**3GPP TSG-CT WG3 Meeting #108-eC3-201103**

[**E-Meeting**](https://www.3gpp.org/ftp/tsg_ct/WG3_interworking_ex-CN3/TSGC3_108_Sophia_Antipolis/)**, 19th -28th February 2020 (Revision of C3-201xyz)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.507** | **CR** | **0097** | **rev** | **-** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Policy Control Request Triggers for wireline access | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5WWC | | | | |  | ***Date:*** | | | 2020-02-28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | SA2 has agreed the applicable Policy Control Request Triggers for wireline access. (S2-1912501). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Specify the Policy Control Request Triggers which are applicable or not applicable to the wireline access scenario. 2. New trigger RG-TMBR is defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | 5WWC feature is not completed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 5.6.2.2, 5.6.2.3, 5.6.2.4, 5.6.2.5, 5.6.3.3, B.3.2.1, B.3.2.2.1, B.3.2.2.x (new), B.3.3, B.3.3.1, B.3.4.1, B.3.4.2, B.3.4.3, B.3.5, B.3.5.1(new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

## 3.2 Abbreviations

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

5G-BRG 5G Broadband Residential Gateway

5G-RG 5G Residential Gateway

5GC 5G Core Network

5G-CRG 5G Cable Residential Gateway

5GS 5G System

AMBR Aggregated Maximum Bit Rate

AMF Access and Mobility Management Function

BBF Broadband Forum

DNN Data Network Name

EPS Evolved Packet System

FN-BRG Fixed Network Broadband Residential Gateway

FN-CRG Fixed Network Cable Residential Gateway

FN-RG Fixed Network Residential Gateway

GBR Guaranteed Bit Rate

GPSI Generic Public Subscription Identifier

GUAMI Globally Unique AMF Identifier

HFC Hybrid Fiber-Coaxial

JSON JavaScript Object Notation

NID Network Identifier

NRF Network Repository Function

NSSAI Network Slice Selection Assistance Information

PCF Policy Control Function

PEI Permanent Equipment Identifier

PRA Presence Reporting Area

QoS Quality of Service

RFSP RAT Frequency Selection Priority

SMF Session Management Function

S-NSSAI Single Network Slice Selection Assistance Information

SNPN Stand-alone Non-Public Network

SUPI Subscription Permanent Identifier

TMBR Total Maximum Bit Rate

UDM Unified Data Management

V-PCF Visited Policy Control Function

W-5GAN Wireline 5G Access Network

W-5GBAN Wireline BBF Access Network

W-5GCAN Wireline 5G Cable Access Network

W-AGF Wireline Access Gateway Function

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

#### 5.6.2.2 Type PolicyAssociation

Table 5.6.2.2-1: Definition of type PolicyAssociation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| request | PolicyAssociationRequest | O | 0..1 | The information provided by the NF service consumer when requesting the creation of a policy association |  |
| triggers | array(RequestTrigger) | O | 1..N | Request Triggers that the PCF subscribes. Only values "LOC\_CH", "ALLOWED\_NSSAI\_CH", "SMF\_SELECT\_CH", "PRA\_CH" and, if "MultipleAccessTypes" feature is supported, "ACCESS\_TYPE\_CH" are permitted. |  |
| servAreaRes | ServiceAreaRestriction | O | 0..1 | Service Area Restriction as part of the AMF Access and Mobility Policy as determined by the PCF |  |
| wlServAreaRes | WirelineServiceAreaRestriction | O | 0..1 | Wireline Service Area Restriction as part of the AMF Access and Mobility Policy as determined by the PCF | WirelineWirelessConvergence |
| rfsp | RfspIndex | O | 0..1 | RFSP Index as part of the AMF Access and Mobility Policy as determined by the PCF. |  |
| pras | map(PresenceInfo) | C | 1..N | If the Trigger "PRA\_CH" is provided, the presence reporting area(s) for which reporting is requested 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 not be supplied. |  |
| smfSelInfo | SmfSelectionData | O | 0..1 | If the trigger "SMF\_SELECT\_CH" is provided, the conditions for SMF selection information replacement, as determined by the PCF shall be provided. | DNNReplacementControl |
| ueAmbr | Ambr | O | 0..1 | UE-AMBR as part of the AMF Access and Mobility Policy as determined by the PCF. | UE-AMBR\_Authorization |
| rgTmbr | Ambr | O | 0..1 | RG-TMBR as part of the AMF Access and Mobility Policy as determined by the PCF. | WirelineWirelessConvergence |
| suppFeat | SupportedFeatures | M | 1 | Indicates the negotiated supported features. |  |

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

#### 5.6.2.3 Type PolicyAssociationRequest

Table 5.6.2.3-1: Definition of type PolicyAssociationRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notificationUri | Uri | M | 1 | Identifies the recipient of Notifications sent by the PCF. |  |
| altNotifIpv4Addrs | array(Ipv4Addr) | O | 1..N | Alternate or backup IPv4 Addess(es) where to send Notifications. |  |
| altNotifIpv6Addrs | array(Ipv6Addr) | O | 1..N | Alternate or backup IPv6 Addess(es) where to send Notifications. |  |
| supi | Supi | M | 1 | Subscription Permanent Identifier. |  |
| gpsi | Gpsi | C | 0..1 | Generic Public Subscription Identifier. Shall be provided when available. |  |
| accessType | AccessType | C | 0..1 | The Access Type where the served UE is camping. Shall be provided when available. |  |
| accessTypes | array(AccessType) | C | 1..N | The Access Types where the served UE is camping. Shall be provided when available. | MultipleAccessTypes |
| Pei | Pei | C | 0..1 | The Permanent Equipment Identifier of the served UE. Shall be provided when available. |  |
| userLoc | UserLocation | C | 0..1 | The location of the served UE. Shall be provided when available. |  |
| timeZone | TimeZone | C | 0..1 | The time zone where the served UE is camping. Shall be provided when available. |  |
| servingPlmn | PlmnIdNid | C | 0..1 | The serving PLMN where the served UE is camping. For an SNPN the NID together with the PLMN ID identifies the SNPN. Shall be provided when available. |  |
| ratType | RatType | C | 0..1 | The 3GPP RAT Type where the served UE is camping. Shall be provided when available. |  |
| ratTypes | array(RatType) | C | 1..N | The 3GPP and non-3GPP RAT Types where the served UE is camping. Shall be provided when available. | MultipleAccessTypes |
| groupIds | Array(GroupId) | C | 1..N | List of Internal Group Identifiers of the served UE. Shall be provided when available. |  |
| servAreaRes | ServiceAreaRestriction | C | 0..1 | Service Area Restriction as part of the AMF Access and Mobility Policy. Shall be provided when available. |  |
| wlServAreaRes | WirelineServiceAreaRestriction | O | 0..1 | Wireline Service Area Restriction as part of the AMF Access and Mobility Policy as determined by the PCF | WirelineWirelessConvergence |
| rfsp | RfspIndex | C | 0..1 | RFSP Index as part of the AMF Access and Mobility Policy. Shall be provided when available. |  |
| ueAmbr | Ambr | C | 0..1 | UE-AMBR as part of the AMF Access and Mobility Policy. Shall be provided when available. | UE-AMBR\_Authorization |
| rgTmbr | Ambr | C | 0..1 | Subsribed RG-TMBR. Shall be provided when available. | WirelineWirelessConvergence |
| 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" is supported in the AMF. | SliceSupport |
| 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 features "SliceSupport" and "MultipleAccessTypes" are supported in the AMF and the UE is registered in the non-3GPP access. | SliceSupport, MultipleAccessTypes |
| 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. |  |

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

#### 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. |  |
| triggers | array(RequestTrigger) | C | 1..N | Request Triggers that the NF service consumer observes. |  |
| 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 |
| rgTmbr | Ambr | C | 0..1 | Subsribed RG-TMBR. | WirelineWirelessConvergence |
| 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. |  |
| 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 |
| 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". | SliceSupport, MultipleAccessTypes |
| 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 Type and non-3GPP RAT Type 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 | O | 0..1 | The Globally Unique AMF Identifier (GUAMI) shall be provided by an AMF as service consumer. |  |

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

#### 5.6.2.5 Type PolicyUpdate

Table 5.6.2.5-1: Definition of type PolicyUpdate

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| resourceUri | Uri | M | 1 | The resource URI of the individual AM policy related to the notification. |  |
| triggers | array(RequestTrigger) | O | 1..N | Request Triggers that the PCF subscribes. Only values "LOC\_CH", "ALLOWED\_NSSAI\_CH" and "PRA\_CH" are permitted. |  |
| servAreaRes | ServiceAreaRestriction | O | 0..1 | Service Area Restriction as part of the AMF Access and Mobility Policy as determined by the PCF. |  |
| wlServAreaRes | WirelineServiceAreaRestriction | O | 0..1 | Wireline Service Area Restriction as part of the AMF Access and Mobility Policy as determined by the PCF | WirelineWirelessConvergence |
| rfsp | RfspIndex | O | 0..1 | RFSP Index as part of the AMF Access and Mobility Policy as determined by the PCF. |  |
| smfSelInfo | SmfSelectionData | C | 0..1 | It may include updated conditions for SMF Selection information replacement. It shall include the PCF decision of the selected DNN when the "smfSelInfo" attribute containing the UE requested S-NSSAI and DNN was sent in the request. | DNNReplacementControl |
| ueAmbr | Ambr | C | 0..1 | UE-AMBR as part of the AMF Access and Mobility Policy. | UE-AMBR\_Authorization |
| rgTmbr | Ambr | O | 0..1 | RG-TMBR as part of the AMF Access and Mobility Policy as determined by the PCF. | WirelineWirelessConvergence |
| pras | map(PresenceInfoRm) | C | 1..N | If the Trigger "PRA\_CH" is provided or if that trigger was already set but the requested presence reporting areas need to be changed, the presence reporting area(s) for which reporting is requested 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 not be supplied. |  |

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

#### 5.6.3.3 Enumeration: RequestTrigger

The enumeration RequestTrigger represents the possible Policy Control Request Triggers. It shall comply with the provisions defined in table 5.6.3.3-1.

Table 5.6.3.3-1: Enumeration RequestTrigger

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| LOC\_CH | Location change (tracking area): the tracking area of the UE has changed. |  |
| PRA\_CH | Change of UE presence in PRA: the UE is entering/leaving a 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. | SliceSupport |
| UE\_AMBR\_CH | UE-AMBR change: the UDM notifies the AMF that the subscribed UE-AMBR has changed. | UE-AMBR\_Authorization |
| SMF\_SELECT\_CH | 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. | DNNReplacementControl |
| ACCESS\_TYPE\_CH | Access Type change: the AMF notifies that the access type and the RAT type combinations available in the AMF for a UE with simultaneous 3GPP and non-3GPP connectivity has changed. | MultipleAccessTypes |
| RG\_TMBR\_CH | The Subscribed RG-TMBR change: the UDM notifies the AMF that the subscribed RG-TMBR has changed. | WirelineWirelessConvergence |

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

# A.2 Npcf\_AMPolicyControl API

openapi: 3.0.0

info:

version: 1.1.0.alpha-3

title: Npcf\_AMPolicyControl

description: |

Access and Mobility Policy Control Service.

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externalDocs:

description: 3GPP TS 29.507 V16.2.0; 5G System; Access and Mobility Policy Control Service.

url: 'http://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 subclause subclause 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'

'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:

'204':

description: No Content, Notification was succesfull

'307':

description: temporary redirect

'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'

'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 succesfull

'307':

description: temporary redirect

'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'

'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'

'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'

'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 succesfully deleted

'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'

'503':

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

default:

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

/policies/{polAssoId}/update:

post:

operationId: ReportObservedEventTriggersForIndividualAMPolicyAssociation

summary: Report obeserved 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'

'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'

'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:

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. Only values "LOC\_CH" and "PRA\_CH" are permitted.

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'

rgTmbr:

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

pras:

type: object

additionalProperties:

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

minProperties: 1

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.

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'

rgTmbr:

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

allowedSnssais:

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

type: array

items:

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

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'

suppFeat:

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

required:

- notificationUri

- suppFeat

- supi

PolicyAssociationUpdateRequest:

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.

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'

rgTmbr:

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

praStatuses:

type: object

additionalProperties:

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

minProperties: 1

description: Map of PRA status information.

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

accessTypes:

type: array

items:

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

minItems: 1

ratTypes:

type: array

items:

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

minItems: 1

n3gAllowedSnssais:

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

type: array

items:

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

minItems: 1

traceReq:

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

guami:

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

PolicyUpdate:

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. Only values "LOC\_CH" and "PRA\_CH" are permitted.

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'

rgTmbr:

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

pras:

type: object

additionalProperties:

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

description: Map of PRA information.

minProperties: 1

nullable: true

required:

- resourceUri

TerminationNotification:

type: object

properties:

resourceUri:

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

cause:

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

required:

- resourceUri

- cause

SmfSelectionData:

type: object

properties:

unsuppDnn:

type: boolean

candidates:

type: object

additionalProperties:

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

minProperties: 1

nullable: true

snssai:

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

dnn:

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

nullable: true

CandidateForReplacement:

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

RequestTrigger:

anyOf:

- type: string

enum:

- LOC\_CH

- PRA\_CH

- SERV\_AREA\_CH

- RFSP\_CH

- ALLOWED\_NSSAI\_CH

- UE\_AMBR\_CH

- SMF\_SELECT\_CH

- ACCESS\_TYPE\_CH

- RG\_TMBR\_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: >

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 UE is entering/leaving a 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 the AMF notifies that the access type and the RAT type combinations available in the AMF for a UE with simultaneous 3GPP and non-3GPP connectivity has changed.

- RG\_TMBR\_CH: Subscribed RG-TMBR change. The UDM notifies the AMF that the subscribed RG-TMBR 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: >

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.

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

### B.3.2.1 General

The procedure defined in clause 4.2.2.1 is applied with following differences:

- UE is replaced by the 5G-RG or FN-RG if applicable.

- Handling of RFSP information is not applicable if the 5G-RG or FN-RG connects the 5GC via wireline access.

- Global Line ID including the line Id and either PLMN Id or operator Id is encoded within the "globalLineId" attribute of the "n3gaLocation" attribute included in the "userLoc" attribute within the PolicyAssociationRequest data structure when the 5G-RG or FN-RG connects the 5GC via W-5GBAN.

Editor's note: The data type of GlobalLineId is FFS.

- The HFC Node Identifier including the HFC Node Id and optionally the MAC address of the 5G-CRG/FN-CRG is encoded in the "hfcNodeId" attribute of the "n3gaLocation" attribute included in the "userLoc" attribute within the PolicyAssociationRequest data structure when the 5G-CRG or FN-CRG connects to the 5GC via W-5GCAN.

- Only Change of Service Area restriction and/or Change of the Allowed NSSAI policy control request triggers are provided by the PCF when the 5G-RG or FN-RG connects the 5GC via wireline access.

- The PolicyAssociationRequest data structure shall include, if available, and if the feature "WirelineWirelessConvergence" is supported, wireline access Service Area Restrictions (see subclause B.3.2.2.2) derived from the wireline access Service Area Restrictions obtained from the UDM by mapping any service areas denoted by geographical information into Line IDs (for a 5G-BRG) or HFC Node IDs (for a 5G-CRG and FN-CRG) encoded as "wlServAreaRes" attribute.

- The PolicyAssociation data type returned as body of the HTTP "201 Created" response shall include if the feature "WirelineWirelessConvergence" is supported, and if the PCF received the "wlServAreaRes" in the request, wireline Service Area Restrictions encoded as "wlServAreaRes" attribute.

- The PolicyAssociationRequest data structure shall include, if available, and if the feature "WirelineWirelessConvergence" is supported, the subscribed RG-TMBR within the "rgTmbr" attribute.

- The PolicyAssociation data type returned as body of the HTTP "201 Created" response shall include if the feature "WirelineWirelessConvergence" is supported, the authorized RG-TMBR within the "rgRmbr" attribute

- if the feature "MultipleAccessTypes" is supported, the NF service consumer (e.g. AMF) shall include:

a) the RAT type entry corresponding to non-3GPP wireline access encoded in the "ratTypes" attribute, if available; and

b) the "accessTypes" attribute indicating registration in the 3GPP access, or registration in the non-3GPP access, or registration in both 3GPP and non-3GPP access, if available.

- if the feature "MultipleAccessTypes" is supported, the PCF may include in the PolicyAssociation data type

a) the change of access type Policy Control Request Trigger within the "triggers" attribute.

- If the feature "SliceSupport" is supported in the AMF, the UE is registered in the non-3GPP access, and the feature "MultipleAccessTypes" is supported, the NF service consumer (e.g. AMF) shall include the allowed NSSAI in the non-3GPP access encoded in the "n3gAllowedSnssais" attribute.

- The PEI that may be included within the "pei" attribute shall have one of the following representations:

i. If the 5G-BRG supports only wireline access, the PEI shall be the 5G-BRG MAC address.

ii. If the 5G-CRG supports only wireline access, the PEI shall be the cable modem MAC address.

iii. If the 5G-RG supports at least one 3GPP access technology, the PEI shall be the allocated IMEI or IMEISV.

iv. For the FN-BRG and FN-CRG, the PEI shall be the FN-RG MAC address.

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

#### B.3.2.2.1 General

The functionality defined in subclause 4.2.2.3 shall apply with the following modifications:

- UE-AMBR defined in subclause 4.2.2.3.3 shall not apply for wireline access.

- RFSP Index defined in subclause 4.2.2.3.2 shall not apply for wireline access.

- Service Area Restriction defined in subclause 4.2.2.3.1 is only applicable for a 5G-RG connected via NG-RAN. The wireline access Service Area Restriction defined in subclause B.3.2.2.2 shall apply for a FN-CRG and/or a 5G-RG (5G-BRG and 5G-CRG) connected via wireline access.

- RG-TMBR defined in Annex B.3.2.2.x shall apply for a 5G-RG or a FN-CRG connected via wireline access.

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

#### B.3.2.2.x RG-TMBR

The RG-TMBR limits the aggregate bit rate that can be expected to be provided across all GBR and Non-GBR QoS Flows of a RG.

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

## B.3.3 Npcf\_AMPolicyControl\_UpdateNotify Service Operation

### B.3.3.1 General

The functionality defined in subclause 4.2.4.2 and 4.2.4.3 shall apply with the following modifications:

- The PolicyUpdate data type my include if the feature "WirelineWirelessConvergence" is supported, the authorized RG-TMBR within the "rgTmbr" attribute

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

### B.3.4.1 General

The general procedure specified in subclause 4.2.3.2 to modify an existing AM policy association shall apply with the exception that for a FN-RG or a 5G-RG registering via wireline access only, the existing AM policy association shall not be updated due to location change (tracking area), change of UE presence in PRA, or RFSP index change.

If the feature "MultipleAccessTypes" is supported, the NF service consumer may include in the PolicyAssociationUpdateRequest data structure:

- if the Access Type and the RAT type changed, the list of Access Type and RAT Type combinations available encoded in the "accessTypes" attribute, "ratTypes" attribute.

When the feature "MultipleAccessTypes" is supported the PCF may include in the PolicyUpdate data type the access type change Policy Control Request Trigger (see subclause B.3.4.2) encoded within the "triggers" attribute.

If the feature "SliceSupport" is supported in the AMF, the UE is registered in the non-3GPP access, and the feature "MultipleAccessTypes" is supported, the NF service consumer (e.g. AMF) shall include the allowed NSSAI in the non-3GPP access encoded in the "n3gAllowedSnssais" attribute together with the "ALLOWED\_NSSAI\_CH" policy control request trigger when a change of the allowed NSSAI for the non-3GPP access occurred.

In addition, if the feature "WirelineWirelessConvergence" is supported:

- the PolicyAssociationUpdateRequest data structure shall include if a wireline access Service Area restriction change occurred, the wireline access Service Area Restrictions (see subclause B.3.2.2.2) derived from the ones obtained from the UDM encoded as "wlServAreaRes" attribute;

- the PolicyUpdate data returned in the response, if the PCF received the " wlServAreaRes" attribute in the request, wireline access Service Area Restrictions encoded as "wlServAreaRes" attribute;

- the PolicyAssociationUpdateRequest data structure shall include if a subscribed RG-TMBR change occurred, the subscribed RG-TMBR encoded as "rgTmbr" attribute;

- the PolicyUpdate data returned in the response, if the PCF received the "rgTmbr" attribute in the request, authorized RG-TMBR encoded as "rgTmbr" attribute.

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

### B.3.4.2 Policy Control Request Triggers

For a 5G-RG registering via NG-RAN, the Policy Control Request Triggers defined in subclause 4.2.3.2 shall apply.

For a FN-RG or a 5G-RG registering via wireline access, only the following Policy Control Request Triggers defined in subclause 4.2.3.2 shall apply:

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

- "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 is supported.

NOTE 2: The "SERV\_AREA\_CH" trigger is also used to notify that the subscribed wireline access service area restriction information has changed.

- "ACCESS\_TYPE\_CH", i.e. the access type change: the AMF notifies that the access type and the RAT type combinations available in the AMF for a UE with simultaneous 3GPP and non-3GPP connectivity has changed.

NOTE 3: The "ACCESS\_TYPE\_CH" trigger only applies if the "MultipleAccessTypes" feature is supported.

- "SMF\_SELECT\_CH", i.e. SMF selection information change; and

NOTE x1: The "SMF\_SELECT\_CH" trigger only applies if the "DNNReplacementControl" feature is supported.

- "RG\_TMBR\_CH", i.e. the Subscribed RG-TMBR has changed.

NOTE x2: The "RG\_TMBR\_CH" trigger only applies if the "WirelineWirelessConvergence" feature is supported.

### B.3.4.3 Encoding of updated policy

Updated policies shall be encoded within the PolicyUpdate as specified in subclause 4.2.3.3 with the modifications listed in subclauses B.3.4.1, B.3.4.2, and this subclause.

- AMF Access and Mobility Policy (see subclause B.3.2.2.2) Service Area Restriction for wireline access is encoded as "wlServAreaRes" attribute.

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

## B.3.5 Npcf\_AMPolicyControl\_Delete Service Operation

### B.3.5.1 General

The functionality defined in subclause 4.2.5 shall apply.

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