**3GPP TSG-CT WG3 Meeting #132C3-240167**

**E-Meeting, 22nd – 24th January, 2024 (revision of C3-240090)**

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| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.514** | **CR** | **0584** | **rev** | **1** | **Current version:** | **18.4.0** |  |
|  |
| *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:***  | Resolve the Editor’s Notes for QoS monitoring for congestion |
|  |  |
| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell, Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | XRM |  | ***Date:*** | 2024-01-10 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | According to the reply LS S2-2313671 from SA2, the periodic reporting frequency is not applicable to the congestion monitoring and reporting; the measurement failure is not supported for congestion information, Data Rate, and PDV monitoring. The ENs for congestion monitoring can be removed. |
|  |  |
| ***Summary of change:*** | * Remove the ENs for congestion monitoring.
* Remove the "cimf"attribute.
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|  |  |
| ***Consequences if not approved:*** | Open issues in the specification and misalignment between stage 2 and stage 3. |
|  |  |
| ***Clauses affected:*** | 4.2.2.23, 4.2.3.23, 4.2.6.8, 4.2.5.14, 5.6.2.6, 5.6.2.25, 5.6.2.34, 5.6.2.37, 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 backward compatible feature to the OpenAPI file for Npcf\_SMPolicyControl API. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.2.2.23 Subscriptions to Service Data Flow QoS Monitoring Information

The subscription to Service Data Flow QoS monitoring information is used by a NF service consumer to receive a notification about the real-time measurements of QoS parameters for a QoS Flow, e.g. packet delay between UPF and UE, when the "QoSMonitoring" feature is supported.

The NF service consumer shall use the "EventsSubscReqData" data type as described in clause 4.2.2.2 and shall include:

- the requested QoS monitoring parameter(s) to be measured (i.e. DL, UL and/or round trip packet delay, if the feature "XRM\_5G" is supported, , and/or the UL and/or DL data rate information) within the "reqQosMonParams" attribute;

- an entry of the "AfEventSubscription" data type per requested notification method in the "events" attribute with:

a) the "event" attribute set to the value "QOS\_MONITORING"; and

b) the "notifMethod" attribute set to the value "EVENT\_DETECTION" or "PERIODIC"; and

NOTE: When the "congestMon" attribute is included, only the "EVENT\_DETECTION" reporting frequency is applicable.

c) when the "notifMethod" attribute is set to the value "PERIODIC", the periodic time for reporting and, if the feature "PacketDelayFailureReport" or "EnQoSMon" is supported, the maximum period with no QoS measurement results reported within the "repPeriod" attribute; and

d) when the "notifMethod" attribute is set to the value "EVENT\_DETECTION", the minimum waiting time between subsequent reports within the "waitTime" attribute and, if the feature "PacketDelayFailureReport" or "EnQoSMon" is supported, the maximum period with no QoS measurement results reported within the "repPeriod" attribute;

- when the "notifMethod" attribute set to the value "EVENT\_DETECTION":

1. For QoS monitoring of packet delay, the "qosMon" attribute, with the required QoS Monitoring information:

a) the delay threshold for downlink with the "repThreshDl" attribute;

b) the delay threshold for uplink with the "repThreshUl" attribute; and/or

c) the delay threshold for round trip with the "repThreshRp" attribute.

 When the feature "XRM\_5G" is supported, for QoS monitoring for congestion information, the "congestMon" attribute with:

a) the delay threshold for downlink with the "conThreshDl" attribute; and/or

b) the delay threshold for uplink with the "conThreshUl" attribute.

2. When the feature "XRM\_5G" is supported, for QoS monitoring of data rate, the "qosMonDatRate" attribute with;

a) the data rate threshold for downlink within the "repThreshDatRateDl" attribute; and/or

b) the data rate threshold for the uplink within the "repThreshDatRateUl" attribute.

Editor’s note: Whether the applicable reporting frequency for the Data Rate QoS monitoring can be event triggered and/or periodic is FFS.

The NF service consumer may include in "EventsSubscReqData" data type the notification correlation identifier assigned by the AF within the "notifCorreId" attribute and, if the feature "ExposureToEAS" or "EnQoSMon" is supported, the "directNotifInd" attribute set to true to indicate direct event notification of QoS Monitoring data from the UPF.

For data rate monitoring, the AF may include an averaging window within the "avrgWndw" attribute.

The NF service consumer may include the "3gpp-Sbi-Consumer-Info" custom HTTP header as described in clause 6.6.2 of 3GPP TS 29.500 [5] to indicate the support of "QoSMonitoring" feature by the NF service consumer over the Nsmf\_EventExposure service as described in 3GPP TS 29.508[13].

The NF service consumer shall include more than one "AfEventSubscription" data type within the "EventsSubscReqData" data type if more than one notification method is required.

The PCF shall reply to the AF as described in clause 4.2.2.2.

If the AF provided an indication of direct event notification in the request and PCF determines that the direct notification of QoS Monitoring reports applies (i.e. the AF request does not include QoS parameter measurements that are derived by PCF), the PCF behaves as specified in 3GPP TS 29.512 [8].

If the AF provided an indication of direct event notification and PCF determines that the direct notification of QoS Monitoring reports does not apply (i.e. the AF request includes QoS parameter measurements that are derived by PCF as specified in clause 4.2.2.41 (AF request for monitoring packet delay variation), and clause 4.2.2.44 (AF request for monitoring round trip packet delay when UL and DL are on different service data flows)), the PCF generates a successful response to the AF and indicates that direct event notification is not possible by including within the "servAuthInfo" attribute the value "DIRECT\_NOTIF\_NOT\_POSSIBLE". In this case, the PCF shall not indicate direct notification in the QoS Monitoring policy provided to the SMF and instead subscribe to receive QoS Monitoring reports from SMF as specified in 3GPP TS 29.512 [8].

As result of this action, the PCF shall set the appropriate subscription to QoS Monitoring information for the corresponding PCC rule(s) as described in 3GPP TS 29.512 [8].

Editor’s note: It is FFS whether new data type structure is needed for QoS monitoring control for multi-modal services.

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

#### 4.2.3.23 Modification of Subscription to Service Data Flow QoS Monitoring Information

This procedure is used by NF service consumer to modify the PCF subscription for notification about real-time measurements of QoS parameters for a QoS Flow, e.g. packet delay and/or congestion information between UPF and UE, when the "QoSMonitoring" feature is supported.

The NF service consumer shall use the HTTP PATCH method to update the "Events Subscription" sub-resource together with the modifications to the "Individual Application Session Context" resource.

The NF service consumer shall include in the HTTP PATCH request message described in clause 4.2.3.2, in the "ascReqData" attribute, the updated values of the "evSubsc" attribute of "EventsSubscReqDataRm" data type, as follows:

- to create a subscription to notifications of QoS monitoring report:

a) shall include the "events" array with an array that contains a new entry per requested notification method with the "event" attribute set to "QOS\_MONITORING", and notification related information as described in clause 4.2.2.23;

b) when the "notifMethod" of the new entry is "EVENT\_DETECTION", shall include a "qosMon" attribute with the QoS monitoring information for packet delay thresholds and/or a "qosMonDatRate" attribute with QoS monitoring information for data rate thresholds and/or the "congestMon" attribute for congestion thresholds as described in clause 4.2.2.23.

NOTE: When the "congestMon" attribute is included, only the "EVENT\_DETECTION" reporting frequency is applicable.

c) shall include the new requested QoS monitoring parameter(s) to be measured (i.e. DL,/UL/round trip packet delay and/or if the feature "XRM\_5G" is supported, congestion infomation, and/or, data rate information) within the "reqQosMonParams" attribute;

d) may include the notification correlation identifier assigned by the AF within the "notifCorreId" attribute;

e) if the feature "ExposureToEAS" and/or "XRM\_5G" is supported, may include the "directNotifInd" attribute set to true to indicate the direct event notification of QoS Monitoring data from the UPF;

f) for data rate monitoring, may include the "avrgWndw" attribute to indicate the average window for the data rate measurement; and

- to remove a subscription to QoS monitoring information:

a) shall include the "events" array containing an array that shall omit the corresponding entry with the "event" attribute value "QOS\_MONITORING";

b) when the "notifMethod" attribute of the removed entry is "EVENT\_DETECTION", it shall contain the "qosMon" and/or "qosMonDatRate" and/or "congestMon" attribute set to null;

c) if the "directNotifInd" attribute and/or the "avrgWndw" attribute was previously provided, it shall contain the "directNotifInd" attribute and/or the "avrgWndw" attribute set to null.

If the AF provided an indication of direct event notification, and the PCF determines that the QoS Monitoring reports cannot be notified directly (e.g. the AF requests for monitoring packet delay variation or round trip packet delay when UL and DL are on different service data flows), the PCF generates a successful response to the AF and indicates that direct event notification is not possible by including within the "servAuthInfo" attribute the value "DIRECT\_NOTIF\_NOT\_POSSIBLE", as described in clause 4.2.2.23.

As result of this action, the PCF shall set the appropriate subscription to QoS monitoring information for the corresponding active PCC rule(s) as described in 3GPP TS 29.512 [8].

The PCF shall reply to the NF service consumer as described in clause 4.2.3.2.

Editor’s note: Whether the applicable reporting frequency for the Data Rate QoS monitoring can be event triggered and/or periodic is FFS.

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

#### 4.2.6.8 Subscription to Service Data Flow QoS Monitoring Information

This procedure is used by NF service consumer to subscribe and/or modify the PCF subscription for notification about real-time measurements of QoS parameters, e.g. packet delay between UPF and UE, when the "QoSMonitoring" feature is supported.

The NF service consumer shall include in the HTTP PUT request message described in clause 4.2.6.2 the "EventsSubscReqData" data type, that shall contain:

- to create a subscription to notifications of QoS monitoring report:

a) shall include the "events" array with an array that contains a new entry per requested notification method with the "event" attribute set to "QOS\_MONITORING", and notification related information as described in clause 4.2.2.23;

b) when the "notifMethod" of the new entry is "EVENT\_DETECTION", shall include a "qosMon" attribute with the QoS monitoring information for packet delay thresholds and/or a "qosMonDatRate" attribute with QoS monitoring information for data rate thresholds and/or the "congestMon" attribute for congestion thresholds as described in clause 4.2.2.23;

NOTE: When the "congestMon" attribute is included, only the "EVENT\_DETECTION" reporting frequency is applicable.

c) shall include the new requested QoS monitoring parameter(s) to be measured (i.e. DL/UL/round trip packet delay and/or, if the feature "XRM\_5G" is supported, congestion infomation, and/or data rate information) within the "reqQosMonParams" attribute; and

d) may include the notification correlation identifier assigned by the AF within the "notifCorreId" attribute;

e) if the feature "ExposureToEAS" and/or "XRM\_5G" is supported, may include the "directNotifInd" attribute set to true to indicate the direct event notification of QoS Monitoring data from the UPF.

f) for data rate monitoring, may include the "avrgWndw" attribute to indicate the average window for the data rate measurement; and

- to remove a subscription to QoS monitoring information:

a) shall include the "events" array containing an array that shall omit the corresponding entry with the "event" attribute value "QOS\_MONITORING"; and

b) when the "notifMethod" of the removed entry is "EVENT\_DETECTION", it shall omit the "qosMon" and/or "qosMonDatRate" and/or "congestMon" attribute;

c) shall omit the "reqQosMonParams";

d) if the feature "ExposureToEAS" and/or "XRM\_5G" is supported, shall omit the "directNotifInd" attribute and/or the "avrgWndw" attribute;

The NF service consumer shall include other events related information that shall remain unchanged.

As result of this action, the PCF shall set the appropriate subscription to QoS monitoring information for the corresponding active PCC rule(s) as described in 3GPP TS 29.512 [8].

If the AF provided an indication of direct event notification, and the PCF determines that the QoS Monitoring reports cannot be notified directly (e.g. the AF requests for monitoring packet delay variation or round trip packet delay when UL and DL are on different service data flows), the PCF generates a successful response to the AF and indicates that direct event notification is not possible by including within the "servAuthInfo" attribute the value "DIRECT\_NOTIF\_NOT\_POSSIBLE", as described in clause 4.2.2.23.

The PCF shall reply to the NF service consumer as described in clause 4.2.6.2.

Editor’s note: Whether the applicable reporting frequency for the Data Rate QoS monitoring can be event triggered and/or periodic is FFS.

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

#### 4.2.5.14 Notification about Service Data Flow QoS Monitoring control

When the PCF gets the information about real-time measurements of QoS parameters for one or more SDFs from the SMF (e.g. for QoS monitoring for packet delay, uplink packet delay(s), downlink packet delay(s) and/or round trip delay(s) or if the feature "PacketDelayFailureReport" is supported, indicator of packet delay measurement failure) the PCF shall inform the NF service consumer accordingly if the NF service consumer has previously subscribed as described in clauses 4.2.2.23 and 4.2.3.23 and 4.2.6.8.

The PCF shall notify the NF service consumer of the QoS monitoring events by including the "EventsNotification" data type in the body of the HTTP POST request as described in clause 4.2.5.2.

The PCF shall include:

- within the "evNotifs" attribute an event entry of the "AfEventNotification" data type with the matched event "QOS\_MONITORING" in the "event" attribute; and

- for QoS monitoring for packet delay, the "qosMonReports" array with:

a) the identification of the affected service flows (if not all the flows are affected) encoded in the "flows" attribute if applicable; and, for QoS monitoring for packet delay:

b) one or two uplink packet delays within the "ulDelays" attribute;

c) one or two downlink packet delays within the "dlDelays" attribute;

d) one or two round trip packet delays within the "rtDelays" attribute; and/or

e) if the feature "PacketDelayFailureReport" is supported, the packet delay measurement failure indicator within the"pdmf" attribute;

- if the feature "EnQoSMon" is supported, to report data rate measurements, the "qosMonDatRateReps" array with:

a) the identification of the affected service flows (if not all the flows are affected) encoded in the "flows" attribute if applicable;

b) one data rate measurement for the UL within the "ulDataRate" attribute; and/or

c) one data rate measurement for the DL within the "dlDataRate" attribute.

Editor’s note: Whether Data Rate monitoring requires the report of the maximum and minimum calculated during the waiting time is FFS.

- if the feature "EnQoSMon" is supported, for QoS monitoring for congestion information, the "congestReports" array with:

a) the identification of the affected service flows (if not all the flows are affected) encoded in the "flows" attribute if applicable;

b) the uplink congestion information measurement(s) within the "ulConInfo" attribute; and/or

c) the downlink congestion information measurement(s) within the "dlConInfo" attribute.

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

#### 5.6.2.6 Type EventsSubscReqData

Table 5.6.2.6-1: Definition of type EventsSubscReqData

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| events | array(AfEventSubscription) | M | 1..N | Subscribed Events. |  |
| notifUri | Uri | O | 0..1 | Notification URI. |  |
| reqQosMonParams | array(RequestedQosMonitoringParameter) | O | 1..N | Indicates the QoS information to be monitored, e.g. UL packet delay, DL packet delay, round trip packet delay and/or UL/DL congestion infomation between the UE and the UPF, and/or UL/DL data rate monitoring, is to be monitored when the QoS Monitoring is enabled for the service data flow.(NOTE 2) | QoSMonitoringEnQoSMon |
| qosMon | QosMonitoringInformation | O | 0..1 | Qos Monitoring information. It can be present when the event "QOS\_MONITORING" is subscribed and packet delay measurements are required. | QoSMonitoring |
| qosMonDatRate | QosMonitoringInformation | O | 0..1 | Contains the data rate measurements information for the subscribed report. It shall be present when the event "QOS\_MONITORING" is subscribed and data rate measurements are required. | EnQoSMon |
| pdvReqMonParams | array(RequestedQosMonitoringParameter) | O | 1..N | Indicates the Packet Delay Variation to be monitored, e.g. UL packet delay variation, DL packet delay variation and/or round trip packet delay variation between the UE and the UPF is to be monitored. | EnQoSMon |
| pdvMon | QosMonitoringInformation | O | 0..1 | Packet Delay Variation information for the subscribed report. It may be present when the event "PACK\_DEL\_VAR" is subscribed.(NOTE 1) | EnQoSMon |
| congestMon | QosMonitoringInformation | O | 0..1 | Congestion threshold for the subscribed report. It may be present when the event "QOS\_MONITORING" is subscribed(NOTE 2). | EnQoSMon |
| reqAnis | array(RequiredAccessInfo) | C | 1..N | Represents the required access network information. It shall be present when the event "ANI\_REPORT" is subscribed. | NetLoc |
| usgThres | UsageThreshold | O | 0..1 | Includes the volume and/or time thresholds for sponsored data connectivity. | SponsoredConnectivity |
| notifCorreId | string | O | 0..1 | It is used to set the value of Notification Correlation ID in the corresponding notification. | EnhancedSubscriptionToNotification |
| afAppIds | array(AfAppId) | O | 1..N | AF application identifier(s). It shall be present when the event "APP\_DETECTION" is subscribed. | ApplicationDetectionEvents |
| directNotifInd | boolean | O | 0..1 | Indicates that the event notification of QoS Monitoring data is sent by the UPF to Local NEF or AF if it is included and set to true. It may be present when the event "QOS\_MONITORING" is subscribed.The default value "false" shall apply, if the attribute is not present. | ExposureToEAS |
| avrgWndw | AverWindow | O | 0..1 | Averaging window for the calculation of the data rate for the service data flow. It may be included when the "qosMonDatRate" attribute is included.  | EnQoSMon |
| NOTE 1: The "pvdMon" attribute, when provided, contains the threshold(s) in units of milliseconds to trigger packet delay variation events for the UL, DL and/or Round Trip within the "repThreshDl", "repThreshUl" and/or "repThreshRp" attribute(s) respectively.NOTE 2: Only the "EVENT\_DETECTION" reporting frequency in "notifMethod" attribute included in "events" attribute is applicable when the "reqQosMonParams" includes "DOWNLINK\_CONGESTION" and/or "UPLINK\_CONGESTION". |

Editor's note: Whether to reuse or enhance the QosMonitoringInformation data type for the "pdvMon" attribute is FFS.

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

#### 5.6.2.25 Type EventsSubscReqDataRm

This data type is defined in the same way as the "EventsSubscReqData" data type, but:

- with the OpenAPI "nullable: true" property; and

- the removable attribute "usgThres" is defined with the removable data type "UsageThresholdRm"; and removable attribute "qosMon" is defined with the removable data type "QosMonitoringInformationRm".

Table 5.6.2.25-1: Definition of type EventsSubscReqDataRm

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| events | array(AfEventSubscription) | M | 1..N | Subscribed Events. |  |
| notifUri | Uri | O | 0..1 | Notification URI. |  |
| reqQosMonParams | array(RequestedQosMonitoringParameter) | O | 1..N | Indicates the QoS information to be monitored, e.g. UL packet delay, DL packet delay, round trip packet delay and/or congestion information between the UE and the UPF, and/or data rate is to be monitored when the QoS Monitoring is enabled for the service data flow.(NOTE 3) | QoSMonitoringEnQoSMon |
| qosMon | QosMonitoringInformationRm | O | 0..1 | Qos Monitoring information. It can be present when the event "QOS\_MONITORING" is subscribed. | QoSMonitoring |
| qosMonDatRate | QosMonitoringInformationRm | O | 0..1 | Contains the data rate measurements information for the subscribed report. It can be present when the event "QOS\_MONITORING" is subscribed and data rate measurements are required. | EnQoSMon |
| pdvReqMonParams | array(RequestedQosMonitoringParameter) | O | 1..N | Indicates the Packet Delay Variation to be monitored, e.g. UL packet delay, DL packet delay and/or round trip packet delay between the UE and the UPF is to be monitored. | EnQoSMon |
| pdvMon | QosMonitoringInformationRm | O | 0..1 | Packet Delay Variation information for the subscribed report. It may be present when the event "PACK\_DEL\_VAR" is subscribed. | EnQoSMon |
| congestMon | QosMonitoringInformation | O | 0..1 | Congestion threshold for the subscribed report. It may be present when the event "QOS\_MONITORING" is subscribed.(NOTE 2) (NOTE 3) | EnQoSMon |
| reqAnis | array(RequiredAccessInfo) | C | 1..N | Represents the required access network information. It shall be present when the event "ANI\_REPORT" is subscribed. (NOTE) | NetLoc |
| usgThres | UsageThresholdRm | O | 0..1 | Includes the volume and/or time thresholds for sponsored data connectivity. | SponsoredConnectivity |
| notifCorreId | string | O | 0..1 | It is used to set the value of Notification Correlation ID in the corresponding notification. | EnhancedSubscriptionToNotification |
| directNotifInd | boolean | C | 0..1 | Indicates that the event notification of QoS Monitoring data is sent by the UPF to Local NEF or AF if it is included and set to true. It may be present when the event "QOS\_MONITORING" is subscribed. | ExposureToEAS |
| avrgWndw | AverWindowRm | O | 0..1 | Averaging window for the calculation of the data rate for the service data flow | EnQoSMon |
| NOTE 1: "ANI\_REPORT" is the one-time reported event and thus the attribute "reqAnis" is not defined as removable attribute (i.e. with the removable data type "RequiredAccessInfoRm"). Once the access network information is reported to the NF service consumer the subscription to this event is automatically terminated in the PCF and the related information is removed.NOTE 2: The enumeration "ROUND\_TRIP" is not applicable to "QOS\_MONITORING" event.NOTE 3: Only the "EVENT\_DETECTION" reporting frequency in "notifMethod" attribute included in "events" attribute is applicable when the "reqQosMonParams" includes "DOWNLINK\_CONGESTION" and/or "UPLINK\_CONGESTION". |

Editor’s Note: It is FFS whether the QoS monitoring requirements for congestion measurements are different than the ones for packet delay, i.e., it is FFS whether reporting period and reporting frequency apply, or different criteria needs to be applied.

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

#### 5.6.2.34 Type QosMonitoringInformation

Table 5.6.2.34-1: Definition of type QosMonitoringInformation

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| repThreshDl | integer | O | 0..1 | Indicates the threshold in units of milliseconds for DL packet delay. Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION".Minimum = 0. |  |
| repThreshUl | integer | O | 0..1 | Indicates the threshold in units of milliseconds for UL packet delay. Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION".Minimum = 0. |  |
| repThreshRp | integer | O | 0..1 | Indicates the threshold in units of milliseconds for round trip packet delay. If the "EnQoSMon" feature is supported and the "RT\_DELAY\_TWO\_QOS\_FLOWS" event is subscribed, it indicates the round trip delay of multiple QoS flows.Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION".Minimum = 0. |  |
| repThreshDatRateDl | BitRate | O | 0..1 | Indicates the threshold for DL data rate. Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION". | EnQoSMon |
| repThreshDatRateUl | BitRate | O | 0..1 | Indicates the threshold for UL data rate. Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION". | EnQoSMon |
| conThreshDl | Uinteger | O | 0..1 | Indicates the downlink threshold percentage of congestion reporting. Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION".Minimum = 0. | EnQoSMon |
| conThreshUl | Uinteger | O | 0..1 | Indicates the uplink threshold percentage of congestion reporting. Only applicable when the "notifMethod" attribute is not supplied or the "notifMethod" is supplied and set to "EVENT\_DETECTION".Minimum = 0. | EnQoSMon |
| NOTE: When the "EnQoSMon" is not supported, the "repThreshDl" attribute and/or the "repThreshUl" attribute and/or the "repThreshRp" attribute shall be present, when the "EnQoSMon" feature is supported, either the "repThreshDataRateDl" attribute and/or the "repThreshDataRateUl" attribute shall present, or the "repThreshDl" attribute and/or the "repThreshUl" attribute and/or the "repThreshRp" attribute shall be present. |

Editor’s note: Whether the applicable reporting frequency for the Data Rate QoS monitoring can be event triggered and/or periodic is FFS.

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

#### 5.6.2.37 Type QosMonitoringReport

Table 5.6.2.37-1: Definition of type QosMonitoringReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| flows | array(Flows) | C | 1..N | Identification of the flows. It shall be included if "MediaComponentVersioning" feature is supported. When "MediaComponentVersioning" feature is not supported, if no flows are provided, the packet delay applies for all flows within the AF session. |  |
| ulDelays | array(integer) | O | 1..N | Uplink packet delay in units of milliseconds. (NOTE 1) |  |
| dlDelays | array(integer) | O | 1..N | Downlink packet delay in units of milliseconds. (NOTE 1) |  |
| rtDelays | array(integer) | O | 1..N | Round trip delay in units of milliseconds. (NOTE 1)If the "EnQoSMon" feature is supported and the "RT\_DELAY\_TWO\_QOS\_FLOWS" event is subscribed, it indicates the round trip delay of multiple QoS flows. |  |
| pdmf | boolean | O | 0..1 | Packet delay measurement failure indicator. When set to true, it indicates that a packet delay failure has occurred.Default value is false if omitted. (NOTE 2) | PacketDelayFailureReportEnQoSMon |
|  |  |  |  |  |  |
| ulDataRate | BitRate | O | 0..1 | Uplink data rate.(NOTE 3) | EnQoSMon |
| dlDataRate | BitRate | O | 0..1 | Downlink data rate.(NOTE 3) | EnQoSMon |
| ulConInfo | Uinteger | O | 0..1 | Percentage of uplink congestion level for exposure (without "%" sign). It may be present when the event "QOS\_MONITORING" is subscribed. | EnQoSMon |
| dlConInfo | Uinteger | O | 0..1 | Percentage of downlink congestion level for exposure (without "%" sign). It may be present when the event "QOS\_MONITORING" is subscribed. | EnQoSMon |
| NOTE 1: In this release of the specification the maximum number of elements in the array is 2. When more than one value is sent at one given point of time for UL packet delay, DL packet delay or round trip packet delay respectively, they represent the minimum and maximum packet delays; when more than one value is sent at one given point of time for congestion information, they represent the minimum and maximum congestion information. NOTE 2: When the "pdmf" attribute is set to true, "ulDelays", "dlDelays" and "rtDelays" shall not be present.NOTE 3: When the "ulDataRate" and/or the "dlDataRate" attribute are included, the "pdmf", "ulDelays", "dlDelays" and "rtDelays" shall not be present. |

Editor’s note: Whether a maximum and minimum data rate measurements calculated during the waiting time interval are the applicable is FFS.

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

# A.2 Npcf\_PolicyAuthorization API

openapi: 3.0.0

info:

 title: Npcf\_PolicyAuthorization Service API

 version: 1.3.0-alpha.5

 description: |

 PCF Policy Authorization Service.

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externalDocs:

 description: 3GPP TS 29.514 V18.4.0; 5G System; Policy Authorization Service; Stage 3.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.514/'

servers:

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

 variables:

 apiRoot:

 default: https://example.com

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

security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

paths:

 /app-sessions:

 post:

 summary: Creates a new Individual Application Session Context resource

 operationId: PostAppSessions

 tags:

 - Application Sessions (Collection)

 security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - npcf-policyauthorization:policy-auth-mgmt

 requestBody:

 description: Contains the information for the creation the resource.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Successful creation of the resource

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: >

 Contains the URI of the created individual application session context resource,

 according to the structure

 {apiRoot}/npcf-policyauthorization/v1/app-sessions/{appSessionId}

 or the URI of the created events subscription sub-resource,

 according to the structure

 {apiRoot}/npcf-policyauthorization/v1/app-sessions/{appSessionId}

 /events-subscription

 required: true

 schema:

 type: string

 '303':

 description: >

 See Other. The result of the HTTP POST request would be equivalent to the existing

 Application Session Context.

 headers:

 Location:

 description: >

 Contains the URI of the existing individual Application Session Context resource.

 required: true

 schema:

 type: string

 '400':

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

 '401':

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

 '403':

 description: Forbidden

 content:

 application/problem+json:

 schema:

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

 headers:

 Retry-After:

 description: >

 Indicates the time the AF has to wait before making a new request. It can be a

 non-negative integer (decimal number) indicating the number of seconds the AF

 has to wait before making a new request or an HTTP-date after which the AF can

 retry a new request.

 schema:

 anyOf:

 - type: integer

 - type: string

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 callbacks:

 terminationRequest:

 '{$request.body#/ascReqData/notifUri}/terminate':

 post:

 requestBody:

 description: >

 Request of the termination of the Individual Application Session Context.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the notification is acknowledged.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 eventNotification:

 '{$request.body#/ascReqData/evSubsc/notifUri}/notify':

 post:

 requestBody:

 description: Notification of an event occurrence in the PCF.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the notification is acknowledged.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 detected5GsBridgeForPduSession:

 '{$request.body#/ascReqData/evSubsc/notifUri}/new-bridge':

 post:

 requestBody:

 description: Notification of a new TSC user plane node detected in the PCF.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the notification is acknowledged.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 eventNotificationPduSession:

 '{$request.body#/ascReqData/evSubsc/notifUri}/pdu-session':

 post:

 requestBody:

 description: Notification of PDU session established or terminated.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the notification is acknowledged.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 /app-sessions/pcscf-restoration:

 post:

 summary: "Indicates P-CSCF restoration and does not create an Individual Application Session Context"

 operationId: PcscfRestoration

 tags:

 - PCSCF Restoration Indication

 requestBody:

 description: PCSCF Restoration Indication.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The deletion is confirmed without returning additional data.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 /app-sessions/{appSessionId}:

 get:

 summary: "Reads an existing Individual Application Session Context"

 operationId: GetAppSession

 tags:

 - Individual Application Session Context (Document)

 security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - npcf-policyauthorization:policy-auth-mgmt

 parameters:

 - name: appSessionId

 description: String identifying the resource.

 in: path

 required: true

 schema:

 type: string

 responses:

 '200':

 description: A representation of the resource is returned.

 content:

 application/json:

 schema:

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

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '406':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 patch:

 summary: "Modifies an existing Individual Application Session Context"

 operationId: ModAppSession

 tags:

 - Individual Application Session Context (Document)

 security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - npcf-policyauthorization:policy-auth-mgmt

 parameters:

 - name: appSessionId

 description: String identifying the resource.

 in: path

 required: true

 schema:

 type: string

 requestBody:

 description: Modification of the resource.

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: >

 Successful modification of the resource and a representation of that resource is

 returned.

 content:

 application/json:

 schema:

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

 '204':

 description: The successful modification.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

 description: Forbidden

 content:

 application/problem+json:

 schema:

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

 headers:

 Retry-After:

 description: >

 Indicates the time the AF has to wait before making a new request. It can be a

 non-negative integer (decimal number) indicating the number of seconds the AF has

 to wait before making a new request or an HTTP-date after which the AF can retry

 a new request.

 schema:

 anyOf:

 - type: integer

 - type: string

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 callbacks:

 eventNotification:

 '{$request.body#/ascReqData/evSubsc/notifUri}/notify':

 post:

 requestBody:

 description: Notification of an event occurrence in the PCF.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the notification is acknowledged

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 /app-sessions/{appSessionId}/delete:

 post:

 summary: "Deletes an existing Individual Application Session Context"

 operationId: DeleteAppSession

 tags:

 - Individual Application Session Context (Document)

 security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - oAuth2ClientCredentials:

 - npcf-policyauthorization

 - npcf-policyauthorization:policy-auth-mgmt

 parameters:

 - name: appSessionId

 description: String identifying the Individual Application Session Context resource.

 in: path

 required: true

 schema:

 type: string

 requestBody:

 description: >

 Deletion of the Individual Application Session Context resource, req notification.

 required: false

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: The deletion of the resource is confirmed and a resource is returned.

 content:

 application/json:

 schema:

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

 '204':

 description: The deletion is confirmed without returning additional data.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 /app-sessions/{appSessionId}/events-subscription:

 put:

 summary: "creates or modifies an Events Subscription subresource"

 operationId: updateEventsSubsc

 tags:

 - Events Subscription (Document)

 parameters:

 - name: appSessionId

 description: String identifying the Events Subscription resource.

 in: path

 required: true

 schema:

 type: string

 requestBody:

 description: Creation or modification of an Events Subscription resource.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: >

 The creation of the Events Subscription resource is confirmed and its representation is

 returned.

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: >

 Contains the URI of the created Events Subscription resource,

 according to the structure

 {apiRoot}/npcf-policyauthorization/v1/app-sessions/{appSessionId}/

 events-subscription

 required: true

 schema:

 type: string

 '200':

 description: >

 The modification of the Events Subscription resource is confirmed its representation is

 returned.

 content:

 application/json:

 schema:

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

 '204':

 description: >

 The modification of the Events Subscription subresource is confirmed without returning

 additional data.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 callbacks:

 eventNotification:

 '{$request.body#/notifUri}/notify':

 post:

 requestBody:

 description: >

 Contains the information for the notification of an event occurrence in the PCF.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The receipt of the notification is acknowledged.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '411':

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

 '413':

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

 '415':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

 delete:

 summary: deletes the Events Subscription subresource

 operationId: DeleteEventsSubsc

 tags:

 - Events Subscription (Document)

 parameters:

 - name: appSessionId

 description: String identifying the Individual Application Session Context resource.

 in: path

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 The deletion of the of the Events Subscription sub-resource is confirmed without

 returning additional data.

 '307':

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

 '308':

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

 '400':

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

 '401':

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

 '403':

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

 '404':

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

 '429':

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

 '500':

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

 '502':

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

 '503':

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

 default:

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

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 npcf-policyauthorization: Access to the Npcf\_PolicyAuthorization API

 npcf-policyauthorization:policy-auth-mgmt: >

 Access to service operations applying to PCF Policy Authorization for creation,

 updation, deletion, retrieval.

 schemas:

 AppSessionContext:

 description: Represents an Individual Application Session Context resource.

 type: object

 properties:

 ascReqData:

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

 ascRespData:

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

 evsNotif:

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

 AppSessionContextReqData:

 description: Identifies the service requirements of an Individual Application Session Context.

 type: object

 required:

 - notifUri

 - suppFeat

 oneOf:

 - required: [ueIpv4]

 - required: [ueIpv6]

 - required: [ueMac]

 properties:

 afAppId:

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

 afChargId:

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

 afReqData:

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

 afRoutReq:

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

 afSfcReq:

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

 aspId:

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

 bdtRefId:

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

 dnn:

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

 evSubsc:

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

 mcpttId:

 description: Indication of MCPTT service request.

 type: string

 mcVideoId:

 description: Indication of MCVideo service request.

 type: string

 medComponents:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains media component information. The key of the map is the medCompN attribute.

 multiModalId:

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

 ipDomain:

 type: string

 mpsAction:

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

 mpsId:

 description: Indication of MPS service request.

 type: string

 mcsId:

 description: Indication of MCS service request.

 type: string

 preemptControlInfo:

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

 qosDuration:

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

 qosInactInt:

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

 resPrio:

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

 servInfStatus:

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

 notifUri:

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

 servUrn:

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

 sliceInfo:

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

 sponId:

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

 sponStatus:

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

 supi:

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

 gpsi:

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

 suppFeat:

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

 ueIpv4:

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

 ueIpv6:

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

 ueMac:

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

 tsnBridgeManCont:

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

 tsnPortManContDstt:

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

 tsnPortManContNwtts:

 type: array

 items:

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

 minItems: 1

 tscNotifUri:

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

 tscNotifCorreId:

 type: string

 description: >

 Correlation identifier for TSC management information notifications.

 AppSessionContextRespData:

 description: >

 Describes the authorization data of an Individual Application Session Context created by

 the PCF.

 type: object

 properties:

 servAuthInfo:

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

 ueIds:

 type: array

 items:

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

 minItems: 1

 suppFeat:

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

 AppSessionContextUpdateDataPatch:

 description: >

 Identifies the modifications to an Individual Application Session Context and/or the

 modifications to the sub-resource Events Subscription.

 type: object

 properties:

 ascReqData:

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

 AppSessionContextUpdateData:

 description: >

 Identifies the modifications to the "ascReqData" property of an Individual Application

 Session Context which may include the modifications to the sub-resource Events Subscription.

 type: object

 properties:

 afAppId:

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

 afRoutReq:

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

 afSfcReq:

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

 aspId:

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

 bdtRefId:

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

 evSubsc:

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

 mcpttId:

 description: Indication of MCPTT service request.

 type: string

 mcVideoId:

 description: Indication of modification of MCVideo service.

 type: string

 medComponents:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains media component information. The key of the map is the medCompN attribute.

 mpsAction:

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

 mpsId:

 description: Indication of MPS service request.

 type: string

 mcsId:

 description: Indication of MCS service request.

 type: string

 preemptControlInfo:

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

 qosDuration:

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

 qosInactInt:

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

 resPrio:

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

 servInfStatus:

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

 sipForkInd:

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

 sponId:

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

 sponStatus:

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

 tsnBridgeManCont:

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

 tsnPortManContDstt:

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

 tsnPortManContNwtts:

 type: array

 items:

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

 minItems: 1

 tscNotifUri:

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

 tscNotifCorreId:

 type: string

 description: >

 Correlation identifier for TSC management information notifications.

 EventsSubscReqData:

 description: Identifies the events the application subscribes to.

 type: object

 required:

 - events

 properties:

 events:

 type: array

 items:

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

 minItems: 1

 notifUri:

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

 reqQosMonParams:

 type: array

 items:

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

 minItems: 1

 qosMon:

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

 qosMonDatRate:

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

 pdvReqMonParams:

 type: array

 items:

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

 minItems: 1

 pdvMon:

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

 congestMon:

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

 reqAnis:

 type: array

 items:

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

 minItems: 1

 usgThres:

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

 notifCorreId:

 type: string

 afAppIds:

 type: array

 items:

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

 minItems: 1

 directNotifInd:

 type: boolean

 avrgWndw:

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

 EventsSubscReqDataRm:

 description: >

 This data type is defined in the same way as the EventsSubscReqData data type, but with

 the OpenAPI nullable property set to true.

 type: object

 required:

 - events

 properties:

 events:

 type: array

 items:

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

 notifUri:

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

 reqQosMonParams:

 type: array

 items:

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

 minItems: 1

 qosMon:

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

 qosMonDatRate:

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

 pdvReqMonParams:

 type: array

 items:

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

 minItems: 1

 pdvMon:

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

 congestMon:

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

 reqAnis:

 type: array

 items:

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

 minItems: 1

 usgThres:

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

 notifCorreId:

 type: string

 directNotifInd:

 type: boolean

 nullable: true

 avrgWndw:

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

 nullable: true

 MediaComponent:

 description: Identifies a media component.

 type: object

 required:

 - medCompN

 allOf:

 - not:

 required: [altSerReqs,altSerReqsData]

 - not:

 required: [qosReference,altSerReqsData]

 properties:

 afAppId:

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

 afRoutReq:

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

 afSfcReq:

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

 qosReference:

 type: string

 disUeNotif:

 type: boolean

 altSerReqs:

 type: array

 items:

 type: string

 minItems: 1

 altSerReqsData:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains alternative service requirements that include individual QoS parameter sets.

 contVer:

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

 codecs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 desMaxLatency:

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

 desMaxLoss:

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

 flusId:

 type: string

 fStatus:

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

 marBwDl:

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

 marBwUl:

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

 maxPacketLossRateDl:

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

 maxPacketLossRateUl:

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

 maxSuppBwDl:

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

 maxSuppBwUl:

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

 medCompN:

 type: integer

 medSubComps:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the requested bitrate and filters for the set of service data flows identified

 by their common flow identifier. The key of the map is the fNum attribute.

 medType:

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

 minDesBwDl:

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

 minDesBwUl:

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

 mirBwDl:

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

 mirBwUl:

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

 preemptCap:

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

 preemptVuln:

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

 prioSharingInd:

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

 resPrio:

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

 rrBw:

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

 rsBw:

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

 sharingKeyDl:

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

 sharingKeyUl:

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

 tsnQos:

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

 tscaiInputDl:

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

 tscaiInputUl:

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

 tscaiTimeDom:

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

 capBatAdaptation:

 type: boolean

 description: >

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

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

 rTLatencyInd:

 type: boolean

 description: >

 Indicates the service data flow needs to meet the Round-Trip (RT) latency requirement of

 the service, when it is included and set to "true". The default value is "false" if

 omitted.

 pduSetQos:

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

 pduSetProtDesc:

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

 periodInfo:

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

 l4sInd:

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

 MediaComponentRm:

 description: >

 This data type is defined in the same way as the MediaComponent data type, but with the

 OpenAPI nullable property set to true.

 type: object

 required:

 - medCompN

 not:

 required: [altSerReqs,altSerReqsData]

 properties:

 afAppId:

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

 afRoutReq:

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

 afSfcReq:

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

 qosReference:

 type: string

 nullable: true

 altSerReqs:

 type: array

 items:

 type: string

 minItems: 1

 nullable: true

 altSerReqsData:

 type: array

 items:

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

 minItems: 1

 description: >

 Contains removable alternative service requirements that include individual QoS

 parameter sets.

 nullable: true

 disUeNotif:

 type: boolean

 contVer:

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

 codecs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 desMaxLatency:

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

 desMaxLoss:

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

 flusId:

 type: string

 nullable: true

 fStatus:

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

 marBwDl:

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

 marBwUl:

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

 maxPacketLossRateDl:

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

 maxPacketLossRateUl:

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

 maxSuppBwDl:

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

 maxSuppBwUl:

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

 medCompN:

 type: integer

 medSubComps:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Contains the requested bitrate and filters for the set of service data flows identified

 by their common flow identifier. The key of the map is the fNum attribute.

 medType:

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

 minDesBwDl:

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

 minDesBwUl:

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

 mirBwDl:

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

 mirBwUl:

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

 preemptCap:

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

 preemptVuln:

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

 prioSharingInd:

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

 resPrio:

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

 rrBw:

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

 rsBw:

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

 sharingKeyDl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32Rm'

 sharingKeyUl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32Rm'

 tsnQos:

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

 tscaiInputDl:

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

 tscaiInputUl:

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

 tscaiTimeDom:

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

 capBatAdaptation:

 type: boolean

 description: >

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

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

 rTLatencyInd:

 type: boolean

 description: >

 Indicates the service data flow needs to meet the Round-Trip (RT) latency requirement of

 the service, when it is included and set to "true". The default value is "false" if

 omitted.

 pduSetQos:

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

 pduSetProtDesc:

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

 periodInfo:

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

 l4sInd:

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

 nullable: true

 MediaSubComponent:

 description: Identifies a media subcomponent.

 type: object

 required:

 - fNum

 properties:

 afSigProtocol:

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

 ethfDescs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 fNum:

 type: integer

 fDescs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 addInfoFlowDescs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 description: >

 Represents additional flow description information (flow label and IPsec SPI)

 per Uplink and/or Downlink IP flows.

 fStatus:

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

 marBwDl:

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

 marBwUl:

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

 tosTrCl:

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

 flowUsage:

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

 evSubsc:

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

 MediaSubComponentRm:

 description: >

 This data type is defined in the same way as the MediaSubComponent data type, but with the

 OpenAPI nullable property set to true. Removable attributes marBwDl and marBwUl are defined

 with the corresponding removable data type.

 type: object

 required:

 - fNum

 properties:

 afSigProtocol:

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

 ethfDescs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 nullable: true

 fNum:

 type: integer

 fDescs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 nullable: true

 addInfoFlowDescs:

 type: array

 items:

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

 minItems: 1

 maxItems: 2

 nullable: true

 description: >

 Represents additional flow description information (flow label and IPsec SPI)

 per Uplink and/or Downlink IP flows.

 fStatus:

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

 marBwDl:

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

 marBwUl:

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

 tosTrCl:

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

 flowUsage:

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

 evSubsc:

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

 nullable: true

 EventsNotification:

 description: Describes the notification of a matched event.

 type: object

 required:

 - evSubsUri

 - evNotifs

 properties:

 adReports:

 type: array

 items:

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

 minItems: 1

 description: Includes the detected application report.

 accessType:

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

 addAccessInfo:

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

 relAccessInfo:

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

 anChargAddr:

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

 anChargIds:

 type: array

 items:

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

 minItems: 1

 anGwAddr:

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

 l4sReports:

 type: array

 items:

 $ref: '#/components/schemas/L4sSupport'

 minItems: 1

 evSubsUri:

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

 evNotifs:

 type: array

 items:

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

 minItems: 1

 failedResourcAllocReports:

 type: array

 items:

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

 minItems: 1

 succResourcAllocReports:

 type: array

 items:

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

 minItems: 1

 noNetLocSupp:

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

 outOfCredReports:

 type: array

 items:

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

 minItems: 1

 plmnId:

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

 qncReports:

 type: array

 items:

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

 minItems: 1

 qosMonReports:

 type: array

 items:

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

 minItems: 1

 qosMonDatRateReps:

 type: array

 items:

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

 minItems: 1

 pdvMonReports:

 type: array

 items:

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

 minItems: 1

 congestReports:

 type: array

 items:

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

 minItems: 1

 ranNasRelCauses:

 type: array

 items:

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

 minItems: 1

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

 ratType:

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

 satBackhaulCategory:

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

 ueLoc:

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

 ueLocTime:

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

 ueTimeZone:

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

 usgRep:

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

 urspEnfRep:

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

 sscMode:

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

 ueReqDnn:

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

 redundantPduSessionInfo:

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

 tsnBridgeManCont:

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

 tsnPortManContDstt:

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

 tsnPortManContNwtts:

 type: array

 items:

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

 minItems: 1

 ipv4AddrList:

 type: array

 items:

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

 minItems: 1

 ipv6PrefixList:

 type: array

 items:

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

 minItems: 1

 batOffsetInfo:

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

 AfEventSubscription:

 description: Describes the event information delivered in the subscription.

 type: object

 required:

 - event

 properties:

 event:

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

 notifMethod:

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

 repPeriod:

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

 waitTime:

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

 AfEventNotification:

 description: Describes the event information delivered in the notification.

 type: object

 required:

 - event

 properties:

 event:

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

 flows:

 type: array

 items:

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

 minItems: 1

 retryAfter:

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

 TerminationInfo:

 description: >

 Indicates the cause for requesting the deletion of the Individual Application Session

 Context resource.

 type: object

 required:

 - termCause

 - resUri

 properties:

 termCause:

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

 resUri:

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

 AfRoutingRequirement:

 description: Describes AF requirements on routing traffic.

 type: object

 properties:

 appReloc:

 type: boolean

 routeToLocs:

 type: array

 items:

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

 minItems: 1

 spVal:

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

 tempVals:

 type: array

 items:

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

 minItems: 1

 upPathChgSub:

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

 addrPreserInd:

 type: boolean

 simConnInd:

 type: boolean

 description: >

 Indicates whether simultaneous connectivity should be temporarily maintained for the

 source and target PSA.

 simConnTerm:

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

 easIpReplaceInfos:

 type: array

 items:

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

 minItems: 1

 description: Contains EAS IP replacement information.

 easRedisInd:

 type: boolean

 description: Indicates the EAS rediscovery is required.

 maxAllowedUpLat:

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

 tfcCorreInfo:

 $ref: 'TS29519\_Application\_Data.yaml#/components/schemas/TrafficCorrelationInfo'

 AfSfcRequirement:

 description: Describes AF requirements on steering traffic to N6-LAN.

 type: object

 properties:

 sfcIdDl:

 type: string

 description: Reference to a pre-configured SFC for downlink traffic.

 nullable: true

 sfcIdUl:

 type: string

 description: Reference to a pre-configured SFC for uplink traffic.

 nullable: true

 spVal:

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

 metadata:

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

 nullable: true

 SpatialValidity:

 description: Describes explicitly the route to an Application location.

 type: object

 required:

 - presenceInfoList

 properties:

 presenceInfoList:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Defines the presence information provisioned by the AF. The praId attribute within the

 PresenceInfo data type is the key of the map.

 SpatialValidityRm:

 description: >

 This data type is defined in the same way as the SpatialValidity data type, but with the

 OpenAPI nullable property set to true.

 type: object

 required:

 - presenceInfoList

 properties:

 presenceInfoList:

 type: object

 additionalProperties:

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

 minProperties: 1

 description: >

 Defines the presence information provisioned by the AF. The praId attribute within the

 PresenceInfo data type is the key of the map.

 nullable: true

 AfRoutingRequirementRm:

 description: >

 This data type is defined in the same way as the AfRoutingRequirement data type, but with

 the OpenAPI nullable property set to true and the spVal and tempVals attributes defined as

 removable.

 type: object

 properties:

 appReloc:

 type: boolean

 routeToLocs:

 type: array

 items:

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

 minItems: 1

 nullable: true

 spVal:

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

 tempVals:

 type: array

 items:

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

 minItems: 1

 nullable: true

 upPathChgSub:

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

 addrPreserInd:

 type: boolean

 nullable: true

 simConnInd:

 type: boolean

 nullable: true

 description: >

 Indicates whether simultaneous connectivity should be temporarily maintained for the

 source and target PSA.

 simConnTerm:

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

 easIpReplaceInfos:

 type: array

 items:

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

 minItems: 1

 description: Contains EAS IP replacement information.

 nullable: true

 easRedisInd:

 type: boolean

 description: Indicates the EAS rediscovery is required.

 maxAllowedUpLat:

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

 tfcCorreInfo:

 $ref: 'TS29519\_Application\_Data.yaml#/components/schemas/TrafficCorrelationInfo'

 nullable: true

 AnGwAddress:

 description: Describes the address of the access network gateway control node.

 type: object

 anyOf:

 - required: [anGwIpv4Addr]

 - required: [anGwIpv6Addr]

 properties:

 anGwIpv4Addr:

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

 anGwIpv6Addr:

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

 Flows:

 description: Identifies the flows.

 type: object

 required:

 - medCompN

 properties:

 contVers:

 type: array

 items:

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

 minItems: 1

 fNums:

 type: array

 items:

 type: integer

 minItems: 1

 medCompN:

 type: integer

 EthFlowDescription:

 description: Identifies an Ethernet flow.

 type: object

 required:

 - ethType

 properties:

 destMacAddr:

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

 ethType:

 type: string

 fDesc:

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

 fDir:

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

 sourceMacAddr:

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

 vlanTags:

 type: array

 items:

 type: string

 minItems: 1

 maxItems: 2

 srcMacAddrEnd:

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

 destMacAddrEnd:

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

 ResourcesAllocationInfo:

 description: Describes the status of the PCC rule(s) related to certain media components.

 type: object

 properties:

 mcResourcStatus:

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

 flows:

 type: array

 items:

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

 minItems: 1

 altSerReq:

 type: string

 description: >

 Indicates whether NG-RAN supports alternative QoS parameters. The default value false

 shall apply if the attribute is not present. It shall be set to false to indicate that

 the lowest priority alternative QoS profile could not be fulfilled.

 TemporalValidity:

 description: Indicates the time interval(s) during which the AF request is to be applied.

 type: object

 properties:

 startTime:

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

 stopTime:

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

 QosNotificationControlInfo:

 description: >

 Indicates whether the QoS targets for a GRB flow are not guaranteed or guaranteed again.

 type: object

 required:

 - notifType

 properties:

 notifType:

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

 flows:

 type: array

 items:

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

 minItems: 1

 altSerReq:

 type: string

 description: >

 Indicates the alternative service requirement NG-RAN can guarantee. When it is omitted

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

 priority alternative alternative service requirement could not be fulfilled by NG-RAN.

 altSerReqNotSuppInd:

 type: boolean

 description: >

 When present and set to true it indicates that Alternative Service Requirements are not

 supported by NG-RAN.

 AcceptableServiceInfo:

 description: Indicates the maximum bandwidth that shall be authorized by the PCF.

 type: object

 properties:

 accBwMedComps:

 type: object

 additionalProperties:

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

 description: >

 Indicates the maximum bandwidth that shall be authorized by the PCF for each media

 component of the map. The key of the map is the media component number.

 minProperties: 1

 marBwUl:

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

 marBwDl:

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

 UeIdentityInfo:

 description: Represents 5GS-Level UE identities.

 type: object

 anyOf:

 - required: [gpsi]

 - required: [pei]

 - required: [supi]

 properties:

 gpsi:

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

 pei:

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

 supi:

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

 AccessNetChargingIdentifier:

 description: Describes the access network charging identifier.

 type: object

 oneOf:

 - required: [accNetChaIdValue]

 - required: [accNetChargIdString]

 properties:

 accNetChaIdValue:

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

 accNetChargIdString:

 type: string

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

 flows:

 type: array

 items:

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

 minItems: 1

 OutOfCreditInformation:

 description: >

 Indicates the SDFs without available credit and the corresponding termination action.

 type: object

 required:

 - finUnitAct

 properties:

 finUnitAct:

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

 flows:

 type: array

 items:

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

 minItems: 1

 QosMonitoringInformation:

 description: >

 Indicates the QoS Monitoring information to report, i.e. UL and/or DL and or round trip delay.

 type: object

 properties:

 repThreshDl:

 type: integer

 repThreshUl:

 type: integer

 repThreshRp:

 type: integer

 repThreshDatRateUl:

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

 repThreshDatRateDl:

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

 conThreshDl:

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

 conThreshUl:

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

 PduSessionTsnBridge:

 description: >

 Contains the new TSC user plane node information and may contain the DS-TT port and/or

 NW-TT port management information.

 type: object

 required:

 - tsnBridgeInfo

 properties:

 tsnBridgeInfo:

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

 tsnBridgeManCont:

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

 tsnPortManContDstt:

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

 tsnPortManContNwtts:

 type: array

 items:

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

 minItems: 1

 ueIpv4Addr:

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

 dnn:

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

 snssai:

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

 ipDomain:

 type: string

 description: IPv4 address domain identifier.

 ueIpv6AddrPrefix:

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

 QosMonitoringInformationRm:

 description: >

 This data type is defined in the same way as the QosMonitoringInformation data type, but

 with the OpenAPI nullable property set to true.

 type: object

 properties:

 repThreshDl:

 type: integer

 repThreshUl:

 type: integer

 repThreshRp:

 type: integer

 repThreshDatRateUl:

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

 repThreshDatRateDl:

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

 conThreshDl:

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

 conThreshUl:

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

 nullable: true

 PcscfRestorationRequestData:

 description: Indicates P-CSCF restoration.

 type: object

 oneOf:

 - required: [ueIpv4]

 - required: [ueIpv6]

 properties:

 dnn:

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

 ipDomain:

 type: string

 sliceInfo:

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

 supi:

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

 ueIpv4:

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

 ueIpv6:

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

 QosMonitoringReport:

 description: QoS Monitoring reporting information.

 type: object

 properties:

 flows:

 type: array

 items:

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

 minItems: 1

 ulDelays:

 type: array

 items:

 type: integer

 minItems: 1

 dlDelays:

 type: array

 items:

 type: integer

 minItems: 1

 rtDelays:

 type: array

 items:

 type: integer

 minItems: 1

 pdmf:

 type: boolean

 description: Represents the packet delay measurement failure indicator.

 ulConInfo:

 type: array

 items:

 type: integer

 minItems: 1

 dlConInfo:

 type: array

 items:

 type: integer

 minItems: 1

 ulDataRate:

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

 dlDataRate:

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

 TsnQosContainer:

 description: Indicates TSC Traffic QoS.

 type: object

 properties:

 maxTscBurstSize:

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

 tscPackDelay:

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

 maxPer:

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

 tscPrioLevel:

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

 TsnQosContainerRm:

 description: Indicates removable TSC Traffic QoS.

 type: object

 properties:

 maxTscBurstSize:

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

 tscPackDelay:

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

 maxPer:

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

 tscPrioLevel:

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

 nullable: true

 TscaiInputContainer:

 description: Indicates TSC Traffic pattern.

 type: object

 properties:

 periodicity:

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

 burstArrivalTime:

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

 surTimeInNumMsg:

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

 surTimeInTime:

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

 burstArrivalTimeWnd:

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

 periodicityRange:

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

 nullable: true

 AppDetectionReport:

 description: >

 Indicates the start or stop of the detected application traffic and the application

 identifier of the detected application traffic.

 type: object

 required:

 - adNotifType

 - afAppId

 properties:

 adNotifType:

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

 afAppId:

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

 PduSessionEventNotification:

 description: >

 Indicates PDU session information for the concerned established/terminated PDU session.

 type: object

 required:

 - evNotif

 properties:

 evNotif:

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

 supi:

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

 ueIpv4:

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

 ueIpv6:

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

 ueMac:

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

 status:

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

 pcfInfo:

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

 dnn:

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

 snssai:

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

 gpsi:

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

 PcfAddressingInfo:

 description: Contains PCF address information.

 type: object

 properties:

 pcfFqdn:

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

 pcfIpEndPoints:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/IpEndPoint'

 minItems: 1

 description: IP end points of the PCF hosting the Npcf\_PolicyAuthorization service.

 bindingInfo:

 type: string

 description: contains the binding indications of the PCF.

 AlternativeServiceRequirementsData:

 description: Contains an alternative QoS related parameter set.

 type: object

 required:

 - altQosParamSetRef

 properties:

 altQosParamSetRef:

 type: string

 description: Reference to this alternative QoS related parameter set.

 gbrUl:

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

 gbrDl:

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

 pdb:

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

 per:

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

 EventsSubscPutData:

 description: >

 Identifies the events the application subscribes to within an Events Subscription

 sub-resource data. It may contain the notification of the already met events.

 anyOf:

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

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

 PeriodicityRange:

 description: >

 Contains the acceptable range (which is formulated as lower bound and upper bound of

 the periodicity of the start twobursts in reference to the external GM) or

 acceptable periodicity value(s) (which is formulated as a list of values for

 the periodicity).

 type: object

 oneOf:

 - required: [lowerBound, upperBound]

 - required: [periodicVals]

 properties:

 lowerBound:

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

 upperBound:

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

 periodicVals:

 type: array

 items:

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

 minItems: 1

 BatOffsetInfo:

 description: >

 Indicates the offset of the BAT and the optionally adjusted periodicity.

 type: object

 required:

 - ranBatOffsetNotif

 properties:

 ranBatOffsetNotif:

 type: integer

 description: >

 Indicates the BAT offset of the arrival time of the data burst in units

 of milliseconds.

 adjPeriod:

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

 flows:

 type: array

 items:

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

 minItems: 1

 description: >

 Identification of the flows. If no flows are provided, the BAT offset applies

 for all flows of the AF session.

 ProtoDesc:

 description: Contains the protocol description namely protocol details and payload type

 information.

 type: object

 properties:

 protocol:

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

 payloadType:

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

 ProtoDescRm:

 description: Contains the protocol description namely protocol details and payload type

 information.

 type: object

 properties:

 protocol:

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

 payloadType:

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

 nullable: true

 PdvMonitoringReport:

 description: Packet Delay Variation reporting information.

 type: object

 properties:

 flows:

 type: array

 items:

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

 minItems: 1

 description: Identification of the flows.

 ulPdv:

 type: integer

 description: Uplink packet delay variation in units of milliseconds.

 dlPdv:

 type: integer

 description: Downlink packet delay variation in units of milliseconds.

 rtPdv:

 type: integer

 description: Round trip packet delay variation in units of milliseconds.

 PeriodicityInfo:

 description: >

 Indicates the time period between the start of the two data bursts in Uplink and/or Downlink

 direction.

 type: object

 properties:

 periodUl:

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

 periodDl:

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

 nullable: true

 AddFlowDescriptionInfo:

 description: Contains additional flow description information.

 type: object

 properties:

 spi:

 type: string

 description: >

 4-octet string representing the security parameter index of the IPSec packet

 in hexadecimal representation.

 flowLabel:

 type: string

 description: >

 3-octet string representing the IPv6 flow label header field in hexadecimal

 representation.

 flowDir:

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

 L4sSupport:

 description: >

 Indicates whether the ECN marking for L4S support is not available or available

 again in 5GS.

 type: object

 required:

 - notifType

 properties:

 notifType:

 $ref: '#/components/schemas/L4sNotifType'

 flows:

 type: array

 items:

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

 minItems: 1

#

# EXTENDED PROBLEMDETAILS

#

 ExtendedProblemDetails:

 description: Extends ProblemDetails to also include the acceptable service info.

 allOf:

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

 - type: object

 properties:

 acceptableServInfo:

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

#

# SIMPLE DATA TYPES

#

 AfAppId:

 description: Contains an AF application identifier.

 type: string

 AspId:

 description: Contains an identity of an application service provider.

 type: string

 CodecData:

 description: Contains codec related information.

 type: string

 ContentVersion:

 description: Represents the content version of some content.

 type: integer

 FlowDescription:

 description: Defines a packet filter of an IP flow.

 type: string

 SponId:

 description: Contains an identity of a sponsor.

 type: string

 ServiceUrn:

 description: Contains values of the service URN and may include subservices.

 type: string

 TosTrafficClass:

 description: >

 2-octet string, where each octet is encoded in hexadecimal representation. The first octet

 contains the IPv4 Type-of-Service or the IPv6 Traffic-Class field and the second octet

 contains the ToS/Traffic Class mask field.

 type: string

 TosTrafficClassRm:

 description: >

 This data type is defined in the same way as the TosTrafficClass data type, but with the

 OpenAPI nullable property set to true.

 type: string

 nullable: true

 MultiModalId:

 description: >

 This data type contains a multi-modal service identifier.

 type: string

 TscPriorityLevel:

 description: Represents the priority level of TSC Flows.

 type: integer

 minimum: 1

 maximum: 8

 TscPriorityLevelRm:

 description: >

 This data type is defined in the same way as the TscPriorityLevel data type, but with the

 OpenAPI nullable property set to true.

 type: integer

 minimum: 1

 maximum: 8

 nullable: true

 MediaProtocol:

 description: represents the different media protocol applicable for XRM muti modality session.

 type: string

 PayloadType:

 description: represents the different payload type.

 type: string

#

# ENUMERATIONS DATA TYPES

#

 MediaType:

 description: Indicates the media type of a media component.

 anyOf:

 - type: string

 enum:

 - AUDIO

 - VIDEO

 - DATA

 - APPLICATION

 - CONTROL

 - TEXT

 - MESSAGE

 - OTHER

 - type: string

 description: >

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

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

 MpsAction:

 description: >

 Indicates whether it is an invocation, a revocation or an invocation with authorization of

 the MPS for DTS service.

 anyOf:

 - type: string

 enum:

 - DISABLE\_MPS\_FOR\_DTS

 - ENABLE\_MPS\_FOR\_DTS

 - AUTHORIZE\_AND\_ENABLE\_MPS\_FOR\_DTS

 - AUTHORIZE\_AND\_ENABLE\_MPS\_FOR\_AF\_SIGNALLING

 - type: string

 description: >

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

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

 ReservPriority:

 description: Indicates the reservation priority.

 anyOf:

 - type: string

 enum:

 - PRIO\_1

 - PRIO\_2

 - PRIO\_3

 - PRIO\_4

 - PRIO\_5

 - PRIO\_6

 - PRIO\_7

 - PRIO\_8

 - PRIO\_9

 - PRIO\_10

 - PRIO\_11

 - PRIO\_12

 - PRIO\_13

 - PRIO\_14

 - PRIO\_15

 - PRIO\_16

 - type: string

 description: >

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

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

 ServAuthInfo:

 description: Indicates the result of the Policy Authorization service request from the AF.

 anyOf:

 - type: string

 enum:

 - TP\_NOT\_KNOWN

 - TP\_EXPIRED

 - TP\_NOT\_YET\_OCURRED

 - ROUT\_REQ\_NOT\_AUTHORIZED

 - DIRECT\_NOTIF\_NOT\_POSSIBLE

 - type: string

 description: >

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

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

 SponsoringStatus:

 description: Indicates whether sponsored data connectivity is enabled or disabled/not enabled.

 anyOf:

 - type: string

 enum:

 - SPONSOR\_DISABLED

 - SPONSOR\_ENABLED

 - type: string

 description: >

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

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

 AfEvent:

 description: Represents an event to notify to the AF.

 anyOf:

 - type: string

 enum:

 - ACCESS\_TYPE\_CHANGE

 - ANI\_REPORT

 - APP\_DETECTION

 - CHARGING\_CORRELATION

 - EPS\_FALLBACK

 - EXTRA\_UE\_ADDR

 - FAILED\_QOS\_UPDATE

 - FAILED\_RESOURCES\_ALLOCATION

 - OUT\_OF\_CREDIT

 - PDU\_SESSION\_STATUS

 - PLMN\_CHG

 - QOS\_MONITORING

 - QOS\_NOTIF

 - RAN\_NAS\_CAUSE

 - REALLOCATION\_OF\_CREDIT

 - SAT\_CATEGORY\_CHG

 - SUCCESSFUL\_QOS\_UPDATE

 - SUCCESSFUL\_RESOURCES\_ALLOCATION

 - TSN\_BRIDGE\_INFO

 - UP\_PATH\_CHG\_FAILURE

 - USAGE\_REPORT

 - UE\_TEMPORARILY\_UNAVAILABLE

 - BAT\_OFFSET\_INFO

 - URSP\_ENF\_INFO

 - PACK\_DEL\_VAR

 - L4S\_SUPP

 - RT\_DELAY\_TWO\_QOS\_FLOWS

 - type: string

 description: >

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

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

 AfNotifMethod:

 description: Represents the notification methods that can be subscribed for an event.

 anyOf:

 - type: string

 enum:

 - EVENT\_DETECTION

 - ONE\_TIME

 - PERIODIC

 - type: string

 description: >

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

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

 QosNotifType:

 description: Indicates the notification type for QoS Notification Control.

 anyOf:

 - type: string

 enum:

 - GUARANTEED

 - NOT\_GUARANTEED

 - type: string

 description: >

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

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

 TerminationCause:

 description: >

 Indicates the cause behind requesting the deletion of the Individual Application Session

 Context resource.

 anyOf:

 - type: string

 enum:

 - ALL\_SDF\_DEACTIVATION

 - PDU\_SESSION\_TERMINATION

 - PS\_TO\_CS\_HO

 - INSUFFICIENT\_SERVER\_RESOURCES

 - INSUFFICIENT\_QOS\_FLOW\_RESOURCES

 - SPONSORED\_DATA\_CONNECTIVITY\_DISALLOWED

 - type: string

 description: >

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

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

 MediaComponentResourcesStatus:

 description: Indicates whether the media component is active or inactive.

 anyOf:

 - type: string

 enum:

 - ACTIVE

 - INACTIVE

 - type: string

 description: >

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

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

 FlowUsage:

 description: Describes the flow usage of the flows described by a media subcomponent.

 anyOf:

 - type: string

 enum:

 - NO\_INFO

 - RTCP

 - AF\_SIGNALLING

 - type: string

 description: >

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

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

 FlowStatus:

 description: Describes whether the IP flow(s) are enabled or disabled.

 anyOf:

 - type: string

 enum:

 - ENABLED-UPLINK

 - ENABLED-DOWNLINK

 - ENABLED

 - DISABLED

 - REMOVED

 - type: string

 description: >

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

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

 RequiredAccessInfo:

 description: Indicates the access network information required for an AF session.

 anyOf:

 - type: string

 enum:

 - USER\_LOCATION

 - UE\_TIME\_ZONE

 - type: string

 description: >

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

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

 SipForkingIndication:

 description: >

 Indicates whether several SIP dialogues are related to an "Individual Application Session

 Context" resource.

 anyOf:

 - type: string

 enum:

 - SINGLE\_DIALOGUE

 - SEVERAL\_DIALOGUES

 - type: string

 description: >

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

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

 AfRequestedData:

 description: Represents the information that the AF requested to be exposed.

 anyOf:

 - type: string

 enum:

 - UE\_IDENTITY

 - type: string

 description: >

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

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

 ServiceInfoStatus:

 description: Represents the preliminary or final service information status.

 anyOf:

 - type: string

 enum:

 - FINAL

 - PRELIMINARY

 - type: string

 description: >

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

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

 PreemptionControlInformation:

 description: Represents Pre-emption control information.

 anyOf:

 - type: string

 enum:

 - MOST\_RECENT

 - LEAST\_RECENT

 - HIGHEST\_BW

 - type: string

 description: >

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

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

 PrioritySharingIndicator:

 description: Represents the Priority sharing indicator.

 anyOf:

 - type: string

 enum:

 - ENABLED

 - DISABLED

 - type: string

 description: >

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

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

 PreemptionControlInformationRm:

 description: >

 This data type is defined in the same way as the PreemptionControlInformation data type, but

 with the OpenAPI nullable property set to true.

 anyOf:

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

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

 AppDetectionNotifType:

 description: Indicates the notification type for Application Detection Control.

 anyOf:

 - type: string

 enum:

 - APP\_START

 - APP\_STOP

 - type: string

 description: >

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

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

 PduSessionStatus:

 description: Indicates whether the PDU session is established or terminated.

 anyOf:

 - type: string

 enum:

 - ESTABLISHED

 - TERMINATED

 - type: string

 description: >

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

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

 UplinkDownlinkSupport:

 description: >

 Represents whether an indication or capability is supported for the UL, the DL or both,

 UL and DL.

 anyOf:

 - type: string

 enum:

 - UL

 - DL

 - UL\_DL

 - type: string

 description: >

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

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

 L4sNotifType:

 description: Indicates the notification type for ECN marking for L4S support in 5GS.

 anyOf:

 - type: string

 enum:

 - AVAILABLE

 - NOT\_AVAILABLE

 - type: string

 description: >

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

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

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