**3GPP TSG CT WG3 Meeting #137 *C3-245419***

**Hefei, CN, 14 - 18 October, 2024 *(Revision of C3-245303)***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.512** | **CR** | **1280** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Corrections on VPLMN Specific Offloading Policy | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SBIProtoc19 | | | | |  | ***Date:*** | | | 2024-10-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The following issues have been identified in the Nsmf\_EventExposure API:   1. The VPLMN Specific Offloading Policy is a defined policy used for HR-SBO scenarios, hence it is proposed to align the name of the policy to avoid wrong implementations. 2. The description of the TraceData data type in clause 5.6.1 is missing. 3. Additional editorial and format issues. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Fix the above issues. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.2.25, 4.2.3.31, 4.2.4.2, 4.2.4.32, 5.6.1, 5.6.2.56, 5.6.2.59 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR does not impact on the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.2.2.25 VPLMN Specific Offloading Policy

For HR-SBO scenarios if the "HR-SBO" feature is supported and the H-PCF receives the "hrsboInd" attribute set to "true" as part of the Npcf\_SMPolicyControl\_Create request, the PCF may provision the VPLMN Specific Offloading Policy for the current serving VPLMN. In this case, the PCF shall include the VPLMN Specific Offloading Policy within the "vplmnOffloadInfos" and/or "vplmnDlAmbr" attributes in the response. In this case, the H-PCF shall subscribe to "PLMN\_CH" event trigger.

NOTE: VPLMN Specific Offloading Policy can be provisioned in HPLMN per each VPLMN based on the service level agreement between HPLMN and VPLMN.

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

#### 4.2.3.31 VPLMN Specific Offloading Policy

For HR-SBO scenarios, if the "HR-SBO" feature is supported and the H-PCF previously received the "hrsboInd" attribute set to"true" for the current serving VPLMN, the PCF may provision/update/remove the VPLMN Specific Offloading Policy for the VPLMN where the UE is currently registered. In this case, the PCF may include within the Npcf\_SMPolicyControl\_UpdateNotify request the VPLMN Specific Offloading Policy within the "vplmnOffloadInfos" and/or "vplmnDlAmbr" attributes.

NOTE: VPLMN Specific Offloading Policy can be provisioned in HPLMN per each VPLMN based on the service level agreement between HPLMN and VPLMN.

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

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



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

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

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

- type of access within the "accessType" attribute;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- detected application information within the "appDetectionInfos" attribute;

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

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

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

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

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

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

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

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

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

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

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

- when the "URSPEnforcement" feature is supported, the URSP rule enforcement information provided by the UE within the "urspEnfInfo" attribute. In this case, the NF service consumer shall also include, if they were not previously provided, the SSC mode within the "sscMode" attribute, the UE requested DNN (if available and different from the selected DNN) within the "ueReqDnn" attribute, and the UE requested PDU session Type (if available and different from the selected PDU session Type) within the "ueReqPduSessionType" attribute;

- if the "EnTSCAC" feature is supported, the BAT offset and the optionally adjusted periodicity within the "batOffsetInfo" attribute;

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

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

- for HR-SBO scenario, if the "HR-SBO" feature is supported, the H-SMF may include the HR-SBO support indication within the "hrsboInd" attribute; and

- when the "NetSliceRepl" feature is supported:

- if the NF service consumer reports a change from the initial S-NSSAI of the PDU Session to the Alternative S-NSSAI, the corresponding trigger and the Alternative S-NSSAI for the PDU Session within the "altSliceInfo" attribute; and

- if the NF service consumer reports a change back from the Alternative S-NSSAI to the initial S-NSSAI of the PDU Session, only the corresponding trigger with no additional information.

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

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

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

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

If the "HR-SBO" feature is supported and if the PCF received information related to the HR-SBO support, the PCF may provide the "vplmnOffloadInfos" and/or "vplmnDlAmbr" attribute(s) indicating the new/updated/removed VPLMN Specific Offloading Policy for the VPLMN as described in clause 4.2.4.32.

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

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

If the PCF is, due to incomplete, erroneous or missing information (e.g. QoS, RAT type, subscriber information) not able to provision a policy decision as response to the request for PCC rules by the NF service consumer, the PCF may reject the request and include in an HTTP "400 Bad Request " response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_INITIAL\_PARAMETERS".

If the PCF receives the set of session information which is sent in the message originated due to a trigger being met is incoherent with the previous set of session information for the same session (E.g. trigger met was RAT changed, and the RAT notified is the same as before), the PCF may reject the request and include in an HTTP "400 Bad Request" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_TRIGGER\_EVENT".

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

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

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

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

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

#### 4.2.4.32 VPLMN Specific Offloading Policy

For HR-SBO scenarios and if the "HR-SBO" feature is supported, if the H-PCF receives an Npcf\_SMPolicyControl\_Update Request including the "HR\_SBO\_IND\_CHG" event trigger indicating a change in the HR-SBO support to value "true" or HR-SBO is supported and the "PLMN\_CH" event trigger indicating a change of the VPLMN is received, the H-PCF shall analyze if there is a new or updated VPLMN Specific Offloading Policy for the serving PLMN. If it is the case, the H-PCF may provision/update/remove the VPLMN Specific Offloading Policy. If the HR-SBO support is changed to value "false", the H-PCF shall remove the existing VPLMN Specific Offloading Policy, if any.

Additionally, if the "HR\_SBO\_IND\_CHG" event trigger is received indicating HR-SBO support, the H-PCF shall subscribe to "PLMN\_CH" event trigger if not previously done.

NOTE: VPLMN Specific Offloading Policy can be provisioned in HPLMN per each VPLMN based on the service level agreement between HPLMN and VPLMN.

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

### 5.6.1 General

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

The Npcf\_SMPolicyControl API allows the NF service consumer 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 |
| AdditionalAccessInfo | 5.6.2.43 | Indicates the combination of additional Access Type and RAT Type for MA PDU session | ATSSS |
| 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 |
| AppDetectionInfo | 5.6.2.22 | Contains the detected application's traffic information. | ADC |
| ApplicationDescriptor | 5.6.3.2 | Defines the Application Descriptor for an ATSSS rule. | ATSSS |
| AtsssCapability | 5.6.3.26 | Contains the ATSSS capability supported for the MA PDU Session. | ATSSS |
| AuthorizedDefaultQos | 5.6.2.34 | Authorized Default QoS. |  |
| BatOffsetInfoPcc | 5.6.2.60 | Contains the offset of the BAT and the optionally adjusted periodicity for the corresponding PCC rules(s). | EnTSCAC |
| BridgeManagementContainer | 5.6.2.47 | Contains the UMIC. | TimeSensitiveNetworking |
| CalleeInfo | 5.6.2.55 | Identifies the callee information. | VBCforIMS |
| CallInfo | 5.6.2.54 | Identifies the caller and callee information. | VBCforIMS |
| CapabilityReportRule | 5.6.2.61 | Contains information about whether a capability is not supported or supported again for one or more PCC rules. | QoSMonCapRepo |
| ChargingData | 5.6.2.11 | Contains charging related parameters. |  |
| ChargingInformation | 5.6.2.17 | Contains the addresses, and if available, the instance ID and set ID, 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. |  |
| DownlinkDataNotificationControl | 5.6.2.48 | Contains the downlink data notification control information. | DDNEventPolicyControl |
| DownlinkDataNotificationControlRm | 5.6.2.49 | This data type is defined in the same way as the "DownlinkDataNotificationControl" data type, but with the OpenAPI "nullable: true" property. | DDNEventPolicyControl2 |
| EpsRanNasRelCause | 5.6.3.2 | Indicates the RAN or NAS release cause code information in 3GPP-EPS access type or indicates the TWAN or untrusted WLAN release cause code information in Non-3GPP-EPS access type. | RAN-NAS-Cause |
| ErrorReport | 5.6.2.36 | Contains the PCC rule and/or session rule and/or policy decision and/or condition data 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. |  |
| FlowDescription | 5.6.3.2 | Defines a packet filter for an IP flow. |  |
| 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 allows null value. |  |
| FlowInformation | 5.6.2.14 | Contains the flow information. |  |
| IpMulticastAddressInfo | 5.6.2.46 | Contains the IP multicast addressing information | WWC |
| L4sSupportInfo | 5.6.2.57 | Indicates whether the ECN marking for L4S is available in 5GS for the indicated PCC rules. | L4S |
| MaPduIndication | 5.6.3.25 | Contains the MA PDU session indication, i.e., MA PDU Request or MA PDU Network-Upgrade Allowed. | ATSSS |
| 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 |
| NetLocAccessSupport | 5.6.3.27 | Indicates the access network support of the report of the requested access network information. | NetLoc |
| NotificationControlIndication | 5.6.3.29 | Indicates the notification of DDD Status is requested and/or notification of DDN Failure is requested. | DDNEventPolicyControl |
| NwdafData | 5.6.2.53 | Indicates the list of NWDAF instance IDs used for the PDU Session and their associated Analytics ID(s) consumed by the NF service consumer. | EneNA |
| PacketFilterContent | 5.6.3.2 | Defines a packet filter for an IP flow. |  |
| PacketFilterInfo | 5.6.2.30 | Contains the information from a single packet filter sent from the NF service consumer to the PCF. |  |
| PartialSuccessReport | 5.6.2.33 | Includes the information reported by the NF service consumer when some of the PCC rules and/or session rules and/or policy decisions and/or condition data are not successfully installed/activated or stored. |  |
| PccRule | 5.6.2.6 | Contains the PCC rule information. |  |
| PduSessionRelCause | 5.6.3.24 | Contains the NF service consumer PDU Session release cause. | PDUSessionRelCause,  ImmediateTermination |
| PolicyControlRequestTrigger | 5.6.3.6 | Contains the policy control request trigger(s). |  |
| PolicyDecisionFailureCode | 5.6.3.28 | Indicates the type of the failed policy decision and/or condition data. | PolicyDecisionErrorHandling |
| PortManagementContainer | 5.6.2.45 | Contains the port management information container for a port. | TimeSensitiveNetworking |
| 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. |  |
| QosFlowUsage | 5.6.3.13 | Indicates a QoS flow usage information. |  |
| 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. |  |
| QosMonitoringParamType | 5.6.3.32 | Contains the QoS monitoring parameter to be monitored. | EnQoSMon |
| RanNasRelCause | 5.6.2.28 | Contains the RAN/NAS release cause. | RAN-NAS-Cause |
| RedirectAddressType | 5.6.3.12 | Indicates the redirect address type. | ADC |
| RedirectInformation | 5.6.2.13 | Contains the redirect information. | ADC |
| 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. | UMC |
| 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 rule(s). |  |
| 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 | 5.6.3.17 | Indicates the reason of the session rule failure. | SessionRuleErrorHandling |
| SessionRuleReport | 5.6.2.37 | Reports the status of session rule. | SessionRuleErrorHandling |
| SgsnAddress | 5.6.2.50 | Contains the serving SGSN address. | 2G3GIWK |
| SliceUsgCtrlInfo | 5.6.2.59 | Represents network slice usage control information. | NetSliceUsageCtrl |
| 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 |
| SteerModeIndicator | 5.6.3.31 | Contains Autonomous load-balance indicator or UE-assistance indicator. | EnATSSS |
| SteerModeValue | 5.6.3.19 | Indicates the steering mode value determined by the PCF. | ATSSS |
| TerminationNotification | 5.6.2.21 | Termination Notification. |  |
| ThresholdValue | 5.6.2.52 | Contains the threshold value(s) for RTT and/or Packet Loss Rate. | EnATSSS |
| TrafficControlData | 5.6.2.10 | Contains parameters determining how flows associated with a PCCRule are treated (blocked, redirected, etc). |  |
| TrafficParaData | 5.6.2.56 | Contains Traffic Parameter(s) related control information. | PowerSaving |
| TrafficParameterMeas | 5.6.3.32 | Indicates the traffic parameters to be measured. | PowerSaving |
| TransportMode | 5.6.3.33 | Indicates the transport mode for MPQUIC steering functionality | EnATSSS\_v2 |
| TsnBridgeInfo | 5.6.2.41 | Contains parameters that describe and identify the TSC user plane node. | TimeSensitiveNetworking |
| TsnPortNumber | 5.6.3.2 | Contains a port number. | 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. |  |
| UePolicyContainer | 5.6.3.2 | Contains a UE policy container | EpsUrsp |
| UeReachabilityStatus | 5.6.3.35 | Contains the UE reachability status. | UEUnreachable |
| UpPathChgEvent | 5.6.2.20 | Contains the UP path change event subscription from the AF. | TSC |
| UrspEnforcementInfo | 5.6.3.2 | Contains the report of URSP rule(s) enforcement information as received from the UE. | URSPEnforcement |
| UsageMonitoringData | 5.6.2.12 | Contains usage monitoring related control information. | UMC |

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 clause 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 clauses 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. | |  | |
| AccessTypeRm | | 3GPP TS 29.571 [11] | | This data type is defined in the same way as the "AccessType" data type, but with the OpenAPI "nullable: true" property. | | ATSSS | |
| Ambr | | 3GPP TS 29.571 [11] | | Session-AMBR. | |  | |
| AnGwAddress | | 3GPP TS 29.514 [17] | | Carries the control plane address of the access network gateway. | |  | |
| ApplicationChargingId | | 3GPP TS 29.571 [11] | | Application provided charging identifier allowing correlation of charging information. | | AF\_Charging\_Identifier | |
| ApplicationId | | 3GPP TS 29.571 [11] | | Application Identifier | | UPEAS | |
| 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. | |  | |
| 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. | |  | |
| Bytes | | 3GPP TS 29.571 [11] | | String with format "byte". | | TimeSensitiveNetworking | |
| 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 clause 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. | |  | |
| DddTrafficDescriptor | | 3GPP TS 29.571 [11] | | Traffic Descriptor | | DDNEventPolicyControl | |
| DlDataDeliveryStatus | | 3GPP TS 29.571 [11] | | Downlink data delivery status. | | DDNEventPolicyControl | |
| 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. | |  | |
| DnnSelectionMode | | 3GPP TS 29.502 [22] | | DNN selection mode. | | DNNSelectionMode | |
| 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. | |  | |
| DurationMilliSec | | 3GPP TS 29.514 [17] | | Indicates the time interval in units of milliseconds. | | PowerSaving | |
| DurationMilliSecRm | | 3GPP TS 29.514 [17] | | This data type is defined in the same way as the "DurationMilliSec" data type, but with the OpenAPI "nullable: true" property. | | PowerSaving | |
| EasIpReplacementInfo | | 3GPP TS 29.571 [11] | | Contains EAS IP replacement information for a Source and a Target EAS. | | EASIPreplacement | |
| 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 | |
| Metadata | | 3GPP TS 29.571 [11] | | This datatype contains opaque information for the service functions in the N6-LAN that is provided by AF and transparently sent to UPF. | | SFC | |
| 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. | |  | |
| FqdnPatternMatchingRule | | 3GPP TS 29.571 [11] | | Identifies the FQDN pattern matching rule. | | HR-SBO | |
| 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. | |  | |
| InvalidParam | | 3GPP TS 29.571 [11] | | Invalid Parameters for the reported failed policy decisions | | ExtPolicyDecisionErrorHandling | |
| IpIndex | | 3GPP TS 29.519 [15] | | Information that identifies which IP pool or external server is used to allocate the IP address. | |  | |
| IpAddr | | 3GPP TS 29.571 [11] | | Identifes an IP address. | | HR-SBO | |
| Ipv4Addr | | 3GPP TS 29.571 [11] | | Identifies an Ipv4 address. | |  | |
| Ipv4AddrMask | | 3GPP TS 29.571 [11] | | String identifying an IPv4 address mask. | |  | |
| Ipv6Addr | | 3GPP TS 29.571 [11] | | Identifies an IPv6 address. | |  | |
| Ipv6Prefix | | 3GPP TS 29.571 [11] | | The Ipv6 prefix allocated for the user. | |  | |
| L4sNotifType | | 3GPP TS 29.514 [17] | | Indicates whether the ECN marking for L4S support for the indicated SDFs is "NOT\_AVAILABLE" or "AVAILABLE" again. | | L4S | |
| 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. | |  | |
| NfSetId | | 3GPP TS 29.571 [11] | | The NF set identifier. | |  | |
| NgApCause | | 3GPP TS 29.571 [11] | | Contains the cause value of NgAP protocol. | | RAN-NAS-Cause | |
| NotifCap | | 3GPP TS 29.514 [17] | | Contains the notification capability. | | QoSMonCapRepo | |
| NullValue | | 3GPP TS 29.571 [11] | | JSON's null value, used as an explicit value of an enumeration. | |  | |
| NwdafEvent | | 3GPP TS 29.520 [51] | | Analytics ID consumed by the NF service consumer. | | EneNA | |
| 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. | |  | |
| PcfUeCallbackInfo | | 3GPP TS 29.571 [11] | | Contains the PCF for the UE callback URI and SBA binding information, if available | | AMInfluence | |
| 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. | |  | |
| PduSetQosParaRm | | 3GPP TS 29.571 [11] | | Represents the PDU Set level QoS parameters to be modified. | | PDUSetHandling | |
| Pei | | 3GPP TS 29.571 [11] | | The Identification of a Permanent Equipment. | |  | |
| PlmnIdNid | | 3GPP TS 29.571 [11] | | The identification of the Network: The PLMN Identifier (the mobile country code and the mobile network code) or the SNPN Identifier (the PLMN Identifier and the NID). | |  | |
| 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. | | PRA | |
| ProblemDetails | | 3GPP TS 29.571 [11] | | Contains a detailed information about an error. | |  | |
| ProtocolDescription | | 3GPP TS 29.571 [11] | | Represents Protocol description of the media flow | | PDUSetHandling, PowerSaving | |
| 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. | |  | |
| RedirectResponse | | 3GPP TS 29.571 [11] | | Contains redirection related information. | | ES3XX | |
| RouteToLocation | | 3GPP TS 29.571 [11] | | A traffic routes to applications location. | | TSC | |
| SatelliteBackhaulCategory | | 3GPP TS 29.571 [11] | | Indicates the satellite backhaul category or non-satellite backhaul. | | SatBackhaulCategoryChg | |
| ServerAddressingInfo | | 3GPP TS 29.571 [11] | | Contains the Provisioning Server information that provisions the UE with credentials and other data to enable SNPN access. | | PvsSupport | |
| ServiceId | | 3GPP TS 29.571 [11] | | Identifier of a service. | |  | |
| Snssai | | 3GPP TS 29.571 [11] | | Identifies the S-NSSAI. | |  | |
| SscMode | | 3GPP TS 29.571 [11] | | Represents the service and session continuity mode. | | URSPEnforcement | |
| 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] | | Contains trace control and configuration parameters. | |  | |
| TimeZone | | 3GPP TS 29.571 [11] | | Contains the user time zone information. | |  | |
| TscaiInputContainer | | 3GPP TS 29.514 [17] | | TSCAI Input information. | | TimeSensitiveNetworking | |
| TrafficCorrelationInfo | | 3GPP TS 29.519 [15] | | Contains the information for traffic correlation. | | CommonEASDNAI | |
| UePolicyTransferFailureCause | | 3GPP TS 29.525 [57] | | UE Policy Transfer Failure Cause. | | EpsUrsp | |
| Uinteger | | 3GPP TS 29.571 [11] | | Unsigned Integer. | |  | |
| UintegerRm | | 3GPP TS 29.571 [11] | | This data type is defined in the same way as the "Uinteger" data type, but with the OpenAPI "nullable: true" property. | | EnATSSS,  AF\_latency,  EnQoSMon | |
| Uint16 | | 3GPP TS 29.571 [11] | | Unsigned 16-bit integers. | | MTU\_Size | |
| Uint32 | | 3GPP TS 29.571 [11] | | Unsigned 32-bit integers. | | MTU\_Size | |
| Uint64 | | 3GPP TS 29.571 [11] | | Unsigned 64-bit integers. | | TimeSensitiveNetworking | |
| UplinkDownlinkSupport | | 3GPP TS 29.514 [17] | | Represents whether a capability is supported for the UL, the DL or both UL and DL service data flows | | L4S | |
| Uri | | 3GPP TS 29.571 [11] | | URI. | |  | |
| UserLocation | | 3GPP TS 29.571 [11] | | Contains the user location(s). | |  | |
| 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 "Volume" data type, but with the OpenAPI "nullable: true" property. | |  | |
| VplmnDlAmbr | | 3GPP TS 29.571 [11] | | VPLMN Specific DL AMBR. | | HR-SBO | |
| VplmnOffloadingInfo | | 3GPP TS 29.571 [11] | | VPLMN Specific Offloading Policy Information. | | HR-SBO | |
| VplmnQos | | 3GPP TS 29.502 [22] | | QoS constraints in the VPLMN. | | VPLMN-QoS-Control | |
| NOTE 1: Void  NOTE 2: In order to support a set of MAC addresses with a specific range in the traffic filter, feature MacAddressRange as specified in clause 5.8 shall be supported. | | | | | | | |

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

5.6.2.56 Type TrafficParaData

**Table 5.6.2.56-1: Definition of type TrafficParaData**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| periodUl | DurationMilliSecRm | O | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Uplink direction. |  |
| periodDl | DurationMilliSecRm | O | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Downlink direction. |  |
| reqTrafficParas | array(TrafficParameterMeas) | O | 1..N | Indicates the traffic parameters to be measured.  (NOTE) |  |
| repFreqs | array(ReportingFrequency) | C | 1..N | Represents the notification method (periodic or on event detection). It shall be present if the "reqTrafficParas" attribute is present. |  |
| dlN6JitterThr | Uinteger | O | 0..1 | Indicates threshold for the N6 Jitter Information associated with downlink Periodicity that triggers the report of the traffic parameters indicated in the "reqTrafficParas" attribute. Only applicable when the "repFreqs" attribute includes the value "EVENT\_TRIGGERED". |  |
| repPeriod | DurationSecRm | O | 0..1 | Indicates the time interval between successive event notifications. Only applicable when the "repFreqs" attribute includes the value "PERIODIC". |  |
| NOTE: The DL\_PERIOD and UL\_PERIOD may be provided in the "reqTrafficParas" attribute only if the "periodUl" and "periodDl" attributes are not included. | | | | | |

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

5.6.2.59 Type SliceUsgCtrlInfo

**Table 5.6.2.59-1: Definition of type SliceUsgCtrlInfo**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| pduSessInactivTimer | DurationSecRm | O | 0..1 | Represents the slice PDU Session inactivity timer value.  (NOTE) |  |
| NOTE: At least one of these attributes shall be present. | | | | | |

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