**3GPP TSG-CT WG3 Meeting #128 *C3-232284r1***

**Bratislava, Slovakia, 22nd - 26th May, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.512** | **CR** | **1094** | **rev** | **1** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | updating the S-NSSAI of the PDU Session | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNS\_Ph3 | | | | |  | ***Date:*** | | | 2023-5-15 |
|  |  | | | |  | |  | | |  |
| ***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 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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to the approved S2-2306044 (CR 1023 to TS 23.503), the SMF includes the Alternative S-NSSAI in SM Policy Association modification request to PCF to update the S-NSSAI of the PDU Session when the existing PDU Session is transferred from S-NSSAI to Alternative S-NSSAI.  This requirement should be implemented in 29.512. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | "sliceInfo" attribute containing the Alternative S-NSSAI is added to SmPolicyUpdateContextData data type.  A new trigger "SLICE\_CHG" is defined.  A new feature "SliceReplacement" is introduced. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not fulfilled stage 2 requirement. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.4.2, 5.6.2.19, 5.6.3.6, 5.8, A.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS23.503 CR#1023 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR introduces backward compatible new features to the OpenAPI file for Npcf\_SMPolicyControl API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.2.4.2 Requesting the update of the Session Management related policies



Figure 4.2.4.2-1: Requesting the update of the Session Management related policies

When the NF service consumer detects that one or more policy control request triggers are met, the NF service consumer shall send a POST request to the PCF to update an Individual SM Policy resource. The {smPolicyId} in the URI identifies the Individual SM Policy resource to be updated. The NF service consumer include SmPolicyUpdateContextData data structure in the payload body of the HTTP POST to request a update of representation of the "Individual SM Policy" resource. The NF service consumer shall include the met policy control request trigger(s) within the "repPolicyCtrlReqTriggers" attribute and applicable updated value(s) in the corresponding attribute(s).

The NF service consumer shall include (if the corresponding policy control request trigger is met and the applicable information is available) in SmPolicyUpdateContextData data structure:

- type of access within the "accessType" attribute;

- type of the radio access technology within the "ratType" attribute;

- the new allocated UE Ipv4 address within the "ipv4Address" attribute and/or the UE Ipv6 prefix within the "ipv6AddressPrefix" attribute;

- an additional new allocated UE Ipv6 prefix within the "addIpv6AddrPrefixes" attribute, if the "MultiIpv6AddrPrefix" feature is supported;

- multiple new allocated UE Ipv6 prefixes within the "multiIpv6Prefixes" attribute, if the "UnlimitedMultiIpv6Prefix" feature is supported;

- the released UE Ipv4 address within the "relIpv4Address" attribute and/or the UE Ipv6 prefix within the "relIpv6AddressPrefix" attribute;

- an additional released UE Ipv6 prefix within the "addRelIpv6AddrPrefixes" attribute, if the "MultiIpv6AddrPrefix feature" is supported;

- multiple released UE Ipv6 prefixes within the "multiRelIpv6Prefixes" attribute, if the "UnlimitedMultiIpv6Prefix feature" is supported;

- the UE MAC address within the "ueMac" attribute;

- the released UE MAC address within the "relUeMac" attribute;

- the indication of UE supporting reflective QoS within the "refQosIndication" attribute;

- access network charging identifier within the "accNetChIds" attribute;

- the 3GPP PS data off status within the "3gppPsDataOffStatus" attribute, if the "3GPP-PS-Data-Off" feature is supported;

- the UE time zone information within the "ueTimeZone" attribute;

- the UDM subscribed Session-AMBR or, if the "DN-Authorization" feature is supported, the DN-AAA authorized Session-AMBR within the "subsSessAmbr" attribute;

NOTE 1: When both, the UDM subscribed Session-AMBR and the DN-AAA authorized Session-AMBR are available in the NF service consumer, the NF service consumer includes the DN-AAA authorized Session-AMBR.

- if the "VPLMN-QoS-Control" feature is supported, the highest Session-AMBR and the default QoS supported in the VPLMN within the "vplmnQos" attribute, if available;

NOTE 2: In home routed roaming, the H-SMF may provide the QoS constraints received from the VPLMN (defined in 3GPP TS 23.502 [3] clause 4.3.2.2.2) to the PCF.

- if the "DN-Authorization" feature is supported, the DN-AAA authorization profile index within the "authProfIndex" attribute;

- subscribed Default QoS Information within the "subsDefQos" attribute;

- detected application information within the "appDetectionInfos" attribute;

- if the "UMC" feature is supported, the accumulated usage reports within the "accuUsageReports" attribute;

- if the "PRA" feature is supported, the reported presence reporting area information within the "repPraInfos" attribute;

- the QoS flow usage required of the default QoS flow within the "qosFlowUsage" attribute;

- indication whether the QoS targets of one or more SDFs are not guaranteed or guaranteed again within the "qncReports" attribute;

- user location(s) information within the "userLocationInfo" attribute;

NOTE 3: The SMF encodes both 3GPP and non-3GPP access UE location in the "userLocationInfo" attribute when they are both received from the AMF.

- if the "GroupIdListChange" feature is supported, the Internal Group Identifier(s) of the served UE within the "interGrpIds " attribute;

- if the "SatBackhaulCategoryChg" or "EnSatBackhaulCatChg" feature is supported, the satellite backhaul category or non-satellite backhaul within the "satBackhaulCategory" attribute;

- if the "AMInfluence" feature is supported, the PCF for the UE callback URI and, if received, SBA binding information within the "pcfUeInfo" attribute;

- serving network function identifier within the "servNfId" attribute;

- identifier of the serving network within the "servingNetwork" attribute;

- when the "EneNA" feature is supported, the list of NWDAF instance IDs used for the PDU Session within the "nwdafInstanceId" and their associated Analytic ID(s) within "nwdafEvents" updated with the new values included within the "nwdafDatas" attribute; and

NOTE 4: The NF service consumer provides the complete updated list of NWDAF instance IDs and associated Analytic ID(s) used for the PDU session. If all NWDAF data is deleted an empty list is included.

- if the"FFS" feature is supported, the alternate S-NSSAI used to replace the existing S-NSSAI for the PDU Session within the "sliceInfo" attribute.

Editor’s Note: Name of the feature for the support of S-NSSAI replacement is FFS.

The NF service consumer may include in "SmPolicyUpdateContextData" data structure the IPv4 address domain identity within the "ipDomain" attribute.

In case of a successful update, "200 OK" response shall be returned. The PCF shall include in the "200 OK" response the representation of the updated policies within the SmPolicyDecision data structure. Detailed procedures related to the provisioning and enforcement of the policy decisions within the SmPolicyDecision data structure are contained in clause 4.2.6.

NOTE 5: An empty SmPolicyDecision data structure is included in the "200 OK" response when the PCF decides not to update policies.

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

If errors occur when processing the HTTP POST request, the PCF shall send an HTTP error response as specified in clause 5.7.

If the feature "ES3XX" is supported, and the PCF determines the received HTTP POST request needs to be redirected, the PCF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

If the PCF is, due to incomplete, erroneous or missing information (e.g. QoS, RAT type, subscriber information) not able to provision a policy decision as response to the request for PCC rules by the NF service consumer, 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\_INITIAL\_PARAMETERS".

If the PCF receives the set of session information which is sent in the message originated due to a trigger being met is incoherent with the previous set of session information for the same session (E.g. trigger met was RAT changed, and the RAT notified is the same as before), 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\_TRIGGER\_EVENT".

If the PCF detects that the packet filters in the request for new PCC rules received from the NF service consumer is covered by the packet filters of outstanding PCC rules that the PCF is provisioning to the NF service consumer, the PCF may reject the request and include in an HTTP "403 Forbidden" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_CONFLICTING\_REQUEST".

If the PCF does not accept one or more of the traffic mapping filters provided by the NF service consumer in an HTTP POST request (e.g. because the PCF does not allow the UE to request enhanced QoS for services not known to the PCF), the PCF shall reject the request and include in an HTTP "403 Forbidden" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_TRAFFIC\_MAPPING\_INFO\_REJECTED".

If the NF service consumer receives HTTP response with these codes, the NF service consumer shall reject the PDU session modification that initiated the HTTP Request.

The PCF shall not combine a rejection with provisioning of PCC rule operations in the same HTTP response message.

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

#### 5.6.2.19 Type SmPolicyUpdateContextData

Table 5.6.2.19-1: Definition of type SmPolicyUpdateContextData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| repPolicyCtrlReqTriggers | array(PolicyControlRequestTrigger) | C | 1..N | The policy control request triggers which are met. It is omitted if no triggers are met such as in clauses 4.2.4.7 and 4.2.4.15. |  |
| accNetChIds | array(AccNetChId) | O | 1..N | Indicates the access network charging identifier for the whole PDU session. For EPS interworking scenarios, it indicates the access network charging identifier for the PCC rule(s) or the whole PDU session. |  |
| accessType | AccessType | O | 0..1 | The Access Type where the served UE is camping. |  |
| ratType | RatType | O | 0..1 | The RAT Type where the served UE is camping. |  |
| addAccessInfo | AdditionalAccessInfo | O | 0..1 | Indicates the combination of added Access Type and RAT Type for MA PDU session. | ATSSS |
| relAccessInfo | AdditionalAccessInfo | O | 0..1 | Indicates the combination of released Access Type and RAT Type for MA PDU session. | ATSSS |
| servingNetwork | PlmnIdNid | O | 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. |  |
| userLocationInfo | UserLocation | O | 0..1 | The location(s) where the served UE is camping. (NOTE 4) |  |
| ueTimeZone | TimeZone | O | 0..1 | The time zone where the served UE is camping. |  |
| Ipv4Address | Ipv4Addr | O | 0..1 | The Ipv4 Address of the served UE. |  |
| ipDomain | string | O | 0..1 | Ipv4 address domain identifier.  (NOTE 2) |  |
| relIpv4Address | Ipv4Addr | O | 0..1 | Indicates the released Ipv4 Address of the served UE. |  |
| Ipv6AddressPrefix | Ipv6Prefix | O | 0..1 | The Ipv6 Address Prefix of the served UE. (NOTE 6) |  |
| relIpv6AddressPrefix | Ipv6Prefix | O | 0..1 | Indicates the released Ipv6 Address Prefix of the served UE in multi-homing case. (NOTE 6) |  |
| relUeMac | MacAddr48 | O | 0..1 | Indicates the released MAC Address of the served UE. |  |
| ueMac | MacAddr48 | O | 0..1 | The MAC Address of the served UE. |  |
| subsSessAmbr | Ambr | O | 0..1 | UDM subscribed or DN-AAA authorized Session-AMBR. |  |
| authProfIndex | string | O | 0..1 | DN-AAA authorization profile index. | DN-Authorization |
| subsDefQos | SubscribedDefaultQos | O | 0..1 | Subscribed Default QoS Information. |  |
| vplmnQos | VplmnQos | O | 0..1 | QoS constraints in a VPLMN (NOTE 5) | VPLMN-QoS-Control |
| vplmnQosNotApp | boolean | O | 0..1 | If it is included and set to true, indicates that the QoS constraints in the VPLMN are not applicable. (NOTE 5) | VPLMN-QoS-Control |
| numOfPackFilter | integer | O | 0..1 | Contains the number of supported packet filter for signalled QoS rules.  (NOTE 1) |  |
| accuUsageReports | array(AccuUsageReport) | O | 1..N | Contains the accumulated usage report(s). | UMC |
| 3gppPsDataOffStatus | boolean | O | 0..1 | If it is included and set to true, the 3GPP PS Data Off is activated by the UE. | 3GPP-PS-Data-Off |
| appDetectionInfos | array(AppDetectionInfo) | O | 1..N | Reports the start/stop of the application traffic and detected SDF descriptions if applicable. | ADC |
| ruleReports | array(RuleReport) | O | 1..N | Used to report the PCC rule failure. |  |
| sessRuleReports | array(SessionRuleReport) | O | 1..N | Used to report the session rule failure. | SessionRuleErrorHandling |
| qncReports | array(QosNotificationControlInfo) | O | 1..N | QoS Notification Control information. |  |
| qosMonReports | array(QosMonitoringReport) | O | 1..N | QoS Monitoring reporting information. | QosMonitoring |
| userLocationInfoTime | DateTime | O | 0..1 | Contains the NTP time at which the UE was last known to be in the location. (NOTE 3) |  |
| repPraInfos | map(PresenceInfo) | O | 1..N | Reports the changes of presence reporting area. 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. | PRA |
| ueInitResReq | UeInitiatedResourceRequest | O | 0..1 | Indicates a UE requests specific QoS handling for selected SDF. |  |
| refQosIndication | boolean | O | 0..1 | If it is included and set to true, the reflective QoS is supported by the UE. If it is included and set to false, the reflective QoS is revoked by the UE. |  |
| qosFlowUsage | QosFlowUsage | O | 0..1 | Indicates the required usage for default QoS flow. |  |
| creditManageStatus | CreditManagementStatus | O | 0..1 | Indicates the reason of the credit management session failure. |  |
| servNfId | ServingNfIdentity | O | 0..1 | Contains the serving network function identity. |  |
| traceReq | TraceData | C | 0..1 | It shall be included if trace is required to be activated, modified or deactivated (see 3GPP TS 32.422 [24]). For trace modification, it shall contain a complete replacement of trace data.  For trace deactivation, it shall contain the Null value. |  |
| addIpv6AddrPrefixes | Ipv6Prefix | O | 0..1 | An additional Ipv6 Address Prefix of the served UE. (NOTE 6) | MultiIpv6AddrPrefix |
| addRelIpv6AddrPrefixes | Ipv6Prefix | O | 0..1 | Indicates an additional released Ipv6 Address Prefix of the served UE. (NOTE 6) | MultiIpv6AddrPrefix |
| multiIpv6Prefixes | array(Ipv6Prefix) | O | 1..N | The Ipv6 Address Prefixes of the served UE. (NOTE 6) | UnlimitedMultiIpv6Prefix |
| multiRelIpv6Prefixes | array(Ipv6Prefix) | O | 1..N | Indicates the released Ipv6 Address Prefixes of the served UE. (NOTE 6) | UnlimitedMultiIpv6Prefix |
| tsnBridgeInfo | TsnBridgeInfo | O | 0..1 | Transports TSC user plane node information. | TimeSensitiveNetworking |
| tsnBridgeManCont | BridgeManagementContainer | O | 0..1 | Transports TSC user plane node management information. | TimeSensitiveNetworking |
| tsnPortManContDstt | PortManagementContainer | O | 0..1 | When DS-TT functionality is used, transports TSN port management information for the DS-TT port. | TimeSensitiveNetworking |
| tsnPortManContNwtts | array(PortManagementContainer) | O | 1..N | When NW-TT functionality is used, transports TSN port management information for one or more NW-TT ports. | TimeSensitiveNetworking |
| maPduInd | MaPduIndication | O | 0..1 | Contains the MA PDU session indication, i.e., MA PDU Request or MA PDU Network-Upgrade Allowed. (NOTE 1) | ATSSS |
| atsssCapab | AtsssCapability | O | 0..1 | Contains the ATSSS capability supported for the MA PDU session. (NOTE 1) | ATSSS |
| mulAddrInfos | array(IpMulticastAddressInfo) | O | 1..N | Contains the IP multicast address information. | WWC |
| policyDecFailureReports | array(PolicyDecisionFailureCode) | O | 1..N | Indicates the type(s) of the failed policy decision and/or condition data. | PolicyDecisionErrorHandling |
| invalidPolicyDecs | array(InvalidParam) | O | 1..N | Indicates the invalid parameters for the reported type(s) of the failed policy decision and/or condition data. | ExtPolicyDecisionErrorHandling |
| trafficDescriptors | array(DddTrafficDescriptor) | O | 1..N | Contains the traffic descriptor(s) | DDNEventPolicyControl |
| typesOfNotif | array(DlDataDeliveryStatus) | O | 1..N | Contains the type of notification of DDD Status. | DDNEventPolicyControl |
| pccRuleId | string | O | 0..1 | Contains the identifier of the PCC rule which is used for traffic detection of event (e.g. DDN failure). | DDNEventPolicyControl2 |
| interGrpIds | array(GroupId) | O | 1..N | Internal Group Identifier(s) of the served UE. | GroupIdListChange |
| satBackhaulCategory | SatelliteBackhaulCategory | O | 0..1 | Satellite backhaul category or non-satellite backhaul used for the PDU session. | SatBackhaulCategoryChg |
| pcfUeInfo | PcfUeCallbackInfo | O | 0..1 | PCF for the UE callback URI and SBA binding information. | AMInfluence |
| nwdafDatas | array(NwdafData) | O | 1..N | List of NWDAF Instance IDs and their associated Analytics IDs consumed by the NF service consumer. | EneNA |
| anGwStatus | boolean | O | 1..N | When it is included and set to true, it indicates that the AN-Gateway has failed and that the PCF should refrain from sending policy decisions to the SMF until it is informed that the AN-Gateway has been recovered. (NOTE 1) | SGWRest |
| uePolCont | UePolicyContainer | C | 0..1 | Indicates a UE policy container received from the UE. (NOTE 1) | EpsUrsp |
| sliceInfo | Snssai | O | 0..1 | Identifies the updated S-NSSAI. | FFS |
| NOTE 1: This attribute is only applicable to the 5GS and EPC/E-UTRAN interworking scenario as defined in Annex B.  NOTE 2: The value provided in this attribute is implementation specific. The only constraint is that the NF service consumer shall supply a different identifier for each overlapping address domain (e.g. the SMF NF instance identifier).  NOTE 3: The age of UE location included within the "userLocationInfoTime" attribute is the age of the 3GPP access UE location received from the AMF and shall be included only when the reported "userLocationInfo" attribute includes the UE location in the 3GPP access.  NOTE 4: The SMF may encode both 3GPP and non-3GPP access UE location in the "userLocationInfo" attribute.  NOTE 5: Only one of "vplmnQos" or "vplmnQosNotApp" attributes may be present.  NOTE 6: When the "WWC" feature is supported, according to 3GPP TS 23.316 [42], clause 8.3.1 and 4.6.2, more than one IPv6 prefix shorter than /64 or more than one full IPv6 addres with a /128 prefix may be allocated to the RG. When feature MultiIpv6AddrPrefix is supported, additional IPv6 prefix shorter than /64 or full IPv6 address with a /128 prefix may be reported encoded as the "addIpv6AddrPrefixes" and the "addRelIpv6AddrPrefixes" attributes, , if the "MultiIpv6AddrPrefix" feature is supported, or as the "multiIpv6Prefixes" and the "multiRelIpv6Prefixes" attributes, if the "UnlimitedMultiIpv6Prefix" feature is supported. If the attribute "multiIpv6Prefixes" is provided, then attributes "ipv6AddressPrefix" and "addIpv6AddrPrefixes" shall be both absent. If the attribute "multiRelIpv6Prefixes" is provided, then attributes "relIpv6AddressPrefix" and "addRelIpv6AddrPrefixes" shall be both absent. | | | | | |

Editor’s Note: Name of the feature for the support of S-NSSAI replacement is FFS.

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

#### 5.6.3.6 Enumeration: PolicyControlRequestTrigger

Table 5.6.3.6-1: Enumeration PolicyControlRequestTrigger

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| PLMN\_CH | PLMN Change. |  |
| RES\_MO\_RE | A request for resource modification has been received by the NF service consumer. (NOTE) |  |
| AC\_TY\_CH | Access Type Change. It also indicates the addition or removal of Access Type for MA PDU session. |  |
| UE\_IP\_CH | UE IP address change. (NOTE) |  |
| UE\_MAC\_CH | A new UE MAC address is detected or a used UE MAC address is inactive for a specific period. |  |
| AN\_CH\_COR | Access Network Charging Correlation Information. |  |
| US\_RE | The PDU Session or the Monitoring key specific resources consumed by a UE either reached the threshold or needs to be reported for other reasons. | UMC |
| APP\_STA | The start of application traffic has been detected. | ADC |
| APP\_STO | The stop of application traffic has been detected. | ADC |
| AN\_INFO | Access Network Information report. | NetLoc |
| CM\_SES\_FAIL | Credit management session failure. |  |
| PS\_DA\_OFF | The NF service consumer reports when the 3GPP PS Data Off status changes. (NOTE) | 3GPP-PS-Data-Off |
| DEF\_QOS\_CH | Default QoS Change. (NOTE) |  |
| SE\_AMBR\_CH | Session-AMBR Change. (NOTE) |  |
| QOS\_NOTIF | The NF service consumer notify the PCF when receiving notification from RAN that QoS targets of the QoS Flow cannot be guaranteed or can be guaranteed. |  |
| NO\_CREDIT | Out of credit. |  |
| REALLO\_OF\_CREDIT | Reallocation of credit | ReallocationOfCredit |
| PRA\_CH | Change of UE presence in Presence Reporting Area. | PRA |
| SAREA\_CH | Location Change with respect to the Serving Area. |  |
| SCNN\_CH | Location Change with respect to the Serving CN node. |  |
| RE\_TIMEOUT | Indicates the NF service consumer generated the request because there has been a PCC revalidation timeout (i.e. Enforced PCC rule request defined in table 6.1.3.5.-1 of 3GPP TS 23.503 [6]). |  |
| RES\_RELEASE | Indicates that the NF service consumer can inform the PCF of the outcome of the release of resources for those rules that require so. | RAN-NAS-Cause |
| SUCC\_RES\_ALLO | Indicates that the NF service consumer shall inform the PCF of the successful resource allocation for those rules that requires so. |  |
| RAT\_TY\_CH | RAT type change. |  |
| REF\_QOS\_IND\_CH | Reflective QoS indication Change. |  |
| NUM\_OF\_PACKET\_FILTER | Indicates that the NF service consumer shall report the number of supported packet filter for signalled QoS rules. (NOTE) Only applicable to the interworking scenario as defined in Annex B. |  |
| UE\_STATUS\_RESUME | Indicates that the UE's status is resumed. Only applicable to the interworking scenario as defined in Annex B. | PolicyUpdateWhenUESuspends |
| UE\_TZ\_CH | UE Time Zone Change. |  |
| AUTH\_PROF\_CH | Indicates that the DN-AAA authorization profile index has changed. (NOTE) | DN-Authorization |
| TSN\_BRIDGE\_INFO | Indicates the NF service consumer has detected information about new TSC user plane node port(s), and/or new/updated UMIC and/or PMIC(s). | TimeSensitiveNetworking |
| QOS\_MONITORING | Indicates that the NF service consumer notifies the PCF of the QoS Monitoring information. | QosMonitoring |
| SCELL\_CH | Location Change with respect to the Serving Cell. |  |
| USER\_LOCATION\_CH | Indicates that user location has changed, applicable to serving area change and serving cell change. | AggregatedUELocChanges |
| EPS\_FALLBACK | EPS Fallback report is enabled in the NF service consumer. Only applicable to the interworking scenario as defined is Annex B. | EPSFallbackReport |
| MA\_PDU | Indicates that the NF service consumer notifies the PCF of the MA PDU session request. Only applicable to the interworking scenario as defined in Annex B. (NOTE) | ATSSS |
| 5G\_RG\_JOIN | The 5G-RG has joined to an IP Multicast Group. | WWC |
| 5G\_RG\_LEAVE | The 5G-RG has left an IP Multicast Group. | WWC |
| DDN\_FAILURE | Indicates that the NF service consumer requests policies from PCF if it received an event subscription for DDN Failure event. | DDNEventPolicyControl |
| DDN\_DELIVERY\_STATUS | Indicates that the NF service consumer requests policies from PCF if it received an event subscription for DDN Delievery Status event. | DDNEventPolicyControl |
| GROUP\_ID\_LIST\_CHG | UE Internal Group Identifier(s) has changed: the NF service consumer reports that UDM provided list of group Ids has changed. (NOTE) | GroupIdListChange |
| DDN\_FAILURE\_CANCELLATION | Indicates that the event subscription for DDN Failure event is cancelled. | DDNEventPolicyControl2 |
| DDN\_DELIVERY\_STATUS\_CANCELLATION | Indicates that the event subscription for DDD STATUS is cancelled. | DDNEventPolicyControl2 |
| VPLMN\_QOS\_CH | Indicates that the NF service consumer has detected the change of the QoS supported in the VPLMN, the change from the case where the QoS constraints are applicable to the case where the QoS constraints are not applicable (e.g. the UE moves back from the home routed to the non-roaming scenario) or vice versa. (NOTE) | VPLMN-QoS-Control |
| SUCC\_QOS\_UPDATE | Indicates that the NF service consumer notifies the PCF of the successful update of the QoS for MPS. | MPSforDTS |
| SAT\_CATEGORY\_CHG | Indicates that the SMF has detected a change between different satellite category, or non-satellite backhaul. | SatBackhaulCategoryChg |
| PCF\_UE\_NOTIF\_IND | Indicates the SMF has detected the AMF forwarded the PCF for the UE indication to receive/stop receiving notifications of SM Policy association established/terminated events.  (NOTE) | AMInfluence |
| NWDAF\_DATA\_CHG | Indicates that the NWDAF instance IDs used for the PDU session and/or associated Analytics IDs have changed. (NOTE) | EneNA |
| UE\_POL\_CONT\_IND | Indicates that the NF service consumer has detected a new UE policy container. Only applicable to the interworking scenario as defined in Annex B. | EpsUrsp |
| SNSSAI\_REPLACEMENT | Indicates that the existing S-NSSAI for the PDU session has been replaced. (NOTE) | FFS |
| NOTE: The NF service consumer always reports to the PCF. | | |

Editor’s Note: Name of the feature for the support of S-NSSAI replacement is FFS.

The PCF may provision the values of policy control request trigger which are not always reported by the NF service consumer as defined in clause 4.2.6.4.

When the NF service consumer detects the corresponding policy control request trigger(s), the NF service consumer shall report the detected trigger(s) to the PCF as defined in clause 4.2.4.1 with the additional information for different independent policy control request triggers as follows:

If the "PLMN\_CH" is provisioned, when the NF service consumer detects a change of the serving network (a PLMN or an SNPN), the NF service consumer shall include the "PLMN\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current identifier of the serving network within the "servingNetwork" attribute.

NOTE 1: Handover between non-equivalent SNPNs, and between SNPN and PLMN is not supported. When the UE is operating in SNPN access mode, the trigger reports changes of equivalent SNPNs.

When the NF service consumer receives the resource modification request from the UE, the NF service consumer shall include the "RES\_MO\_RE" within the "repPolicyCtrlReqTriggers" attribute and the information for requesting the PCC rule as defined in clause 4.2.4.17.

If the "AC\_TY\_CH" is provisioned, when the NF service consumer detects a change of access type, the NF service consumer shall include the "AC\_TY\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current access type within the "accessType" attribute. The RAT type encoded in the "ratType" attribute shall also be provided when applicable to the specific access type. Specific attributes for the EPC interworking case are described in Annex B. If the ATSSS feature is supported, when the NF service consumer detects an access is added or released for MA PDU session, the NF service consumer shall include the added Access Type or released Access type encoded as "accessType" attribute within the AdditionalAccessInfo data structure. The RAT type encoded in the "ratType" attribute shall also be provided within the AdditionalAccessInfo data structure when applicable to the added access type or released access type.

When the NF service consumer detects an IPv4 address and/or an IPv6 prefix is allocated or released, the NF service consumer shall include the "UE\_IP\_CH" within the "repPolicyCtrlReqTriggers" attribute and new allocated UE Ipv4 address within the "ipv4Address" attribute and/or the UE Ipv6 prefix within the "ipv6AddressPrefix" attribute or the released UE Ipv4 address within the "relIpv4Address" attribute and/or the UE Ipv6 prefix within the "relIpv6AddressPrefix" attribute. If the "MultiIpv6AddrPrefix" feature is supported, and if an additional allocated or released IPv6 prefix is detected, the NF service consumer shall include the new allocated UE Ipv6 prefix within the "addIpv6AddrPrefixes" attribute and the released UE Ipv6 prefix within the "addRelIpv6AddrPrefixes" attribute. If the "UnlimitedMultiIpv6Prefix" feature is supported, and if multiple allocated or released IPv6 prefixes are detected, the NF service consumer shall include the new allocated UE Ipv6 prefixes within the "multiIpv6Prefixes" attribute and the released UE Ipv6 prefixes within the "mutliRelIpv6Prefixes" attribute.

When the NF service consumer detects a new UE MAC address or a used UE MAC address is not used any more, the NF service consumer shall include the "UE\_MAC\_CH" within the "repPolicyCtrlReqTriggers" attribute and new detected UE MAC address within the "ueMac" attribute or the not used UE MAC address within the "relUeMac" attribute.

If the "AN\_CH\_COR" is provisioned, when the NF service consumer is provisioned with the PCC rule as defined in clause 4.2.6.5.1, the NF service consumer shall notify the PCF of access network charging identifier associated with the PCC rules as defined in clause 4.2.4.13.

If the "US\_RE" is provisioned, when the NF service consumer receives the usage report from the UPF, the NF service consumer shall notify the PCF of the accumulated usage as defined in clause 4.2.4.10. Applicable to functionality introduced with the UMC feature as described in clause 5.8.

If the "APP\_STA" is provisioned, when the NF service consumer receives the application start report from the UPF, the NF service consumer shall notify the PCF of the application start report as defined in clause 4.2.4.6. Applicable to functionality introduced with the ADC feature as described in clause 5.8.

If the "APP\_STO" is provisioned, when the NF service consumer receives the application stop report from the UPF, the NF service consumer shall notify the PCF of the application stop report as defined in clause 4.2.4.6. Applicable to functionality introduced with the ADC feature as described in clause 5.8.

If the "AN\_INFO" is provisioned, when the NF service consumer receives the reported access network information from the access network, the NF service consumer shall notify the PCF of the access network information as defined in clause 4.2.4.9. Applicable to functionality introduced with the NetLoc feature as described in clause 5.8.

If the "CM\_SES\_FAIL" is provisioned, when the NF service consumer receives a detected transient/permanent failure from the CHF, the NF service consumer shall include the "CM\_SES\_FAIL" within the "repPolicyCtrlReqTriggers" attribute. If the failure does not apply to all PCC Rules, the affected PCC Rules are indicated within the "ruleReports" attribute, with the "ruleStatus" attribute set to value ACTIVE and the "failureCode" attribute set to the corresponding value as reported by the CHF; otherwise if the failure applies to the session, the "creditManageStatus" shall be set to the corresponding value as reported by the CHF.

If the "PS\_DA\_OFF" is provisioned, when the NF service consumer receives a change of 3GPP PS Data Off status from the UE, the NF service consumer shall notify the PCF as defined in clause 4.2.4.8. Applicable to functionality introduced with the 3GPP-PS-Data-Off feature as described in clause 5.8.

When the NF service consumer detects a change of subscribed default QoS, the NF service consumer shall include the "DEF\_QOS\_CH" within the "repPolicyCtrlReqTriggers" attribute and the new subscribed default QoS within the "subsDefQos" attribute.

When the NF service consumer detects a change of Session-AMBR, the NF service consumer shall include the "SE\_AMBR\_CH" within the "repPolicyCtrlReqTriggers" attribute and the new Session-AMBR within the "subsSessAmbr" attribute.

If the "QOS\_NOTIF" is provisioned, when the NF service consumer receives a notification from access network that QoS targets of the QoS Flow cannot be guaranteed or can be guaranteed again, the NF service consumer shall send the notification as defined in clause 4.2.4.20.

If the "NO\_CREDIT" is provisioned, when the NF service consumer detects the credit for the PCC rule(s) is no longer available, the NF service consumer shall include the "NO\_CREDIT" within the "repPolicyCtrlReqTriggers" attribute, the termination action the NF service consumer applies to the PCC rules as instructed by the CHF within the "finUnitAct" attribute and the affected PCC rules within the "ruleReports" attribute.

When the "ReallocationOfCredit" feature is supported, if the "REALLO\_OF\_CREDIT" is provisioned, when the NF service consumer detects the credit for the PCC rule(s) is reallocated, the NF service consumer shall include the "REALLO\_OF\_CREDIT" within the "repPolicyCtrlReqTriggers" attribute and include the affected PCC rules for which credit has been reallocated after credit was no longer available and the "ruleStatus" attribute set to value ACTIVE within the "ruleReports" attribute.

If the "PRA\_CH" is provisioned, to detect when the UE enters/leaves certain presence reporting areas, the NF service consumer is provisioned the presence reporting area information as defined in clause 4.2.6.5.6. When the NF service consumer receives the presence reporting area information from the serving node, the NF service consumer shall notify the PCF of the reported presence area information as defined in clause 4.2.4.16. This report includes reporting the initial status at the time the request for reports is initiated. Applicable to the functionality introduced by the PRA or ePRA feature as described in clause 5.8.

If the "SAREA\_CH" is provisioned, when the NF service consumer detects a change of serving area (i.e. tracking area, or if the feature "2G3GIWK" is supported routing area), the NF service consumer shall include the "SAREA\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current TAI within the "userLocationInfo" attribute in either the "eutraLocation" or "nrLocation", or the current Routing Area within the "userLocationInfo" attribute in the "utraLocation" attribute when UTRAN access, or in the "geraLocation" attribute when GERAN access, as applicable. Non-3GPP access user location is reported in the "n3gaLocation" attribute when applicable. The attributes used in case of EPC interworking are described in Annex B.

If the "SCNN\_CH" is provisioned, when the NF service consumer detects a change of serving Network Function (i.e. the AMF, ePDG, S-GW or if the feature "2G3GIWK" is supported SGSN), the NF service consumer shall include the "SCNN\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current serving Network Function in the "servNfId" attribute if available. When the serving Network Function is an AMF, the NF service consumer shall include the AMF Network Function Instance Identifier within the "servNfInstId" attribute and the Globally Unique AMF Identifier within the "guami" attribute. The attributes included in case of EPC interworking are described in Annex B.

NOTE 1: In the home-routed roaming case, if the AMF change is unknown to the H-SMF, then the AMF change is not reported.

If the "RE\_TIMEOUT" is provisioned, when the NF service consumer is provisioned with the revalidation time by the PCF, the NF service consumer shall request the policy before the indicated revalidation time is reached as defined in clause 4.2.4.3.

If the "RES\_RELEASE" is provisioned, when the NF service consumer receives the request of PCC rule removal as defined in clause 4.2.6.5.2, the NF service consumer shall report the outcome of resource release as defined in clause 4.2.4.12. Applicable to functionality introduced with the RAN-NAS-Cause feature as described in clause 5.8.

When "SUCC\_RES\_ALLO" is provisioned and PCC rules are provisioned according to clause 4.2.6.5.5, the NF service consumer shall inform the PCF of the successful resource allocation as defined in clause 4.2.4.14.

If the feature "2G3GIWK" is supported, and if the "RAI\_CH" is provisioned, when the NF service consumer detects a change of routing area, the NF service consumer shall include the "RAI\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current RAI within the "userLocationInfo" attribute as described in Annex B.

If the "RAT\_TY\_CH" is provisioned, when the NF service consumer detects a change of the RAT type, the NF service consumer shall include the "RAT\_TY\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current RAT type within the "ratType" attribute. For MA PDU session, the NF service consumer shall include the current RAT type at the SmPolicyUpdateContextData data type level or AdditionalAccessInfo data type level. If the RAT type is provided at the SmPolicyUpdateContextData data type level, the NF service consumer shall also provide the associated access type within the SmPolicyUpdateContextData data structure.

If the "REF\_QOS\_IND\_CH" is provisioned, when the NF service consumer receives a change of reflective QoS indication from the UE, the NF service consumer shall include the "REF\_QOS\_IND\_CH" within the "repPolicyCtrlReqTriggers" attribute and the indication within the "refQosIndication" attribute.

When the NF service consumer receives the number of supported packet filter for signalled QoS rules for the PDU session from the UE during the PDU Session Modification procedure after the first inter-system change from EPS to 5GS for a PDU Session established in EPS and transferred from EPS with N26 interface, the NF service consumer shall include the "NUM\_OF\_PACKET\_FILTER" within the "repPolicyCtrlReqTriggers" attribute and the number of supported packet filter for signalled QoS rules within the "numOfPackFilter" attribute. Only applicable to the interworking scenario as defined in Annex B.

If the "UE\_STATUS\_RESUME" is provisioned, when the NF service consumer detected the UE's status is resumed from suspend state, the NF service consumer shall inform the PCF of the UE status including the "UE\_STATUS\_RESUME" within "repPolicyCtrlReqTriggers" attribute. The PCF shall after this update the NF service consumer with PCC Rules or session rules if necessary. Applicable to functionality introduced with the PolicyUpdateWhenUESuspends feature as described in clause 5.8.

If the "UE\_TZ\_CH" is provisioned, when the NF service consumer detects a change of the UE Time Zone, the NF service consumer shall include the "UE\_TZ\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current UE Time Zone within the "ueTimeZone" attribute.

If the "DN-Authorization" feature is supported, when the NF service consumer detects a change of DN-AAA authorization profile index, the NF service consumer shall include the "AUTH\_PROF\_CH" within the "repPolicyCtrlReqTriggers" attribute and the new DN-AAA authorization profile index within the "authProfIndex" attribute.

If the "TimeSensitiveNetworking" or "TimeSensitiveCommunication" feature is supported and "TSN\_BRIDGE\_INFO" is provisioned, when the NF service consumer detects:

- there is information about new TSC user plane node port(s), e.g. a new manageable Ethernet port, the NF service consumer shall include the "TSN\_BRIDGE\_INFO" within the "repPolicyCtrlReqTriggers" attribute and the updated TSC user plane node information within the "tsnBridgeInfo" attribute; and/or

- the NF service consumer detects a UMIC or PMIC, the NF service consumer shall include the "TSN\_BRIDGE\_INFO" within the "repPolicyCtrlReqTriggers" attribute and the UMIC, if available, within the "tsnBridgeManCont" attribute, and/or the PMIC(s), if available, within the "tsnPortManContDstt" and the "tsnPortManContNwtts" attributes.

NOTE 2: When the NF service consumer detects updated Port Management Information of the NW-TT ports, the NF service consumer includes the PMIC within the "tsnPortManContNwtts" attribute of SmPolicyUpdateContextData data type.

If the "QoSMonitoring" feature is supported and if the "QOS\_MONITORING" is provisioned, upon receiving the QoS Monitoring report from the UPF, the NF service consumer shall send the QoS monitoring report for the concerned PC rules to the PCF as defined in clause 4.2.4.24.

If the "SCELL\_CH" is provisioned, when the NF service consumer detects a change of serving cell, the NF service consumer shall include the "SCELL\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current cell Id within the "userLocationInfo" attribute either in the "eutraLocation" attribute when EPC/E-UTRAN access or "nrLocation" attribute when NR access or "geraLocation" attribute when GERAN access or "utraLocation" attribute when UTRAN access, as applicable.

NOTE 3: Location change of serving cell can increase signalling load on multiple interfaces. Hence, it is recommended that any such serving cell changes event trigger subscription is only applied for a limited number of subscribers.

If the "AggregatedUELocChanges" feature is supported and the "USER\_LOCATION\_CH" is provisioned, when the NF service consumer detects a change of serving cell and/or a change of serving area (i.e. tracking area), the NF service consumer shall include the "USER\_LOCATION\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current serving area and/or cell Id within the "userLocationInfo" attribute in the "eutraLocation" attribute or "nrLocation" attribute or "geraLocation" attribute or "utraLocation" attribute, as applicable.

NOTE 4: The access network can be configured to report location changes only when transmission resources are established in the radio access network.

If the "EPSFallbackReport" feature is supported and the "EPS\_FALLBACK" is provisioned and there is a PCC rule installed that required the reporting, when the NF service consumer receives a PDU session modification response indicating the rejection of the establishment of the QoS flow with 5QI=1, the NF service consumer shall notify the PCF of EPS fallback as defined in clause B.3.4.6.

When the NF service consumer receives the MA PDU Request Indication or MA PDU Network-Upgrade Allowed Indication and ATSSS Capability from the UE during the PDU Session Modification procedure after the first inter-system change from EPS to 5GS for a PDU Session established in EPS and transferred from EPS with N26 interface, the NF service consumer shall include the "MA\_PDU" within the "repPolicyCtrlReqTriggers" attribute, the MA PDU session Indication in the "maPduInd" attribute, the ATSSS capability of the MA PDU session within the "atsssCapab" attribute. Only applicable to the interworking scenario as defined in Annex B.

If the "WWC" feature is supported and "5G\_RG\_JOIN" is provisioned and when the NF service consumer detects a 5G-RG has joined to an IP Multicast Group, the NF service consumer shall include the "5G\_RG\_JOIN" within the "repPolicyCtrlReqTriggers" attribute and the IP multicast addressing information within the "mulAddrInfos" attribute.

If the "WWC" feature is supported and "5G\_RG\_LEAVE" is provisioned and when the NF service consumer detects a 5G-RG has left an IP Multicast Group, the NF service consumer shall include the "5G\_RG\_LEAVE" within the "repPolicyCtrlReqTriggers" attribute and the IP multicast addressing information within the "mulAddrInfos" attribute.

If "DDNEventPolicyControl" feature is supported, and if "DDN\_FAILURE" is provisioned, when the NF service consumer receives an event subscription for DDN Failure event including the traffic descriptors, the NF service consumer shall include the "DDN\_FAILURE" within the "repPolicyCtrlReqTriggers" attribute and traffic descriptor(s) within the "trafficDescriptors" attribute.

If "DDNEventPolicyControl" feature is supported, and if "DDN\_DELIVERY\_STATUS" is provisioned, when the NF service consumer receives an event subscription for DDD Status event including the traffic descriptors, the NF service consumer shall include the "DDN\_DELIVERY\_STATUS" within the "repPolicyCtrlReqTriggers" attribute and traffic descriptor(s) within the "trafficDescriptors" attribute and the requested type(s) of notifications (notifications about downlink packets being buffered, and/or discarded).

If "GroupIdListChange" feature is supported, when the SMF receives the updated Internal Group Identifier(s) from the UDM, the SMF shall include the "GROUP\_ID\_LIST\_CHG" within the "repPolicyCtrlReqTriggers" attribute and the Internal Group Identifier(s) of the served UE within the "interGrpIds" attribute.

If "DDNEventPolicyControl2" feature is supported, and if "DDN\_FAILURE\_CANCELLATION" is provisioned, when the SMF receives a cancellation of event subscription for DDN Failure event, the SMF shall include the "DDN\_FAILURE\_CANCELLATION" within the "repPolicyCtrlReqTriggers" attribute and the PCC rule identifier of the PCC rule which is used for traffic detection of DDN failure event within the "pccRuleId" attribute.

If "DDNEventPolicyControl2" feature is supported, and if "DDN\_DELIVERY\_STATUS\_CANCELLATION" is provisioned, when the SMF receives a cancellation of event subscription for DDD Status event, the SMF shall include the "DDN\_DELIVERY\_STATUS\_CANCELLATION" within the "repPolicyCtrlReqTriggers" attribute and the PCC rule identifier of the PCC rule which is used for traffic detection of DDD status event within the "pccRuleId" attribute.

When the "VPLMN-QoS-Control" feature is supported and if the NF service consumer receives a new QoS value supported in the VPLMN, the NF service consumer shall include the "VPLMN\_QOS\_CH" within the "repPolicyCtrlReqTriggers" attribute and the received QoS constraints within the "vplmnQos" attribute; if the NF service consumer detects that the UE moves from a VPLMN with QoS constraints to the HPLMN or to a VPLMN without QoS constraints, the NF service consumer shall include the "VPLMN\_QOS\_CH" within the "repPolicyCtrlReqTriggers" attribute and the "vplmnQosNotApp" attribute set to true.

If the "MPSforDTS" feature is supported, and if "SUCC\_QOS\_UPDATE" is provisioned, when the resources for the MPS for DTS invocation/revocation are successfully allocated for MPS for DTS, the NF service consumer shall include the "SUCC\_QOS\_UPDATE" within the "repPolicyCtrlReqTriggers" attribute.

If "SatBackhaulCategoryChg" and/or "EnSatBackhaulCatChg" features are supported, and if "SAT\_CATEGORY\_CHG" is provisioned, the NF service consumer notifies the PCF when there is a change of the backhaul which is used for the PDU session between different satellite backhaul categories (i.e., GEO, MEO, LEO, or other satellite) or between a satellite backhaul and a non-satellite backhaul. When the "EnSatBackhaulCatChg" feature is supported, the different dynamic satellite backhaul categories DYNAMIC\_GEO, DYNAMIC\_MEO, DYNAMIC\_LEO and DYNAMIC\_OTHERSAT may be also reported. The NF service consumer shall include the satellite backhaul category or non-satellite backhaul within the "satBackhaulCategory" attribute together with the "SAT\_CATEGORY\_CHG" policy control request trigger within the "repPolicyCtrlReqTriggers" attribute.

NOTE 5: The type (i.e. GEO, MEO, LEO or other satellite) of the satellite involved in the backhaul is referred as the satellite backhaul category. Only a single backhaul category can be indicated.

If the "AMInfluence" feature is supported, the NF service consumer notifies the PCF about the PCF for the UE request to be notified of PDU session established/terminated events by forwarding within the "pcfUeInfo" attribute, the received PCF for the UE callback URI within the "callbackUri" attribute and, if received, SBA binding information within the "bindingInfo" attribute, together with the "PCF\_UE\_NOTIF\_IND" policy control request trigger within the "repPolicyCtrlReqTriggers" attribute. The NF service consumer notifies the PCF about the PCF for the UE request to stop being notified about the PDU session established/terminated events by sending the "pcfUeInfo" attribute set to NULL together with the "PCF\_UE\_NOTIF\_IND" policy control request trigger within the "repPolicyCtrlReqTriggers" attribute.

If "EneNA" feature is supported, the NF service consumer notifies the PCF when there is a change in the list of NWDAF Instance IDs used for the PDU Session and/or associated Analytics IDs. The NF service consumer shall include within the "nwdafDatas" attribute the list of NWDAF instance IDs used for the PDU Session within the "nwdafInstanceId" attribute and their associated Analytic ID(s) within the "nwdafEvents" attribute, and the "NWDAF\_DATA\_CHG" within the "repPolicyCtrlReqTriggers" attribute.

If the "EpsUrsp" feature is supported and "UE\_POL\_CONT\_IND" is provisioned, when the NF service consumer detects a new UE policy container, the the NF service consumer shall include the "UE\_POL\_CONT\_IND" within the "repPolicyCtrlReqTriggers" attribute and the UE policy container within the "uePolCont" attribute. Only applicable to the interworking scenario as defined in Annex B.

Editor's Note: It will be aligned with SA2 (once it is specified in 3GPP TS 23.503) the name of the Policy Control Request trigger to indicate the provisioning of a UE Policy Container and whether it needs to be provisioned or the NF service consumer always reports it to the PCF.

If "FFS" feature is supported, the NF service consumer notifies the PCF when the existing S-NSSAI for the PDU Session has been replaced. The NF service consumer shall include the updated S-NSSAI within the "sliceInfo" attribute and the "SNSSAI\_REPLACEMENT" PCRT within the "repPolicyCtrlReqTriggers" attribute.

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

## 5.8 Feature negotiation

The optional features in table 5.8-1 are defined for the Npcf\_SMPolicyControl API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

Table 5.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | TSC | This feature indicates support for traffic steering control in the (S)Gi-LAN, steering the 5G-LAN type of services or routing of the user traffic to a local Data Network identified by the DNAI per AF request. If the NF service consumer supports this feature, the PCF shall behave as described in clause 4.2.6.2.6. |
| 2 | ResShare | This feature indicates the support of service data flows that share resources. If the NF service consumer supports this feature, the PCF shall behave as described in clause 4.2.6.2.8. |
| 3 | 3GPP-PS-Data-Off | This feature indicates the support of 3GPP PS Data off status change reporting. |
| 4 | ADC | This feature indicates the support of application detection and control. |
| 5 | UMC | Indicates that the usage monitoring control is supported. |
| 6 | NetLoc | This feature indicates the support of the Access Network Information Reporting for 5GS. |
| 7 | RAN-NAS-Cause | This feature indicates the support for the detailed release cause code information from the access network.  (NOTE) |
| 8 | ProvAFsignalFlow | This feature indicates support for the feature of IMS Restoration as described in clause 4.2.3.17. If NF service consumer supports this feature the PCF may provision AF signalling IP flow information. |
| 9 | PCSCF-Restoration-Enhancement | This feature indicates support of P-CSCF Restoration Enhancement. It is used for the NF service consumer to indicate if it supports P-CSCF Restoration Enhancement. |
| 10 | PRA | This feature indicates the support of presence reporting area change reporting. The support of the update of a UE Dedicated Presence Reporting Area is unspecified. |
| 11 | RuleVersioning | This feature indicates the support of PCC rule versioning as defined in clause 4.2.6.7. |
| 12 | SponsoredConnectivity | This feature indicates support for sponsored data connectivity feature. If the NF service consumer supports this feature, the PCF may authorize sponsored data connectivity to the subscriber. |
| 13 | RAN-Support-Info | This feature indicates the support of maximum packet loss rate value(s) for uplink and/or downlink voice service data flow(s). |
| 14 | PolicyUpdateWhenUESuspends | This feature indicates the support of report when the UE is suspended and then resumed from suspend state. Only applicable to the interworking scenario as defined in Annex B. |
| 15 | AccessTypeCondition | This feature indicates the support of access type conditioned authorized Session-AMBR as defined in clause 4.2.6.3.2.4. |
| 16 | MultiIpv6AddrPrefix | This feature indicates the support of additional new/removed (up to two) Ipv6 address prefixes reporting. |
| 17 | SessionRuleErrorHandling | This feature indicates the support of session rule error handling. |
| 18 | AF\_Charging\_Identifier | This feature indicates the support of long character strings as charging identifiers. |
| 19 | ATSSS | This feature indicates the support of the access traffic switching, steering and splitting functionality as defined in clauses 4.2.6.2.17 and 4.2.6.3.4. |
| 20 | PendingTransaction | This feature indicates support for the race condition handling as defined in 3GPP TS 29.513 [7]. |
| 21 | URLLC | This feature indicates support of Ultra-Reliable Low-Latency Communication (URLLC) requirements, i.e. AF application relocation acknowledgement requirement and UE address(es) preservation. The TSC feature shall be supported in order to support this feature. |
| 22 | MacAddressRange | Indicates the support of a set of MAC addresses with a specific range in the traffic filter. |
| 23 | WWC | Indicates support of wireless and wireline convergence access as defined in annex C. |
| 24 | QosMonitoring | Indicates support of QoS monitoring as defined in clause 4.2.3.25 and 4.2.4.24. Reporting of monitoring data applies to packet delay information when only this feature is supported. |
| 25 | AuthorizationWithRequiredQoS | Indicates support of policy authorization for the AF session with required QoS as defined in clause 4.2.3.22. |
| 26 | EnhancedBackgroundDataTransfer | Indicates the support of applying the Background Data Transfer Policy to a future PDU session. |
| 27 | DN-Authorization | This feature indicates the support of DN-AAA authorization data for policy control. |
| 28 | PDUSessionRelCause | Indicates the support of "PS\_TO\_CS\_HO" PDU session release cause. |
| 29 | SamePcf | This feature indicates the support of same PCF selection for the parameter's combination. |
| 30 | ADCmultiRedirection | This feature indicates support for multiple redirection information in application detection and control. It requires the support of ADC feature. |
| 31 | RespBasedSessionRel | Indicates support of handling PDU session termination functionality as defined in clause 4.2.4.22. |
| 32 | TimeSensitiveNetworking | Indicates that the 5G System is integrated within the external network as a TSN bridge. |
| 33 | EMDBV | This feature indicates the support of the ExtMaxDataBurstVol data type defined in 3GPP TS 29.571 [11]. The use of this data type is specified in clause 4.2.2.1. |
| 34 | DNNSelectionMode | This feature indicates the support of DNN selection mode. |
| 35 | EPSFallbackReport | This feature indicates the support of the report of EPS Fallback as defined in clauses B.3.3.2 and B.3.4.6. |
| 36 | PolicyDecisionErrorHandling | This feature indicates the support of the error report of the policy decision and/or condition data which is not referred by any PCC rule or session rule as defined in clause 4.2.3.26 and 4.2.4.26. |
| 37 | DDNEventPolicyControl | This feature indicates the support for policy control in the case of DDN Failure and Delivery Status events as defined in clause 4.2.4.27. |
| 38 | ReallocationOfCredit | This feature indicates the support of notifications of reallocation of credit. |
| 39 | BDTPolicyRenegotiation | This feature indicates the support of the BDT policy re-negotiation. |
| 40 | ExtPolicyDecisionErrorHandling | This feature indicates the support of the error report of a faulty SM policy decision parameter as defined in clause 4.2.3.26 and 4.2.4.26. It requires the support of PolicyDecisionErrorHandling feature. |
| 41 | ImmediateTermination | This feature indicates the support of the termination the PDU session when the NF service consumer cannot ensure the UE, RAN, AMF, or UPF can revert to the status before the PDU session modification occurred, as defined in clause 4.2.4.21. |
| 42 | AggregatedUELocChanges | This feature indicates the support of notifications of serving area (i.e. tracking area) and/or serving cell changes. |
| 43 | 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 [4] and according to HTTP redirection principles for indirect communication, as specified in clause 6.10.9 of 3GPP TS 29.500 [4]. |
| 44 | GroupIdListChange | This feature indicates the support for the notification of changes in the list of internal group identifiers. |
| 45 | DisableUENotification | Indicates the support of disabling QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation. This feature requires that the AuthorizationWithRequiredQoS featute is also supported. |
| 46 | OfflineChOnly | This feature enables the PCF to signal the "PDU Session with offline charging only" indication as defined in clause 4.2.2.3.3. |
| 47 | Dual-Connectivity-redundant-UP-paths | Indicates the support of policy authorization of end to end redundant user plane path using dual connectivity as described in clause 4.2.2.20. |
| 48 | DDNEventPolicyControl2 | This feature indicates the support for the policy control removal in the case of DDN Failure and/or Delivery Status event(s) is cancelled as defined in clause 4.2.4.27. The DDNEventPolicyControl feature shall be supported in order to support this feature. |
| 49 | VPLMN-QoS-Control | Indicates the support of QoS constraints from the VPLMN for the derivation of the authorized Session-AMBR and authorized default QoS. |
| 50 | 2G3GIWK | This feature indicates the support of GERAN and UTRAN access over N7 interface. |
| 51 | TimeSensitiveCommunication | Indicates that the 5G System is integrated within the external network as a TSC user plane node to enable the Time Sensitive Communications and Time Synchronization. This feature requires that the TimeSensitiveNetworking feature is also supported. |
| 52 | AF\_latency | This feature indicates the support of Edge relocation considering user plane latency. This feature requires that the TSC feature is also supported. |
| 53 | SatBackhaulCategoryChg | This feature indicates the support of notification of a change between different satellite backhaul categories, or between satellite backhaul and non-satellite backhaul. |
| 54 | CHFsetSupport | Indicates the support of CHF redundancy and failover mechanisms based on CHF instance availability within a CHF Set, as described in clause 4.2.2.3.1. |
| 55 | EnATSSS | Indicates the support of ATSSS enhancement. It requires the support of ATSSS feature. |
| 56 | MPSforDTS | Indicates support of the MPSfor DTS feature as described in clause 4.2.6.2.12.4. |
| 57 | RoutingInfoRemoval | Indicates the support of the removal of the "routeToLocs" attribute from the TrafficControlData instance. |
| 58 | ePRA | This feature indicates the support of presence reporting area change reporting. It additionally supports the update of the elements of a UE Dedicated Presence Reporting Area by the full replacement of the previously provided one comparing with the PRA feature. |
| 59 | AMInfluence | Indicates the support of the delivery of the PCF for the UE request to be notified by the PCF for the PDU session about PDU session established/terminated events. |
| 60 | PvsSupport | This feature indicates the support of SNPN UE Remote Provisioning via User Plane as described in clause 4.2.2.21. |
| 61 | EneNA | This feature indicates the support of NWDAF data reporting. |
| 62 | BIUMR | This feature bit indicates whether the NF Service Consumer (e.g. SMF) and PCF supports Binding Indication Update for multiple resource contexts specified in clauses 6.12.1 and 5.2.3.2.6 of 3GPP TS 29.500 [4]. |
| 63 | EASIPreplacement | This feature indicates the support of EAS IP replacement. This feature requires that the TSC feature is also supported. |
| 64 | ExposureToEAS | This feature indicates the support of exposure of QoS monitoring results to local AF. This feature requires that QosMonitoring feature is also supported. |
| 65 | SimultConnectivity | This feature indicates the support of temporary simultaneously connectivity at edge relocation. This feature requires that the TSC feature is also supported. |
| 66 | SGWRest | This feature indicates the support of SGW Restoration procedures. Only applicable to the interworking scenario as defined in Annex B. |
| 67 | ReleaseToReactivate | This feature indicates that the PCF can request the SMF for reactivation of a PDU session based on an SM Policy Association release cause. |
| 68 | EASDiscovery | This feature indicates the support of EAS (re)discovery. |
| 69 | AccNetChargId\_String | This feature indicates the support of long character strings as access network charging identifier. |
| 70 | WLAN\_Location | This feature indicates the support of the report of the WLAN location information received from the ePDG/EPC, if available. It is only applicable to EPS interworking scenarios as specified in Annex B. |
| 71 | PackFiltAllocPrecedence | This feature indicates the support of the control of the maximum number of packet filters in the EPS network in the EPS interworking scenarios as described in Annex B. |
| 72 | SatBackhaulCategoryChg\_v2 | This feature indicates the support of the indication of satellite backhaul categories, or the indication of non-satellite backhaul during the response to the update notify request. |
| 73 | UEUnreachable | This feature indicates the support for the reporting of UE temporarily unavailable. |
| 74 | AltQoSProfilesSupportReport | This feature indicates the support of the report of whether Alternative QoS parameters are supported by NG-RAN. This feature requires that AuthorizationWithRequiredQoS feature is also supported. |
| 75 | Ext2PolicyDecisionErrorHandling | This feature indicates the support of the error report of the policy decision and/or condition data which is not referred by any PCC rule or session rule when no PCC rules and no session rules are provided and the handling of partial errors.  It requires the support of ExtPolicyDecisionErrorHandling feature. |
| 76 | PacketDelayFailureReport | Indicates the support of packet delay failure report as part of QoS Monitoring procedures. This feature requires that QosMonitoring feature is supported. |
| 77 | EnTSCAC | Indicates the support of extensions to TSCAC, e.g. burst arrival time window adaptation, periodicity adjustment.  This feature requires that TimeSensitiveCommunication feature is also supported. |
| 78 | MTU\_Size | This feature indicates the support of the report of the MTU size of the device side port. This feature requires that the TimeSensitiveCommunication feature is also supported. |
| 79 | EnSatBackhaulCatChg | This feature indicates the support of notification of dynamic satellite backhaul categories.  It requires the support of SatBackhaulCategoryChg feature. |
| 80 | SFC | This feature indicates support for application function influence on service function chaining(s). |
| 81 | EpsUrsp | This feature indicates the support of URSP provisioning in EPS. Only applicable to the interworking scenario as defined in Annex B. |
| 82 | CommonEASDNAI | This feature controls the support of the common EAS/DNAI selection. |
| 83 | UnlimitedMultiIpv6Prefix | This feature indicates the support of multiple Ipv6 address prefixes reporting. |
| 84 | NscSupportedFeatures | This feature indicates the support of provisioning of the Network Function Service Consumer features supported in Nsmf\_EventExposure service as described in 3GPP TS 29.508 [12]. |
| 9x | FFS | This feature indicates the support of S-NSSAI replacement. |
| NOTE: 5GS and EPS release cause code information is supported. The EPS release cause code information from the access network is only applicable to EPS interworking scenarios as specified in Annex B. | | |

Editor’s Note: Name of the feature for the support of S-NSSAI replacement is FFS.

\*\*\* 5th Change \*\*\*

# A.2 Npcf\_SMPolicyControl API

openapi: 3.0.0

info:

title: Npcf\_SMPolicyControl API

version: 1.3.0-alpha.2

description: |

Session Management Policy Control Service

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externalDocs:

description: 3GPP TS 29.512 V18.1.0; 5G System; Session Management Policy Control Service.

url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.512/'

security:

- {}

- oAuth2ClientCredentials:

- npcf-smpolicycontrol

servers:

- url: '{apiRoot}/npcf-smpolicycontrol/v1'

variables:

apiRoot:

default: https://example.com

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

paths:

/sm-policies:

post:

summary: Create a new Individual SM Policy.

operationId: CreateSMPolicy

tags:

- SM Policies (Collection)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: Created

content:

application/json:

schema:

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

headers:

Location:

description: Contains the URI of the newly created resource.

required: true

schema:

type: string

'308':

description: Permanent Redirect

headers:

Location:

description: >

Contains the URI of the PCF within the existing PCF binding information stored in

the BSF for the same UE ID, S-NSSAI and DNN combination.

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:

SmPolicyUpdateNotification:

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

post:

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: >

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

trigger is reported.

content:

application/json:

schema:

oneOf:

- $ref: '#/components/schemas/UeCampingRep'

- type: array

items:

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

minItems: 1

- type: array

items:

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

minItems: 1

'204':

description: No Content, Notification was succesfull

'307':

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

'308':

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

'400':

description: Bad Request.

content:

application/json:

schema:

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

'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'

SmPolicyControlTerminationRequestNotification:

'{$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'

/sm-policies/{smPolicyId}:

get:

summary: Read an Individual SM Policy

operationId: GetSMPolicy

tags:

- Individual SM Policy (Document)

parameters:

- name: smPolicyId

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/SmPolicyControl'

'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'

/sm-policies/{smPolicyId}/update:

post:

summary: Update an existing Individual SM Policy

operationId: UpdateSMPolicy

tags:

- Individual SM Policy (Document)

requestBody:

required: true

content:

application/json:

schema:

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

parameters:

- name: smPolicyId

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/SmPolicyDecision'

'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'

/sm-policies/{smPolicyId}/delete:

post:

summary: Delete an existing Individual SM Policy.

operationId: DeleteSMPolicy

tags:

- Individual SM Policy (Document)

requestBody:

required: true

content:

application/json:

schema:

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

parameters:

- name: smPolicyId

in: path

description: Identifier of a policy association.

required: true

schema:

type: string

responses:

'204':

description: No content

'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'

'502':

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

'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-smpolicycontrol: Access to the Npcf\_SMPolicyControl API

schemas:

SmPolicyControl:

description: >

Contains the parameters used to request the SM policies and the SM policies authorized by

the PCF.

type: object

properties:

context:

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

policy:

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

required:

- context

- policy

SmPolicyContextData:

description: Contains the parameters used to create an Individual SM policy resource.

type: object

properties:

accNetChId:

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

chargEntityAddr:

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

gpsi:

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

supi:

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

invalidSupi:

type: boolean

description: >

When this attribute is included and set to true, it indicates that the supi attribute

contains an invalid value.This attribute shall be present if the SUPI is not available

in the SMF or the SUPI is unauthenticated. When present it shall be set to true for an

invalid SUPI and false (default) for a valid SUPI.

interGrpIds:

type: array

items:

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

minItems: 1

pduSessionId:

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

pduSessionType:

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

chargingcharacteristics:

type: string

dnn:

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

dnnSelMode:

$ref: 'TS29502\_Nsmf\_PDUSession.yaml#/components/schemas/DnnSelectionMode'

notificationUri:

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

accessType:

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

ratType:

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

addAccessInfo:

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

servingNetwork:

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

userLocationInfo:

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

ueTimeZone:

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

pei:

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

ipv4Address:

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

ipv6AddressPrefix:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

ipDomain:

type: string

description: Indicates the IPv4 address domain

subsSessAmbr:

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

authProfIndex:

type: string

description: Indicates the DN-AAA authorization profile index

subsDefQos:

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

vplmnQos:

$ref: 'TS29502\_Nsmf\_PDUSession.yaml#/components/schemas/VplmnQos'

numOfPackFilter:

type: integer

description: Contains the number of supported packet filter for signalled QoS rules.

online:

type: boolean

description: >

If it is included and set to true, the online charging is applied to the PDU session.

offline:

type: boolean

description: >

If it is included and set to true, the offline charging is applied to the PDU session.

3gppPsDataOffStatus:

type: boolean

description: >

If it is included and set to true, the 3GPP PS Data Off is activated by the UE.

refQosIndication:

type: boolean

description: If it is included and set to true, the reflective QoS is supported by the UE.

traceReq:

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

sliceInfo:

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

qosFlowUsage:

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

servNfId:

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

suppFeat:

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

smfId:

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

recoveryTime:

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

maPduInd:

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

atsssCapab:

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

ipv4FrameRouteList:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4AddrMask'

minItems: 1

ipv6FrameRouteList:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

minItems: 1

satBackhaulCategory:

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

pcfUeInfo:

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

pvsInfo:

type: array

items:

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

minItems: 1

onboardInd:

type: boolean

description: >

If it is included and set to true, it indicates that the PDU session is used for

UE Onboarding.

nwdafDatas:

type: array

items:

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

minItems: 1

uePolCont:

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

required:

- supi

- pduSessionId

- pduSessionType

- dnn

- notificationUri

- sliceInfo

SmPolicyDecision:

description: Contains the SM policies authorized by the PCF.

type: object

properties:

sessRules:

type: object

additionalProperties:

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

minProperties: 1

description: >

A map of Sessionrules with the content being the SessionRule as described in

clause 5.6.2.7. The key used in this map for each entry is the sessRuleId

attribute of the corresponding SessionRule.

pccRules:

type: object

additionalProperties:

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

minProperties: 1

description: >

A map of PCC rules with the content being the PCCRule as described in

clause 5.6.2.6. The key used in this map for each entry is the pccRuleId

attribute of the corresponding PccRule.

nullable: true

pcscfRestIndication:

type: boolean

description: >

If it is included and set to true, it indicates the P-CSCF Restoration is requested.

qosDecs:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of QoS data policy decisions. The key used in this map for each entry is the qosId

attribute of the corresponding QosData.

chgDecs:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of Charging data policy decisions. The key used in this map for each entry

is the chgId attribute of the corresponding ChargingData.

nullable: true

chargingInfo:

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

traffContDecs:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of Traffic Control data policy decisions. The key used in this map for each entry

is the tcId attribute of the corresponding TrafficControlData.

umDecs:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of Usage Monitoring data policy decisions. The key used in this map for each entry

is the umId attribute of the corresponding UsageMonitoringData.

nullable: true

qosChars:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of QoS characteristics for non standard 5QIs. This map uses the 5QI values as keys.

qosMonDecs:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of QoS Monitoring data policy decisions. The key used in this map for each entry

is the qmId attribute of the corresponding QosMonitoringData.

nullable: true

reflectiveQoSTimer:

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

conds:

type: object

additionalProperties:

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

minProperties: 1

description: >

A map of condition data with the content being as described in clause 5.6.2.9. The key

used in this map for each entry is the condId attribute of the corresponding

ConditionData.

nullable: true

revalidationTime:

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

offline:

type: boolean

description: >

Indicates the offline charging is applicable to the PDU session when it is included and

set to true.

online:

type: boolean

description: >

Indicates the online charging is applicable to the PDU session when it is included and

set to true.

offlineChOnly:

type: boolean

default: false

description: >

Indicates that the online charging method shall never be used for any PCC rule activated

during the lifetime of the PDU session.

policyCtrlReqTriggers:

type: array

items:

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

minItems: 1

description: Defines the policy control request triggers subscribed by the PCF.

nullable: true

lastReqRuleData:

type: array

items:

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

minItems: 1

description: Defines the last list of rule control data requested by the PCF.

lastReqUsageData:

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

praInfos:

type: object

additionalProperties:

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

minProperties: 1

description: >

Map of PRA information. The praId attribute within the PresenceInfo data type is the key

of the map.

nullable: true

ipv4Index:

$ref: 'TS29519\_Policy\_Data.yaml#/components/schemas/IpIndex'

ipv6Index:

$ref: 'TS29519\_Policy\_Data.yaml#/components/schemas/IpIndex'

qosFlowUsage:

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

relCause:

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

suppFeat:

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

tsnBridgeManCont:

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

tsnPortManContDstt:

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

tsnPortManContNwtts:

type: array

items:

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

minItems: 1

redSessIndication:

type: boolean

description: >

Indicates whether the PDU session is a redundant PDU session. If absent it means the PDU

session is not a redundant PDU session.

uePolCont:

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

SmPolicyNotification:

description: Represents a notification on the update of the SM policies.

type: object

properties:

resourceUri:

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

smPolicyDecision:

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

PccRule:

description: Contains a PCC rule information.

type: object

properties:

flowInfos:

type: array

items:

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

minItems: 1

description: An array of IP flow packet filter information.

appId:

type: string

description: A reference to the application detection filter configured at the UPF.

appDescriptor:

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

contVer:

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

pccRuleId:

type: string

description: Univocally identifies the PCC rule within a PDU session.

precedence:

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

afSigProtocol:

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

appReloc:

type: boolean

description: Indication of application relocation possibility.

easRedisInd:

type: boolean

description: Indicates the EAS rediscovery is required.

refQosData:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to the QosData policy decision type. It is the qosId described in

clause 5.6.2.8.

refAltQosParams:

type: array

items:

type: string

minItems: 1

description: >

A Reference to the QosData policy decision type for the Alternative QoS parameter sets

of the service data flow.

refTcData:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to the TrafficControlData policy decision type. It is the tcId described in

clause 5.6.2.10.

refChgData:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to the ChargingData policy decision type. It is the chgId described in

clause 5.6.2.11.

nullable: true

refChgN3gData:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to the ChargingData policy decision type only applicable to Non-3GPP access

if "ATSSS" feature is supported. It is the chgId described in clause 5.6.2.11.

nullable: true

refUmData:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to UsageMonitoringData policy decision type. It is the umId described in

clause 5.6.2.12.

nullable: true

refUmN3gData:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to UsageMonitoringData policy decision type only applicable to Non-3GPP

access if "ATSSS" feature is supported. It is the umId described in clause 5.6.2.12.

nullable: true

refCondData:

type: string

description: >

A reference to the condition data. It is the condId described in clause 5.6.2.9.

nullable: true

refQosMon:

type: array

items:

type: string

minItems: 1

maxItems: 1

description: >

A reference to the QosMonitoringData policy decision type. It is the qmId described in

clause 5.6.2.40.

nullable: true

addrPreserInd:

type: boolean

nullable: true

tscaiInputDl:

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

tscaiInputUl:

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

tscaiTimeDom:

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

capBatAdaptation:

type: boolean

description: >

Indicates the capability for AF to adjust the burst sending time, when it is provided

and set to "true". The default value is "false" if omitted.

ddNotifCtrl:

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

ddNotifCtrl2:

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

disUeNotif:

type: boolean

nullable: true

packFiltAllPrec:

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

nscSuppFeats:

type: object

additionalProperties:

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

minProperties: 1

description: >

Identifies a list of Network Function Service Consumer supported per service. The key

used in this map for each entry is the ServiceName value as defined in

3GPP TS 29.510[29].

required:

- pccRuleId

nullable: true

SessionRule:

description: Contains session level policy information.

type: object

properties:

authSessAmbr:

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

authDefQos:

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

sessRuleId:

type: string

description: Univocally identifies the session rule within a PDU session.

refUmData:

type: string

description: >

A reference to UsageMonitoringData policy decision type. It is the umId described in

clause 5.6.2.12.

nullable: true

refUmN3gData:

type: string

description: >

A reference to UsageMonitoringData policy decision type to apply for Non-3GPP access. It

is the umId described in clause 5.6.2.12.

nullable: true

refCondData:

type: string

description: >

A reference to the condition data. It is the condId described in clause 5.6.2.9.

nullable: true

required:

- sessRuleId

nullable: true

QosData:

description: Contains the QoS parameters.

type: object

properties:

qosId:

type: string

description: Univocally identifies the QoS control policy data within a PDU session.

5qi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5Qi'

maxbrUl:

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

maxbrDl:

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

gbrUl:

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

gbrDl:

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

arp:

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

qnc:

type: boolean

description: >

Indicates whether notifications are requested from 3GPP NG-RAN when the GFBR can no longer

(or again) be guaranteed for a QoS Flow during the lifetime of the QoS Flow.

priorityLevel:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5QiPriorityLevelRm'

averWindow:

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

maxDataBurstVol:

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

reflectiveQos:

type: boolean

description: >

Indicates whether the QoS information is reflective for the corresponding service data

flow.

sharingKeyDl:

type: string

description: >

Indicates, by containing the same value, what PCC rules may share resource in downlink

direction.

sharingKeyUl:

type: string

description: >

Indicates, by containing the same value, what PCC rules may share resource in uplink

direction.

maxPacketLossRateDl:

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

maxPacketLossRateUl:

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

defQosFlowIndication:

type: boolean

description: >

Indicates that the dynamic PCC rule shall always have its binding with the QoS Flow

associated with the default QoS rule

extMaxDataBurstVol:

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

packetDelayBudget:

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

packetErrorRate:

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

required:

- qosId

nullable: true

ConditionData:

description: Contains conditions of applicability for a rule.

type: object

properties:

condId:

type: string

description: Uniquely identifies the condition data within a PDU session.

activationTime:

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

deactivationTime:

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

accessType:

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

ratType:

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

required:

- condId

nullable: true

TrafficControlData:

description: >

Contains parameters determining how flows associated with a PCC Rule are treated (e.g.

blocked, redirected, etc).

type: object

properties:

tcId:

type: string

description: Univocally identifies the traffic control policy data within a PDU session.

flowStatus:

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

redirectInfo:

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

addRedirectInfo:

type: array

items:

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

minItems: 1

muteNotif:

type: boolean

description: Indicates whether applicat'on's start or stop notification is to be muted.

trafficSteeringPolIdDl:

type: string

description: >

Reference to a pre-configured traffic steering policy for downlink traffic at the SMF.

nullable: true

trafficSteeringPolIdUl:

type: string

description: >

Reference to a pre-configured traffic steering policy for uplink traffic at the SMF.

nullable: true

metadata:

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

routeToLocs:

type: array

items:

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

minItems: 1

description: A list of location which the traffic shall be routed to for the AF request

nullable: true

maxAllowedUpLat:

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

easIpReplaceInfos:

type: array

items:

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

minItems: 1

description: Contains EAS IP replacement information.

nullable: true

traffCorreInd:

type: boolean

tfcCorreInfo:

$ref: 'TS29522\_TrafficInfluence.yaml#/components/schemas/TrafficCorrelationInfo'

simConnInd:

type: boolean

description: >

Indicates whether simultaneous connectivity should be temporarily maintained for the

source and target PSA.

simConnTerm:

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

upPathChgEvent:

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

steerFun:

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

steerModeDl:

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

steerModeUl:

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

mulAccCtrl:

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

candDnaiInd:

type: boolean

description: >

Indication of reporting candidate DNAI(s). If it is included and set to "true", the

candidate DNAI(s) for the PDU session need to be reported. Otherwise set to "false" or

omitted.

required:

- tcId

nullable: true

ChargingData:

description: Contains charging related parameters.

type: object

properties:

chgId:

type: string

description: Univocally identifies the charging control policy data within a PDU session.

meteringMethod:

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

offline:

type: boolean

description: >

Indicates the offline charging is applicable to the PCC rule when it is included and set

to true.

online:

type: boolean

description: >

Indicates the online charging is applicable to the PCC rule when it is included and set

to true.

sdfHandl:

type: boolean

description: >

Indicates whether the service data flow is allowed to start while the SMF is waiting for

the response to the credit request.

ratingGroup:

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

reportingLevel:

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

serviceId:

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

sponsorId:

type: string

description: Indicates the sponsor identity.

appSvcProvId:

type: string

description: Indicates the application service provider identity.

afChargingIdentifier:

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

afChargId:

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

required:

- chgId

nullable: true

UsageMonitoringData:

description: Contains usage monitoring related control information.

type: object

properties:

umId:

type: string

description: Univocally identifies the usage monitoring policy data within a PDU session.

volumeThreshold:

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

volumeThresholdUplink:

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

volumeThresholdDownlink:

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

timeThreshold:

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

monitoringTime:

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

nextVolThreshold:

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

nextVolThresholdUplink:

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

nextVolThresholdDownlink:

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

nextTimeThreshold:

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

inactivityTime:

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

exUsagePccRuleIds:

type: array

items:

type: string

minItems: 1

description: >

Contains the PCC rule identifier(s) which corresponding service data flow(s) shall be

excluded from PDU Session usage monitoring. It is only included in the

UsageMonitoringData instance for session level usage monitoring.

nullable: true

required:

- umId

nullable: true

RedirectInformation:

description: Contains the redirect information.

type: object

properties:

redirectEnabled:

type: boolean

description: Indicates the redirect is enable.

redirectAddressType:

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

redirectServerAddress:

type: string

description: >

Indicates the address of the redirect server. If "redirectAddressType" attribute

indicates the IPV4\_ADDR, the encoding is the same as the Ipv4Addr data type defined in

3GPP TS 29.571.If "redirectAddressType" attribute indicates the IPV6\_ADDR, the encoding

is the same as the Ipv6Addr data type defined in 3GPP TS 29.571.If "redirectAddressType"

attribute indicates the URL or SIP\_URI, the encoding is the same as the Uri data type

defined in 3GPP TS 29.571.

FlowInformation:

description: Contains the flow information.

type: object

properties:

flowDescription:

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

ethFlowDescription:

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

packFiltId:

type: string

description: An identifier of packet filter.

packetFilterUsage:

type: boolean

description: The packet shall be sent to the UE.

tosTrafficClass:

type: string

description: >

Contains the Ipv4 Type-of-Service and mask field or the Ipv6 Traffic-Class field and

mask field.

nullable: true

spi:

type: string

description: the security parameter index of the IPSec packet.

nullable: true

flowLabel:

type: string

description: the Ipv6 flow label header field.

nullable: true

flowDirection:

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

SmPolicyDeleteData:

description: >

Contains the parameters to be sent to the PCF when an individual SM policy is deleted.

type: object

properties:

userLocationInfo:

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

ueTimeZone:

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

servingNetwork:

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

userLocationInfoTime:

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

ranNasRelCauses:

type: array

items:

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

minItems: 1

description: Contains the RAN and/or NAS release cause.

accuUsageReports:

type: array

items:

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

minItems: 1

description: Contains the usage report

pduSessRelCause:

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

qosMonReports:

type: array

items:

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

minItems: 1

QosCharacteristics:

description: Contains QoS characteristics for a non-standardized or a non-configured 5QI.

type: object

properties:

5qi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5Qi'

resourceType:

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

priorityLevel:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5QiPriorityLevel'

packetDelayBudget:

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

packetErrorRate:

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

averagingWindow:

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

maxDataBurstVol:

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

extMaxDataBurstVol:

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

required:

- 5qi

- resourceType

- priorityLevel

- packetDelayBudget

- packetErrorRate

ChargingInformation:

description: Contains the addresses of the charging functions.

type: object

properties:

primaryChfAddress:

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

secondaryChfAddress:

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

primaryChfSetId:

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

primaryChfInstanceId:

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

secondaryChfSetId:

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

secondaryChfInstanceId:

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

required:

- primaryChfAddress

AccuUsageReport:

description: Contains the accumulated usage report information.

type: object

properties:

refUmIds:

type: string

description: >

An id referencing UsageMonitoringData objects associated with this usage report.

volUsage:

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

volUsageUplink:

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

volUsageDownlink:

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

timeUsage:

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

nextVolUsage:

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

nextVolUsageUplink:

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

nextVolUsageDownlink:

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

nextTimeUsage:

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

required:

- refUmIds

SmPolicyUpdateContextData:

description: >

Contains the policy control request trigger(s) that were met and the corresponding new

value(s) or the error report of the policy enforcement.

type: object

properties:

repPolicyCtrlReqTriggers:

type: array

items:

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

minItems: 1

description: The policy control reqeust trigges which are met.

accNetChIds:

type: array

items:

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

minItems: 1

description: >

Indicates the access network charging identifier for the PCC rule(s) or whole PDU

session.

accessType:

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

ratType:

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

addAccessInfo:

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

relAccessInfo:

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

servingNetwork:

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

userLocationInfo:

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

ueTimeZone:

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

relIpv4Address:

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

ipv4Address:

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

ipDomain:

type: string

description: Indicates the IPv4 address domain

ipv6AddressPrefix:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

relIpv6AddressPrefix:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

addIpv6AddrPrefixes:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

addRelIpv6AddrPrefixes:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

multiIpv6Prefixes:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

minItems: 1

description: The multiple allocated IPv6 prefixes of the served UE.

multiRelIpv6Prefixes:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

minItems: 1

description: The multiple released IPv6 prefixes of the served UE.

relUeMac:

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

ueMac:

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

subsSessAmbr:

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

authProfIndex:

type: string

description: Indicates the DN-AAA authorization profile index

subsDefQos:

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

vplmnQos:

$ref: 'TS29502\_Nsmf\_PDUSession.yaml#/components/schemas/VplmnQos'

vplmnQosNotApp:

type: boolean

description: >

If it is included and set to true, indicates that the QoS constraints in the VPLMN are

not applicable.

numOfPackFilter:

type: integer

description: Contains the number of supported packet filter for signalled QoS rules.

accuUsageReports:

type: array

items:

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

minItems: 1

description: Contains the usage report

3gppPsDataOffStatus:

type: boolean

description: >

If it is included and set to true, the 3GPP PS Data Off is activated by the UE.

appDetectionInfos:

type: array

items:

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

minItems: 1

description: >

Report the start/stop of the application traffic and detected SDF descriptions

if applicable.

ruleReports:

type: array

items:

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

minItems: 1

description: Used to report the PCC rule failure.

sessRuleReports:

type: array

items:

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

minItems: 1

description: Used to report the session rule failure.

qncReports:

type: array

items:

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

minItems: 1

description: QoS Notification Control information.

qosMonReports:

type: array

items:

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

minItems: 1

userLocationInfoTime:

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

repPraInfos:

type: object

additionalProperties:

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

minProperties: 1

description: >

Reports the changes of presence reporting area. The praId attribute within the

PresenceInfo data type is the key of the map.

ueInitResReq:

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

refQosIndication:

type: boolean

description: >

If it is included and set to true, the reflective QoS is supported by the UE. If it is

included and set to false, the reflective QoS is revoked by the UE.

qosFlowUsage:

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

creditManageStatus:

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

servNfId:

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

traceReq:

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

maPduInd:

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

atsssCapab:

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

tsnBridgeInfo:

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

tsnBridgeManCont:

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

tsnPortManContDstt:

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

tsnPortManContNwtts:

type: array

items:

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

minItems: 1

mulAddrInfos:

type: array

items:

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

minItems: 1

policyDecFailureReports:

type: array

items:

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

minItems: 1

description: Contains the type(s) of failed policy decision and/or condition data.

invalidPolicyDecs:

type: array

items:

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

minItems: 1

description: >

Indicates the invalid parameters for the reported type(s) of the failed policy decision

and/or condition data.

trafficDescriptors:

type: array

items:

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

minItems: 1

pccRuleId:

type: string

description: >

Contains the identifier of the PCC rule which is used for traffic detection of event.

typesOfNotif:

type: array

items:

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

minItems: 1

interGrpIds:

type: array

items:

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

minItems: 1

satBackhaulCategory:

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

pcfUeInfo:

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

nwdafDatas:

type: array

items:

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

minItems: 1

nullable: true

anGwStatus:

type: boolean

description: >

When it is included and set to true, it indicates that the AN-Gateway has failed and

that the PCF should refrain from sending policy decisions to the SMF until it is

informed that the AN-Gateway has been recovered.

uePolCont:

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

sliceInfo:

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

allOf:

- not:

required: [multiIpv6Prefixes, ipv6AddressPrefix]

- not:

required: [multiIpv6Prefixes, addIpv6AddrPrefixes]

- not:

required: [multiRelIpv6Prefixes, relIpv6AddressPrefix]

- not:

required: [multiRelIpv6Prefixes, relAddIpv6AddrPrefixes]

UpPathChgEvent:

description: Contains the UP path change event subscription from the AF.

type: object

properties:

notificationUri:

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

notifCorreId:

type: string

description: >

It is used to set the value of Notification Correlation ID in the notification sent by

the SMF.

dnaiChgType:

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

afAckInd:

type: boolean

required:

- notificationUri

- notifCorreId

- dnaiChgType

nullable: true

TerminationNotification:

description: Represents a Termination Notification.

type: object

properties:

resourceUri:

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

cause:

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

required:

- resourceUri

- cause

AppDetectionInfo:

description: Contains the detected application's traffic information.

type: object

properties:

appId:

type: string

description: A reference to the application detection filter configured at the UPF

instanceId:

type: string

description: >

Identifier sent by the SMF in order to allow correlation of application Start and Stop

events to the specific service data flow description, if service data flow descriptions

are deducible.

sdfDescriptions:

type: array

items:

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

minItems: 1

description: Contains the detected service data flow descriptions if they are deducible.

required:

- appId

AccNetChId:

description: >

Contains the access network charging identifier for the PCC rule(s) or for the whole

PDU session.

type: object

properties:

accNetChaIdValue:

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

accNetChargId:

type: string

description: A character string containing the access network charging id.

refPccRuleIds:

type: array

items:

type: string

minItems: 1

description: >

Contains the identifier of the PCC rule(s) associated to the provided Access Network

Charging Identifier.

sessionChScope:

type: boolean

description: >

When it is included and set to true, indicates the Access Network Charging Identifier

applies to the whole PDU Session

oneOf:

- required: [accNetChaIdValue]

- required: [accNetChargId]

AccNetChargingAddress:

description: Describes the network entity within the access network performing charging

type: object

anyOf:

- required: [anChargIpv4Addr]

- required: [anChargIpv6Addr]

properties:

anChargIpv4Addr:

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

anChargIpv6Addr:

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

RequestedRuleData:

description: >

Contains rule data requested by the PCF to receive information associated with PCC rule(s).

type: object

properties:

refPccRuleIds:

type: array

items:

type: string

minItems: 1

description: >

An array of PCC rule id references to the PCC rules associated with the control data.

reqData:

type: array

items:

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

minItems: 1

description: >

Array of requested rule data type elements indicating what type of rule data is

requested for the corresponding referenced PCC rules.

required:

- refPccRuleIds

- reqData

RequestedUsageData:

description: >

Contains usage data requested by the PCF requesting usage reports for the corresponding

usage monitoring data instances.

type: object

properties:

refUmIds:

type: array

items:

type: string

minItems: 1

description: >

An array of usage monitoring data id references to the usage monitoring data instances

for which the PCF is requesting a usage report. This attribute shall only be provided

when allUmIds is not set to true.

allUmIds:

type: boolean

description: >

This boolean indicates whether requested usage data applies to all usage monitoring data

instances. When it's not included, it means requested usage data shall only apply to the

usage monitoring data instances referenced by the refUmIds attribute.

UeCampingRep:

description: >

Contains the current applicable values corresponding to the policy control request triggers.

type: object

properties:

accessType:

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

ratType:

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

servNfId:

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

servingNetwork:

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

userLocationInfo:

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

ueTimeZone:

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

netLocAccSupp:

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

satBackhaulCategory:

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

RuleReport:

description: Reports the status of PCC.

type: object

properties:

pccRuleIds:

type: array

items:

type: string

minItems: 1

description: Contains the identifier of the affected PCC rule(s).

ruleStatus:

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

contVers:

type: array

items:

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

minItems: 1

description: Indicates the version of a PCC rule.

failureCode:

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

retryAfter:

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

finUnitAct:

$ref: 'TS32291\_Nchf\_ConvergedCharging.yaml#/components/schemas/FinalUnitAction'

ranNasRelCauses:

type: array

items:

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

minItems: 1

description: indicates the RAN or NAS release cause code information.

altQosParamId:

type: string

description: >

Indicates the alternative QoS parameter set that the NG-RAN can guarantee. It is

included during the report of successfull resource allocation and indicates that NG-RAN

used an alternative QoS profile because the requested QoS could not be allocated..

required:

- pccRuleIds

- ruleStatus

RanNasRelCause:

description: Contains the RAN/NAS release cause.

type: object

properties:

ngApCause:

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

5gMmCause:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5GMmCause'

5gSmCause:

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

epsCause:

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

UeInitiatedResourceRequest:

description: Indicates that a UE requests specific QoS handling for the selected SDF.

type: object

properties:

pccRuleId:

type: string

ruleOp:

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

precedence:

type: integer

packFiltInfo:

type: array

items:

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

minItems: 1

reqQos:

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

required:

- ruleOp

- packFiltInfo

PacketFilterInfo:

description: >

Contains the information from a single packet filter sent from the SMF to the PCF.

type: object

properties:

packFiltId:

type: string

description: An identifier of packet filter.

packFiltCont:

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

tosTrafficClass:

type: string

description: >

Contains the Ipv4 Type-of-Service and mask field or the Ipv6 Traffic-Class field and

mask field.

spi:

type: string

description: The security parameter index of the IPSec packet.

flowLabel:

type: string

description: The Ipv6 flow label header field.

flowDirection:

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

RequestedQos:

description: Contains the QoS information requested by the UE.

type: object

properties:

5qi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5Qi'

gbrUl:

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

gbrDl:

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

required:

- 5qi

QosNotificationControlInfo:

description: Contains the QoS Notification Control Information.

type: object

properties:

refPccRuleIds:

type: array

items:

type: string

minItems: 1

description: >

An array of PCC rule id references to the PCC rules associated with the QoS notification

control info.

notifType:

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

contVer:

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

altQosParamId:

type: string

description: >

Indicates the alternative QoS parameter set the NG-RAN can guarantee. When it is omitted

and the notifType attribute is set to NOT\_GUAARANTEED it indicates that the lowest

priority alternative QoS profile could not be fulfilled.

altQosNotSuppInd:

type: boolean

description: >

When present and set to true it indicates that the Alternative QoS profiles are not

supported by NG-RAN.

required:

- refPccRuleIds

- notifType

PartialSuccessReport:

description: >

Includes the information reported by the SMF when some of the PCC rules and/or session rules

and/or policy decision and/or condition data are not successfully installed/activated or

stored.

type: object

properties:

failureCause:

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

ruleReports:

type: array

items:

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

minItems: 1

description: >

Information about the PCC rules provisioned by the PCF not successfully

installed/activated.

sessRuleReports:

type: array

items:

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

minItems: 1

description: >

Information about the session rules provisioned by the PCF not successfully installed.

ueCampingRep:

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

policyDecFailureReports:

type: array

items:

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

minItems: 1

description: Contains the type(s) of failed policy decision and/or condition data.

invalidPolicyDecs:

type: array

items:

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

minItems: 1

description: >

Indicates the invalid parameters for the reported type(s) of the failed policy decision

and/or condition data.

required:

- failureCause

AuthorizedDefaultQos:

description: Represents the Authorized Default QoS.

type: object

properties:

5qi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5Qi'

arp:

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

priorityLevel:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/5QiPriorityLevelRm'

averWindow:

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

maxDataBurstVol:

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

maxbrUl:

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

maxbrDl:

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

gbrUl:

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

gbrDl:

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

extMaxDataBurstVol:

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

ErrorReport:

description: Contains the rule,policy decision and/or condition data error reports.

type: object

properties:

error:

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

ruleReports:

type: array

items:

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

minItems: 1

description: Used to report the PCC rule failure.

sessRuleReports:

type: array

items:

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

minItems: 1

description: Used to report the session rule failure.

polDecFailureReports:

type: array

items:

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

minItems: 1

description: Used to report failure of the policy decision and/or condition data.

invalidPolicyDecs:

type: array

items:

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

minItems: 1

description: >

Indicates the invalid parameters for the reported type(s) of the failed policy decision

and/or condition data.

SessionRuleReport:

description: Represents reporting of the status of a session rule.

type: object

properties:

ruleIds:

type: array

items:

type: string

minItems: 1

description: Contains the identifier of the affected session rule(s).

ruleStatus:

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

sessRuleFailureCode:

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

policyDecFailureReports:

type: array

items:

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

minItems: 1

description: Contains the type(s) of failed policy decision and/or condition data.

required:

- ruleIds

- ruleStatus

ServingNfIdentity:

description: Contains the serving Network Function identity.

type: object

properties:

servNfInstId:

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

guami:

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

anGwAddr:

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

sgsnAddr:

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

SteeringMode:

description: Contains the steering mode value and parameters determined by the PCF.

type: object

properties:

steerModeValue:

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

active:

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

standby:

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

3gLoad:

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

prioAcc:

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

thresValue:

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

steerModeInd:

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

required:

- steerModeValue

AdditionalAccessInfo:

description: >

Indicates the combination of additional Access Type and RAT Type for a MA PDU session.

type: object

properties:

accessType:

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

ratType:

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

required:

- accessType

QosMonitoringData:

description: Contains QoS monitoring related control information.

type: object

properties:

qmId:

type: string

description: Univocally identifies the QoS monitoring policy data within a PDU session.

reqQosMonParams:

type: array

items:

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

minItems: 1

description: >

indicates the QoS information to be monitored when the QoS Monitoring is enabled for

the service data flow.

repFreqs:

type: array

items:

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

minItems: 1

repThreshDl:

type: integer

description: Indicates the period of time in units of miliiseconds for DL packet delay.

nullable: true

repThreshUl:

type: integer

description: Indicates the period of time in units of miliiseconds for UL packet delay.

nullable: true

repThreshRp:

type: integer

description: >

Indicates the period of time in units of miliiseconds for round trip packet delay.

nullable: true

waitTime:

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

repPeriod:

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

notifyUri:

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

notifyCorreId:

type: string

nullable: true

directNotifInd:

type: boolean

description: >

Indicates that the direct event notification sent by UPF to the Local NEF or AF is

requested if it is included and set to true.

required:

- qmId

- reqQosMonParams

- repFreqs

nullable: true

QosMonitoringReport:

description: Contains reporting information on QoS monitoring.

type: object

properties:

refPccRuleIds:

type: array

items:

type: string

minItems: 1

description: >

An array of PCC rule id references to the PCC rules associated with the QoS monitoring

report.

ulDelays:

type: array

items:

type: integer

minItems: 1

dlDelays:

type: array

items:

type: integer

minItems: 1

rtDelays:

type: array

items:

type: integer

minItems: 1

pdmf:

type: boolean

description: Represents the packet delay measurement failure indicator.

required:

- refPccRuleIds

#

TsnBridgeInfo:

description: Contains parameters that describe and identify the TSC user plane node.

type: object

properties:

bridgeId:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

dsttAddr:

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

dsttPortNum:

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

dsttResidTime:

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

mtuIpv4:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint16'

mtuIpv6:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

#

PortManagementContainer:

description: Contains the port management information container for a port.

type: object

properties:

portManCont:

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

portNum:

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

required:

- portManCont

- portNum

BridgeManagementContainer:

description: Contains the UMIC.

type: object

properties:

bridgeManCont:

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

required:

- bridgeManCont

IpMulticastAddressInfo:

description: Contains the IP multicast addressing information.

type: object

properties:

srcIpv4Addr:

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

ipv4MulAddr:

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

srcIpv6Addr:

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

ipv6MulAddr:

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

DownlinkDataNotificationControl:

description: Contains the downlink data notification control information.

type: object

properties:

notifCtrlInds:

type: array

items:

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

minItems: 1

typesOfNotif:

type: array

items:

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

minItems: 1

DownlinkDataNotificationControlRm:

description: >

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

but with the nullable:true property.

type: object

properties:

notifCtrlInds:

type: array

items:

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

minItems: 1

nullable: true

typesOfNotif:

type: array

items:

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

minItems: 1

nullable: true

nullable: true

ThresholdValue:

description: Indicates the threshold value(s) for RTT and/or Packet Loss Rate.

type: object

properties:

rttThres:

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

plrThres:

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

nullable: true

NwdafData:

description: >

Indicates the list of Analytic ID(s) per NWDAF instance ID used for the PDU Session consumed

by the SMF.

type: object

properties:

nwdafInstanceId:

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

nwdafEvents:

type: array

items:

$ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NwdafEvent'

minItems: 1

required:

- nwdafInstanceId

5GSmCause:

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

EpsRanNasRelCause:

type: string

description: Defines the EPS RAN/NAS release cause.

PacketFilterContent:

type: string

description: Defines a packet filter for an IP flow.

FlowDescription:

type: string

description: Defines a packet filter for an IP flow.

TsnPortNumber:

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

ApplicationDescriptor:

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

UePolicyContainer:

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

FlowDirection:

anyOf:

- type: string

enum:

- DOWNLINK

- UPLINK

- BIDIRECTIONAL

- UNSPECIFIED

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the direction of the service data flow.

Possible values are:

- DOWNLINK: The corresponding filter applies for traffic to the UE.

- UPLINK: The corresponding filter applies for traffic from the UE.

- BIDIRECTIONAL: The corresponding filter applies for traffic both to and from the UE.

- UNSPECIFIED: The corresponding filter applies for traffic to the UE (downlink), but has no

specific direction declared. The service data flow detection shall apply the filter for

uplink traffic as if the filter was bidirectional. The PCF shall not use the value

UNSPECIFIED in filters created by the network in NW-initiated procedures. The PCF shall only

include the value UNSPECIFIED in filters in UE-initiated procedures if the same value is

received from the SMF.

FlowDirectionRm:

description: >

This data type is defined in the same way as the "FlowDirection" data type, with the only

difference that it allows null value.

anyOf:

- $ref: '#/components/schemas/FlowDirection'

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

ReportingLevel:

anyOf:

- type: string

enum:

- SER\_ID\_LEVEL

- RAT\_GR\_LEVEL

- SPON\_CON\_LEVEL

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

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the reporting level.

Possible values are:

- SER\_ID\_LEVEL: Indicates that the usage shall be reported on service id and rating group

combination level.

- RAT\_GR\_LEVEL: Indicates that the usage shall be reported on rating group level.

- SPON\_CON\_LEVEL: Indicates that the usage shall be reported on sponsor identity and rating

group combination level.

MeteringMethod:

anyOf:

- type: string

enum:

- DURATION

- VOLUME

- DURATION\_VOLUME

- EVENT

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

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the metering method.

Possible values are:

- DURATION: Indicates that the duration of the service data flow traffic shall be metered.

- VOLUME: Indicates that volume of the service data flow traffic shall be metered.

- DURATION\_VOLUME: Indicates that the duration and the volume of the service data flow

traffic shall be metered.

- EVENT: Indicates that events of the service data flow traffic shall be metered.

PolicyControlRequestTrigger:

anyOf:

- type: string

enum:

- PLMN\_CH

- RES\_MO\_RE

- AC\_TY\_CH

- UE\_IP\_CH

- UE\_MAC\_CH

- AN\_CH\_COR

- US\_RE

- APP\_STA

- APP\_STO

- AN\_INFO

- CM\_SES\_FAIL

- PS\_DA\_OFF

- DEF\_QOS\_CH

- SE\_AMBR\_CH

- QOS\_NOTIF

- NO\_CREDIT

- REALLO\_OF\_CREDIT

- PRA\_CH

- SAREA\_CH

- SCNN\_CH

- RE\_TIMEOUT

- RES\_RELEASE

- SUCC\_RES\_ALLO

- RAI\_CH

- RAT\_TY\_CH

- REF\_QOS\_IND\_CH

- NUM\_OF\_PACKET\_FILTER

- UE\_STATUS\_RESUME

- UE\_TZ\_CH

- AUTH\_PROF\_CH

- QOS\_MONITORING

- SCELL\_CH

- USER\_LOCATION\_CH

- EPS\_FALLBACK

- MA\_PDU

- TSN\_BRIDGE\_INFO

- 5G\_RG\_JOIN

- 5G\_RG\_LEAVE

- DDN\_FAILURE

- DDN\_DELIVERY\_STATUS

- GROUP\_ID\_LIST\_CHG

- DDN\_FAILURE\_CANCELLATION

- DDN\_DELIVERY\_STATUS\_CANCELLATION

- VPLMN\_QOS\_CH

- SUCC\_QOS\_UPDATE

- SAT\_CATEGORY\_CHG

- PCF\_UE\_NOTIF\_IND

- NWDAF\_DATA\_CHG

- UE\_POL\_CONT\_IND

- SNSSAI\_REPLACEMENT

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the policy control request trigger(s).

Possible values are:

- PLMN\_CH: PLMN Change

- RES\_MO\_RE: A request for resource modification has been received by the SMF. The SMF

always reports to the PCF.

- AC\_TY\_CH: Access Type Change.

- UE\_IP\_CH: UE IP address change. The SMF always reports to the PCF.

- UE\_MAC\_CH: A new UE MAC address is detected or a used UE MAC address is inactive for a

specific period.

- AN\_CH\_COR: Access Network Charging Correlation Information

- US\_RE: The PDU Session or the Monitoring key specific resources consumed by a UE either

reached the threshold or needs to be reported for other reasons.

- APP\_STA: The start of application traffic has been detected.

- APP\_STO: The stop of application traffic has been detected.

- AN\_INFO: Access Network Information report.

- CM\_SES\_FAIL: Credit management session failure.

- PS\_DA\_OFF: The SMF reports when the 3GPP PS Data Off status changes. The SMF always

reports to the PCF.

- DEF\_QOS\_CH: Default QoS Change. The SMF always reports to the PCF.

- SE\_AMBR\_CH: Session-AMBR Change. The SMF always reports to the PCF.

- QOS\_NOTIF: The SMF notify the PCF when receiving notification from RAN that QoS targets of

the QoS Flow cannot be guranteed or gurateed again.

- NO\_CREDIT: Out of credit.

- REALLO\_OF\_CREDIT: Reallocation of credit.

- PRA\_CH: Change of UE presence in Presence Reporting Area.

- SAREA\_CH: Location Change with respect to the Serving Area.

- SCNN\_CH: Location Change with respect to the Serving CN node.

- RE\_TIMEOUT: Indicates the SMF generated the request because there has been a PCC

revalidation timeout.

- RES\_RELEASE: Indicate that the SMF can inform the PCF of the outcome of the release of

resources for those rules that require so.

- SUCC\_RES\_ALLO: Indicates that the requested rule data is the successful resource

allocation.

- RAI\_CH: Location Change with respect to the RAI of GERAN and UTRAN.

- RAT\_TY\_CH: RAT Type Change.

- REF\_QOS\_IND\_CH: Reflective QoS indication Change

- NUM\_OF\_PACKET\_FILTER: Indicates that the SMF shall report the number of supported packet

filter for signalled QoS rules.

- UE\_STATUS\_RESUME: Indicates that the UE's status is resumed.

- UE\_TZ\_CH: UE Time Zone Change.

- AUTH\_PROF\_CH: The DN-AAA authorization profile index has changed.

- QOS\_MONITORING: Indicate that the SMF notifies the PCF of the QoS Monitoring information.

- SCELL\_CH: Location Change with respect to the Serving Cell.

- USER\_LOCATION\_CH: Indicate that user location has been changed, applicable to serving area

change and serving cell change.

- EPS\_FALLBACK: EPS Fallback report is enabled in the SMF.

- MA\_PDU: UE Indicates that the SMF notifies the PCF of the MA PDU session request.

- TSN\_BRIDGE\_INFO: TSC user plane node information available.

- 5G\_RG\_JOIN: The 5G-RG has joined to an IP Multicast Group.

- 5G\_RG\_LEAVE: The 5G-RG has left an IP Multicast Group.

- DDN\_FAILURE: Event subscription for DDN Failure event received.

- DDN\_DELIVERY\_STATUS: Event subscription for DDN Delivery Status received.

- GROUP\_ID\_LIST\_CHG: UE Internal Group Identifier(s) has changed: the SMF reports that UDM

provided list of group Ids has changed.

- DDN\_FAILURE\_CANCELLATION: The event subscription for DDN Failure event is cancelled.

- DDN\_DELIVERY\_STATUS\_CANCELLATION: The event subscription for DDD STATUS is cancelled.

- VPLMN\_QOS\_CH: Change of the QoS supported in the VPLMN.

- SUCC\_QOS\_UPDATE: Indicates that the requested MPS Action is successful.

- SAT\_CATEGORY\_CHG: Indicates that the SMF has detected a change between different satellite

backhaul categories, or between a satellite backhaul and a non-satellite backhaul.

- PCF\_UE\_NOTIF\_IND: Indicates the SMF has detected the AMF forwarded the PCF for the UE

indication to receive/stop receiving notifications of SM Policy association

established/terminated events.

- NWDAF\_DATA\_CHG: Indicates that the NWDAF instance IDs used for the PDU session and/or

associated Analytics IDs used for the PDU session and available in the SMF have changed.

- UE\_POL\_CONT\_IND: Indicates that a new UE policy container is available.

- SNSSAI\_REPLACEMENT: Indicates that the existing S-NSSAI for the PDU session has been

replaced.

RequestedRuleDataType:

anyOf:

- type: string

enum:

- CH\_ID

- MS\_TIME\_ZONE

- USER\_LOC\_INFO

- RES\_RELEASE

- SUCC\_RES\_ALLO

- EPS\_FALLBACK

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the type of rule data requested by the PCF.

Possible values are:

- CH\_ID: Indicates that the requested rule data is the charging identifier.

- MS\_TIME\_ZONE: Indicates that the requested access network info type is the UE's timezone.

- USER\_LOC\_INFO: Indicates that the requested access network info type is the UE's location.

- RES\_RELEASE: Indicates that the requested rule data is the result of the release of

resource.

- SUCC\_RES\_ALLO: Indicates that the requested rule data is the successful resource

allocation.

- EPS\_FALLBACK: Indicates that the requested rule data is the report of QoS flow rejection

due to EPS fallback.

RuleStatus:

anyOf:

- type: string

enum:

- ACTIVE

- INACTIVE

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the status of PCC or session rule.

Possible values are

- ACTIVE: Indicates that the PCC rule(s) are successfully installed (for those provisioned

from PCF) or activated (for those pre-defined in SMF), or the session rule(s) are

successfully installed

- INACTIVE: Indicates that the PCC rule(s) are removed (for those provisioned from PCF) or

inactive (for those pre-defined in SMF) or the session rule(s) are removed.

FailureCode:

anyOf:

- type: string

enum:

- UNK\_RULE\_ID

- RA\_GR\_ERR

- SER\_ID\_ERR

- NF\_MAL

- RES\_LIM

- MAX\_NR\_QoS\_FLOW

- MISS\_FLOW\_INFO

- RES\_ALLO\_FAIL

- UNSUCC\_QOS\_VAL

- INCOR\_FLOW\_INFO

- PS\_TO\_CS\_HAN

- APP\_ID\_ERR

- NO\_QOS\_FLOW\_BOUND

- FILTER\_RES

- MISS\_REDI\_SER\_ADDR

- CM\_END\_USER\_SER\_DENIED

- CM\_CREDIT\_CON\_NOT\_APP

- CM\_AUTH\_REJ

- CM\_USER\_UNK

- CM\_RAT\_FAILED

- UE\_STA\_SUSP

- UNKNOWN\_REF\_ID

- INCORRECT\_COND\_DATA

- REF\_ID\_COLLISION

- TRAFFIC\_STEERING\_ERROR

- DNAI\_STEERING\_ERROR

- AN\_GW\_FAILE

- MAX\_NR\_PACKET\_FILTERS\_EXCEEDED

- PACKET\_FILTER\_TFT\_ALLOCATION\_EXCEEDED

- MUTE\_CHG\_NOT\_ALLOWED

- UE\_TEMPORARILY\_UNAVAILABLE

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the reason of the PCC rule failure.

Possible values are

- UNK\_RULE\_ID: Indicates that the pre-provisioned PCC rule could not be successfully

activated because the PCC rule identifier is unknown to the SMF.

- RA\_GR\_ERR: Indicate that the PCC rule could not be successfully installed or enforced

because the Rating Group specified within the Charging Data policy decision which the PCC

rule refers to is unknown or, invalid.

- SER\_ID\_ERR: Indicate that the PCC rule could not be successfully installed or enforced

because the Service Identifier specified within the Charging Data policy decision which the

PCC rule refers to is invalid, unknown, or not applicable to the service being charged.

- NF\_MAL: Indicate that the PCC rule could not be successfully installed (for those

provisioned from the PCF) or activated (for those pre-defined in SMF) or enforced (for those

already successfully installed) due to SMF/UPF malfunction.

- RES\_LIM: Indicate that the PCC rule could not be successfully installed (for those

provisioned from PCF) or activated (for those pre-defined in SMF) or enforced (for those

already successfully installed) due to a limitation of resources at the SMF/UPF.

- MAX\_NR\_QoS\_FLOW: Indicate that the PCC rule could not be successfully installed (for those

provisioned from PCF) or activated (for those pre-defined in SMF) or enforced (for those

already successfully installed) due to the fact that the maximum number of QoS flows has

been reached for the PDU session.

- MISS\_FLOW\_INFO: Indicate that the PCC rule could not be successfully installed or enforced

because neither the "flowInfos" attribute nor the "appId" attribute is specified within the

PccRule data structure by the PCF during the first install request of the PCC rule.

- RES\_ALLO\_FAIL: Indicate that the PCC rule could not be successfully installed or

maintained since the QoS flow establishment/modification failed, or the QoS flow was

released.

- UNSUCC\_QOS\_VAL: indicate that the QoS validation has failed or when Guaranteed Bandwidth >

Max-Requested-Bandwidth.

- INCOR\_FLOW\_INFO: Indicate that the PCC rule could not be successfully installed or

modified at the SMF because the provided flow information is not supported by the network

(e.g. the provided IP address(es) or Ipv6 prefix(es) do not correspond to an IP version

applicable for the PDU session).

- PS\_TO\_CS\_HAN: Indicate that the PCC rule could not be maintained because of PS to CS

handover.

- APP\_ID\_ERR: Indicate that the rule could not be successfully installed or enforced because

the Application Identifier is invalid, unknown, or not applicable to the application

required for detection.

- NO\_QOS\_FLOW\_BOUND: Indicate that there is no QoS flow which the SMF can bind the PCC

rule(s) to.

- FILTER\_RES: Indicate that the Flow Information within the "flowInfos" attribute cannot be

handled by the SMF because any of the restrictions defined in clause 5.4.2 of 3GPP TS 29.212

was not met.

- MISS\_REDI\_SER\_ADDR: Indicate that the PCC rule could not be successfully installed or

enforced at the SMF because there is no valid Redirect Server Address within the Traffic

Control Data policy decision which the PCC rule refers to provided by the PCF and no

preconfigured redirection address for this PCC rule at the SMF.

- CM\_END\_USER\_SER\_DENIED: Indicate that the charging system denied the service request due

to service restrictions (e.g. terminate rating group) or limitations related to the

end-user, for example the end-user's account could not cover the requested service.

- CM\_CREDIT\_CON\_NOT\_APP: Indicate that the charging system determined that the service can

be granted to the end user but no further credit control is needed for the service (e.g.

service is free of charge or is treated for offline charging).

- CM\_AUTH\_REJ: Indicate that the charging system denied the service request in order to

terminate the service for which credit is requested.

- CM\_USER\_UNK: Indicate that the specified end user could not be found in the charging

system.

- CM\_RAT\_FAILED: Indicate that the charging system cannot rate the service request due to

insufficient rating input, incorrect AVP combination or due to an attribute or an attribute

value that is not recognized or supported in the rating.

- UE\_STA\_SUSP: Indicates that the UE is in suspend state.

- UNKNOWN\_REF\_ID: Indicates that the PCC rule could not be successfully installed/modified

because the referenced identifier to a Policy Decision Data or to a Condition Data is

unknown to the SMF.

- INCORRECT\_COND\_DATA: Indicates that the PCC rule could not be successfully

installed/modified because the referenced Condition data are incorrect.

- REF\_ID\_COLLISION: Indicates that PCC rule could not be successfully installed/modified

because the same Policy Decision is referenced by a session rule (e.g. the session rule and the PCC rule refer to the same Usage Monitoring decision data).

- TRAFFIC\_STEERING\_ERROR: Indicates that enforcement of the steering of traffic to the

N6-LAN or 5G-LAN failed; or the dynamic PCC rule could not be successfully installed or

modified at the NF service consumer because there are invalid traffic steering policy

identifier(s) within the provided Traffic Control Data policy decision to which the PCC

rule refers.

- DNAI\_STEERING\_ERROR: Indicates that the enforcement of the steering of traffic to the

indicated DNAI failed; or the dynamic PCC rule could not be successfully installed or

modified at the NF service consumer because there is invalid route information for a DNAI(s)

(e.g. routing profile id is not configured) within the provided Traffic Control Data policy

decision to which the PCC rule refers.

- AN\_GW\_FAILED: This value is used to indicate that the AN-Gateway has failed and that the

PCF should refrain from sending policy decisions to the SMF until it is informed that the

S-GW has been recovered. This value shall not be used if the SM Policy association

modification procedure is initiated for PCC rule removal only.

- MAX\_NR\_PACKET\_FILTERS\_EXCEEDED: This value is used to indicate that the PCC rule could not

be successfully installed, modified or enforced at the NF service consumer because the

number of supported packet filters for signalled QoS rules for the PDU session has been

reached.

- PACKET\_FILTER\_TFT\_ALLOCATION\_EXCEEDED: This value is used to indicate that the PCC rule is

removed at 5GS to EPS mobility because TFT allocation was not possible since the number of

active packet filters in the EPC bearer is exceeded.

- MUTE\_CHG\_NOT\_ALLOWED: Indicates that the PCC rule could not be successfully modified

because the mute condition for application detection report cannot be changed. Applicable

when the functionality introduced with the ADC feature applies.

AfSigProtocol:

anyOf:

- type: string

enum:

- NO\_INFORMATION

- SIP

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

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the protocol used for signalling between the UE and the AF.

Possible values are

- NO\_INFORMATION: Indicate that no information about the AF signalling protocol is being

provided.

- SIP: Indicate that the signalling protocol is Session Initiation Protocol.

RuleOperation:

anyOf:

- type: string

enum:

- CREATE\_PCC\_RULE

- DELETE\_PCC\_RULE

- MODIFY\_PCC\_RULE\_AND\_ADD\_PACKET\_FILTERS

- MODIFY\_ PCC\_RULE\_AND\_REPLACE\_PACKET\_FILTERS

- MODIFY\_ PCC\_RULE\_AND\_DELETE\_PACKET\_FILTERS

- MODIFY\_PCC\_RULE\_WITHOUT\_MODIFY\_PACKET\_FILTERS

- 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: |

Indicates a UE initiated resource operation that causes a request for PCC rules.

Possible values are

- CREATE\_PCC\_RULE: Indicates to create a new PCC rule to reserve the resource requested by

the UE.

- DELETE\_PCC\_RULE: Indicates to delete a PCC rule corresponding to reserve the resource

requested by the UE.

- MODIFY\_PCC\_RULE\_AND\_ADD\_PACKET\_FILTERS: Indicates to modify the PCC rule by adding new

packet filter(s).

- MODIFY\_ PCC\_RULE\_AND\_REPLACE\_PACKET\_FILTERS: Indicates to modify the PCC rule by replacing

the existing packet filter(s).

- MODIFY\_ PCC\_RULE\_AND\_DELETE\_PACKET\_FILTERS: Indicates to modify the PCC rule by deleting

the existing packet filter(s).

- MODIFY\_PCC\_RULE\_WITHOUT\_MODIFY\_PACKET\_FILTERS: Indicates to modify the PCC rule by

modifying the QoS of the PCC rule.

RedirectAddressType:

anyOf:

- type: string

enum:

- IPV4\_ADDR

- IPV6\_ADDR

- URL

- SIP\_URI

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the redirect address type.

Possible values are

- IPV4\_ADDR: Indicates that the address type is in the form of "dotted-decimal" IPv4

address.

- IPV6\_ADDR: Indicates that the address type is in the form of IPv6 address.

- URL: Indicates that the address type is in the form of Uniform Resource Locator.

- SIP\_URI: Indicates that the address type is in the form of SIP Uniform Resource

Identifier.

QosFlowUsage:

anyOf:

- type: string

enum:

- GENERAL

- IMS\_SIG

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates a QoS flow usage information.

Possible values are

- GENERAL: Indicate no specific QoS flow usage information is available.

- IMS\_SIG: Indicate that the QoS flow is used for IMS signalling only.

FailureCause:

description: Indicates the cause of the failure in a Partial Success Report.

anyOf:

- type: string

enum:

- PCC\_RULE\_EVENT

- PCC\_QOS\_FLOW\_EVENT

- RULE\_PERMANENT\_ERROR

- RULE\_TEMPORARY\_ERROR

- POL\_DEC\_ERROR

- type: string

description: >

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

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

CreditManagementStatus:

description: Indicates the reason of the credit management session failure.

anyOf:

- type: string

enum:

- END\_USER\_SER\_DENIED

- CREDIT\_CTRL\_NOT\_APP

- AUTH\_REJECTED

- USER\_UNKNOWN

- RATING\_FAILED

- type: string

description: >

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

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

SessionRuleFailureCode:

anyOf:

- type: string

enum:

- NF\_MAL

- RES\_LIM

- SESSION\_RESOURCE\_ALLOCATION\_FAILURE

- UNSUCC\_QOS\_VAL

- INCORRECT\_UM

- UE\_STA\_SUSP

- UNKNOWN\_REF\_ID

- INCORRECT\_COND\_DATA

- REF\_ID\_COLLISION

- AN\_GW\_FAILED

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the reason of the session rule failure.

Possible values are

- NF\_MAL: Indicates that the PCC rule could not be successfully installed (for those

provisioned from the PCF) or activated (for those pre-defined in SMF) or enforced (for those

already successfully installed) due to SMF/UPF malfunction.

- RES\_LIM: Indicates that the PCC rule could not be successfully installed (for those

provisioned from PCF) or activated (for those pre-defined in SMF) or enforced (for those

already successfully installed) due to a limitation of resources at the SMF/UPF.

- SESSION\_RESOURCE\_ALLOCATION\_FAILURE: Indicates the session rule could not be successfully

enforced due to failure during the allocation of resources for the PDU session in the UE,

RAN or AMF.

- UNSUCC\_QOS\_VAL: indicates that the QoS validation has failed.

- INCORRECT\_UM: The usage monitoring data of the enforced session rule is not the same for

all the provisioned session rule(s).

- UE\_STA\_SUSP: Indicates that the UE is in suspend state.

- UNKNOWN\_REF\_ID: Indicates that the session rule could not be successfully

installed/modified because the referenced identifier to a Policy Decision Data or to a

Condition Data is unknown to the SMF.

- INCORRECT\_COND\_DATA: Indicates that the session rule could not be successfully

installed/modified because the referenced Condition data are incorrect.

- REF\_ID\_COLLISION: Indicates that the session rule could not be successfully

installed/modified because the same Policy Decision is referenced by a PCC rule (e.g. the

session rule and the PCC rule refer to the same Usage Monitoring decision data).

- AN\_GW\_FAILED: Indicates that the AN-Gateway has failed and that the PCF should refrain

from sending policy decisions to the SMF until it is informed that the S-GW has been

recovered. This value shall not be used if the SM Policy association modification procedure

is initiated for session rule removal only.

SteeringFunctionality:

anyOf:

- type: string

enum:

- MPTCP

- ATSSS\_LL

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates functionality to support traffic steering, switching and splitting determined

by the PCF.

Possible values are

- MPTCP: Indicates that PCF authorizes the MPTCP functionality to support traffic

steering, switching and splitting.

- ATSSS\_LL: Indicates that PCF authorizes the ATSSS-LL functionality to support traffic

steering, switching and splitting.

SteerModeValue:

description: Indicates the steering mode value determined by the PCF.

anyOf:

- type: string

enum:

- ACTIVE\_STANDBY

- LOAD\_BALANCING

- SMALLEST\_DELAY

- PRIORITY\_BASED

- type: string

description: >

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

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

MulticastAccessControl:

description: >

Indicates whether the service data flow, corresponding to the service data flow template, is

allowed or not allowed.

anyOf:

- type: string

enum:

- ALLOWED

- NOT\_ALLOWED

- type: string

description: >

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

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

RequestedQosMonitoringParameter:

description: Indicates the requested QoS monitoring parameters to be measured.

anyOf:

- type: string

enum:

- DOWNLINK

- UPLINK

- ROUND\_TRIP

- type: string

description: >

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

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

ReportingFrequency:

description: Indicates the frequency for the reporting.

anyOf:

- type: string

enum:

- EVENT\_TRIGGERED

- PERIODIC

- SESSION\_RELEASE

- type: string

description: >

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

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

SgsnAddress:

description: describes the address of the SGSN

type: object

anyOf:

- required: [sgsnIpv4Addr]

- required: [sgsnIpv6Addr]

properties:

sgsnIpv4Addr:

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

sgsnIpv6Addr:

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

SmPolicyAssociationReleaseCause:

description: >

Represents the cause due to which the PCF requests the termination of the SM policy

association.

anyOf:

- type: string

enum:

- UNSPECIFIED

- UE\_SUBSCRIPTION

- INSUFFICIENT\_RES

- VALIDATION\_CONDITION\_NOT\_MET

- REACTIVATION\_REQUESTED

- type: string

description: >

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

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

PduSessionRelCause:

description: Contains the SMF PDU Session release cause.

anyOf:

- type: string

enum:

- PS\_TO\_CS\_HO

- RULE\_ERROR

- type: string

description: >

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

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

MaPduIndication:

description: >

Contains the MA PDU session indication, i.e., MA PDU Request or MA PDU Network-Upgrade

Allowed.

anyOf:

- type: string

enum:

- MA\_PDU\_REQUEST

- MA\_PDU\_NETWORK\_UPGRADE\_ALLOWED

- type: string

description: >

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

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

AtsssCapability:

description: Contains the ATSSS capability supported for the MA PDU Session.

anyOf:

- type: string

enum:

- MPTCP\_ATSSS\_LL\_WITH\_ASMODE\_UL

- MPTCP\_ATSSS\_LL\_WITH\_EXSDMODE\_DL\_ASMODE\_UL

- MPTCP\_ATSSS\_LL\_WITH\_ASMODE\_DLUL

- ATSSS\_LL

- MPTCP\_ATSSS\_LL

- type: string

description: >

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

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

#

NetLocAccessSupport:

anyOf:

- type: string

enum:

- ANR\_NOT\_SUPPORTED

- TZR\_NOT\_SUPPORTED

- LOC\_NOT\_SUPPORTED

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration and is not used to encode

content defined in the present version of this API.

description: |

Indicates the access network support of the report of the requested access network

information.

Possible values are

- ANR\_NOT\_SUPPORTED: Indicates that the access network does not support the report of access

network information.

- TZR\_NOT\_SUPPORTED: Indicates that the access network does not support the report of UE

time zone.

- LOC\_NOT\_SUPPORTED: Indicates that the access network does not support the report of UE

Location (or PLMN Id).

PolicyDecisionFailureCode:

description: Indicates the type of the failed policy decision and/or condition data.

anyOf:

- type: string

enum:

- TRA\_CTRL\_DECS\_ERR

- QOS\_DECS\_ERR

- CHG\_DECS\_ERR

- USA\_MON\_DECS\_ERR

- QOS\_MON\_DECS\_ERR

- CON\_DATA\_ERR

- POLICY\_PARAM\_ERR

- type: string

description: >

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

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

#

NotificationControlIndication:

description: >

Indicates that the notification of DDD Status is requested and/or that the notification of

DDN Failure is requested.

anyOf:

- type: string

enum:

- DDN\_FAILURE

- DDD\_STATUS

- type: string

description: >

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

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

#

SteerModeIndicator:

description: Contains Autonomous load-balance indicator or UE-assistance indicator.

anyOf:

- type: string

enum:

- AUTO\_LOAD\_BALANCE

- UE\_ASSISTANCE

- type: string

description: >

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

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

#

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