**3GPP TSG CT WG3 Meeting #135 *C3-243101r3***

**Hyderabad, IN, 27 - 31 May, 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  | **29.507** | **CR** | **0304** | **rev** | **-** | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| P |
| ***Title:***  | Update Slice Replacement Management PCRT. |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNS\_Ph3 |  | ***Date:*** | 2024-05-20 |
|  |  |  |  |  |
| ***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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | As per SA2 approved CR#1285, it was agreed to update Slice Replacement Management PCRT to also trigger when AMF determines or changes alternative S-NSSAI for a given initial S-NSSAI.  |
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| ***Summary of change:*** | Added support for the new requirement in the Slice Replacement ManagementPCRT and updated related clauses. |
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| ***Consequences if not approved:*** | Not compliant with stage 2 requirements |
|  |  |
| ***Clauses affected:*** | 4.2.2.1, 4.2.2.3.4, 4.2.3.1, 4.2.3.2, 5.6.1, 5.6.2.3, 5.6.2.4, 5.6.3.3, 5.8, A.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS/TR 23.503 CR 1285  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR provides new backward compatible feature to the open API Npcf\_AMPolicyControl APIMay collide with Ericsson CR in CT3#134, C3-242603 |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* \* First 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, and the list of NWDAF instance IDs used for the UE and their associated Analytic ID(s) consumed by the AMF, the 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 "SliceSupport" feature, the "DNNReplacementControl" feature and/or the "NetSliceRepl" feature is/are supported in the NF service consumer and the UE is registered via a 3GPP access, the Allowed NSSAI in the 3GPP access within the "allowedSnssais" attribute; and

- if the "PartNetSliceSupport" feature and/or the "NetSliceRepl" feature is/are supported in the NF service consumer and the UE is registered via a 3GPP access, the Partially Allowed NSSAI in the 3GPP access within the "partAllowedNssai" 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;

- 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 1: 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 "DNNReplacementControl" feature is supported, the mapping of each S-NSSAI of the Allowed NSSAI, and if the "PartNetSliceSupport" feature is supported, the mapping of each S-NSSAI of the Partially Allowed NSSAI to the corresponding S-NSSAI of the HPLMN within the "mappingSnssais" attribute;

- if the "PartNetSliceSupport" feature is supported in the NF service consumer and the UE is registered via a 3GPP access:

- the list of the S-NSSAI(s) rejected partially in the RA, if available, within the "snssaisPartRejected" attribute;

- the list of the Rejected S-NSSAI(s) in the RA, if available, within the "rejectedSnssais" attribute; and/or

- the Pending NSSAI encoded, if available, within the "pendingNssai" attribute;

- 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;

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

- 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; and

- if the "NetSliceRepl" feature is supported in the NF service consumer, the Mapping of the replaced S-NSSAI(s) with the Alternative S-NSSAI(s) within the "altSliceMapInfos" 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 and the Partially Allowed NSSAI, Service Area Restrictions, RFSP index, Allowed NSSAI, Partially Allowed NSSAI, list of the S-NSSAI(s) rejected partially in the RA, list of the Rejected S-NSSAI(s) in the RA and/or Pending NSSAI);

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

NOTE 2: 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. If the feature "RFSPValidityTime" is supported and the PCF determines to provide an RFSP index value that indicates EPC/E-UTRAN access is prioritized over 5GS access, the PCF may provide, based on operator policies, a validity time for the RFSP index value within the "rfspValTime" 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;

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; and/or

g) if the "NetSliceUsageCtrl" feature is supported and the PCF determines that one or more S-NSSAI(s) of the UE's Allowed NSSAI is/are on-demand S-NSSAI(s) and subject to network slice usage control, the network slice usage control information (e.g., slice deregistration inactivity timer) within the "sliceUsgCtrlInfoSets" attribute as specified in clause 4.2.2.3.7;

NOTE 3: In this release of the specification, network slice usage control information provisioning by the PCF is not supported in roaming scenarios.

- 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, the "DNNReplacementControl" feature and/or the "NetSliceRepl" feature is/are 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;

g) if the "NetSliceRepl" feature is supported, S-NSSAI Replacement;

h) if the "PartNetSliceSupport" feature and/or the "NetSliceRepl" feature is/are supported, Change of the Partially Allowed NSSAI;

i) if the "PartNetSliceSupport" feature is supported, Change of the S-NSSAI(s) rejected partially in the RA, Change of the rejected S-NSSAI(s) in the RA and/or Change of the Pending NSSAI;

- 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; and

- if the "SLAMUP" feature is supported, and operator policies indicate the AMF should select same CHF that is selected by the PCF for a UE, the PCF may provide the CHF address and if available, the associated CHF instance ID(s) and/or CHF set ID(s) encoded as "chfInfo" attribute;

and

- 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"; and

- 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 and their associated Analytic IDs 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.

\* \* \* \* Next changes \* \* \* \*

#### 4.2.3.1 General

The procedure in the present clause is applicable when the NF service consumer modifies an existing AM policy association (including the case where the AMF is relocated and the new AMF selects the old PCF to maintain the policy association and to update the Notification URI).

Figure 4.2.3.1-1 illustrates the update of a policy association.



Figure 4.2.3.1-1: Update of a policy association

The AMF as NF service consumer invokes this procedure when a policy control request trigger (see clause 4.2.3.2) occurs. When a policy control request trigger that does not require the subscription as defined in table 5.6.3.3-1 (e.g. Service Area Restriction change trigger) occurs, the NF service consumer (e.g. AMF) shall always invoke the procedure. When a policy control request trigger requires the subscription as defined in table 5.6.3.3-1 (e.g. location change trigger) occurs, the NF service consumer shall only invoke the procedure if the PCF has subscribed to that event trigger.

If an AMF knows by implementation specific means that the UE context has been transferred to an AMF with another GUAMI within the AMF set, it may also invoke this procedure to update the Notification URI and the GUAMI.

NOTE 1: Either the old or the new AMF can invoke this procedure.

During the AMF relocation, if the new AMF received the resource URI of the individual AM Policy from the old AMF and selects the old PCF, the new AMF shall also invoke this procedure to update the Notification URI and the GUAMI. The new AMF may also update the alternate or backup IP addresses. If the feature "FeatureRenegotiation" is supported, the new AMF may perform feature renegotiation, as described in clause 4.2.3.4.

To request policies from the PCF, to update the Notification URI, to renegotiate features, to update the trace control configuration and/or to request the termination of trace, the NF service consumer (e.g. AMF) shall request the update of the AM Policy Association by providing the relevant parameters about the UE context by sending an HTTP POST request with "{apiRoot}/npcf-am-policy-control/v1/policies/{polAssoId}/update" as Resource URI and the PolicyAssociationUpdateRequest data structure as request body that shall include:

- at least one of the following:

1. a new Notification URI encoded in the "notificationUri" attribute;

2. observed Policy Control Request Trigger(s) (see clause 4.2.3.2) encoded as "triggers" attribute;

3. if a Service Area restriction change occurred, the Service Area Restrictions (see clause 4.2.2.3.1) as obtained from the UDM encoded as "servAreaRes" attribute;

4. if a RFSP index change occurred, the RFSP index (see clause 4.2.2.3.2) as obtained from the UDM encoded as "rfsp" attribute;

5. if a UE location change occurred and the Policy Control Request Trigger "Location change" was provided, the UE location encoded as "userLoc" attribute;

6. if the Policy Control Request Trigger "Change of UE presence in PRA" was provided, the current presence status of the UE for the presence reporting areas for which reporting was requested, if not previously provided, or the presence reporting areas for which reporting was requested and the status has changed encoded as "praStatuses" attribute;

NOTE 2: If the PCF included the identifer of a Core Network predefined Presence Reporting Area Set within the "praId" attribute during the subscription to changes of UE presence in PRA, the AMF only provides the presence reporting area information corresponding to the concerned individual Presence Reporting Area Identifier(s) within the Set. The "praId" attribute within each returned "PresenceInfo" data type hence includes the identifier of the concerned individual Presence Reporting Area.

7. if the trace control configuration needs to be updated, trace control and configuration parameters information encoded as "traceReq" attribute;

8. if trace needs to be terminated, the "traceReq" attribute set to the Null value;

9. if the "SliceSupport" feature, the "DNNReplacementControl" feature and/or the "NetSliceRepl" feature is/are supported, the UE is registered via 3GPP access, the Allowed NSSAI changed, and the Policy Control Request Trigger "Change of Allowed NSSAI" was provided, then the Allowed NSSAI within the "allowedSnssais" attribute;

10. for AMF relocation scenarios, if available, alternate or backup IPv4 Address(es) where to send Notifications encoded as "altNotifIpv4Addrs" attribute;

11. for AMF relocation scenarios, if available, alternate or backup IPv6 Address(es) where to send Notifications encoded as "altNotifIpv6Addrs" attribute;

12. for AMF relocation scenarios, if available, alternate or backup FQDN(s) where to send Notifications encoded as "altNotifFqdns" attribute;

13. for AMF relocation scenarios, the GUAMI encoded as "guami" attribute;

NOTE 3: An alternate NF service consumer than the one that requested the generation of the subscription resource can send the request. For instance, an AMF as service consumer can change.

14. if the feature "UE-AMBR\_Authorization" is supported, and a subscribed UE-AMBR change occurred, the UE-AMBR (see clause 4.2.2.3.3) as obtained from the UDM encoded as "ueAmbr" attribute;

15. if the feature "DNNReplacementControl" is supported, DNN replacement applies and the Policy Control Request Trigger "Change of SMF selection information" was provided, the "smfSelInfo" attribute including:

- the UE requested DNN in the "dnn" attribute; and

- the UE requested S-NSSAI in the "snssai" attribute and, if available, the corresponding mapped home S-NSSAI in the "mappingSnssai" attribute;

when:

- the UE requested an unsupported DNN and the "unsuppDnn" attribute is set to "true"; or

- the UE requested DNN and S-NSSAI matched one of the S-NSSAI and DNN provided in the "candidates" attribute;

16. if feature "DNNReplacementControl" is supported, the UE is registered via 3GPP access, the Allowed NSSAI changed and/or the mapping of a S-NSSAI of the Allowed NSSAI to the corresponding S-NSSAI of the HPLMN changed, and the Policy Control Request Trigger "Change of allowed NSSAI" was provided, then the mapping of each S-NSSAI of the Allowed NSSAI to the corresponding S-NSSAI of the HPLMN encoded in the "mappingSnssais" attribute;

NOTE 4: When the feature "DNNReplacementControl" is supported, the AMF applies DNN replacement for non-roaming scenarios and LBO. For a PDU session with home routed roaming, whether to perform DNN replacement is based on operator agreement.

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

18. if the feature "EneNA" is supported and an NWDAF information change occurred, the list of NWDAF instance IDs used for the UE and their associated Analytic ID(s) with the updated values within the "nwdafDatas" attribute;

NOTE 5: The NF service consumer provides the complete updated list of NWDAF instance IDs and associated Analytic ID(s) used for the UE. If all NWDAF data is deleted an empty list is included.

19. if the feature "TargetNSSAI" is supported, a new Target NSSAI is generated and the Policy Control Request Trigger "Generation of Target NSSAI" is provided, the new generated Target NSSAI encoded in the "targetSnssais" attribute;

20. if the "NetSliceRepl" feature is supported;

 - if the AMF is aware that one or more S-NSSAI(s) become unavailable but cannot determine the corresponding Alternative S-NSSAI(s) and the Policy Control Request Trigger "SLICE\_REPLACE\_MGMT" was provided, these unavailable S-NSSAI(s) within the "unavailSnssais" attribute;

- if the AMF received notification either from OAM or NSSF about network slice replacement of the initial S-NSSAI(s) and AMF is aware of the Alternative S-NSSAI(s) corresponding to those initial S-NSSAI(s) or previously replaced S-NSSAI(s) is available and the Policy Control Request Trigger "SLICE\_REPLACE\_MGMT" was provided, the AMF provides the updated "altSliceMapInfos" with the updated mapping of replaced S-NSSAI(s) with the Alternative S-NSSAI(s) in case of network slice replacement or by removing the mapping of the replaced S-NSSAI(s) with the Alternative S-NSSAI(s) if the replaced S-NSSAI(s) is available;

21. if "PartNetSliceSupport" feature and/or "NetSliceRepl" feature is/are supported, the UE is registered via 3GPP access, the Partially Allowed NSSAI changed and the Policy Control Request Trigger "Change of the Partially Allowed NSSAI" was subscribed by the PCF, then the updated Partially Allowed NSSAI within the "partAllowedNssai" attribute;

22. if the "PartNetSliceSupport" feature is supported, the UE is registered via 3GPP access, the Partially Allowed NSSAI changed and/or the mapping of one or more of the S-NSSAI(s) of the Partially Allowed NSSAI to the corresponding HPLMN S-NSSAI(s) changed, and the Policy Control Request Trigger "Change of the Partially Allowed NSSAI" was subscribed by the PCF, then the mapping of each S-NSSAI of the Partially Allowed NSSAI to the corresponding HPLMN S-NSSAI within the "mappingSnssais" attribute; and

23. if the "PartNetSliceSupport" feature is supported, the UE is registered via 3GPP access and:

- if the list of the S-NSSAI(s) rejected partially in the RA changed and the Policy Control Request Trigger "Change of the S-NSSAI(s) rejected partially in the RA" was subscribed by the PCF, then the updated list of the S-NSSAI(s) rejected partially in the RA within the "snssaisPartRejected" attribute;

- if the list of the Rejected S-NSSAI(s) in the RA changed and the Policy Control Request Trigger "Change of the Rejected S-NSSAI(s)" was subscribed by the PCF, then the updated list of the Rejected S-NSSAI(s) in the RA within the "rejectedSnssais" attribute; and

- if the Pending NSSAI changed and the Policy Control Request Trigger "Change of the Pending NSSAI" was subscribed by the PCF, then the updated Pending NSSAI within the "pendingNssai" attribute.

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

- update the corresponding individual AM Policy resource based on the information provided by the NF service consumer;

- determine the applicable policy based on local policy;

- for the successful case, send a HTTP "200 OK" response with the PolicyUpdate data type as body with possible updates for that applicable policy and Policy Control Request Trigger(s) encoded as described in clause 4.2.3.3 and according to the following provisions:

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

b) if the PCF received the "rfsp" attribute in the request, RAT Frequency Selection Priority (RFSP) Index encoded as "rfsp" attribute. If the feature "RFSPValidityTime" is supported and the PCF determines to provide an RFSP index value that indicates EPC/E-UTRAN access is prioritized over 5GS access, the PCF may provide, based on operator policies, a validity time for the RFSP index value within the "rfspValTime" attribute;

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

d) if the PCF received the "smfSelInfo" attribute in the request, the "smfSelInfo" attribute encoding the PCF selected DNN in the "dnn" attribute corresponding to the S-NSSAI received in the "snssai" attribute;

NOTE 6: A PolicyUpdate data structure with only mandatory attribute(s) is included in the "200 OK" response when the PCF decides not to update the policies.

e) 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;

f) if the feature "TargetNSSAI" is supported and the PCF received the "targetSnssais" attribute in the request, the RFSP Index associated with the Target NSSAI encoded as "targetRfsp" attribute;

g) if the "NetSliceUsageCtrl" feature is supported, the updated network slice usage control information (e.g., updated slice deregistration inactivity timer) within the "sliceUsgCtrlInfoSets" attribute for each on-demand S-NSSAI of the UE's Allowed NSSAI; and/or

NOTE 7: In this release of the specification, network slice usage control information provisioning/update/removal by the PCF is not supported in roaming scenarios.

h) if the "NetSliceRepl" feature is supported and the PCF received the "unavailSnssais" attribute in the request, the Alternative S-NSSAI(s) associated with the received S-NSSAI(s) within the "snssaiReplInfos" attribute containing these unavailable S-NSSAI(s), and for each unavailable S-NSSAI, the corresponding status information set to "UNAVAILABLE" and the corresponding Alternative S-NSSAI;

- 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:

a) 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".

b) if the "ES3XX" feature is supported and the PCF (service) instance has changed, the PCF may respond with an HTTP 3xx redirect response pointing to a new PCF (service) instance as defined in clause 6.5.3.3 of 3GPP TS 29.500 [5].

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

If the AMF received the request of removal of Service Area Restrictions and/or RFSP Index and/or UE-AMBR and/or UE-Slice-MBR(s) from the UDM, the AMF shall remove the authorized Service Area Restrictions and/or RFSP Index and/or UE-AMBR and/or UE-Slice-MBR(s) provisioned by the PCF and apply the configured Service Area Restrictions and/or RFSP Index and/or UE-AMBR and/or UE-Slice-MBR(s) at the AMF without interacting with the PCF.

If feature "DNNReplacementControl" is supported and the AMF received the update of the SMF selection information within the "smfSelInfo" attribute in the response, the AMF shall apply the updated SMF selection information to the new PDU Sessions only, i.e. already established PDU Sessions are not affected.

If the feature "AMInfluence" is supported, the PCF determines that the access and mobility policies may be influenced by the traffic of a PDU session(s), e.g. based on the received policy control request trigger(s), and local operator policies indicate the PCF for the UE shall subscribe with the PCF for the PDU session for established/terminated PDU session(s) event notifications, the PCF shall provision/update the AMF with the PCF for the UE information within the "pcfUeInfo" attribute and the complete list of S-NSSAI and DNN combinations within the "matchPdus" attribute. The AMF shall then update the affected established PDU sesssion(s), by forwarding the received PCF for the UE information for the PDU session(s) matching the new S-NSSAI and DNN combination(s) and removing the previously provided PCF for the UE information for the PDU session(s) matching the removed S-NSSAI and DNN combination(s) as defined in 3GPP TS 29.502 [31].

When the feature "AMInfluence" is supported, and the SBA binding indication information for the PCF instance changes, the PCF may update the previously provided information in the AMF. The AMF shall apply the updated PCF callback information to the new PDU Sessions only, i.e., already established PDU sessions are not affected.

If the PCF received a new 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 "servAreaRes" attribute which resulted to a change of the Service Area Restrictions, it shall send notifications to any NF Service Consumer(s) (e.g. AF) that have subscribed to the related event by using the Npcf\_AMPolicyAuthorization service (see TS 29.534 [26]) and/or the Npcf\_EventExposure service ((see TS 29.523 [28]).

If the PCF received a new list of NWDAF instance IDs used for the UE and their associated Analytic IDs within the "nwdafDatas" attribute, the PCF may select those NWDAF instances based on this new list as described in 3GPP TS 29.513 [7].

\* \* \* \* Next changes \* \* \* \*

#### 4.2.3.2 Policy Control Request Triggers

The following Policy Control Request Triggers are defined (see clause 6.1.2.5 of 3GPP TS 23.503 [4]):

- "LOC\_CH", i.e. location change (tracking area): the tracking area of the UE has changed;

- "PRA\_CH", i.e. change of UE presence in PRA: the UE is entering/leaving a Presence Reporting Area, this includes reporting the initial status at the time the request for reports is initiated;

- "SERV\_AREA \_CH", i.e. Service Area Restriction change: the UDM notifies the AMF that the subscribed service area restriction information has changed;

- "RFSP\_CH", i.e. RFSP index change: the UDM notifies the AMF that the subscribed RFSP index has changed;

- "ALLOWED\_NSSAI\_CH", i.e. change of allowed NSSAI of the served UE;

NOTE 1: The "ALLOWED\_NSSAI\_CH" trigger only applies if the "SliceSupport" feature, the "DNNReplacementControl" feature and/or "NetSliceRepl" feature is/are supported.

- "UE\_AMBR\_CH", i.e. UE-AMBR change: the UDM notifies the AMF that the subscribed UE-AMBR has changed;

NOTE 2: The "UE\_AMBR\_CH" trigger only applies if the "UE-AMBR\_Authorization" feature is supported.

- "SMF\_SELECT\_CH", i.e. SMF selection information change: UE request for an unsupported DNN or UE request for a DNN within the list of DNN candidates for replacement per S-NSSAI;

NOTE 3: The "SMF\_SELECT\_CH" trigger only applies if the "DNNReplacementControl" feature is supported and "ALLOWED\_NSSAI\_CH" trigger is also subscribed.

- "ACCESS\_TYPE\_CH", i.e. the access type change: the AMF notifies that the access type and the RAT type for a UE has changed;

NOTE 4: The "ACCESS\_TYPE\_CH" trigger only applies if the "MultipleAccessTypes" feature is supported as specified in Annex B.

- "UE\_SLICE\_MBR\_CH", i.e. UE-Slice-MBR change: the AMF notifies for 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;

NOTE 5: The "UE\_SLICE\_MBR\_CH" trigger only applies if the "UE-Slice-MBR\_Authorization" feature is supported.

- "NWDAF\_DATA\_CH", i.e. NWDAF Data change:the list of NWDAF Instance IDs and/or their associated Analytics IDs consumed by the AMF have changed;

NOTE 6: The "NWDAF\_DATA\_CH" trigger only applies if the "EneNA" feature is supported.

- "TARGET\_NSSAI", i.e. Generation of Target NSSAI: the NF service consumer notifies that the Target NSSAI was generated;

NOTE 7: The "TARGET\_NSSAI" trigger only applies if the "TargetNSSAI" feature is supported.

- "SLICE\_REPLACE\_MGMT", i.e. Network slice replacement is needed for one or more S-NSSAI(s) and the NF service consumer (i.e., AMF) cannot determine the Alternative S-NSSAI(s) for these S-NSSAI(s) or the NF service consumer (i.e., AMF) received a notification from either OAM or NSSF about network slice replacement or the replaced S-NSSAI(s) availability and the NF service consumer (i.e., AMF) is aware of the corresponding Alternative S-NSSAI(s); and

NOTE 8: The "SLICE\_REPLACE\_MGMT" trigger only applies if the "NetSliceRepl" feature is supported.

- "PARTIALLY\_ALLOWED\_NSSAI\_CH", i.e. Change of the Partially Allowed NSSAI of the served UE;

NOTE 9: The "PARTIALLY\_ALLOWED\_NSSAI\_CH" trigger only applies if the "PartNetSliceSupport" feature and/or "NetSliceRepl" feature is/are supported.

- "SNSSAIS\_PARTIALLY\_REJECTED\_CH", i.e. Change of the S-NSSAI(s) rejected partially in the RA for the served UE;

- "REJECTED\_SNSSAIS\_CH", i.e. Change of the Rejected S-NSSAI(s) in the RA for the served UE;

- "PENDING\_NSSAI\_CH", i.e. Change of the Pending NSSAI of the served UE;

NOTE 10: The "SNSSAIS\_PARTIALLY\_REJECTED\_CH", "REJECTED\_SNSSAIS\_CH" and "PENDING\_NSSAI\_CH" triggers only apply if the "PartNetSliceSupport" feature is supported.

\* \* \* \* Next changes \* \* \* \*

### 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 |
| AmRequestedValueRep | 5.6.2.9 | Contains the current applicable values corresponding to the policy control request triggers. | ImmediateReport |
| 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. |  |
| SliceUsgCtrlInfo | 5.6.2.12 | Represents network slice usage control related information. | NetSliceUsageCtrl |
| SmfSelectionData | 5.6.2.7 | Includes the SMF Selection information that may be replaced by the PCF. | DNNReplacementControl |
| SnssaiPartRejected | 5.6.2.13 | Represents a S-NSSAI rejected partially in the RA. | PartNetSliceSupport |
| TerminationNotification | 5.6.2.6 | Request to terminate a policy Association that the PCF provides in a notification. |  |
|  |  |  |  |
| 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] | Represents an access type. |  |
| Ambr | 3GPP TS 29.571 [11] | Aggregated Maximum Bit Rate. | UE-AMBR\_Authorization |
| ChargingInformation | 3GPP TS 29.512 [27] | The address(es), and if available, the instance ID and the set ID of the Charging Function. | SLAMUP |
| ClockQualityAcceptanceCriterion | 3GPP TS 29.571 [11] | Indicates the Clock quality acceptance criteria information. | NetTimeSyncStatus |
| ClockQualityDetailLevel | 3GPP TS 29.571 [11] | Contains the clock quality detail level information, that indicates whether it consists of clock quality metrics or acceptance indication. | NetTimeSyncStatus |
| Dnn | 3GPP TS 29.571 [11] | DNN | DNNReplacementControl |
| DurationSec | 3GPP TS 29.571 [11] | Duration in number of seconds. | RFSPValidityTime |
| DurationSecRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "DurationSec" data type, but with the OpenAPI "nullable: true" property. |  |
| Fqdn | 3GPP TS 29.571 [11] | FQDN |  |
| Gpsi | 3GPP TS 29.571 [11] | Generic Public Subscription Identifier |  |
| GroupId | 3GPP TS 29.571 [11] | Represents the identifier of a group of UEs. |  |
| Guami | 3GPP TS 29.571 [11] | Globally Unique AMF Identifier |  |
| Ipv4Addr | 3GPP TS 29.571 [11] | Represents an IPv4 address. |  |
| Ipv6Addr | 3GPP TS 29.571 [11] | Represents an IPv6 address. |  |
| MappingOfSnssai | 3GPP TS 29.531 [24] | Identifies the mapping of an S-NSSAI of the Allowed NSSAI or the Partially Allowed NSSAI to the corresponding S-NSSAI of the HPLMN. | DNNReplacementControlPartNetSliceSupport |
| NwdafData | 3GPP TS 29.512 [27] | Indicates an NWDAF instance ID used for the UE and its 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, | NetSliceReplPartNetSliceSupport |
| 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] | Represents error related information. |  |
| RedirectResponse | 3GPP TS 29.571 [11] | Contains redirection related information. | ES3XX |
| Uri | 3GPP TS 29.571 [11] | Represents a URI. |  |
| UserLocation | 3GPP TS 29.571 [11] | Represents user location information. |  |
| RatType | 3GPP TS 29.571 [11] | Represent a RAT type. |  |
| RfspIndex | 3GPP TS 29.571 [11] | Represent an RFSP Index. |  |
| 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, DNNReplacementControlUE-Slice-MBR\_AuthorizationNetSliceReplPartNetSliceSupport |
| SnssaiReplaceInfo | 3GPP TS 29.571 [11] | Represents the network slice replacement information. | NetSliceRepl |
| 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] | Represents a time zone. |  |
| TraceData | 3GPP TS 29.571 [11] | Represents trace data. |  |
| UintegerRm | 3GPP TS 29.571 [11] | Indicates Unsigned Integer, but with the OpenAPI "nullable: true" property. | 5GAccessStratumTime |
| WirelineServiceAreaRestriction | 3GPP TS 29.571 [11] | Represent wireline service area restriction information. | WirelineWirelessConvergence |

\* \* \* \* Next changes \* \* \* \*

#### 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 of the network 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 or non-3GPP RAT Type where the served UE is camping. Shall be provided when available. |  |
| ratTypes | array(RatType) | C | 1..N | The 3GPP and/or 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. | 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", "NetSliceRepl" and/or "DNNReplacementControl" is supported in the AMF. | SliceSupport, DNNReplacementControl, NetSliceRepl |
| partAllowedNssai | map(PartiallyAllowedSnssai) | O | 1..N | Represents the Partially Allowed NSSAI.The key of the map shall be set to the value of the "snssai" attribute of the corresponding map entry (encoded using the PartiallyAllowedSnssai data structure). | PartNetSliceSupport, NetSliceRepl |
| snssaisPartRejected | map(SnssaiPartRejected) | O | 1..N | Represents the set of S-NSSAI(s) rejected partially in the RA.The key of the map shall be set to the value of the "snssai" attribute of the corresponding map entry (encoded using the SnssaiPartRejected data structure). | PartNetSliceSupport |
| rejectedSnssais | array(Snssai) | O | 1..N | Represents the set of Rejected S-NSSAI(s) in the RA. | PartNetSliceSupport |
| pendingNssai | array(Snssai) | O | 1..N | Represents the Pending NSSAI. | PartNetSliceSupport |
| 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 | If the "DNNReplacementControl" feature is supported, this attribute shall contain the mapping of each S-NSSAI of the Allowed NSSAI, and if the "PartNetSliceSupport" feature is also supported, the mapping of each S-NSSAI of the Partially Allowed NSSAI to the corresponding S-NSSAI of the HPLMN.This attribute shall be included if available.If the "MultipleAccessTypes" feature 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, PartNetSliceSupport |
| altSliceMapInfos | array(SnssaiReplaceInfo) | C | 1..N | Represents the mapping of the replaced S-NSSAI(s) with the Alternative S-NSSAI(s) for one or more S-NSSAI(s) of the UE's Allowed NSSAI and/or Partially Allowed NSSAI.This attribute shall be included if available and the feature "NetSliceRepl" is supported in the NF service consumer.  | NetSliceRepl |
| 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. |

\* \* \* \* Next changes \* \* \* \*

#### 5.6.2.4 Type PolicyAssociationUpdateRequest

Table 5.6.2.4-1: Definition of type PolicyAssociationUpdateRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notificationUri | Uri | O | 0..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. |  |
| triggers | array(RequestTrigger) | C | 1..N | Request Triggers that the NF service consumer observes.Shall be provided when a policy control request trigger occurs. |  |
| servAreaRes | ServiceAreaRestriction | C | 0..1 | Service Area Restriction as part of the AMF Access and Mobility Policy. Shall be provided for trigger "SERV\_AREA\_CH". |  |
| wlServAreaRes | WirelineServiceAreaRestriction | C | 0..1 | Wireline Service Area Restriction as part of the AMF Access and Mobility Policy. Shall be provided for trigger "SERV\_AREA\_CH". | WirelineWirelessConvergence |
| rfsp | RfspIndex | C | 0..1 | RFSP Index as part of the AMF Access and Mobility Policy. Shall be provided for trigger "RFSP\_CH". |  |
| smfSelInfo | SmfSelectionData | C | 0..1 | The UE requested S-NSSAI and UE requested DNN. Shall be provided for trigger "SMF\_SELECT\_CH". | DNNReplacementControl |
| ueAmbr | Ambr | C | 0..1 | UE-AMBR as part of the AMF Access and Mobility Policy. Shall be provided for trigger "UE\_AMBR\_CH". | 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 for the "UE\_SLICE\_MBR\_CH" policy control request trigger. (NOTE) | UE-Slice-MBR\_Authorization |
| praStatuses | map(PresenceInfo) | C | 1..N | If the Trigger "PRA\_CH" is reported, the UE presence status for tracking area for which changes of the UE presence occurred shall be provided. The "praId" attribute within the PresenceInfo data type shall also be the key of the map. The "presenceState" attribute within the PresenceInfo data type shall be supplied. The "additionalPraId" attribute within the PresenceInfo data type shall not be supplied. The "praId" attribute within the PresenceInfo data type shall include the identifier of an individual presence reporting area. |  |
| userLoc | UserLocation | C | 0..1 | The location of the served UE shall be provided for trigger "LOC\_CH". |  |
| 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 provided for trigger "ALLOWED\_NSSAI\_CH". | SliceSupport, DNNReplacementControl, NetSliceRepl |
| partAllowedNssai | map(PartiallyAllowedSnssai) | C | 1..N | Represents the updated Partially Allowed NSSAI.It shall be provided for the trigger "PARTIALLY\_ALLOWED\_NSSAI\_CH".The key of the map shall be set to the value of the "snssai" attribute of the corresponding map entry (encoded using the PartiallyAllowedSnssai data structure). | PartNetSliceSupport, NetSliceRepl |
| snssaisPartRejected | map(SnssaiPartRejected) | C | 1..N | Represents the updated set of S-NSSAI(s) rejected partially in the RA.It shall be provided for the trigger "SNSSAIS\_PARTIALLY\_REJECTED\_CH".The key of the map shall be set to the value of the "snssai" attribute of the corresponding map entry (encoded using the SnssaiPartRejected data structure). | PartNetSliceSupport |
| rejectedSnssais | array(Snssai) | C | 1..N | Represents the updated set of Rejected S-NSSAI(s) in the RA.It shall be provided for the trigger "REJECTED\_SNSSAIS\_CH". | PartNetSliceSupport |
| pendingNssai | array(Snssai) | C | 1..N | Represents the updated Pending NSSAI.It shall be provided for the trigger "PENDING\_NSSAI\_CH". | PartNetSliceSupport |
| targetSnssais | array(Snssai) | C | 1..N | Represents the Target NSSAI. It shall be provided for the trigger "TARGET\_NSSAI". | TargetNSSAI |
| mappingSnssais | array(MappingOfSnssai) | O | 1..N | The mapping of each S-NSSAI of the Allowed NSSAI and/or the Partially Allowed NSSAI to the corresponding S-NSSAI of the HPLMN. It shall be provided for the trigger "ALLOWED\_NSSAI\_CH" and/or "PARTIALLY\_ALLOWED\_NSSAI\_CH", if available.If the "MultipleAccessTypes" feature 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, PartNetSliceSupport |
| 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 provided for trigger "ALLOWED\_NSSAI\_CH" when the feature "MultipleAccessTypes" is supported. | SliceSupport, MultipleAccessTypes, DNNReplacementControl |
| unavailSnssais | array(Snssai) | C | 1..N | Represents the unavailable S-NSSAI(s) that require network slice replacement.It shall be provided for trigger "SLICE\_REPLACE\_MGMT" when the "NetSliceRepl" feature is supported. | NetSliceRepl |
| altSliceMapInfos | array(SnssaiReplaceInfo) | C | 1..N | Represents the change or removal of mapping of the replaced S-NSSAI(s) with the Alternative S-NSSAI(s) for one or more S-NSSAI(s) of the UE's Allowed NSSAI and/or Partially Allowed NSSAI.It shall be provided for trigger "SLICE\_REPLACE\_MGMT" and the feature "NetSliceRepl" is supported. | NetSliceRepl |
| accessTypes | array(AccessType) | C | 1..N | The Access Types where the served UE is camping. Shall be provided for trigger "ACCESS\_TYPE\_CH".  | MultipleAccessTypes |
| ratTypes | array(RatType) | C | 1..N | The 3GPP RAT Types and/or non-3GPP RAT Types where the served UE is camping. Shall be provided for trigger "ACCESS\_TYPE\_CH". | MultipleAccessTypes |
| 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, modified or deactivated. For trace modification, it shall contain a complete replacement of trace data. For trace deactivation, it shall contain the Null value. |  |
| guami | Guami | C | 0..1 | The Globally Unique AMF Identifier (GUAMI) shall be provided by an AMF as service consumer during the AMF relocation. |  |
| nwdafDatas | array(NwdafData) | O | 1..N | List of NWDAF Instance IDs and their associated Analytics IDs consumed by the NF service consumer. | EneNA |
| suppFeat | SupportedFeatures | C | 0..1 | Indicates the features supported by the NF service consumer.It shall be included by the target AMF in inter-AMF mobility scenarios for trigger "FEAT\_RENEG". | FeatureRenegotiation |
| 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. |

\* \* \* \* Next changes \* \* \* \*

## 5.8 Feature negotiation

The optional features in table 5.8-1 are defined for the Npcf\_AMPolicyControl API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [5].

Table 5.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | SliceSupport | Indicates the support of AM policies differentiation based on the awareness of the allowed NSSAI. |
| 2 | PendingTransaction | This feature indicates support for the race condition handling as defined in 3GPP TS 29.513 [7]. |
| 3 | UE-AMBR\_Authorization | Indicates the support of UE-AMBR control by the PCF in the serving network. |
| 4 | DNNReplacementControl | Indicates the support of DNN replacement control. |
| 5 | MultipleAccessTypes | Indicates the support of AM policies for the multiple (i.e. 3GPP and non-3GPP) access and RAT types where the served UE is camping. |
| 6 | WirelineWirelessConvergence | Indicates the support of Wireline and Wireless access convergence. |
| 7 | ImmediateReport | Indicates the support of the current applicable values report corresponding to the policy control request triggers for policy update notification. |
| 8 | ES3XX | Extended Support for 3xx redirections. This feature indicates the support of redirection for any service operation, according to Stateless NF procedures as specified in clauses 6.5.3.2 and 6.5.3.3 of 3GPP TS 29.500 [5] and according to HTTP redirection principles for indirect communication, as specified in clause 6.10.9 of 3GPP TS 29.500 [5].  |
| 9 | UE-Slice-MBR\_Authorization | Indicates the support of UE-Slice-MBR control by the PCF in the serving network. |
| 10 | AMInfluence | Indicates the support of the alternative mechanism to support informing the PCF for the UE of PDU session(s) established/terminated events via the delivery of the PCF for the UE information necessary for the PCF for the PDU session to send notifications on PDU session(s) established/terminated events through the AMF and the SMF. |
| 11 | EneNA | This feature indicates the support of NWDAF data reporting. |
| 12 | TargetNSSAI | Indicates the support for RFSP Index associated with the Target NSSAI. |
| 13 | 5GAccessStratumTime | This feature indicates the support of 5G acess stratum time distribution parameters provisioning. |
| 14 | FeatureRenegotiation | This feature indicates the support of feature renegotiation during the update of a policy association triggered by UE mobility with AMF change. |
| 15 | NetSliceRepl | This feature indicates the support of the network slice replacement functionality as part of the enhancements of the network slicing functionality. The following functionalities are supported:- Request PCF for the Alternative S-NSSAI(s), when AMF cannot determine the Alternative S-NSSAI for an S-NSSAI.- Indicate any Change of Mapping of replaced S-NSSAI(s) with Alternative S-NSSAI(s) to receive updated AM policy from the PCF, if applicable. |
| 16 | RFSPValidityTime | This feature indicates the support of the provisioning of a validity time for the RFSP Index value that indicates the EPC/E-UTRAN access is prioritized over 5GS access. |
| 17 | NetTimeSyncStatus | This feature indicates the support of network timing synchronization status and reporting. This feature requires the support of the 5GAccessStratumTime feature as well. |
| 18 | NetSliceUsageCtrl | This feature indicates the support of the network slice usage control functionality as part of the enhancements of the network slicing functionality.The following functionalities are supported:- Support the provisioning by the PCF of the network slice usage control information (e.g., slice deregistration inactivity timer value).This feature requires the support of the "SliceSupport" and/or "DNNReplacementControl" features. |
| 19 | PartNetSliceSupport | This feature indicates the partial network slice support in a Registration Area functionality as part of the enhancements of the network slicing functionality.The following functionalities are supported:- Support the reporting of the changes in the Partially Allowed NSSAI, S-NSSAI(s) rejected partially in the RA, Rejected S-NSSAI(s) in the RA and/or the Pending NSSAI to the PCF. |
| 20 | SLAMUP | This feature indicates the support of the provisioning to the AMF of the CHF information of the CHF selected by the PCF. |

\* \* \* \* Next changes \* \* \* \*

# A.2 Npcf\_AMPolicyControl API

openapi: 3.0.0

info:

 version: 1.3.0-alpha.5

 title: Npcf\_AMPolicyControl

 description: |

 Access and Mobility Policy Control Service.

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externalDocs:

 description: 3GPP TS 29.507 V18.5.0; 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'

 rfspValTime:

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

 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.

 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'

 sliceUsgCtrlInfoSets:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the network slice usage control information.

 The key of the map shall be set to the on-demand S-NSSAI (within the "snssai" attribute

 of the corresponding map entry encoded using the SliceUsgCtrlInfo data structure) to

 which the network slice usage control information is related.

 chfInfo:

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

 suppFeat:

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

 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

 partAllowedNssai:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the Partially Allowed NSSAI.

 The key of the map shall be set to the value of the "snssai" attribute of the

 corresponding map entry (encoded using the PartiallyAllowedSnssai data

 structure).

 snssaisPartRejected:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the set of S-NSSAI(s) rejected partially in the RA.

 The key of the map shall be set to the value of the "snssai" attribute of the

 corresponding map entry (encoded using the SnssaiPartRejected data structure).

 rejectedSnssais:

 type: array

 items:

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

 minItems: 1

 pendingNssai:

 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

 altSliceMapInfos:

 description: >

 Mapping of replaced S-NSSAI(s) with Alternative S-NSSAI(s) for one or more S-NSSAI(s)

 of the UE's Allowed NSSAI and/or Partially Allowed NSSAI.

 type: array

 items:

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

 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

 partAllowedNssai:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the Partially Allowed NSSAI.

 The key of the map shall be set to the value of the "snssai" attribute of the

 corresponding map entry (encoded using the PartiallyAllowedSnssai data

 structure).

 snssaisPartRejected:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the set of S-NSSAI(s) rejected partially in the RA.

 The key of the map shall be set to the value of the "snssai" attribute of the

 corresponding map entry (encoded using the SnssaiPartRejected data structure).

 rejectedSnssais:

 type: array

 items:

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

 minItems: 1

 pendingNssai:

 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

 altSliceMapInfos:

 description: >

 Change or removal of Mapping of replaced S-NSSAI(s) with Alternative S-NSSAI(s)

 for one or more S-NSSAI(s) of the UE's Allowed NSSAI and/or Partially Allowed NSSAI.

 type: array

 items:

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

 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

 unavailSnssais:

 description: >

 Represents the unavailable S-NSSAI(s) from the UE's Allowed NSSAI and/or

 Partially Allowed NSSAI that require network slice replacement.

 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'

 rfspValTime:

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

 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'

 snssaiReplInfos:

 nullable: true

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the network slice replacement information.

 The key of the map shall be set to the concerned unavailable S-NSSAI provided within the

 "snssai" attribute of the corresponding map entry (encoded using the SnssaiReplaceInfo

 data structure) to which the network slice replacement information is related.

 sliceUsgCtrlInfoSets:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the updated network slice usage control information.

 The key of the map shall be set to the on-demand S-NSSAI (within the "snssai" attribute

 of the corresponding map entry encoded using the SliceUsgCtrlInfo data structure) to

 which the network slice usage control information is related.

 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'

 partAllowedNssai:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the Partially Allowed NSSAI.

 The key of the map shall be set to the value of the "snssai" attribute of the

 corresponding map entry (encoded using the PartiallyAllowedSnssai data

 structure).

 snssaisPartRejected:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Represents the set of S-NSSAI(s) rejected partially in the RA.

 The key of the map shall be set to the value of the "snssai" attribute of the

 corresponding map entry (encoded using the SnssaiPartRejected data structure).

 rejectedSnssais:

 type: array

 items:

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

 minItems: 1

 pendingNssai:

 type: array

 items:

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

 minItems: 1

 AsTimeDistributionParam:

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

 type: object

 properties:

 asTimeDistInd:

 type: boolean

 uuErrorBudget:

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

 clkQltDetLvl:

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

 clkQltAcptCri:

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

 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

 SliceUsgCtrlInfo:

 description: Represents network slice usage control information.

 type: object

 properties:

 snssai:

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

 deregInactivTimer:

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

 required:

 - snssai

 SnssaiPartRejected:

 description: Represents the list of the S-NSSAI(s) rejected partially in the RA.

 type: object

 properties:

 snssai:

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

 allowedTaiList:

 type: array

 items:

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

 minItems: 1

 rejectedTaiList:

 type: array

 items:

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

 minItems: 1

 required:

 - snssai

 oneOf:

 - required: [ allowedTaiList ]

 - required: [ rejectedTaiList ]

 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

 - SLICE\_REPLACE\_MGMT

 - FEAT\_RENEG

 - PARTIALLY\_ALLOWED\_NSSAI\_CH

 - SNSSAIS\_PARTIALLY\_REJECTED\_CH

 - REJECTED\_SNSSAIS\_CH

 - PENDING\_NSSAI\_CH

 - 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 for a UE 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.

 - SLICE\_REPLACE\_MGMT: Indicates that slice replacement is needed for one or more S-NSSAI(s)

 of the UE's Allowed NSSAI and/or Partially Allowed NSSAI and the AMF cannot determine the

 Alternative S-NSSAI(s) for these S-NSSAI(s).

 - FEAT\_RENEG: The NF service consumer notifies that the target AMF is requesting feature

 re-negotiation.

 - PARTIALLY\_ALLOWED\_NSSAI\_CH: Partially Allowed NSSAI change. The NF service consumer

 notifies that the set of Partially Allowed S-NSSAI(s) of the UE has changed.

 - SNSSAIS\_PARTIALLY\_REJECTED\_CH: Change of the S-NSSAI(s) rejected partially in the RA. The

 NF service consumer notifies that the set of S-NSSAI(s) rejected partially in the RA for

 the UE has changed.

 - REJECTED\_SNSSAIS\_CH: Change of the Rejected S-NSSAI(s) in the RA. The NF service consumer

 notifies that the set of the Rejected S-NSSAI(s) in the RA for the UE has changed.

 - PENDING\_NSSAI\_CH: Pending NSSAI change. The NF service consumer notifies that the set of

 Pending S-NSSAI(s) of the UE has changed.

 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 \* \* \* \*