**3GPP TSG-CT WG3 Meeting #108-eC3-201100**

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

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **29.512** | **CR** | **0410** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  |
| *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:***  | Complete the IPTV support |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | 5WWC |  | ***Date:*** | 2020-02-28 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | SA2 has agreed the SMF shall report the IP multicast Addressing information to the PCF when it detect the information |
|  |  |
| ***Summary of change:*** | Define the procedure to report the IP multicast Addressing information. |
|  |  |
| ***Consequences if not approved:*** | 5WWC feature is not completed. |
|  |  |
| ***Clauses affected:*** | 5.6.1, 5.6.2.19, 5.6.2.x (new), 5.6.3.6, C.3.4.x, A.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces a backwards compatible feature to the OpenAPI file. |
|  |  |
| ***This CR's revision history:*** |  |

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

### 5.6.1 General

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

The Npcf\_SMPolicyControl API allows the SMF to retrieve the session management related policy from the PCF as defined in 3GPP TS 23.503 [6].

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

Table 5.6.1-1: Npcf\_SMPolicyControl specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| 5GSmCause | 5.6.3.2 | Indicates the 5GSM cause code value. | RAN-NAS-Cause |
| AccNetChargingAddress | 5.6.2.35 | Identifies the address of the network node performing charging and used for charging applications. |  |
| AccNetChId | 5.6.2.23 | Contains the access network charging identifier for the PCC rule(s) or whole PDU session. |  |
| AccuUsageReport | 5.6.2.18 | Contains the accumulated usage report information. | UMC |
| AfSigProtocol | 5.6.3.10 | Indicates the protocol used for signalling between the UE and the AF. | ProvAFsignalFlow |
| AuthorizedDefaultQos | 5.6.2.34 | Authorized Default QoS. |  |
| ChargingData | 5.6.2.11 | Contains charging related parameters. |  |
| ChargingInformation | 5.6.2.17 | Contains the addresses of the charging functions. |  |
| ConditionData | 5.6.2.9 | Contains conditions for applicability of a rule. |  |
| CreditManagementStatus | 5.6.3.16 | Indicates the reason of the credit management session failure. |  |
| ErrorReport | 5.6.2.36 | Contains the rule reports. |  |
| FailureCause | 5.6.3.14 | Indicates the cause of the failure in a Partial Success Report. |  |
| FailureCode | 5.6.3.9 | Indicates the reason of the PCC rule failure. |  |
| FlowDirection | 5.6.3.3 | Indicates the direction of the service data flow. |  |
| FlowDirectionRm | 5.6.3.15 | This data type is defined in the same way as the "FlowDirection" data type, but with the OpenAPI "nullable: true" property. |  |
| FlowInformation | 5.6.2.14 | Contains the flow information. |  |
| IpMulticastAddressInfo | 5.6.2.x | Contains the IP multicast addressing information | WWC |
| MeteringMethod | 5.6.3.5 | Indicates the metering method. |  |
| MulticastAccessControl | 5.6.3.20 | Indicates whether the service data flow, corresponding to the service data flow template, is allowed or not allowed. | WWC |
| RequestedQosMonitoringParameter | 5.6.3.21 | Indicates the requested QoS monitoring parameters to be measured. | QosMonitoring |
| PacketFilterInfo | 5.6.2.30 | Contains the information from a single packet filter sent from the SMF to the PCF. |  |
| PartialSuccessReport | 5.6.2.33 | Includes the information reported by the SMF when some of the PCC rules are not successfully installed/activated. |  |
| PccRule | 5.6.2.6 | Contains the PCC rule information. |  |
| PduSessionRelCause | 5.6.3.24 | Contains the SMF PDU Session release cause.  | PDUSessionRelCause |
| PolicyControlRequestTrigger | 5.6.3.6 | Contains the policy control request trigger(s). |  |
| QosCharacteristics | 5.6.2.16 | Contains QoS characteristics for a non-standardized or non-configured 5QI. |  |
| QosData | 5.6.2.8 | Contains the QoS parameters. |  |
| QosMonitoringData | 5.6.2.40 | Contains QoS monitoring related control information. | QosMonitoring |
| QosMonitoringReport | 5.6.2.42 | Contains QoS monitoring reporting information. | QosMonitoring |
| QosNotificationControlInfo | 5.6.2.32 | Contains the QoS Notification Control Information. |  |
| RanNasRelCause | 5.6.2.28 | Contains the RAN/NAS release cause. | RAN-NAS-Cause |
| RedirectAddressType | 5.6.3.12 | Indicates the redirect address type. |  |
| RedirectInformation | 5.6.2.13 | Contains the redirect information. |  |
| ReportingFrequency | 5.6.3.22 | Indicates the frequency for the reporting | QosMonitoring |
| ReportingLevel | 5.6.3.4 | Indicates the reporting level. |  |
| RequestedQos | 5.6.2.31 | Contains the QoS information requested by the UE. |  |
| RequestedQosMonitoringParameter | 5.6.3.21 | Indicates the requested QoS monitoring parameters to be measured. | QosMonitoring |
| RequestedRuleData | 5.6.2.24 | Contains rule data requested by the PCF to receive information associated with PCC rules.  |  |
| RequestedRuleDataType | 5.6.3.7 | Contains the type of rule data requested by the PCF. |  |
| RequestedUsageData | 5.6.2.25 | Contains usage data requested by the PCF requesting usage reports for the corresponding usage monitoring data instances.  |  |
| RuleOperation | 5.6.3.11 | Indicates a UE initiated resource operation that causes a request for PCC rules. |  |
| RuleReport | 5.6.2.27 | Reports the status of PCC. |  |
| RuleStatus | 5.6.3.8 | Indicates the status of PCC or session rule. |  |
| ServingNfIdenty | 5.6.2.38 | Contains the serving Network Function identity. |  |
| SessionRule | 5.6.2.7 | Contains session level policy information. |  |
| SessionRuleFailureCode | 5.6.3.38 | Indicates the reason of the session rule failure. |  |
| SessionRuleReport | 5.6.2.37 | Reports the status of session rule. |  |
| SmPolicyAssociationReleaseCause | 5.6.3.23 | Represents the cause why the PCF requests the termination of the SM policy association. |  |
| SmPolicyControl | 5.6.2.2 | Contains the parameters to request the SM policies and the SM policies authorized by the PCF. |  |
| SmPolicyContextData | 5.6.2.3 | Contains the parameters to create individual SM policy resource. |  |
| SmPolicyDecision | 5.6.2.4 | Contains the SM policies authorized by the PCF. |  |
| SmPolicyNotification | 5.6.2.5 | Contains the update of the SM policies. |  |
| SmPolicyDeleteData | 5.6.2.15 | Contains the parameters to be sent to the PCF when the individual SM policy is deleted. |  |
| SmPolicyUpdateContextData | 5.6.2.19 | Contains the met policy control request trigger(s) and corresponding new value(s) or the error report of the policy enforcement. |  |
| SteeringFunctionality | 5.6.3.18 | Indicates functionality to support traffic steering, switching and splitting determined by the PCF. | ATSSS |
| SteeringMode | 5.6.2.39 | Contains the steering mode value and parameters determined by the PCF. | ATSSS |
| SteeringModeValue | 5.6.3.19 | Indicates the steering mode value determined by the PCF. | ATSSS |
| TerminationNotification | 5.6.2.21 | Termination Notification. |  |
| TrafficControlData | 5.6.2.10 | Contains parameters determining how flows associated with a PCCRule are treated (blocked, redirected, etc). |  |
| TsnBridgeInfo | 5.6.2.41 | Contains parameters that describe and identify the TSN bridge. | TimeSensitiveNetworking |
| UeCampingRep | 5.6.2.26 | Contains the current applicable values corresponding to the policy control request triggers. |  |
| UeInitiatedResourceRequest | 5.6.2.29 | Indicates a UE requests specific QoS handling for selected SDF. |  |
| UpPathChgEvent | 5.6.2.20 | Contains the UP path change event subscription from the AF. | TSC |
| UsageMonitoringData | 5.6.2.12 | Contains usage monitoring related control information. | UMC |
| Volume | 3GPP TS 29.122 [32] | Unsigned integer identifying a volume in units of bytes. |  |
| VolumeRm | 3GPP TS 29.122 [32] | This data type is defined in the same way as the "VolumeRm" data type, but with the OpenAPI "nullable: true" property. |  |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| 5GMmCause | 3GPP TS 29.571 [11] | Contains the cause value of 5GMM protocol. | RAN-NAS-Cause |
| 5Qi | 3GPP TS 29.571 [11] | Unsigned integer representing a 5G QoS Identifier (see subclause 5.7.2.1 of 3GPP TS 23.501 [2]), within the range 0 to 255. |  |
| 5QiPriorityLevel | 3GPP TS 29.571 [11] | Unsigned integer indicating the 5QI Priority Level (see subclauses 5.7.3.3 and 5.7.4 of 3GPP TS 23.501 [2]), within the range 1 to 127.Values are ordered in decreasing order of priority, i.e. with 1 as the highest priority and 127 as the lowest priority. |  |
| 5QiPriorityLevelRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "5QiPriorityLevel" data type, but with the OpenAPI "nullable: true" property. |  |
| AccessType | 3GPP TS 29.571 [11] | The identification of the type of access network. |  |
| Ambr | 3GPP TS 29.571 [11] | Session AMBR. |  |
| AnGwAddress | 3GPP TS 29.514 [17] | Carries the control plane address of the access network gateway. (NOTE 1) |  |
| ApplicationChargingId | 3GPP TS 29.571 [11] | Application provided charging identifier allowing correlation of charging information. | AF\_Charging\_Identifier |
| Arp | 3GPP TS 29.571 [11] | ARP. |  |
| AverWindow | 3GPP TS 29.571 [11] | Averaging Window. |  |
| AverWindowRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "AverWindow" data type, but with the OpenAPI "nullable: true" property. |  |
| Bytes | 3GPP TS 29.571 [11] | String with format "byte". | TimeSensitiveNetworking |
| BitRate | 3GPP TS 29.571 [11] | String representing a bit rate that shall be formatted as follows:pattern: "^\d+(\.\d+)? (bps|Kbps|Mbps|Gbps|Tbps)$"Examples: "125 Mbps", "0.125 Gbps", "125000 Kbps". |  |
| BitRateRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "BitRate" data type, but with the OpenAPI "nullable: true" property. |  |
| ChargingId | 3GPP TS 29.571 [11] | Charging identifier allowing correlation of charging information. |  |
| ContentVersion | 3GPP TS 29.514 [17] | Indicates the content version of a PCC rule. It uniquely identifies a version of the PCC rule as defined in subclause 4.2.6.2.14. | RuleVersioning |
| DateTime | 3GPP TS 29.571 [11] | String with format "date-time" as defined in OpenAPI Specification [10]. |  |
| DateTimeRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "DateTime" data type, but with the OpenAPI "nullable: true" property. |  |
| DnaiChangeType | 3GPP TS 29.571 [11] | Describes the types of DNAI change. |  |
| Dnn | 3GPP TS 29.571 [11] | The DNN the user is connected to. |  |
| DurationSec | 3GPP TS 29.571 [11] | Identifies a period of time in units of seconds. |  |
| DurationSecRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "DurationSec" data type, but with the OpenAPI "nullable: true" property. |  |
| EthFlowDescription | 3GPP TS 29.514 [17] | Defines a packet filter for an Ethernet flow. (NOTE 2) |  |
| ExtMaxDataBurstVol | 3GPP TS 29.571 [11] | Maximum Data Burst Volume. | EMDBV |
| ExtMaxDataBurstVolRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "ExtMaxDataBurstVol" data type, but with the OpenAPI "nullable: true" property. | EMDBV |
| FinalUnitAction | 3GPP TS 32.291 [19] | Indicates the action to be taken when the user's account cannot cover the service cost. |  |
| FlowStatus | 3GPP TS 29.514 [17] | Describes whether the IP flow(s) are enabled or disabled. The value "REMOVED" is not applicable to Npcf\_SMPolicyControl service. |  |
| Gpsi | 3GPP TS 29.571 [11] | Identifies a GPSI. |  |
| GroupId | 3GPP TS 29.571 [11] | Identifies a group of internal globally unique ID. |  |
| Guami | 3GPP TS 29.571 [11] | Globally Unique AMF Identifier. |  |
| IpIndex | 3GPP TS 29.519 [15] | Information that identifies which IP pool or external server is used to allocate the IP address. |  |
| Ipv4Addr | 3GPP TS 29.571 [11]  | Identifies an Ipv4 address. |  |
| Ipv6Addr | 3GPP TS 29.571 [11] | Identifies an IPv6 address. |  |
| Ipv6Prefix | 3GPP TS 29.571 [11] | The Ipv6 prefix allocated for the user. |  |
| MacAddr48 | 3GPP TS 29.571 [11] | MAC Address. |  |
| MaxDataBurstVol | 3GPP TS 29.571 [11] | Maximum Data Burst Volume. |  |
| MaxDataBurstVolRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "MaxDataBurstVol" data type, but with the OpenAPI "nullable: true" property. |  |
| NfInstanceId | 3GPP TS 29.571 [11] | The NF instance identifier. |  |
| NgApCause | 3GPP TS 29.571 [11] | Contains the cause value of NgAP protocol. | RAN-NAS-Cause |
| PacketDelBudget | 3GPP TS 29.571 [11] | Packet Delay Budget. |  |
| PacketErrRate | 3GPP TS 29.571 [11] | Packet Error Rate. |  |
| PacketLossRateRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "PacketLossRate" data type, but with the OpenAPI "nullable: true" property. |  |
| PduSessionId | 3GPP TS 29.571 [11] | The identification of the PDU session. |  |
| PduSessionType | 3GPP TS 29.571 [11] | Indicate the type of a PDU session. |  |
| Pei | 3GPP TS 29.571 [11] | The Identification of a Permanent Equipment. |  |
| PlmnIdNid | 3GPP TS 29.571 [11] | The identification of the Network. PLMN Identity, and for SNPN NID. |  |
| PolicyAssociationReleaseCause | 3GPP TS 29.507 [25] | The cause why the PCF requests the termination of the policy association. |  |
| PresenceInfo  | 3GPP TS 29.571 [11] | Contains the information which describes a Presence Reporting Area. | PRA |
| PresenceInfoRm | 3GPP TS 29.571 [11] | This data type is defined in the same way as the "PresenceInfo" data type, but with the OpenAPI "nullable: true" property. |  |
| QosNotifType | 3GPP TS 29.514 [17] | Indicates whether the GBR targets for the indicated SDFs are "NOT\_GUARANTEED" or "GUARANTEED" again. |  |
| QosResourceType | 3GPP TS 29.571 [11] | Indicates whether the resource type is GBR, delay critical GBR, or non-GBR. |  |
| RatingGroup | 3GPP TS 29.571 [11] | Identifier of a rating group. |  |
| RatType | 3GPP TS 29.571 [11] | The identification of the RAT type. |  |
| RouteToLocation | 3GPP TS 29.571 [11] | A traffic routes to applications location. | TSC |
| ServiceId | 3GPP TS 29.571 [11] | Identifier of a service. |  |
| Snssai | 3GPP TS 29.571 [11] | Identifies the S-NSSAI. |  |
| SubscribedDefaultQos | 3GPP TS 29.571 [11] | Subscribed Default QoS. |  |
| Supi | 3GPP TS 29.571 [11] | The identification of the user (i.e. IMSI, NAI). |  |
| SupportedFeatures | 3GPP TS 29.571 [11] | Used to negotiate the applicability of the optional features defined in table 5.8-1. |  |
| TraceData | 3GPP TS 29.571 [11] |  |  |
| TimeZone | 3GPP TS 29.571 [11] | Contains the user time zone information. |  |
| Uinteger | 3GPP TS 29.571 [11] | Unsigned Integer. | TimeSensitiveNetworking |
| Uri | 3GPP TS 29.571 [11] | URI. |  |
| UserLocation | 3GPP TS 29.571 [11] | Contains the user location. |  |
| NOTE 1: "AnGwAddr" data structure is only applicable to the 5GS and EPC/E-UTRAN interworking scenario as defined in Annex B.NOTE 2: In order to support a set of MAC addresses with a specific range in the traffic filter, feature MacAddressRange as specified in subclause 5.8 shall be supported. |

\*\*\* Next 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 subclauses 4.2.4.7 and 4.2.4.15. |  |
| accNetChIds | array(AccNetChId) | O | 1..N | Indicates the access network charging identifier for the PCC rule(s) or 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. |  |
| servingNetwork | PlmnIdNid | O | 0..1 | The serving network where the served UE is camping. For an SNPN the NID together with the PLMN ID identifies the SNPN. |  |
| userLocationInfo | UserLocation | O | 0..1 | The location of the served UE is camping. |  |
| 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. |  |
| relIpv6AddressPrefix | Ipv6Prefix | O | 0..1 | Indicates the released IPv6 Address Prefix of the served UE in multi-homing case. |  |
| 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. |  |
| numOfPackFilter | integer | O | 0..1 | Contains the number of supported packet filter for signalled QoS rules.(NOTE 1) |  |
| accuUsageReports | array(AccuUsageReport) | O | 1..N | Accumulate usage report. |  |
| 3gppPsDataOffStatus | boolean | O | 0..1 | If it is included and set to true, the 3GPP PS Data Off is activated by the UE. |  |
| 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. |  |
| 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. | 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 | array(Ipv6Prefix) | O | 1..N | The Ipv6 Address Prefixes of the served UE. | MultiIpv6AddrPrefix |
| addRelIpv6AddrPrefixes | array(Ipv6Prefix) | O | 1..N | Indicates the released IPv6 Address Prefixes of the served UE in multi-homing case. | MultiIpv6AddrPrefix |
| tsnBridgeInfo | TsnBridgeInfo | O | 0..1 | Transports TSN bridge information. | TimeSensitiveNetworking |
| tsnPortManContDstt | Bytes | O | 0..1 | Transports TSN port management information encoded as specified in subclause 9.11.4.27 of 3GPP TS 24.501 [20] starting with octet 2. | TimeSensitiveNetworking |
| tsnPortManContNwtt | Bytes | O | 0..1 | Transports TSN port management information encoded as specified in subclause 9.11.4.27 of 3GPP TS 24.501 [20] starting with octet 2. | TimeSensitiveNetworking |
| mulAddrInfo | IpMulticastAddressInfo | O | 0..1 | Contains the source IP address of the DL multicast flow, Destination IP address of the DL multicast flow. | WWC |
| 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 SMF shall supply a different identifier for each overlapping address domain (e.g. the SMF NF instance identifier). |

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

#### 5.6.2.x Type IpMulticastAddressInfo

Table 5.6.2.x-1: IpMulticastAddressInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| srcIpv4Addr | Ipv4Addr | C | 0..1 | Indicates the source IPv4 address of the DL multicast flow. Maybe included if the "ipv4MulAddr" attribute is included. |  |
| ipv4MulAddr | Ipv4Addr | O | 0..1 | Indicates the destination IPv4 multicast address of the DL multicast flow. |  |
| srcIpv6Addr | Ipv6Addr | C | 0..1 | Indicates the source IPv6 address of the DL multicast flow. Maybe included if the "ipv6MulAddr" attribute is included. |  |
| ipv6MulAddr | Ipv6Addr | O | 0..1 | Indicates the destination IPv6 multicast address of the DL multicast flow. |  |
| NOTE 1: This attribute is only applicable to the 5GS and EPC/E-UTRAN interworking scenario as defined in Annex B.NOTE 2: Either "ipv4MulAddr" attribute or "ipv6MulAddr" attribute shall be included. |

\*\*\* Next 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 SMF. (NOTE) |  |
| AC\_TY\_CH | Access Type Change. |  |
| 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 SMF 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 SMF 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. |  |
| 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 SMF 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 29.503 [6]). |  |
| RES\_RELEASE | Indicates that the SMF 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 SMF 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 SMF 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\_ETHER\_PORT | Manageable Ethernet port detected. | TimeSensitiveNetworking |
| TSN\_CONTAINER | Port management container detected. | TimeSensitiveNetworking |
| QOS\_MONITORING | Indicate that the SMF notifies the PCF of the QoS Monitoring information. | QosMonitoring |
| 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 |
| NOTE: The SMF always reports to the PCF. |

The PCF may provision the values of policy control request trigger which are not always reported by the SMF as defined in subclause 4.2.6.4.

When the SMF detects the corresponding policy control request trigger(s), the SMF shall report the detected trigger(s) to the PCF as defined in subclause 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 SMF detects a change of PLMN, the SMF shall include the "PLMN\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current identifier of the serving network within the "servingNetwork" attribute.

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

If the "AC\_TY\_CH" is provisioned, when the SMF detects a change of access type, the SMF 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.

When the SMF detects an IPv4 address and/or an IPv6 prefix is allocated or released, the SMF 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 multiple allocated or released IPv6 prefixes are detected, the SMF shall include the new allocated UE Ipv6 prefixes within the "addIpv6AddrPrefixes" attribute and the released UE Ipv6 prefixes within the "addRelIpv6AddrPrefixes" attribute.

When the SMF detects a new UE MAC address or a used UE MAC address is not used any more, the SMF 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 SMF is provisioned with the PCC rule as defined in subclause 4.2.6.5.1, the SMF shall notify the PCF of access network charging identifier associated with the PCC rules as defined in subclause 4.2.4.13.

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

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

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

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

If the "CM\_SES\_FAIL" is provisioned, when the SMF receives a detected transient/permanent failure from the CHF, the SMF 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 SMF receives a change of 3GPP PS Data Off status from the UE, the SMF shall notify the PCF as defined in subclause 4.2.4.8. Applicable to functionality introduced with the 3GPP-PS-Data-Off feature as described in subclause 5.8.

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

When the SMF detects a change of Session-AMBR, the SMF 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 SMF receives a notification from access network that QoS targets of the QoS Flow cannot be guaranteed or can be guaranteed again, the SMF shall send the notification as defined in subclause 4.2.4.20.

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

If the "PRA\_CH" is provisioned, the SMF is provisioned the presence reporting area information as defined in subclause 4.2.6.5.6. When the SMF receives the presence reporting area information from the serving node, the SMF shall notify the PCF of the reported presence area information as defined in subclause 4.2.4.16. Applicable to functionality introduced with the PRA feature as described in subclause 5.8.

If the "SAREA\_CH" is provisioned, when the SMF detects a change of serving area (i.e. tracking area), the SMF shall include the "SAREA\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current TAI within the "userLocationInfo" attribute in either the "eutraLocation" or "nrLocation", 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 SMF detects a change of serving Network Function (i.e. the AMF, ePDG or S-GW), the SMF 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 SMF 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: 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, the SMF is provisioned the revalidation time by the PCF. The SMF shall request the policy before the indicated the revalidation time as defined in subclause 4.2.4.13.

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

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

If the "RAT\_TY\_CH" is provisioned, when the SMF detects a change of the RAT type, the SMF shall include the "RAT\_TY\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current RAT type within the "ratType" attribute.

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

When the SMF 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 SMF 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 SMF detected the UE’s status is resumed from suspend state, the SMF shall inform the PCF of the UE status including the "UE\_STATUS\_RESUME" within "repPolicyCtrlReqTriggers" attribute. The PCF shall after this update the SMF with PCC Rules or session rules if necessary. Applicable to functionality introduced with the PolicyUpdateWhenUESuspends feature as described in subclause 5.8.

If the "UE\_TZ\_CH" is provisioned, when the SMF detects a change of the UE Time Zone, the SMF 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 SMF detects a change of DN-AAA authorization profile index, the SMF 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" feature is supported and "TSN\_ETHER\_PORT" is provisioned and when the SMF detects a manageable Ethernet port, the SMF shall include the "TSN\_ETHER\_PORT" within the "repPolicyCtrlReqTriggers" attribute and the affected TSN bridge information within the "tsnBridgeInfo" attribute.

If the "TimeSensitiveNetworking" feature is supported and "TSN\_CONTAINER" is provisioned and when the SMF detects a Port Management Container, the SMF shall include the "TSN\_CONTAINER" within the "repPolicyCtrlReqTriggers" attribute and the Port Management Container(s), which are available, within the "tsnPortManContDstt" and the "tsnPortManContNwtt" attributes.

If the "QOS\_MONITORING" is provisioned, upon receiving the QoS Monitoring report from the UPF, the SMF shall send the QoS monitoring report to the PCF as defined in subclause 4.2.4.24.

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

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

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

### C.3.4.x IPTV service support

If the "WWC" feature is supported and "5G\_RG\_JOIN" and/or "5G\_RG\_LEAVE" are provisioned and when the SMF detects a 5G-RG has joined or left to an IP Multicast Group, the SMF shall send an HTTP POST message as defined in subclause 4.2.4.2 and include the "5G\_RG\_JOIN" or "5G\_RG\_LEAVE" within the "repPolicyCtrlReqTriggers" attribute respectively and the received IP multicast addressing information within the "mulAddrInfo" attribute. Within the IpMulticastAddressInfo data structure, the SMF shall include the destination IPv4 multicast address of the DL multicast flow within the "ipv4MulAddr" attribute and the source IPv4 address of the DL multicast flow within the "srcIpv4Addr" attribute if available or the destination IPv6 multicast address of the DL multicast flow within the "ipv6MulAddr" attribute and the source IPv6 address of the DL multicast flow within the "srcIpv6Addr" attribute if available.

NOTE: The corresponding notification can be used by the PCF to manage Preview Rights related with an IP multicast flow corresponding to an IPTV channel by provisioning the corresponding PCC rule. In this case the PCF is responsible to remove the provisioned PCC rule when the preview duration has elapsed.

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

# A.2 Npcf\_SMPolicyControl API

openapi: 3.0.0

info:

 title: Npcf\_SMPolicyControl API

 version: 1.1.1.alpha-4

 description: |

 Session Management Policy Control Service

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externalDocs:

 description: 3GPP TS 29.512 V16.3.0; 5G System; Session Management Policy Control Service.

 url: 'http://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 subclause 4.4 of 3GPP TS 29.501

paths:

 /sm-policies:

 post:

 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':

 description: Not Found

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

 callbacks:

 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

 '204':

 description: No Content, Notification was succesfull

 '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'

 '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 succesful

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

 /sm-policies/{smPolicyId}:

 get:

 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'

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '406':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

 /sm-policies/{smPolicyId}/update:

 post:

 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'

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

 /sm-policies/{smPolicyId}/delete:

 post:

 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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '503':

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

 default:

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

components:

 securitySchemes:

 oAuth2Clientcredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 npcf-smpolicycontrol: Access to the Npcf\_SMPolicyControl API

 schemas:

 SmPolicyControl:

 type: object

 properties:

 context:

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

 policy:

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

 required:

 - context

 - policy

 SmPolicyContextData:

 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'

 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'

 notificationUri:

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

 accessType:

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

 ratType:

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

 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'

 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'

 required:

 - supi

 - pduSessionId

 - pduSessionType

 - dnn

 - notificationUri

 - sliceInfo

 SmPolicyDecision:

 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 subclause 5.6.2.7.

 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 subclause 5.6.2.6.

 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.

 chgDecs:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: Map of Charging data policy decisions.

 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.

 umDecs:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: Map of Usage Monitoring data policy decisions.

 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.

 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 subclause 5.6.2.9.

 nullable: true

 revalidationTime:

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

 offline:

 type: boolean

 description: Indicates the offline charging is applicable to the PDU session or PCC rule.

 online:

 type: boolean

 description: Indicates the online charging is applicable to the PDU session or PCC rule.

 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.

 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'

 SmPolicyNotification:

 type: object

 properties:

 resourceUri:

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

 smPolicyDecision:

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

 PccRule:

 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.

 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.

 refQosData:

 type: array

 items:

 type: string

 minItems: 1

 maxItems: 1

 description: A reference to the QoSData policy type decision type. It is the qosId described in subclause 5.6.2.8.

 refAltQosParams:

 type: array

 items:

 type: string

 minItems: 1

 description: A Reference to the QoS Data 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 subclause 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 subclause 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 subclause 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 subclause 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 subclause 5.6.2.12.

 nullable: true

 refCondData:

 type: string

 description: A reference to the condition data. It is the condId described in subclause 5.6.2.9.

 nullable: true

 refQosMon:

 type: array

 items:

 type: string

 minItems: 1

 maxItems: 1

 description: A reference to the QosMonitoringData policy type decision type. It is the qmId described in subclause 5.6.2.40.

 nullable: true

 addrPreserInd:

 type: boolean

 nullable: true

 required:

 - pccRuleId

 nullable: true

 SessionRule:

 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 subclause 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 subclause 5.6.2.12.

 nullable: true

 refCondData:

 type: string

 description: A reference to the condition data. It is the condId described in subclause 5.6.2.9.

 nullable: true

 required:

 - sessRuleId

 nullable: true

 QosData:

 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'

 required:

 - qosId

 nullable: true

 ConditionData:

 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:

 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

 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

 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'

 required:

 - tcId

 nullable: true

 ChargingData:

 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.

 online:

 type: boolean

 description: Indicates the online charging is applicable to the PCC rule.

 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:

 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:

 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.

 FlowInformation:

 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:

 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'

 QosCharacteristics:

 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:

 type: object

 properties:

 primaryChfAddress:

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

 secondaryChfAddress:

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

 required:

 - primaryChfAddress

 - secondaryChfAddress

 AccuUsageReport:

 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:

 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'

 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'

 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'

 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'

 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.

 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'

 UpPathChgEvent:

 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

 mulAddrInfo:

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

 required:

 - notificationUri

 - notifCorreId

 - dnaiChgType

 nullable: true

 TerminationNotification:

 type: object

 properties:

 resourceUri:

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

 cause:

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

 required:

 - resourceUri

 - cause

 AppDetectionInfo:

 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:

 type: object

 properties:

 accNetChaIdValue:

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

 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

 required:

 - accNetChaIdValue

 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:

 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:

 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: Thooleanean 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:

 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'

 RuleReport:

 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'

 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.

 required:

 - pccRuleIds

 - ruleStatus

 RanNasRelCause:

 type: object

 properties:

 ngApCause:

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

 5gMmCause:

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

 5gSmCause:

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

 UeInitiatedResourceRequest:

 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:

 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:

 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:

 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'

 gfbrUl:

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

 gfbrDl:

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

 altQosParamId:

 type: string

 required:

 - refPccRuleIds

 - notifType

 PartialSuccessReport:

 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'

 required:

 - failureCause

 AuthorizedDefaultQos:

 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'

 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.

 extMaxDataBurstVol:

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

 ErrorReport:

 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.

 SessionRuleReport:

 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'

 required:

 - ruleIds

 - ruleStatus

 ServingNfIdentity:

 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'

 SteeringMode:

 type: object

 properties:

 steerModeValue:

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

 active:

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

 standby:

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

 3gLoad:

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

 prioAcc:

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

 required:

 - steerModeValue

 QosMonitoringData:

 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

 maxItems: 3

 description: indicates the UL packet delay, DL packet delay and/or round trip packet delay between the UE and the UPF is to be monitored when the QoS Monitoring for URLLC is enabled for the service data flow..

 repFreq:

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

 repThreshDl:

 type: integer

 description: Unsigned integer identifying a period of time in units of miliiseconds for DL packet delay.

 repThreshUl:

 type: integer

 description: Unsigned integer identifying a period of time in units of miliiseconds for UL packet delay.

 repThreshRp:

 type: integer

 description: Unsigned integer identifying a period of time in units of miliiseconds for round trip packet delay.

 waitTime:

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

 repPeriod:

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

 notifyUri:

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

 notifyCorreId:

 type: string

 required:

 - qmId

 nullable: true

 QosMonitoringReport:

 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

 dlDelays:

 type: array

 items:

 type: integer

 rttDelays:

 type: array

 items:

 type: integer

 required:

 - refPccRuleIds

 IpMulticastAddressInfo:

 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'

 5GSmCause:

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

 PacketFilterContent:

 type: string

 description: Defines a packet filter for an IP flow.Refer to subclause 5.3.54 of 3GPP TS 29.212 for encoding.

 FlowDescription:

 type: string

 description: Defines a packet filter for an IP flow.Refer to subclause 5.4.2 of 3GPP TS 29.212 for encoding.

 FlowDirection:

 anyOf:

 - type: string

 enum:

 - DOWNLINK

 - UPLINK

 - BIDIRECTIONAL

 - UNSPECIFIED

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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:

 anyOf:

 - type: string

 enum:

 - DOWNLINK

 - UPLINK

 - BIDIRECTIONAL

 - UNSPECIFIED

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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.

 nullable: true

 ReportingLevel:

 anyOf:

 - type: string

 enum:

 - SER\_ID\_LEVEL

 - RAT\_GR\_LEVEL

 - SPON\_CON\_LEVEL

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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.

 nullable: true

 MeteringMethod:

 anyOf:

 - type: string

 enum:

 - DURATION

 - VOLUME

 - DURATION\_VOLUME

 - EVENT

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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.

 nullable: true

 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

 - PRA\_CH

 - SAREA\_CH

 - SCNN\_CH

 - RE\_TIMEOUT

 - RES\_RELEASE

 - SUCC\_RES\_ALLO

 - RAT\_TY\_CH

 - REF\_QOS\_IND\_CH

 - NUM\_OF\_PACKET\_FILTER

 - UE\_STATUS\_RESUME

 - UE\_TZ\_CH

 - AUTH\_PROF\_CH

 - QOS\_MONITORING

 - 5G\_RG\_JOIN

 - 5G\_RG\_LEAVE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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

 - 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.

 - 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.

 - 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.

 RequestedRuleDataType:

 anyOf:

 - type: string

 enum:

 - CH\_ID

 - MS\_TIME\_ZONE

 - USER\_LOC\_INFO

 - RES\_RELEASE

 - SUCC\_RES\_ALLO

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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.

 RuleStatus:

 anyOf:

 - type: string

 enum:

 - ACTIVE

 - INACTIVE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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 subclause 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.

 AfSigProtocol:

 anyOf:

 - type: string

 enum:

 - NO\_INFORMATION

 - SIP

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

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

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

 nullable: true

 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: >

 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 but is not used to encode

 content defined in the present version of this API.

 description: >

 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 but is not used to encode

 content defined in the present version of this API.

 description: >

 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:

 anyOf:

 - type: string

 enum:

 - PCC\_RULE\_EVENT

 - PCC\_QOS\_FLOW\_EVENT

 - RULE\_PERMANENT\_ERROR

 - RULE\_TEMPORARY\_ERROR

 - type: string

 CreditManagementStatus:

 anyOf:

 - type: string

 enum:

 - END\_USER\_SER\_DENIED

 - CREDIT\_CTRL\_NOT\_APP

 - AUTH\_REJECTED

 - USER\_UNKNOWN

 - RATING\_FAILED

 - type: string

 SessionRuleFailureCode:

 anyOf:

 - type: string

 enum:

 - NF\_MAL

 - RES\_LIM

 - UNSUCC\_QOS\_VAL

 - UE\_STA\_SUSP

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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.

 - UNSUCC\_QOS\_VAL: indicate that the QoS validation has failed.

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

 SteeringFunctionality:

 anyOf:

 - type: string

 enum:

 - MPTCP

 - ATSSS\_LL

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - 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:

 anyOf:

 - type: string

 enum:

 - ACTIVE\_STANDBY

 - LOAD\_BALANCING

 - SMALLEST\_DELAY

 - PRIORITY\_BASED

 - type: string

 MulticastAccessControl:

 anyOf:

 - type: string

 enum:

 - ALLOWED

 - NOT\_ALLOWED

 - type: string

 RequestedQosMonitoringParameter:

 anyOf:

 - type: string

 enum:

 - DOWNLINK

 - UPLINK

 - ROUND\_TRIP

 - type: string

 ReportingFrequency:

 anyOf:

 - type: string

 enum:

 - EVENT\_TRIGGERED

 - PERIODIC

 - SESSION\_RELEASE

 - EVENT\_TRIGGERED\_AND\_SESSION\_RELEASE

 - PERIODIC\_AND\_SESSION\_RELEASE

 - type: string

 SmPolicyAssociationReleaseCause:

 anyOf:

 - type: string

 enum:

 - UNSPECIFIED

 - UE\_SUBSCRIPTION

 - INSUFFICIENT\_RES

 - VALIDATION\_CONDITION\_NOT\_MET

 - type: string

 PduSessionRelCause:

 anyOf:

 - type: string

 enum:

 - PS\_TO\_CS\_HO

 - type: string

#

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