupConfiguration:

 type: object

 properties:

 5gVnGroupData:

 $ref: '#/components/schemas/5GVnGroupData'

 members:

 type: array

 items:

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

 minItems: 1

 referenceId:

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

 afInstanceId:

 type: string

 internalGroupIdentifier:

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

 mtcProviderInformation:

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

 5GVnGroupData:

 type: object

 required:

 - dnn

 - sNssai

 properties:

 dnn:

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

 sNssai:

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

 pduSessionTypes:

 type: array

 items:

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

 minItems: 1

 appDescriptors:

 type: array

 items:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/AppDescriptor'

 minItems: 1

 secondaryAuth:

 type: boolean

 dnAaaIpAddressAllocation:

 type: boolean

 dnAaaAddress:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/IpAddress'

 additionalDnAaaAddresses:

 type: array

 items:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/IpAddress'

 minItems: 1

 dnAaaFqdn:

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

 ExpectedUeBehaviour:

 type: object

 required:

 - afInstanceId

 - referenceId

 properties:

 afInstanceId:

 type: string

 referenceId:

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

 stationaryIndication:

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

 communicationDurationTime:

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

 scheduledCommunicationType:

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

 periodicTime:

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

 scheduledCommunicationTime:

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

 expectedUmts:

 type: array

 items:

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

 minItems: 1

 nullable: true

 description: Identifies the UE's expected geographical movement. The attribute is only applicable in 5G.

 trafficProfile:

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

 batteryIndication:

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

 validityTime:

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

 mtcProviderInformation:

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

 nullable: true

 LocationArea:

 type: object

 properties:

 geographicAreas:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GeographicArea'

 minItems: 0

 description: Identifies a list of geographic area of the user where the UE is located.

 civicAddresses:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CivicAddress'

 minItems: 0

 description: Identifies a list of civic addresses of the user where the UE is located.

 nwAreaInfo:

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

 umtTime:

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

 UmtTime:

 type: object

 required:

 - timeOfDay

 - dayOfWeek

 properties:

 timeOfDay:

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

 dayOfWeek:

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

 NetworkAreaInfo:

 description: Describes a network area information in which the NF service consumer requests the number of UEs.

 type: object

 properties:

 ecgis:

 description: Contains a list of E-UTRA cell identities.

 type: array

 items:

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

 minItems: 1

 ncgis:

 description: Contains a list of NR cell identities.

 type: array

 items:

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

 minItems: 1

 gRanNodeIds:

 description: Contains a list of NG RAN nodes.

 type: array

 items:

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

 minItems: 1

 tais:

 description: Contains a list of tracking area identities.

 type: array

 items:

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

 minItems: 1

 EcRestriction:

 type: object

 required:

 - afInstanceId

 - referenceId

 properties:

 afInstanceId:

 type: string

 referenceId:

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

 plmnEcInfos:

 type: array

 items:

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

 minItems: 1

 mtcProviderInformation:

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

 nullable: true

 PlmnEcInfo:

 type: object

 required:

 - plmnId

 properties:

 plmnId:

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

 ecRestrictionDataWb:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/EcRestrictionDataWb'

 ecRestrictionDataNb:

 type: boolean

 default: false

 PpDlPacketCountExt:

 type: object

 required:

 - afInstanceId

 - referenceId

 properties:

 afInstanceId:

 type: string

 referenceId:

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

 dnn:

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

 singleNssai:

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

 validityTime:

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

 mtcProviderInformation:

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

 nullable: true

 PpMaximumResponseTime:

 type: object

 required:

 - maximumResponseTime

 - afInstanceId

 - referenceId

 properties:

 maximumResponseTime:

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

 afInstanceId:

 type: string

 referenceId:

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

 validityTime:

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

 mtcProviderInformation:

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

 nullable: true

 PpMaximumLatency:

 type: object

 required:

 - maximumLatency

 - afInstanceId

 - referenceId

 properties:

 maximumLatency:

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

 afInstanceId:

 type: string

 referenceId:

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

 validityTime:

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

 mtcProviderInformation:

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

 nullable: true

 LcsPrivacy:

 type: object

 properties:

 afInstanceId:

 type: string

 referenceId:

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

 lpi:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/Lpi'

 mtcProviderInformation:

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

 nullable: true

 PpDataEntry:

 type: object

 properties:

 communicationCharacteristics:

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

 referenceId:

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

 validityTime:

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

 mtcProviderInformation:

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

 supportedFeatures:

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

 ecsAddrConfigInfo:

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

 additionalEcsAddrConfigInfos:

 type: array

 items:

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

 minItems: 1

 ecRestriction:

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

 nullable: true

 CommunicationCharacteristicsAF:

 type: object

 properties:

 ppDlPacketCount:

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

 maximumResponseTime:

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

 maximumLatency:

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

 nullable: true

 EcsAddrConfigInfo:

 type: object

 properties:

 ecsServerAddr:

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

 spatialValidityCond:

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

 nullable: true

 5MbsAuthorizationInfo:

 type: object

 properties:

 5mbsSessionIds:

 type: array

 items:

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

 minItems: 1

 nullable: true

# SIMPLE TYPES:

 ReferenceId:

 type: integer

 PpDlPacketCount:

 type: integer

 nullable: true

# ENUMS:

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