**3GPP TSG-CT WG3 Meeting #128 *C3-232042***

**Bratislava, Eslovakia, 22nd - 26th May, 2023 (Revision of C3-232042)**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.507** | **CR** | **0252** | **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)*.* |
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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Support of partially allowed S-NSSAI |
|  |  |
| ***Source to WG:*** | Ericsson, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNS\_Ph3 |  | ***Date:*** | 2023-04-25 |
|  |  |  |  |  |
| ***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 23.502 specifies the support of Partially Allowed NSSAI. S2-2306053 has introduced impacts in the Npcf\_AMPolicyControl during the registration process. |
|  |  |
| ***Summary of change:*** | A new attribute is introduced that will be provided to the PCF during the AM Policy Session Establishment, as part of PolicyAssociationRequest data type. It is proposed that the new data type will be defined in 3GPP TS 29.571. |
|  |  |
| ***Consequences if not approved:*** | Missing functionality. Misalignment with stage 2. |
|  |  |
| ***Clauses affected:*** | 3.1; 4.2.2.1; 5.6.2.3; 5.6.1; A.2. |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS 23.502 CR#3849TS 29.571 CR#0423  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces a backward compatible functionality in the Npcf\_AMPolicyControl OpenAPI specification. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

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

## 3.1 Definitions

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

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.501 [2], clause 3.1 apply:

**Allowed NSSAI**

**Partially Allowed NSSAI**

**Target NSSAI**

\*\*\* 2nd Change \*\*\*

#### 4.2.2.1 General

The procedure in the present clause is applicable when the NF service consumer (e.g. AMF) creates an AM policy association when the UE registers to the network, and when the AMF is relocated (between the different AMF sets) and the new AMF selects a new PCF. The procedure for the case where the AMF is relocated and the new AMF selects the old PCF is defined in clause 4.2.3.1.

The creation of an AM policy association only applies for normally registered UEs, i.e., it does not apply for Emergency Registered UEs.

Figure 4.2.2.1-1 illustrates the creation of a policy association.



Figure 4.2.2.1-1: Creation of a policy association

When a UE registers and a UE context is being established, the AMF can obtain Service Area Restrictions, RFSP index, subscribed UE-AMBR, subscribed UE-Slice-MBR(s) and GPSI(s) from the UDM during the Access and Mobility Subscription Data retrieval procedure, the list of NWDAF instance IDs used for the UE and their associated Analytic ID(s) consumed by the AMF and the Allowed NSSAI, the Partially Allowed NSSAI and the Target NSSAI from local configuration or from the NSSF during the slice selection procedure and shall decide based on local policies whether to request policies from the PCF.

To request policies from the PCF, the NF service consumer (e.g. AMF) shall send an HTTP POST request with: "{apiRoot}/npcf-am-policy-control/v1/policies" as Resource URI and the PolicyAssociationRequest data structure as request body that shall include:

- Notification URI encoded as "notificationUri" attribute;

- SUPI encoded as "supi" attribute;

- if the feature "SliceSupport" or the feature "DNNReplacementControl" is supported in the NF service consumer and the UE is registered via a 3GPP access, the allowed NSSAI in the 3GPP access encoded in the "allowedSnssais" attribute; and

- if the feature "FFS" is supported in the NF service consumer and the UE is registered via a 3GPP access, the Partially Allowed NSSAI in the 3GPP access encoded in the "partAllowedSnssais" attribute;

and that shall include when available:

- GPSI encoded as "gpsi" attribute;

- if the feature "MultipleAccessTypes" is not supported, the access type encoded as "accessType" attribute;

NOTE 1: In this Release, for SNPN-enabled UE registered in the SNPN, direct access to the SNPN is specified for 3GPP access only.

- Permanent Equipment Identifier (PEI) encoded as "pei" attribute;

- User Location Information encoded as "userLoc" attribute;

- UE Time Zone encoded as "timeZone" attribute;

- the identifier of the serving network (the PLMN Identifier or the SNPN Identifier)encoded as "servingPlmn" attribute;

NOTE 2: The SNPN Identifier consists of the PLMN Identifier and the NID.

- if the feature "MultipleAccessTypes" is not supported, the RAT type encoded as "ratType" attribute;

- Service Area Restrictions (see clause 4.2.2.3.1) derived from the Service Area Restrictions obtained from the UDM by mapping any service areas denoted by geographical information into Tracking Area Identities (TAIs) and encoded as "servAreaRes" attribute;

- RFSP index (see clause 4.2.2.3.2) as obtained from the UDM encoded as "rfsp" attribute;

- a list of Internal Group Identifiers encoded as "groupIds" attribute;

- if the NF service consumer is an AMF, the GUAMI encoded as "guami" attribute;

- if the NF service consumer is an AMF, the name of a service produced by the AMF that expects to receive information within Npcf\_AMPolicyControl\_UpdateNotify service operation encoded as "serviceName" attribute;

- Alternate or backup IPv4 Address(es) where to send Notifications encoded as "altNotifIpv4Addrs" attribute;

- Alternate or backup IPv6 Address(es) where to send Notifications encoded as "altNotifIpv6Addrs" attribute;

- Alternate or backup FQDN(s) where to send Notifications encoded as "altNotifFqdns" attribute;

- trace control and configuration parameters information encoded as "traceReq" attribute;

- if the feature "UE-AMBR\_Authorization" is supported in the NF service consumer, the subscribed UE-AMBR (see clause 4.2.2.3.3) in the "ueAmbr" attribute;

- if the feature "DNNReplacementControl" is supported, the mapping of each S-NSSAI of the Allowed NSSAI and, if "FFS" feature is supported, the mapping of each S-NSSAI of the Partially Allowed NSSAI to the corresponding S-NSSAI of the HPLMN encoded in the "mappingSnssais" attribute;

 Editor’s Note: The support of Partially Allowed NSSAI requires further work in TS 23.502 and TS 23.503.

- if the feature "UE-Slice-MBR\_Authorization" is supported in the NF service consumer, the subscribed UE-Slice-MBR for each subscribed S-NSSAI of the home PLMN mapping to a S-NSSAI of the serving PLMN if available (see clause 4.2.2.3.5) encoded in the "ueSliceMbrs" attribute; and.

- when the "EneNA" feature is supported, the list of NWDAF instance IDs used for the UE within the "nwdafInstanceIds" and their associated Analytic ID(s) within "nwdafEvents" consumed by the NF service consumer, included within the "nwdafDatas" attribute; and

- if the feature "TargetNSSAI" is supported in the NF service consumer, the Target NSSAI generated by the NF service consumer or received from the NSSF encoded in the "targetSnssais" attribute.

Upon the reception of this HTTP POST request, the PCF shall:

- assign a policy association ID;

- determine the applicable policy (taking into consideration and optionally modifying the possibly received UE-AMBR, UE-Slice-MBR(s) for the allowed NSSAI, Service Area Restrictions and/or RFSP index);

- for the successful case, send a HTTP "201 Created" response with the URI for the created resource in the "Location" header field

NOTE 3: The assigned policy association ID is part of the URI for the created resource and is thus associated with the SUPI.

and the PolicyAssociation data type as response body including:

- conditionally AMF Access and Mobility Policy (see clause 4.2.2.3), i.e.:

a) if the PCF received the "servAreaRes" attribute in the request, Service Area Restrictions encoded as "servAreaRes" attribute; and/or

b) if the PCF received the "rfsp" attribute in the request, RAT Frequency Selection Priority (RFSP) Index encoded as "rfsp" attribute; and/or

c) if the feature "UE-AMBR\_Authorization" is supported and the PCF received the "ueAmbr" attribute in the request, the authorized UE-AMBR encoded as "ueAmbr" attribute;

d) if the feature "UE-Slice-MBR\_Authorization" is supported and the PCF received the "ueSliceMbrs" attribute in the request, the corresponding authorized UE-Slice-MBR(s) encoded as "ueSliceMbrs" attribute; and/or

e) if the feature "AMInfluence" is supported, the PCF for the UE determines that the access and mobility policies may be influenced by the traffic of PDU session(s) and local operator policies indicate that the PCF for the UE shall subscribe with the PCF for the PDU session for established/terminated PDU session(s) event notifications via the AMF and the SMF, the PCF for the UE information within the "pcfUeInfo" attribute, and the DNN and S-NSSAI of the concerned PDU session(s) within the "matchPdus" attribute. The "pcfUeInfo" attribute shall include the PCF for the UE callback URI via which the PCF(s) for the PDU session shall send notifications about the related PDU session(s) established/terminated events within the "callbackUri" attribute, and if available, the associated PCF for the UE instance ID, PCF set ID, and the level of SBA binding within the "bindingInfo" attribute;

f) if the feature "5GAccessStratumTime" is supported and the PCF receives the access stratum time distribution parameters from the TSCTSF as defined in 3GPP TS 29.534 [26], the 5G access stratum time distribution parameters encoded as "asTimeDisParam" attribute as defined in clause 4.2.2.3.6;

- optionally one or several of the following Policy Control Request Trigger(s) encoded as "triggers" attribute (see clause 4.2.3.2):

a) Location change (tracking area);

b) Change of UE presence in PRA;

c) if the "SliceSupport" feature or the "DNNReplacementControl" feature is supported, change of allowed NSSAI;

d) if the "DNNReplacementControl" feature is supported, change of SMF selection information; and

e) if the "EneNA" feature is supported, change of NWDAF data;

f) if the "TargetNSSAI" feature is supported, Generation of Target NSSAI; and

- if the Policy Control Request Trigger "Change of UE presence in PRA" is provided, the presence reporting areas for which reporting is required encoded as "pras" attribute;

NOTE 4: If the PCF uses a Presence Reporting Area identifier referring to a Set of Core Network predefined Presence Reporting Areas as defined in 3GPP TS 23.501 [2], the PCF includes the identifier of this Presence Reporting Area set within the "praId" attribute.

- if the Policy Control Request Trigger "Change of SMF selection information" is provided, the SMF selection information representing the conditions upon which the AMF shall request a DNN replacement (see clause 4.2.2.3.4) encoded as "smfSelInfo" attribute;

- if the Policy Control Request Trigger "Generation of Target NSSAI" is provided, the RFSP Index associated with the Target NSSAI encoded as "targetRfsp" attribute;

- if errors occur when processing the HTTP POST request, apply error handling procedures as specified in clause 5.7 and according to the following provisions:

- if the user information received within the "supi" attribute is unknown, the PCF shall reject the request and include in an HTTP "400 Bad Request" response message the "cause" attribute of the ProblemDetails data structure set to "USER\_UNKNOWN";

- if the PCF is, due to incomplete, erroneous or missing information in the request, not able to provision an AM policy decision, the PCF may reject the request and include in an HTTP "400 Bad Request" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_REQUEST\_PARAMETERS".

- if the PCF rejects the AM policy association establishment, the NF service consumer shall apply the policy retrieved from the UDM if available; otherwise, the NF service consumer shall apply the operator configured policy.

If the PCF received a GUAMI, the PCF may subscribe to GUAMI changes using the AMFStatusChange service operation of the Namf\_Communication service specified in 3GPP TS 29.518 [14], and it may use the Nnrf\_NFDiscovery Service specified in 3GPP TS 29.510 [13] (using the obtained GUAMI and possibly service name) to query the other AMFs within the AMF set.

If the PCF received a "traceReq" attribute, it shall perform trace procedures as defined in 3GPP TS 32.422 [18].

If the PCF received the list of NWDAF instance IDs used for the UE in "nwdafInstanceIds" attribute and their associated Analytic IDs in "nwdafEvents" attribute included within the "nwdafDatas" attribute the PCF may select those NWDAF instances as described in 3GPP TS 29.513 [7].

The PCF may retrieve AF requirements on Access and Mobility policies from the UDR as specified in 3GPP TS 29.519 [17] and consider them for determining the Access and Mobility policies to be provisioned.

\*\*\* 3rd Change \*\*\*

#### 5.6.2.3 Type PolicyAssociationRequest

Table 5.6.2.3-1: Definition of type PolicyAssociationRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notificationUri | Uri | M | 1 | Identifies the recipient of Notifications sent by the PCF. |  |
| altNotifIpv4Addrs | array(Ipv4Addr) | O | 1..N | Alternate or backup IPv4 Address(es) where to send Notifications. |  |
| altNotifIpv6Addrs | array(Ipv6Addr) | O | 1..N | Alternate or backup IPv6 Address(es) where to send Notifications. |  |
| altNotifFqdns | array(Fqdn) | O | 1..N | Alternate or backup FQDN(s) where to send Notifications. |  |
| supi | Supi | M | 1 | Subscription Permanent Identifier. |  |
| gpsi | Gpsi | C | 0..1 | Generic Public Subscription Identifier. Shall be provided when available. |  |
| accessType | AccessType | C | 0..1 | The Access Type where the served UE is camping. Shall be provided when available. |  |
| accessTypes | array(AccessType) | C | 1..N | The Access Types where the served UE is camping. Shall be provided when available. | MultipleAccessTypes |
| pei | Pei | C | 0..1 | The Permanent Equipment Identifier of the served UE. Shall be provided when available. |  |
| userLoc | UserLocation | C | 0..1 | The location of the served UE. Shall be provided when available. |  |
| timeZone | TimeZone | C | 0..1 | The time zone where the served UE is camping. Shall be provided when available. |  |
| servingPlmn | PlmnIdNid | C | 0..1 | The serving network (a PLMN or an SNPN) where the served UE is camping. For the SNPN the NID together with the PLMN ID identifies the SNPN. Shall be provided when available. |  |
| ratType | RatType | C | 0..1 | The 3GPP RAT Type where the served UE is camping. Shall be provided when available. |  |
| ratTypes | array(RatType) | C | 1..N | The 3GPP and non-3GPP RAT Types where the served UE is camping. Shall be provided when available. | MultipleAccessTypes |
| groupIds | array(GroupId) | C | 1..N | List of Internal Group Identifiers of the served UE. Shall be provided when available. |  |
| servAreaRes | ServiceAreaRestriction | C | 0..1 | Service Area Restriction as part of the AMF Access and Mobility Policy. Shall be provided when available. |  |
| wlServAreaRes | WirelineServiceAreaRestriction | O | 0..1 | Wireline Service Area Restriction as part of the AMF Access and Mobility Policy as determined by the PCF | WirelineWirelessConvergence |
| rfsp | RfspIndex | C | 0..1 | RFSP Index as part of the AMF Access and Mobility Policy. Shall be provided when available. |  |
| ueAmbr | Ambr | C | 0..1 | UE-AMBR as part of the AMF Access and Mobility Policy. Shall be provided when available. | UE-AMBR\_Authorization |
| ueSliceMbrs | array(UeSliceMbr) | C | 1..N | The subscribed UE-Slice-MBR for each subscribed S-NSSAI of the home PLMN mapping to a S-NSSAI of the serving PLMN. Shall be provided when available. (NOTE) | UE-Slice-MBR\_Authorization |
| allowedSnssais | array(Snssai) | C | 1..N | Represents the Allowed NSSAI in the 3GPP access and includes the S-NSSAIs values the UE can use in the serving PLMN. It shall be included if the feature "SliceSupport" or the feature "DNNReplacementControl" is supported in the AMF. | SliceSupport, DNNReplacementControl |
| partAllowedNssais | map(PartiallyAllowedSnssai) | O | 1..N | Represents the Partially Allowed NSSAI. It may be included if the feature "FFS" is supported in the AMF. The "snssai" attribute within the PartiallyAllowedSnssai data type shall be the key of the map.  | FFS |
| targetSnssais | array(Snssai) | C | 1..N | Represents the Target NSSAI. It shall be included if available and the feature "TargetNSSAI" is supported. | TargetNSSAI |
| mappingSnssais | array(MappingOfSnssai) | C | 1..N | The mapping of each S-NSSAI of the Allowed NSSAI and, if the feature "FFS" is supported, the mapping of each S-NSSAI of the Partially Allowed NSSAI to the corresponding S-NSSAI of the HPLMN. It shall be included if available. If the feature "MultipleAccessTypes" is supported, this attribute contains also the mapping of the Allowed NSSAI in the non-3GPP access to the corresponding S-NSSAI of the HPLMN. | DNNReplacementControl,FFS |
| n3gAllowedSnssais | array(Snssai) | C | 1..N | Represents the Allowed NSSAI in the non-3GPP access and includes the S-NSSAIs values the UE can use in the serving PLMN. It shall be included if the feature "MultipleAccessTypes" and, the feature "SliceSupport" or "DNNReplacementControl" are supported in the AMF and the UE is registered in the non-3GPP access. | SliceSupport, MultipleAccessTypes, DNNReplacementControl |
| guami | Guami | C | 0..1 | The Globally Unique AMF Identifier (GUAMI) shall be provided by an AMF as service consumer. |  |
| serviceName | ServiceName | O | 0..1 | If the NF service consumer is an AMF, it should provide the name of a service produced by the AMF that makes use of information received within the Npcf\_AMPolicyControl\_UpdateNotify service operation. |  |
| suppFeat | SupportedFeatures | M | 1 | Indicates the features supported by the service consumer. |  |
| traceReq | TraceData | C | 0..1 | Trace control and configuration parameters information defined in 3GPP TS 32.422 [18] shall be included if trace is required to be activated. |  |
| nwdafDatas | array(NwdafData) | O | 1..N | List of NWDAF Instance IDs and their associated Analytics IDs consumed by the NF service consumer. | EneNA |
| NOTE: If the serving PLMN is not the HPLMN, then within the "ueSliceMbrs" attribute, there shall not be more than one array item with the same "servingSnssai" attribute's value in this release of the specification. |

\*\*\* 3rd Change \*\*\*

### 5.6.1 General

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

Table 5.6.1-1 specifies the data types defined for the Npcf\_AMPolicyControl service based interface protocol.

Table 5.6.1-1: Npcf\_AMPolicyControl specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| AsTimeDistributionParam | 5.6.2.10 | Contains the 5G access stratum time distribution parameters. | 5GAccessStratumTime |
| CandidateForReplacement | 5.6.2.8 | Contains the list of candidate DNNs for replacement per S-NSSAI. | DNNReplacementControl |
| PolicyAssociation | 5.6.2.2 | Description of a policy association that is returned by the PCF when a policy Association is created, or read. |  |
| PolicyAssociationReleaseCause | 5.6.3.4 | The cause why the PCF requests the termination of the policy association. |  |
| PolicyAssociationRequest | 5.6.2.3 | Information that NF service consumer provides when requesting the creation of a policy association. |  |
| PolicyAssociationUpdateRequest | 5.6.2.4 | Information that NF service consumer provides when requesting the update of a policy association. |  |
| PolicyUpdate | 5.6.2.5 | Updated policies that the PCF provides in a notification or in the reply to an Update Request. |  |
| RequestTrigger | 5.6.3.3 | Enumeration of possible Request Triggers. |  |
| SmfSelectionData | 5.6.2.7 | Includes the SMF Selection information that may be replaced by the PCF. | DNNReplacementControl |
| TerminationNotification | 5.6.2.6 | Request to terminate a policy Association that the PCF provides in a notification. |  |
| AmRequestedValueRep | 5.6.2.9 | Contains the current applicable values corresponding to the policy control request triggers. | ImmediateReport |
| UeSliceMbr | 5.6.2.11 | Contains a UE-Slice-MBR and the related information. | UE-Slice-MBR\_Authorization |

Table 5.6.1-2 specifies data types re-used by the Npcf\_AMPolicyControl service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Npcf\_AMPolicyControl service based interface.

Table 5.6.1-2: Npcf\_AMPolicyControl re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AccessType | 3GPP TS 29.571 [11] |  |  |
| Ambr | 3GPP TS 29.571 [11] | Aggregated Maximum Bit Rate. | UE-AMBR\_Authorization |
| Dnn | 3GPP TS 29.571 [11] | DNN | DNNReplacementControl |
| Fqdn | 3GPP TS 29.571 [11] | FQDN |  |
| Gpsi | 3GPP TS 29.571 [11] | Generic Public Subscription Identifier |  |
| GroupId | 3GPP TS 29.571 [11] |  |  |
| Guami | 3GPP TS 29.571 [11] | Globally Unique AMF Identifier |  |
| Ipv4Addr | 3GPP TS 29.571 [11] |  |  |
| Ipv6Addr | 3GPP TS 29.571 [11] |  |  |
| MappingOfSnssai | 3GPP TS 29.531 [24] | Identifies the mapping of an S-NSSAI of the Allowed NSSAI to the corresponding S-NSSAI of the HPLMN. | DNNReplacementControl |
| NwdafData | 3GPP TS 29.512 [27] | Indicates the list of NWDAF instance IDs used for the UE and their associated Analytics ID(s) consumed by the NF service consumer. | EneNA |
| PartiallyAllowedSnssai | 3GPP TS 29.571 [11] | Represents the S-NSSAI that is partially allowed in the Registration Area, | FFS |
| PcfUeCallbackInfo | 3GPP TS 29.571 [11] | Contains the PCF for the UE information necessary for the PCF for the PDU session to send Establishment and Termination event. | AMInfluence |
| PduSessionInfo | 3GPP TS 29.571 [11] | Contains information related to a PDU session. | AMInfluence |
| Pei | 3GPP TS 29.571 [11] | Permanent Equipment Identifier |  |
| PlmnIdNid | 3GPP TS 29.571 [11] | Identifies the network: PLMN Identifier or the SNPN Identifier (the PLMN Identifier and the NID). |  |
| PresenceInfo | 3GPP TS 29.571 [11] | Presence reporting area information |  |
| PresenceInfoRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "PresenceInfo" data type, but with the OpenAPI "nullable: true" property. |  |
| ProblemDetails | 3GPP TS 29.571 [11] |  |  |
| RedirectResponse | 3GPP TS 29.571 [11] | Contains redirection related information. | ES3XX |
| Uri | 3GPP TS 29.571 [11] |  |  |
| UserLocation | 3GPP TS 29.571 [11] |  |  |
| RatType | 3GPP TS 29.571 [11] |  |  |
| RfspIndex | 3GPP TS 29.571 [11] |  |  |
| ServiceAreaRestriction | 3GPP TS 29.571 [11] | Within the areas attribute, only tracking area codes shall be included. |  |
| ServiceName | 3GPP TS 29.510 [13] | Name of the service instance. |  |
| SliceMbr | 3GPP TS 29.571 [11] | Contains the slice Maximum Bit Rate including UL and DL. | UE-Slice-MBR\_Authorization |
| Snssai | 3GPP TS 29.571 [11] | Identifies an S-NSSAI. | SliceSupport, TargetNSSAI, DNNReplacementControl |
| Supi | 3GPP TS 29.571 [11] | Subscription Permanent Identifier |  |
| SupportedFeatures | 3GPP TS 29.571 [11] | Used to negotiate the applicability of the optional features defined in table 5.8-1. |  |
| TimeZone | 3GPP TS 29.571 [11] |  |  |
| TraceData | 3GPP TS 29.571 [11] |  |  |
| UintegerRm | 3GPP TS 29.571 [11] | Indicates Unsigned Integer, but with the OpenAPI "nullable: true" property. | 5GAccessStratumTime |
| WirelineServiceAreaRestriction | 3GPP TS 29.571 [11] |  | WirelineWirelessConvergence |

\*\*\* 4th Change \*\*\*

# A.2 Npcf\_AMPolicyControl API

openapi: 3.0.0

info:

 version: 1.3.0-alpha.2

 title: Npcf\_AMPolicyControl

 description: |

 Access and Mobility Policy Control Service.

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externalDocs:

 description: 3GPP TS 29.507 V18.1.0; 5G System; Access and Mobility Policy Control Service.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.507/'

servers:

 - url: '{apiRoot}/npcf-am-policy-control/v1'

 variables:

 apiRoot:

 default: https://example.com

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

security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-am-policy-control

paths:

 /policies:

 post:

 operationId: CreateIndividualAMPolicyAssociation

 summary: Create individual AM policy association.

 tags:

 - AM Policy Associations (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Created

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: >

 Contains the URI of the newly created resource, according to the structure

 {apiRoot}/npcf-am-policy-control/v1/policies/{polAssoId}

 required: true

 schema:

 type: string

 '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:

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

 callbacks:

 policyUpdateNotification:

 '{$request.body#/notificationUri}/update':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: >

 OK. The current applicable values corresponding to the policy control request

 trigger is reported

 content:

 application/json:

 schema:

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

 '204':

 description: No Content, Notification was successful.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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:

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

 policyAssocitionTerminationRequestNotification:

 '{$request.body#/notificationUri}/terminate':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content, Notification was successful.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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:

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

 /policies/{polAssoId}:

 get:

 operationId: ReadIndividualAMPolicyAssociation

 summary: Read individual AM policy association.

 tags:

 - Individual AM Policy Association (Document)

 parameters:

 - name: polAssoId

 in: path

 description: Identifier of a policy association

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK. Resource representation is returned

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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:

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

 delete:

 operationId: DeleteIndividualAMPolicyAssociation

 summary: Delete individual AM policy association.

 tags:

 - Individual AM Policy Association (Document)

 parameters:

 - name: polAssoId

 in: path

 description: Identifier of a policy association

 required: true

 schema:

 type: string

 responses:

 '204':

 description: No Content. Resource was successfully deleted.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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:

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

 /policies/{polAssoId}/update:

 post:

 operationId: ReportObservedEventTriggersForIndividualAMPolicyAssociation

 summary: >

 Report observed event triggers and obtain updated policies for an individual AM

 policy association.

 tags:

 - Individual AM Policy Association (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 parameters:

 - name: polAssoId

 in: path

 description: Identifier of a policy association

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK. Updated policies are returned

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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:

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

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 npcf-am-policy-control: Access to the Npcf\_AMPolicyControl API

 schemas:

 PolicyAssociation:

 description: Represents an individual AM Policy Association resource.

 type: object

 properties:

 request:

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

 triggers:

 type: array

 items:

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

 minItems: 1

 description: Request Triggers that the PCF subscribes.

 servAreaRes:

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

 wlServAreaRes:

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

 rfsp:

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

 targetRfsp:

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

 smfSelInfo:

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

 ueAmbr:

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

 ueSliceMbrs:

 type: array

 items:

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

 minItems: 1

 description: >

 One or more UE-Slice-MBR(s) for S-NSSAI(s) of serving PLMN as part of the

 AMF Access and Mobility Policy as determined by the PCF.

 pras:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the presence reporting area(s) for which reporting was requested.

 The praId attribute within the PresenceInfo data type is the key of the map.

 suppFeat:

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

 pcfUeInfo:

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

 matchPdus:

 type: array

 items:

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

 nullable: true

 asTimeDisParam:

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

 required:

 - suppFeat

 PolicyAssociationRequest:

 description: >

 Information which the NF service consumer provides when requesting the creation of a policy

 association. The serviveName property corresponds to the serviceName in the main body

 of the specification.

 type: object

 properties:

 notificationUri:

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

 altNotifIpv4Addrs:

 type: array

 items:

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

 minItems: 1

 description: Alternate or backup IPv4 Address(es) where to send Notifications.

 altNotifIpv6Addrs:

 type: array

 items:

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

 minItems: 1

 description: Alternate or backup IPv6 Address(es) where to send Notifications.

 altNotifFqdns:

 type: array

 items:

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

 minItems: 1

 description: Alternate or backup FQDN(s) where to send Notifications.

 supi:

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

 gpsi:

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

 accessType:

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

 accessTypes:

 type: array

 items:

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

 minItems: 1

 pei:

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

 userLoc:

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

 timeZone:

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

 servingPlmn:

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

 ratType:

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

 ratTypes:

 type: array

 items:

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

 minItems: 1

 groupIds:

 type: array

 items:

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

 minItems: 1

 servAreaRes:

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

 wlServAreaRes:

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

 rfsp:

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

 ueAmbr:

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

 ueSliceMbrs:

 type: array

 items:

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

 minItems: 1

 description: >

 The subscribed UE Slice-MBR for each subscribed S-NSSAI of the home PLMN mapping to

 a S-NSSAI of the serving PLMN Shall be provided when available.

 allowedSnssais:

 description: array of allowed S-NSSAIs for the 3GPP access.

 type: array

 items:

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

 minItems: 1

 partAllowedNssais:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the Partially Allowed NSSAI. The "snssai" attribute within the

 PartiallyAllowedSnssai data type shall be the key of the map. targetSnssais:

 description: array of target S-NSSAIs.

 type: array

 items:

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

 minItems: 1

 mappingSnssais:

 description: >

 mapping of each S-NSSAI of the Allowed NSSAI to the corresponding S-NSSAI of the HPLMN.

 type: array

 items:

 $ref: 'TS29531\_Nnssf\_NSSelection.yaml#/components/schemas/MappingOfSnssai'

 minItems: 1

 n3gAllowedSnssais:

 description: array of allowed S-NSSAIs for the Non-3GPP access.

 type: array

 items:

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

 minItems: 1

 guami:

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

 serviveName:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ServiceName'

 traceReq:

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

 nwdafDatas:

 type: array

 items:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/NwdafData'

 minItems: 1

 suppFeat:

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

 required:

 - notificationUri

 - suppFeat

 - supi

 PolicyAssociationUpdateRequest:

 description: >

 Represents information that the NF service consumer provides when requesting the update of

 a policy association.

 type: object

 properties:

 notificationUri:

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

 altNotifIpv4Addrs:

 type: array

 items:

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

 minItems: 1

 description: Alternate or backup IPv4 Address(es) where to send Notifications.

 altNotifIpv6Addrs:

 type: array

 items:

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

 minItems: 1

 description: Alternate or backup IPv6 Address(es) where to send Notifications.

 altNotifFqdns:

 type: array

 items:

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

 minItems: 1

 description: Alternate or backup FQDN(s) where to send Notifications.

 triggers:

 type: array

 items:

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

 minItems: 1

 description: Request Triggers that the NF service consumer observes.

 servAreaRes:

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

 wlServAreaRes:

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

 rfsp:

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

 smfSelInfo:

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

 ueAmbr:

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

 ueSliceMbrs:

 type: array

 items:

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

 minItems: 1

 description: >

 The subscribed UE-Slice-MBR for each subscribed S-NSSAI of the home PLMN mapping

 to a S-NSSAI of the serving PLMN Shall be provided for the "UE\_SLICE\_MBR\_CH"

 policy control request trigger.

 praStatuses:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the UE presence status for tracking area for which changes of the UE presence

 occurred. The praId attribute within the PresenceInfo data type is the key of the map.

 userLoc:

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

 allowedSnssais:

 description: array of allowed S-NSSAIs for the 3GPP access.

 type: array

 items:

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

 minItems: 1

 targetSnssais:

 description: array of target S-NSSAIs.

 type: array

 items:

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

 minItems: 1

 mappingSnssais:

 description: >

 mapping of each S-NSSAI of the Allowed NSSAI to the corresponding S-NSSAI of the HPLMN.

 type: array

 items:

 $ref: 'TS29531\_Nnssf\_NSSelection.yaml#/components/schemas/MappingOfSnssai'

 minItems: 1

 accessTypes:

 type: array

 items:

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

 minItems: 1

 ratTypes:

 type: array

 items:

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

 minItems: 1

 n3gAllowedSnssais:

 description: array of allowed S-NSSAIs for the Non-3GPP access.

 type: array

 items:

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

 minItems: 1

 traceReq:

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

 guami:

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

 nwdafDatas:

 type: array

 items:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/NwdafData'

 minItems: 1

 nullable: true

 suppFeat:

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

 PolicyUpdate:

 description: >

 Represents updated policies that the PCF provides in a notification or in a reply to an

 Update Request.

 type: object

 properties:

 resourceUri:

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

 triggers:

 type: array

 items:

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

 minItems: 1

 nullable: true

 description: Request Triggers that the PCF subscribes.

 servAreaRes:

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

 wlServAreaRes:

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

 rfsp:

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

 targetRfsp:

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

 smfSelInfo:

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

 ueAmbr:

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

 ueSliceMbrs:

 type: array

 items:

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

 minItems: 1

 description: >

 One or more UE-Slice-MBR(s) for S-NSSAI(s) of serving PLMN the allowed NSSAI as

 part of the AMF Access and Mobility Policy as determined by the PCF.

 pras:

 type: object

 additionalProperties:

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

 description: >

 Contains the presence reporting area(s) for which reporting was requested. The praId

 attribute within the PresenceInfo data type is the key of the map.

 minProperties: 1

 nullable: true

 pcfUeInfo:

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

 matchPdus:

 type: array

 items:

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

 nullable: true

 asTimeDisParam:

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

 suppFeat:

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

 required:

 - resourceUri

 TerminationNotification:

 description: >

 Represents a request to terminate a policy Association that the PCF provides in a

 notification.

 type: object

 properties:

 resourceUri:

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

 cause:

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

 required:

 - resourceUri

 - cause

 SmfSelectionData:

 description: Represents the SMF Selection information that may be replaced by the PCF.

 type: object

 properties:

 unsuppDnn:

 type: boolean

 candidates:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the list of DNNs per S-NSSAI that are candidates for replacement. The snssai

 attribute within the CandidateForReplacement data type is the key of the map.

 nullable: true

 snssai:

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

 mappingSnssai:

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

 dnn:

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

 nullable: true

 CandidateForReplacement:

 description: Represents a list of candidate DNNs for replacement for an S-NSSAI.

 type: object

 properties:

 snssai:

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

 dnns:

 type: array

 items:

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

 minItems: 1

 nullable: true

 required:

 - snssai

 nullable: true

 AmRequestedValueRep:

 description: >

 Represents the current applicable values corresponding to the policy control request

 triggers.

 type: object

 properties:

 userLoc:

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

 praStatuses:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the UE presence statuses for tracking areas. The praId attribute within the

 PresenceInfo data type is the key of the map.

 accessTypes:

 type: array

 items:

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

 minItems: 1

 ratTypes:

 type: array

 items:

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

 allowedSnssais:

 description: array of allowed S-NSSAIs for the 3GPP access.

 type: array

 items:

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

 n3gAllowedSnssais:

 description: array of allowed S-NSSAIs for the Non-3GPP access.

 type: array

 items:

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

 AsTimeDistributionParam:

 description: Contains the 5G acess stratum time distribution parameters.

 type: object

 properties:

 asTimeDistInd:

 type: boolean

 uuErrorBudget:

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

 nullable: true

 UeSliceMbr:

 description: Contains a UE-Slice-MBR and the related information.

 type: object

 properties:

 sliceMbr:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: Contains the MBR for uplink and the MBR for downlink.

 servingSnssai:

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

 mappedHomeSnssai:

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

 required:

 - sliceMbr

 - servingSnssai

 nullable: true

 RequestTrigger:

 anyOf:

 - type: string

 enum:

 - LOC\_CH

 - PRA\_CH

 - SERV\_AREA\_CH

 - RFSP\_CH

 - ALLOWED\_NSSAI\_CH

 - UE\_AMBR\_CH

 - UE\_SLICE\_MBR\_CH

 - SMF\_SELECT\_CH

 - ACCESS\_TYPE\_CH

 - NWDAF\_DATA\_CH

 - TARGET\_NSSAI

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the possible request triggers.

 Possible values are:

 - LOC\_CH: Location change (tracking area). The tracking area of the UE has changed.

 - PRA\_CH: Change of UE presence in PRA. The AMF reports the current presence status

 of the UE in a Presence Reporting Area, and notifies that the UE enters/leaves the

 Presence Reporting Area.

 - SERV\_AREA\_CH: Service Area Restriction change. The UDM notifies the AMF that the

 subscribed service area restriction information has changed.

 - RFSP\_CH: RFSP index change. The UDM notifies the AMF that the subscribed RFSP index has

 changed.

 - ALLOWED\_NSSAI\_CH: Allowed NSSAI change. The AMF notifies that the set of UE allowed

 S-NSSAIs has changed.

 - UE\_AMBR\_CH: UE-AMBR change. The UDM notifies the AMF that the subscribed UE-AMBR has

 changed.

 - SMF\_SELECT\_CH: SMF selection information change. The UE requested for an unsupported

 DNN or UE requested for a DNN within the list of DNN candidates for replacement per

 S-NSSAI.

 - ACCESS\_TYPE\_CH: Access Type change. The AMF notifies that the access type and the RAT

 type combinations available in the AMF for a UE with simultaneous 3GPP and non-3GPP

 connectivity has changed.

 - UE\_SLICE\_MBR\_CH: UE-Slice-MBR change. The NF service consumer notifies any changes

 in the subscribed UE-Slice-MBR for each subscribed S-NSSAI of the home PLMN mapping

 to a S-NSSAI of the serving PLMN.

 - NWDAF\_DATA\_CH: NDWAF DATA CHANGE. The AMF notifies that the NWDAF instance IDs used

 for the UE and/or associated Analytics IDs used for the UE and available in the AMF

 have changed.

 - TARGET\_NSSAI: Generation of Target NSSAI. The NF service consumer notifies that the

 Target NSSAI was generated.

 PolicyAssociationReleaseCause:

 anyOf:

 - type: string

 enum:

 - UNSPECIFIED

 - UE\_SUBSCRIPTION

 - INSUFFICIENT\_RES

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the cause why the PCF requests the termination of the policy association.

 Possible values are:

 - UNSPECIFIED: This value is used for unspecified reasons.

 - UE\_SUBSCRIPTION: This value is used to indicate that the session needs to be

 terminated because the subscription of UE has changed (e.g. was removed).

 - INSUFFICIENT\_RES: This value is used to indicate that the server is overloaded and

 needs to abort the session.

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