**3GPP TSG CT WG3 134 *C3-242323***

**Changsha, China, 15 - 19 April, 2024 (revision of C3-242xyz)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.122** | **CR** | **0832** | **rev** | **-** | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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:*** | Completion of Round Trip Time over two QoS flows | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | C3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item Code:*** | XRM | | | | |  | ***Date:*** | | | 2024-03-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The QoS data provided within the AsSessionWithQoSSubscription and AsSessionWithQoSPatch data type apply to all the flows included within the "flowInfo", "ethFlowInfo" and "enEthFlowInfo", and hence, they refer to the same QoS flow.  The Round Trip Time over two QoS flows event applies then when the AsSessionWithQoSSubscription includes information for multiple media. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clarification in 5.14.2.2.3 that the event RT\_DELAY\_TWO\_QOS\_FLOWS only applies when the Multimedia feature is supported and when the subscription is at AS Session Media Component level.  Specification of the AsSessionMediaComponent/Rm contents for the RT\_DELAY\_TWO\_QOS\_FLOWS subscription.  Removal of the rttMon attribute from AsSessionWithQoSSubscription/Patch data types. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | RT Delay over two QoS flows is not fully specified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.14.2.1.2, 5.14.2.1.3, 5.14.2.1.13, 5.14.2.1.14, 5.14.2.2.3, A.14 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 impacts the AsSessionWithQoS OpenAPI specification with a backwards compatible feature. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* Start of Changes \* \* \* \*

##### 5.14.2.1.2 Type: AsSessionWithQoSSubscription

This type represents an AS session request with specific QoS for the service provided by the SCS/AS to the SCEF via T8 interface. The structure is used for subscription request and response.

Table 5.14.2.1.2-1: Definition of type AsSessionWithQoSSubscription

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | Cardinality | Description | Applicability (NOTE 1) |
| self | Link | 0..1 | Link to the resource "Individual AS Session with Required QoS Subscription".  This parameter shall be supplied by the SCEF in HTTP responses. |  |
| dnn | Dnn | 0..1 | Identifies a DNN, a full DNN with both the Network Identifier and Operator Identifier, or a DNN with the Network Identifier only. (NOTE 3) |  |
| snssai | Snssai | 0..1 | Identifies an S-NSSAI. (NOTE 3) |  |
| supportedFeatures | SupportedFeatures | 0..1 | Used to negotiate the supported optional features of the API as described in clause 5.2.7.  This attribute shall be provided in the POST request and in the response of successful resource creation. |  |
| notificationDestination | Link | 1 | Contains the URL to receive the notification bearer level event(s) from the SCEF. |  |
| exterAppId | string | 0..1 | Identifies the external Application Identifier. (NOTE 2) (NOTE 8) (NOTE 9) (NOTE 11) | AppId  ListUE\_5G  GMEC\_5G |
| extGroupId | ExternalGroupId | 0..1 | Identifies a group of UE(s).  (NOTE 10) | GMEC\_5G |
| gpsi | Gpsi | 0..1 | Identifies a UE using its GPSI.  (NOTE 10) | GMEC\_5G |
| flowInfo | array(FlowInfo) | 0..N | Describe the IP data flow which requires QoS.  (NOTE 2) (NOTE 7) (NOTE 8) (NOTE 9) (NOTE 10) (NOTE 11) (NOTE 17) |  |
| ethFlowInfo | array(EthFlowDescription) | 0..N | Identifies Ethernet packet flows.  (NOTE 2) (NOTE 6) (NOTE 8) (NOTE 10) (NOTE 11) | EthAsSessionQoS\_5G  GMEC\_5G |
| enEthFlowInfo | array(EthFlowInfo) | 0..N | Identifies the Ethernet flows which require QoS. Each Ethernet flow consists of a flow identifier and the corresponding UL and/or DL flows.  (NOTE 2) (NOTE 6) (NOTE 8) (NOTE 10) (NOTE 11) | EnEthAsSessionQoS\_5G  GMEC\_5G |
| qosReference | string | 0..1 | Identifies a pre-defined QoS information. (NOTE 4) (NOTE 5) |  |
| altQoSReferences | array(string) | 0..N | Identifies an ordered list of pre-defined QoS information. The lower the index of the array for a given entry, the higher the priority. (NOTE 4) | AlternativeQoS\_5G  GMEC\_5G |
| altQosReqs | array(AlternativeServiceRequirementsData) | 0..N | Identifies an ordered list of alternative service requirements that include individual QoS parameter sets. The lower the index of the array for a given entry, the higher the priority. (NOTE 4) | AltQosWithIndParams\_5G |
| disUeNotif | boolean | 0..1 | Indicates whether to disable QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation. The fulfilled situation is either the QoS profile or an Alternative QoS Profile.  - true: the QoS flow parameters signalling to the UE is disabled;  - false (default): the QoS flow parameters signalling to the UE is not disabled. | DisableUENotification\_5G  GMEC\_5G |
| ueIpv4Addr | Ipv4Addr | 0..1 | The Ipv4 address of the UE.  (NOTE 2) |  |
| ipDomain | string | 0..1 | The IPv4 address domain identifier.  The attribute may only be provided if the ueIpv4Addr attribute is present. |  |
| ueIpv6Addr | Ipv6Addr | 0..1 | The Ipv6 address of the UE.  (NOTE 2) |  |
| macAddr | MacAddr48 | 0..1 | Identifies the MAC address.  (NOTE 2) | EthAsSessionQoS\_5G |
| listUeAddrs | array(UeAddInfo) | 0..N | Identifies the list of UE address(es).  (NOTE 9) (NOTE 12) | ListUE\_5G |
| usageThreshold | UsageThreshold | 0..1 | Time period and/or traffic volume in which the QoS is to be applied. |  |
| sponsorInfo | SponsorInformation | 0..1 | Indicates a sponsor information |  |
| qosMonInfo | QosMonitoringInformation | 0..1 | Qos Monitoring information for packet delay measurements. It shall be present when the event "QOS\_MONITORING" is subscribed and packet delay measurements are required.  (NOTE 13) | QoSMonitoring\_5G |
| directNotifInd | boolean | 0..1 | Indicates whether the direct event notification is requested.  - true: the direct event notification is requested;  - false (default): the direct event notification is not requested.  (NOTE 13, NOTE 14) | ExposureToEAS  GMEC\_5G |
| tscQosReq | TscQosRequirement | 0..1 | Contains the QoS requirements for time sensitive communication.  This attribute applies also to an AF request QoS for a UE or group of UE(s) not identified by the UE address(es) defined in clause 4.4.9.3 of 3GPP TS 29.522 [62].  (NOTE 5) | TSC\_5G  XRM\_5G  GMEC\_5G |
| tempInValidity | TemporalInValidity | 0..1 | Indicates the time interval during which the AF request is not to be applied. | GMEC\_5G |
| requestTestNotification | boolean | 0..1 | Set to true by the SCS/AS to request the SCEF to send a test notification as defined in clause 5.2.5.3. Set to false or omitted otherwise. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 5.2.5.4. | Notification\_websocket |
| events | array(UserPlaneEvent) | 0..N | Corresponds to the list of user plane event(s) to which the SCS/AS requests to subscribe to. | enNB  GMEC\_5G |
| multiModalId | MultiModalId | 0..1 | Multi-modal Service Identifier, as defined in 3GPP TS 29.514 [52]. | MultiMedia |
| multiModDatFlows | map(AsSessionMediaComponent) | 0..N | Each element of the map represents Media Component data for a single-modal data flow(s) of a multi-modal service. The key of the map is the attribute "medCompN". (NOTE 8) (NOTE 13) | MultiMedia |
| l4sInd | UplinkDownlinkSupport | 0..1 | Provides L4S support information.  (NOTE 16) | L4S  GMEC\_5G |
| pduSetQosDl | PduSetQosPara | 0..1 | Contains the PDU Set QoS Parameter(s) which are used to support PDU Set based QoS handling in the downlink direction. | PDUSetHandling |
| pduSetQosUl | PduSetQosPara | 0..1 | Contains the PDU Set QoS Parameter(s) which are used to support PDU Set based QoS handling in the uplink direction. | PDUSetHandling |
| rTLatencyInd | boolean | 0..1 | 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. | RTLatency  GMEC\_5G |
| protoDescDl | ProtocolDescription | 0..1 | Downlink Protocol description for PDU Set identification and end of Data burst indication in UPF. | PDUSetHandling  PowerSaving |
| protoDescUl | ProtocolDescription | 0..1 | Uplink Protocol description for PDU Set identification in UE. | PDUSetHandling |
| periodUl | DurationMilliSec | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Uplink direction. | PowerSaving |
| periodDl | DurationMilliSec | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Downlink direction. | PowerSaving |
| pdvMon | QosMonitoringInformation | 0..1 | Contains the Packet Delay Variation information for the subscribed report. It shall be present when the event "PACK\_DELAY\_VAR" is subscribed.  (NOTE 13) | EnQoSMon  GMEC\_5G |
| qosDuration | DurationSec | 0..1 | Contains the QoS duration to transfer data traffic transmission (e.g., AI/ML transmission). The minimum value of the QoS duration shall be 60 sec. | QoSTiming\_5G |
| qosInactInt | DurationSec | 0..1 | Contains the QoS inactivity interval for the given data traffic transmission (e.g., AI/ML transmission). The minimum value of the QoS inactivity interval shall be 60 sec. | QoSTiming\_5G |
| qosMonDatRate | QosMonitoringInformation | 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.  (NOTE 12) (NOTE 13) | EnQoSMon  ListUE\_5G  GMEC\_5G |
| avrgWndw | AverWindow | 0..1 | Averaging window for the calculation of the data rate for the service data flow. It may be present when the "qosMonDatRate" attribute is present.  (NOTE 13) | EnQoSMon |
| servAuthInfo | ServAuthInfo | 0..1 | Indicates the authorization result for the QoS monitoring request.  Supplied by the NEF. | EnQoSMon  GMEC\_5G |
| qosMonConReq | QosMonitoringInformation | 0..1 | Contains the requirements of the congestion information (ECN marking percentage) monitoring and reporting. It shall be present when the event "QOS\_MONITORING" is subscribed and congestion information measurements are required.  (NOTE 13) (NOTE 15) (NOTE 16) | EnQoSMon  GMEC\_5G |
| listUeConsDtRt | array(IpAddr) | 0..N | Identifies the list of UE addresses subject for Consolidated Data Rate monitoring.  (NOTE 12) | ListUE\_5G |
| NOTE 1: Properties marked with a feature as defined in clause 5.14.4 are applicable as described in clause 5.2.7. If no features are indicated, the related property applies for all the features.  NOTE 2: When the GMEC\_5G feature is not supported, one of "ueIpv4Addr", "ueIpv6Addr" or "macAddr" or "listUeAddrs" shall be included. If ipv4 or ipv6 address is provided, IP flow information shall be provided. If MAC address is provided and the AppId feature is not supported, Ethernet flow information (either "ethFlowInfo", or if the feature EnEthAsSessionQoS\_5G is supported, "enEthFlowInfo") shall be provided. If the AppId feature is supported, one of IP flow information, Ethernet flow information (if EthAsSessionQoS\_5G and/or EnEthAsSessionQoS\_5G is supported) or External Application Identifier shall be provided.  NOTE 3: The property is only applicable for the NEF.  NOTE 4: The attributes "altQoSReferences" and "altQosReqs" are mutually exclusive. The attributes "qosReference" and "altQosReqs" are also mutually exclusive.  NOTE 5: The attributes "reqGbrDl", "reqGbrUl", "reqMbrDl", "reqMbrUl", "maxTscBurstSize", "req5Gsdelay", "reqPer" (if the ExtQoS\_5G and/or "GMEC" feature(s) is/are supported), and "priority" within the "tscQosReq" attribute may be provided only if the "qosReference" attribute is not provided.  NOTE 6: When the Ethernet flow information is provided and, the EthAsSessionQoS\_5G and EnEthAsSessionQoS\_5G features are supported, either the "ethFlowInfo" or the "enEthFlowInfo" shall be provided, but not both simultenously.  NOTE 7: The "tosTC" attribute of the "flowInfo" attribute may only be present if the "ToSTC\_5G" feature is supported.  NOTE 8: The attributes "exterAppId", "flowInfo", "ethFlowInfo", "enEthFlowInfo", "qosReference", "altQoSReferences", "altQosReqs", "tscQosReq", "qosMonInfo" may be provided only if the "multiModDatFlows" attribute is not provided.  NOTE 9: When the "ListUE\_5G" feature is supported, the "listUeAddrs" attribute shall be provided, and either "exterAppId" attribute or "flowInfo" attribute shall be provided.  NOTE 10: When the GMEC\_5G feature is supported and the target UE(s) are not identified by UE address(es) (i.e., the "ueIpv4Addr", "ueIpv6Addr", "macAddr" or "listUEAddrs" attribute is not applicable to identify the UE(s)), the "extGroupId" attribute and the "gpsi" attributes are mutually exclusive And either one of them shall be provided. If either the "gpsi" attribute or the "extGroupId" attribute are present, then neither the "ueIpv4Addr" attribute, the "ueIpv6Addr" attribute, the "macAddr" attribute nor the "listUEAddrs" attribute shall be included.  NOTE 11: When the GMEC\_5G feature is supported, either the "exterAppId" attribute, "flowInfo" attribute or Ethernet flow information (either within the "ethFlowInfo" attribute or the "enEthFlowInfo" attribute) shall be provided.  NOTE 12: When the "ListUE\_5G" feature is supported and the "qosMonDatRate" attribute is provided, the "consDataRateThrDl" and "consDataRateThrUl" attributes contained in "qosMonDatRate" attribute indicate the upper bound of the aggregated DL/UL data rate and by default, are applicable to the list of UEs specified by the "listUeAddrs" attribute. If the "listUeConsDtRt" attribute is also provided, then it has to be the subset of "listUeAddrs" attribute.  NOTE 13: When the "MultiMedia" feature is supported, the "qosMonInfo", "directNotifInd", "pdvMon", "qosMonDatRate", "avrgWndw" and "qosMonConReq" attributes may be present only when the "multiModDatFlows" attribute is not present.  NOTE 14: When the "ExposureToEAS" feature is supported, the "directNotifInd" attribute indicates whether direct event notification is requested for the packet delay measurements provided in the "qosMonInfo" attribute. When the "EnQoSMon" feature is supported, the "directNotifInd" attribute indicates whether direct event notification is requested for the QoS measurement(s) provided in the "qosMonInfo", "qosMonDatRate" and/or "qosMonConReq" attribute(s).  NOTE 15: Only the "EVENT\_TRIGGERED" reporting frequency in "repFreqs" attribute contained in QosMonitoringInformation data type is applicable.  NOTE 16: When both, the "L4S" and "EnQoSMon" features are supported, the AF request may include either the indication of L4S support within the "l4sInd" attribute or the request for congestion measurements within the "qosMonConReq" attribute, but shall not include both attributes simultaneously.  NOTE 17: When the "ListUE\_5G" feature is supported and the "flowInfo" attribute is present, the flow description information shall be common for the list of UE(es) with the application server side IP address, port number and protocol. | | | | |

Editor’s Note: It is FFS whether other IEs within the "tscQosReq" attribute than "req5Gsdealy" attribute can apply for multi-modal communication services.

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 \* \* \* \*

##### 5.14.2.1.3 Type: AsSessionWithQoSSubscriptionPatch

This type represents an AS session request with specific QoS for the service provided by the SCS/AS to the SCEF via T8 interface. The structure is used for PATCH request.

Table 5.14.2.1.3-1: Definition of type AsSessionWithQoSSubscriptionPatch

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | Cardinality | Description | Applicability (NOTE 1) |
| exterAppId | string | 0..1 | Identifies the external Application Identifier. (NOTE 2) (NOTE 8) | AppId  ListUE\_5G  GMEC\_5G |
| flowInfo | array(FlowInfo) | 0..N | Describe the data flow which requires QoS.  (NOTE 2) (NOTE 5) (NOTE 6) (NOTE 8) (NOTE 14) |  |
| ethFlowInfo | array(EthFlowDescription) | 0..N | Describes Ethernet packet flows.  (NOTE 2) (NOTE 6) | EthAsSessionQoS\_5G  GMEC\_5G |
| enEthFlowInfo | array(EthFlowInfo) | 0..N | Identifies the Ethernet flows which require QoS. Each Ethernet flow consists of a flow identifier and the corresponding UL and/or DL flows.  (NOTE 2) (NOTE 6) | EnEthAsSessionQoS\_5G  GMEC\_5G |
| listUeAddrs | array(UeAddInfo) | 0..N | Identifies the list of UE address(es).  (NOTE 8) (NOTE 9) | ListUE\_5G |
| qosReference | string | 0..1 | Pre-defined QoS reference. (NOTE 3) (NOTE 4) |  |
| altQoSReferences | array(string) | 0..N | Identifiers an ordered list of pre-defined QoS information. The lower the index of the array for a given entry, the higher the priority. (NOTE 3) | AlternativeQoS\_5G  GMEC\_5G |
| altQosReqs | array(AlternativeServiceRequirementsData) | 0..N | Identifies an ordered list of alternative service requirements that include individual QoS parameter sets. The lower the index of the array for a given entry, the higher the priority. (NOTE 3) | AltQosWithIndParams\_5G |
| disUeNotif | boolean | 0..1 | Indicates whether to disable QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation. The fulfilled situation is either the QoS profile or an Alternative QoS Profile.  - true: the QoS flow parameters signalling to the UE is disabled;  - false: the QoS flow parameters signalling to the UE is not disabled. | DisableUENotification\_5G  GMEC\_5G |
| usageThreshold | UsageThresholdRm | 0..1 | Time period and/or traffic volume in which the QoS is to be applied. |  |
| qosMonInfo | QosMonitoringInformationRm | 0..1 | Qos Monitoring information for packet delay measurements. It may be present when the event "QOS\_MONITORING" is subscribed.  (NOTE 10) | QoSMonitoring\_5G  GMEC\_5G |
| directNotifInd | boolean | 0..1 | Indicates whether the direct event notification is requested.  - true: the direct event notification is requested;  - false: the direct event notification is not requested.  (NOTE 10, NOTE 11) | ExposureToEAS  GMEC\_5G |
| tscQosReq | TscQosRequirementRm | 0..1 | Contains the QoS requirements for time sensitive communication. (NOTE 4) | TSC\_5G  MultiMedia  GMEC\_5G |
| tempInValidity | TemporalInValidity | 0..1 | Indicates the time interval during which the AF request is not to be applied. | GMEC\_5G |
| notificationDestination | Link | 0..1 | Contains the URL to receive the notification event(s) from the SCEF. |  |
| events | array(UserPlaneEvent) | 0..N | Corresponds to the list of user plane event(s) to which the SCS/AS requests to subscribe to. | enNB  GMEC\_5G |
| multiModDatFlows | map(AsSessionMediaComponentRm) | 0..N | Each element of the map represents Media Component data for a single-modal data flow(s) of a multi-modal service. The key of the map is the attribute "medCompN". (NOTE 6, NOTE 10) | MultiMedia |
| l4sInd | UplinkDownlinkSupport | 0..1 | Provides L4S support information.  (NOTE 13) | L4S  GMEC\_5G |
| pduSetQosDl | PduSetQosParaRm | 0..1 | Contains the PDU Set QoS Parameter(s) which are used to support PDU Set based QoS handling in the downlink direction. | PDUSetHandling |
| pduSetQosUl | PduSetQosParaRm | 0..1 | Contains the PDU Set QoS Parameter(s) which are used to support PDU Set based QoS handling in the uplink direction. | PDUSetHandling |
| rTLatencyInd | boolean | 0..1 | 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. | RTLatency  GMEC\_5G |
| protoDescDl | ProtocolDescription | 0..1 | Downlink Protocol description for PDU Set identification and end of Data burst indication in UPF | PDUSetHandling  PowerSaving |
| protoDescUl | ProtocolDescription | 0..1 | Uplink Protocol description for PDU Set identification in UE | PDUSetHandling |
| periodUl | DurationMilliSecRm | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Uplink direction. | PowerSaving |
| periodDl | DurationMilliSecRm | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Downlink direction. | PowerSaving |
| pdvMon | QosMonitoringInformationRm | 0..1 | Packet Delay Variation information for the subscribed report. It may be present when the event "PACK\_DELAY\_VAR" is subscribed.  (NOTE 10) | EnQoSMon  GMEC\_5G |
| qosDuration | DurationSecRm | 0..1 | Contains the QoS duration to transfer data transmission (e.g., AI/ML transmission). The minimum value of the QoS duration shall be 60 sec.. | QoSTiming\_5G |
| qosInactInt | DurationSecRm | 0..1 | Contains the QoS inactivity interval for the given data transfer transmission (e.g., AI/ML transmission). The minimum value of the QoS inactivity interval shall be 60 sec. | QoSTiming\_5G |
| qosMonDatRate | QosMonitoringInformationRm | 0..1 | Contains the data rate measurements information for the subscribed report. It may be present when the event "QOS\_MONITORING" is subscribed and data rate measurements apply.  (NOTE 9, NOTE 10) | EnQoSMon  ListUE\_5G  GMEC\_5G |
| avrgWndw | AverWindowRm | 0..1 | Averaging window for the calculation of the data rate for the service data flow.  (NOTE 10) | EnQoSMon |
| qosMonConReq | QosMonitoringInformationRm | 0..1 | Contains the requirements of the congestion information (ECN marking percentage) monitoring and reporting. It may be present when the event "QOS\_MONITORING" is subscribed and congestion information measurements apply.  (NOTE 10) (NOTE 12) (NOTE 13) | EnQoSMon  GMEC\_5G |
| listUeConsDtRt | array(IpAddr) | 0..N | Identifies the list of UE addresses subject for Consolidated Data Rate monitoring.  (NOTE 9) | ListUE\_5G |
| NOTE 1: Properties marked with a feature as defined in clause 5.14.4 are applicable as described in clause 5.2.7. If no features are indicated, the related property applies for all the features.  NOTE 2: One of "exterAppId", "flowInfo" or either "ethFlowInfo" or "enEthFlowInfo" may be provided.  NOTE 3 The attributes "altQoSReferences" and "altQosReqs" are mutually exclusive. The attributes "qosReference" and "altQosReqs" are also mutually exclusive.  NOTE 4: The attributes "reqGbrDl", "reqGbrUl", "reqMbrDl", "reqMbrUl", "maxTscBurstSize", "req5Gsdelay", "reqPer" (if the ExtQoS\_5G and/or "GMEC\_5G" feature(s) is supported), and "priority" within the "tscQosReq" attribute may be provided only if the "qosReference" attribute is not provided.  NOTE 5: The "tosTC" attribute of the "flowInfo" attribute may only be present if the "ToSTC\_5G" feature is supported.  NOTE 6: The attributes "exterAppId", "flowInfo", "ethFlowInfo", "enEthFlowInfo", "qosReference", "altQoSReferences", "altQosReqs", "tscQosReq", "qosMonInfo" may be provided only if the "multiModDatFlows" attribute is not provided.  NOTE 8: When the "ListUE\_5G" feature is supported, the "listUeAddrs" attribute may be provided, and/or either "exterAppId" attribute or "flowInfo" attribute may be provided.  NOTE 9: When the "ListUE\_5G" feature is supported and the "qosMonDatRate" attribute is provided, the "consDataRateThrDl" and "consDataRateThrUl" attributes contained in "qosMonDatRate" attribute indicate the upper bound of the aggregated DL/UL data rate and by default, are applicable to the list of UEs specified by the "listUeAddrs" attribute. If the "listUeConsDtRt" attribute is also provided, then it has to be the subset of "listUeAddrs" attribute.  NOTE 10: When the "MultiMedia" feature is supported, the "qosMonInfo", "directNotifInd", "pdvMon", "qosMonDatRate", "avrgWndw" and "qosMonConReq" attributes may be present only when the "multiModDatFlows" attribute is not present.  NOTE 11: When the "ExposureToEAS" feature is supported, the "directNotifInd" attribute indicates whether direct event notification is requested for the packet delay measurements provided in the "qosMonInfo" attribute. When the "EnQoSMon" feature is supported, the "directNotifInd" attribute indicates whether direct event notification is requested for the QoS measurement(s) indicated in the provided and/or previously provided "qosMonInfo", "qosMonDatRate" and "qosMonConReq" attribute(s).  NOTE 12: Only the "EVENT\_TRIGGERED" reporting frequency in "repFreqs" attribute contained in QosMonitoringInformationRm data type is applicable.  NOTE 13: When both, the "L4S" and "EnQoSMon" features are supported, the AF request may include either the indication of L4S support within the "l4sInd" attribute or the request for congestion measurements within the "qosMonConReq" attribute but shall not include both attributes simultaneously. As result of the PATCH operation, the Individual AS Session with Required QoS Subscription resource shall not contain simultaneously both, the indication of L4S support and the subscription to congestion monitoring.  NOTE 14: When the "ListUE\_5G" feature is supported and the "flowInfo" attribute is present, the flow description information shall be common for the list of UE(es) with the application server side IP address, port number and protocol. | | | | |

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 \* \* \* \*

##### 5.14.2.1.13 Type AsSessionMediaComponent

This type represents media component data for a single-modal data flow of a multi-modal service. It shall comply with the provisions defined in table 5.14.2.1.13-1.

Table 5.14.2.1.13-1: Definition of type AsSessionMediaComponent

| Attribute name | Data type | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- |
| flowInfos | array(FlowInfo) | 0..N | Contains the IP data flow(s) description for a single-modal data flow. |  |
| qosReference | string | 0..1 | Identifies a pre-defined QoS information. |  |
| altSerReqs | array(string) | 0..N | Ordered list of alternative service requirements that include a set of QoS references. The lower the index of the array for a given entry, the higher the priority.(NOTE) |  |
| altSerReqsData | array(AlternativeServiceRequirementsData) | 0..N | Ordered list of alternative service requirements that include individual QoS parameter sets. The lower the index of the array for a given entry, the higher the priority. (NOTE) |  |
| disUeNotif | boolean | 0..1 | Indicates to disable QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation when it is included and set to "true". The fulfilled situation is either the QoS profile or an Alternative QoS Profile. The default value "false" shall apply, if the attribute is not present and has not been supplied previously. |  |
| medCompN | integer | 1 | Identifies the media component number, and it contains the ordinal number of the media component. |  |
| medType | MediaType | 0..1 | Indicates the media type of the service. |  |
| marBwUl | BitRate | 0..1 | Maximum requested bandwidth for the Uplink. |  |
| marBwDl | BitRate | 0..1 | Maximum requested bandwidth for the Downlink. |  |
| mirBwUl | BitRate | 0..1 | Minimum requested bandwidth for the Uplink. |  |
| mirBwDl | BitRate | 0..1 | Minimum requested bandwidth for the Downlink. |  |
| tsnQos | TsnQoSContainer | 0..1 | Transports QoS parameters for TSC traffic. |  |
| tscaiInputUl | TscaiInputContainer | 0..1 | Transports TSCAI input parameters for TSC traffic at the ingress interface of the DS-TT/UE (uplink flow direction). |  |
| tscaiInputDl | TscaiInputContainer | 0..1 | Transports TSCAI input parameters for TSC traffic at the ingress of the NW-TT (downlink flow direction). |  |
| rTLatencyReq | boolean | 0..1 | 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. |  |
| pduSetQosDl | PduSetQosPara | 0..1 | Contains the PDU Set QoS parameter(s) which are used to support PDU Set based QoS handling in the downlink. | PDUSetHandling |
| pduSetQosUl | PduSetQosPara | 0..1 | Contains the PDU Set QoS Parameter(s) which are used to support PDU Set based QoS handling in the uplink. | PDUSetHandling |
| l4sInd | UplinkDownlinkSupport | 0..1 | Provides L4S support information.  (NOTE 2) | L4S |
| protoDescUl | ProtocolDescription | 0..1 | Uplink Protocol description for PDU Set identification in UE. | PDUSetHandling |
| protoDescDl | ProtocolDescription | 0..1 | Downlink Protocol description for PDU Set identification and end of Data burst indication in UPF. | PDUSetHandling  PowerSaving |
| periodUl | DurationMilliSec | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Uplink direction. | PowerSaving |
| periodDl | DurationMilliSec | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Downlink direction. | PowerSaving |
| evSubsc | EventsSubscReqData | 0..1 | Identifies the events the application subscribes to at creation of a media component. (NOTE 1) | EnQoSMon |
| NOTE 1: If attribute "evSubsc" is present, one or more of the following IEs may be included: "events", "notifUri", "reqQosMonParams", "qosMon", "qosMonDatRate", "pdvReqMonParams", "pdvMon", "congestMon", "notifCorreId", "afAppIds", "directNotifInd", "avrgWndw". In addition, when the attribute "events" is present, one or more of the following Enumeration "AfEvent" may be included: "QOS\_MONITORING", "PACK\_DEL\_VAR", "RT\_DELAY\_TWO\_QOS\_FLOWS".  NOTE 2: Within an AsSessionMediaComponent entry, the AF may include either the indication of L4S support within the "l4sInd" attribute or the request for congestion measurements within the "evSubsc" attribute as specified in 3GPP TS 29.514 [52]. The indication of the support of ECN marking for L4S and the request of congestion measurements are mutually exclusive and shall not be present simultaneously. | | | | |

Editor’s Note: the list of IEs of a AsSessionMediaComponent to complete the QoS parameters developed for the MediaComponent data defined in TS 29.514 and applicable to external AFs is FFS.

If the "EnQosMon" feature is supported, and the AF includes the attribute "evSubsc" in the "AsSessionMediaComponent" data type with a subscription to a specific event, then the "events" attribute within the "AsSessionWithQoSSubscription" data type shall not include a subscription to notifications for that specific event. In this case, the NEF shall use the value of the "notifUri" attribute included within the "evSubsc" attribute in the "AsSessionMediaComponent" data type as target URI of the HTTP POST request for that specific event notification.

NOTE: The AF can provide different values per AS session media component for the "notifUri" attribute and/or "notifCorrId" attribute, e.g. to identify the media component of a received report.

If the "EnQosMon" feature is supported, and the AF requires the subscription to Round Trip Delay over two QoS flows, then the NF service consumer shall use:

- if the UL and DL flows request the same QoS and the same subscription events, an entry of the "AsSessionMediaComponent" data type and shall include the "evSubsc" attribute with the subscription to Round-Trip delay measurements over two SDFs as described in 3GPP TS 29.514 [52];

- otherwise, an entry of the "AsSessionMediaComponent" data type for the service data flows that require the measurement of the delay in the UL direction and another entry of the "AsSessionMediaComponent" for the service data flows that require the measurement of the delay in the DL direction. Each "AsSessionMediaComponent" entry shall include the "evSubsc" attribute with the subscription to Round-Trip delay measurements over two SDFs and may include the "rttFlowRef" attribute with the shared key for the UL and DL monitored flows and, if needed, an indication of whether the monitored flow direction is the UL or the DL as described in 3GPP TS 29.514 [52].

\* \* \* \* Next change \* \* \* \*

##### 5.14.2.1.14 Type AsSessionMediaComponentRm

This type represents the AsSessionMediaComponent with the "nullable: true" property. It shall comply with the provisions defined in table 5.14.2.1.14-1

Table 5.14.2.1.14-1: Definition of type AsSessionMediaComponentRm

| Attribute name | Data type | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- |
| flowInfos | array(FlowInfo) | 0..N | Contains the IP data flow(s) description for a single-modal data flow. |  |
| qosReference | string | 0..1 | Identifies a pre-defined QoS information. |  |
| altSerReqs | array(string) | 0..N | Ordered list of alternative service requirements that include a set of QoS references. The lower the index of the array for a given entry, the higher the priority.(NOTE) |  |
| altSerReqsData | array(AlternativeServiceRequirementsData) | 0..N | Ordered list of alternative service requirements that include individual QoS parameter sets. The lower the index of the array for a given entry, the higher the priority. (NOTE) |  |
| disUeNotif | boolean | 0..1 | Indicates to disable QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation when it is included and set to "true". The fulfilled situation is either the QoS profile or an Alternative QoS Profile. The default value "false" shall apply, if the attribute is not present and has not been supplied previously. |  |
| medCompN | integer | 1 | Identifies the media component number, and it contains the ordinal number of the media component. |  |
| medType | MediaType | 0..1 | Indicates the media type of the service. |  |
| marBwUl | BitRateRm | 0..1 | Maximum requested bandwidth for the Uplink. |  |
| marBwDl | BitRateRm | 0..1 | Maximum requested bandwidth for the Downlink. |  |
| mirBwUl | BitRateRm | 0..1 | Minimum requested bandwidth for the Uplink. |  |
| mirBwDl | BitRateRm | 0..1 | Minimum requested bandwidth for the Downlink. |  |
| tsnQos | TsnQoSContainerRm | 0..1 | Transports QoS parameters for TSC traffic. |  |
| tscaiInputUl | TscaiInputContainer | 0..1 | Transports TSCAI input parameters for TSC traffic at the ingress interface of the DS-TT/UE (uplink flow direction). |  |
| tscaiInputDl | TscaiInputContainer | 0..1 | Transports TSCAI input parameters for TSC traffic at the ingress of the NW-TT (downlink flow direction). |  |
| rTLatencyReq | boolean | 0..1 | 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". |  |
| pduSetQosDl | PduSetQosParaRm | 0..1 | Contains the PDU Set QoS parameter(s) which are used to support PDU Set based QoS handling in the downlink. | PDUSetHandling |
| pduSetQosUl | PduSetQosParaRm | 0..1 | Contains the PDU Set QoS Parameter(s) which are used to support PDU Set based QoS handling in the uplink. | PDUSetHandling |
| l4sInd | UplinkDownlinkSupport | 0..1 | Provides L4S support information.  (NOTE 2) | L4S |
| protoDescUl | ProtocolDescription | 0..1 | Uplink Protocol description for PDU Set identification in UE. | PDUSetHandling |
| protoDescDl | ProtocolDescription | 0..1 | Downlink Protocol description for PDU Set identification and end of Data burst indication in UPF. | PDUSetHandling  PowerSaving |
| periodUl | DurationMilliSecRm | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Uplink direction. | PowerSaving |
| periodDl | DurationMilliSecRm | 0..1 | Indicates the time period between the start of the two data bursts in units of milliseconds in Downlink direction. | PowerSaving |
| evSubsc | EventsSubscReqDataRm | 0..1 | Identifies the events the application subscribes to at creation of a media component. (NOTE 1) | EnQoSMon |
| NOTE 1: If attribute "evSubsc" is present, one or more of the following IEs may be included: "events", "notifUri", "reqQosMonParams", "qosMon", "qosMonDatRate", "pdvReqMonParams", "pdvMon", "congestMon", "notifCorreId", "afAppIds", "directNotifInd", "avrgWndw". In addition, when the attribute "events" is present, one or more of the following Enumeration "AfEvent" may be included: "QOS\_MONITORING", "PACK\_DEL\_VAR", "RT\_DELAY\_TWO\_QOS\_FLOWS".  NOTE 2: Within an AsSessionMediaComponentRm entry, the AF may include either the indication of L4S support within the "l4sInd" attribute or the request for congestion measurements within the "evSubsc" attribute as specified in 3GPP TS 29.514 [52]. An AsSessionMediaComponent entry within the Individual AS Session with Required QoS Subscription resource shall not contain simultaneously both, the indication of L4S support and the subscription to congestion monitoring. | | | | |

If the "EnQosMon" feature is supported, and the AF includes the attribute "evSubsc" in the "AsSessionMediaComponentPatch" data type with a subscription to a specific event, then the "events" attribute within the Individual AS Session with Required QoS Subscription resource shall not include a subscription to notifications for that specific event. In this case, the NEF shall use the value of the "notifUri" attribute included within the "evSubsc" attribute in the "AsSessionMediaComponentPatch" data type as target URI of the HTTP POST request for that specific event notification.

NOTE: The AF can provide different values per AS session media component for the "notifUri" attribute and/or "notifCorrId" attribute, e.g. to identify the media component of a received report.

If the "EnQosMon" feature is supported, and the AF requires the subscription to Round Trip Delay over two QoS flows, then the NF service consumer shall behave as specified in clause 5.14.2.1.3.

\* \* \* \* Next change \* \* \* \*

##### 5.14.2.2.3 Enumeration: UserPlaneEvent

The enumeration UserPlaneEvent represents the user plane event.

Table 5.14.2.2.3-1: Enumeration UserPlaneEvent

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability (NOTE) |
| SESSION\_TERMINATION | Indicates that Rx session is terminated. |  |
| LOSS\_OF\_BEARER | Indicates a loss of a bearer. (NOTE 3) |  |
| RECOVERY\_OF\_BEARER | Indicates a recovery of a bearer. (NOTE 3) |  |
| RELEASE\_OF\_BEARER | Indicates a release of a bearer. (NOTE 3) |  |
| USAGE\_REPORT | Indicates the usage report event. |  |
| FAILED\_RESOURCES\_ALLOCATION | Indicates the resource allocation is failed. |  |
| SUCCESSFUL\_RESOURCES\_ALLOCATION | Indicates the resource allocation is successful. |  |
| QOS\_GUARANTEED | The QoS targets of one or more SDFs are guaranteed again. | AlternativeQoS\_5G, GMEC\_5G |
| QOS\_NOT\_GUARANTEED | The QoS targets of one or more SDFs are not being guaranteed. | AlternativeQoS\_5G, GMEC\_5G |
| QOS\_MONITORING | Indicates a QoS monitoring event. | QoSMonitoring\_5G, GMEC\_5G |
| ACCESS\_TYPE\_CHANGE | Indicates an Access type change. (NOTE 2) | enNB\_5G, GMEC\_5G |
| PLMN\_CHG | Indicates a PLMN change. (NOTE 2) | enNB\_5G, GMEC\_5G |
| L4S\_NOT\_AVAILABLE | The ECN marking for L4S of one or more SDFs is not available. | L4S, GMEC\_5G |
| L4S\_AVAILABLE | The ECN marking for L4S of one or more SDFs is available again. | L4S, GMEC\_5G |
| BAT\_OFFSET\_INFO | Indicates the network provided BAT offset and the optionally adjusted periodicity. | EnTSCAC, GMEC\_5G |
| RT\_DELAY\_TWO\_QOS\_FLOWS | Indicates round-trip delay on UL and DL flows over two QoS flows.  This event may only be subscribed at Application Session Media Component level. I.e., it shall not be included within the "events" attribute of the AsSessionWithQoSSubscription and AsSessionWithQoSSubscriptionPatch data types. | EnQoSMon, GMEC\_5G |
| PACK\_DELAY\_VAR | Indicates Packet Delay Variation is enabled for the SDF. | EnQoSMon, GMEC\_5G |
| NOTE 1: Properties marked with a feature as defined in clause 5.14.4 are applicable as described in clause 5.2.7. If no features are indicated, the related property applies for all the features.  NOTE 2: The exposure of such network information to the AF needs to be authorized based on the local policy or local configuration.  NOTE 3: The "LOSS\_OF\_BEARER", RECOVERY\_OF\_BEARER, and RELEASE\_OF\_BEARER only apply to 4G. | | |

\* \* \* \* Next change \* \* \* \*

# A.14 AsSessionWithQoS API

openapi: 3.0.0

info:

title: 3gpp-as-session-with-qos

version: 1.3.0-alpha.5

description: |

API for setting us an AS session with required QoS.

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externalDocs:

description: 3GPP TS 29.122 V18.5.0 T8 reference point for Northbound APIs

url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.122/'

security:

- {}

- oAuth2ClientCredentials: []

servers:

- url: '{apiRoot}/3gpp-as-session-with-qos/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122.

paths:

/{scsAsId}/subscriptions:

get:

summary: Read all or queried active subscriptions for the SCS/AS.

operationId: FetchAllASSessionWithQoSSubscriptions

tags:

- AS Session with Required QoS Subscriptions

parameters:

- name: scsAsId

in: path

description: Identifier of the SCS/AS

required: true

schema:

type: string

- name: ip-addrs

in: query

description: The IP address(es) of the requested UE(s).

required: false

content:

application/json:

schema:

type: array

items:

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

minItems: 1

- name: ip-domain

in: query

description: >

The IPv4 address domain identifier. The attribute may only be provided if IPv4 address

is included in the ip-addrs query parameter.

required: false

schema:

type: string

- name: mac-addrs

in: query

description: The MAC address(es) of the requested UE(s).

required: false

schema:

type: array

items:

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

minItems: 1

responses:

'200':

description: OK.

content:

application/json:

schema:

type: array

items:

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

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

post:

summary: Creates a new subscription resource.

operationId: CreateASSessionWithQoSSubscription

tags:

- AS Session with Required QoS Subscriptions

parameters:

- name: scsAsId

in: path

description: Identifier of the SCS/AS

required: true

schema:

type: string

requestBody:

description: Request to create a new subscription resource

required: true

content:

application/json:

schema:

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

callbacks:

notificationDestination:

'{request.body#/notificationDestination}':

post:

requestBody: # contents of the callback message

required: true

content:

application/json:

schema:

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

responses:

'204':

description: No Content (successful notification)

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

responses:

'201':

description: Created (Successful creation of subscription)

content:

application/json:

schema:

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

headers:

Location:

description: 'Contains the URI of the newly created resource'

required: true

schema:

type: string

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

description: Forbidden

content:

application/problem+json:

schema:

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

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:

type: string

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/{scsAsId}/subscriptions/{subscriptionId}:

get:

summary: Read an active subscriptions for the SCS/AS and the subscription Id.

operationId: FetchIndASSessionWithQoSSubscription

tags:

- Individual AS Session with Required QoS Subscription

parameters:

- name: scsAsId

in: path

description: Identifier of the SCS/AS

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

responses:

'200':

description: OK (Successful get the active subscription)

content:

application/json:

schema:

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

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

put:

summary: Updates/replaces an existing subscription resource.

operationId: UpdateIndASSessionWithQoSSubscription

tags:

- Individual AS Session with Required QoS Subscription

parameters:

- name: scsAsId

in: path

description: Identifier of the SCS/AS

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

requestBody:

description: Parameters to update/replace the existing subscription

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (Successful update of the subscription)

content:

application/json:

schema:

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

'204':

description: No Content (Successful update of the subscription)

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

description: Forbidden

content:

application/problem+json:

schema:

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

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:

type: string

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

patch:

summary: Updates/replaces an existing subscription resource.

operationId: ModifyIndASSessionWithQoSSubscription

tags:

- Individual AS Session with Required QoS Subscription

parameters:

- name: scsAsId

in: path

description: Identifier of the SCS/AS

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

requestBody:

required: true

content:

application/merge-patch+json:

schema:

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

responses:

'200':

description: OK. The subscription was modified successfully.

content:

application/json:

schema:

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

'204':

description: No Content. The subscription was modified successfully.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

description: Forbidden

content:

application/problem+json:

schema:

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

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:

type: string

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

delete:

summary: Deletes an already existing subscription.

operationId: DeleteIndASSessionWithQoSSubscription

tags:

- Individual AS Session with Required QoS Subscription

parameters:

- name: scsAsId

in: path

description: Identifier of the SCS/AS

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

responses:

'204':

description: No Content (Successful deletion of the existing subscription)

'200':

description: OK (Successful deletion of the existing subscription)

content:

application/json:

schema:

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

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{tokenUrl}'

scopes: {}

schemas:

AsSessionWithQoSSubscription:

description: Represents an individual AS session with required QoS subscription resource.

type: object

properties:

self:

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

supportedFeatures:

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

dnn:

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

snssai:

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

notificationDestination:

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

exterAppId:

type: string

description: Identifies the external Application Identifier.

extGroupId:

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

gpsi:

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

flowInfo:

type: array

items:

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

minItems: 1

description: Describe the data flow which requires QoS.

ethFlowInfo:

type: array

items:

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

minItems: 1

description: Identifies Ethernet packet flows.

enEthFlowInfo:

type: array

items:

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

minItems: 1

description: >

Identifies the Ethernet flows which require QoS. Each Ethernet flow consists of a flow

idenifer and the corresponding UL and/or DL flows.

listUeAddrs:

type: array

items:

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

minItems: 1

description: Identifies the list of UE address.

multiModalId:

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

protoDescUl:

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

protoDescDl:

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

qosReference:

type: string

description: Identifies a pre-defined QoS information

altQoSReferences:

type: array

items:

type: string

minItems: 1

description: >

Identifies an ordered list of pre-defined QoS information. The lower the index of the

array for a given entry, the higher the priority.

altQosReqs:

type: array

items:

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

minItems: 1

description: >

Identifies an ordered list of alternative service requirements that include individual

QoS parameter sets. The lower the index of the array for a given entry, the higher the

priority.

disUeNotif:

description: >

Indicates whether the QoS flow parameters signalling to the UE when the SMF is notified

by the NG-RAN of changes in the fulfilled QoS situation is disabled (true) or

not (false). Default value is false. The fulfilled situation is either the QoS profile

or an Alternative QoS Profile.

type: boolean

ueIpv4Addr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv4Addr'

ipDomain:

type: string

ueIpv6Addr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv6Addr'

macAddr:

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

usageThreshold:

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

sponsorInfo:

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

qosMonInfo:

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

pdvMon:

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

qosDuration:

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

qosInactInt:

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

directNotifInd:

type: boolean

description: >

Indicates whether the direct event notification is requested (true) or not (false) for

the provided and/or previously provided QoS monitoring parameter(s).

tscQosReq:

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

l4sInd:

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

requestTestNotification:

type: boolean

description: >

Set to true by the SCS/AS to request the SCEF to send a test notification as defined

in clause 5.2.5.3. Set to false or omitted otherwise.

tempInValidity:

$ref: 'TS29565\_Ntsctsf\_QoSandTSCAssistance.yaml#/components/schemas/TemporalInValidity'

websockNotifConfig:

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

events:

description: >

Represents the list of user plane event(s) to which the SCS/AS requests to subscribe to.

type: array

items:

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

minItems: 1

multiModDatFlows:

type: object

additionalProperties:

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

minProperties: 1

description: >

Contains media component data for a single-modal data flow(s).

The key of the map is the medCompN attribute.

pduSetQosDl:

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

pduSetQosUl:

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

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.

periodUl:

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

periodDl:

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

qosMonDatRate:

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

avrgWndw:

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

servAuthInfo:

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

qosMonConReq:

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

listUeConsDtRt:

type: array

items:

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

minItems: 1

description: >

Identifies the list of UE addresses subject for Consolidated Data Rate monitoring.

required:

- notificationDestination

AsSessionWithQoSSubscriptionPatch:

description: Represents parameters to modify an AS session with specific QoS subscription.

type: object

properties:

exterAppId:

type: string

description: Identifies the external Application Identifier.

flowInfo:

type: array

items:

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

minItems: 1

description: Describe the IP data flow which requires QoS.

ethFlowInfo:

type: array

items:

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

minItems: 1

description: Identifies Ethernet packet flows.

enEthFlowInfo:

type: array

items:

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

minItems: 1

description: >

Identifies the Ethernet flows which require QoS. Each Ethernet flow consists of a flow

idenifer and the corresponding UL and/or DL flows.

listUeAddrs:

type: array

items:

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

minItems: 1

description: Identifies the list of UE address.

qosReference:

type: string

description: Pre-defined QoS reference

altQoSReferences:

type: array

items:

type: string

minItems: 1

description: >

Identifies an ordered list of pre-defined QoS information. The lower the index of the

array for a given entry, the higher the priority.

altQosReqs:

type: array

items:

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

minItems: 1

description: >

Identifies an ordered list of alternative service requirements that include individual

QoS parameter sets. The lower the index of the array for a given entry, the higher the

priority.

disUeNotif:

type: boolean

description: >

Indicates whether the QoS flow parameters signalling to the UE when the SMF is notified

by the NG-RAN of changes in the fulfilled QoS situation is disabled (true) or

not (false). The fulfilled situation is either the QoS profile or an Alternative QoS

Profile.

usageThreshold:

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

qosMonInfo:

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

pdvMon:

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

directNotifInd:

type: boolean

description: >

Indicates whether the direct event notification is requested (true) or not (false) for

the provided QoS monitoring parameter(s).

notificationDestination:

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

tscQosReq:

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

l4sInd:

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

tempInValidity:

$ref: 'TS29565\_Ntsctsf\_QoSandTSCAssistance.yaml#/components/schemas/TemporalInValidity'

events:

description: >

Represents the updated list of user plane event(s) to which the SCS/AS requests to

subscribe to.

type: array

items:

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

minItems: 1

multiModDatFlows:

type: object

additionalProperties:

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

minProperties: 1

description: >

Contains media component data for a single-modal data flow(s).

The key of the map is the medCompN attribute.

pduSetQosDl:

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

pduSetQosUl:

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

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.

protoDescUl:

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

protoDescDl:

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

periodUl:

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

periodDl:

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

qosDuration:

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

qosInactInt:

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

qosMonDatRate:

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

avrgWndw:

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

qosMonConReq:

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

listUeConsDtRt:

type: array

items:

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

minItems: 1

description: >

Identifies the list of UE addresses subject for Consolidated Data Rate monitoring.

QosMonitoringInformation:

description: Represents QoS monitoring information.

type: object

properties:

reqQosMonParams:

type: array

items:

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

minItems: 1

repFreqs:

type: array

items:

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

minItems: 1

repThreshDl:

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

repThreshUl:

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

repThreshRp:

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

conThreshDl:

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

conThreshUl:

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

waitTime:

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

repPeriod:

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

repThreshDatRateDl:

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

repThreshDatRateUl:

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

consDataRateThrDl:

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

consDataRateThrUl:

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

required:

- reqQosMonParams

- repFreqs

QosMonitoringInformationRm:

description: >

Represents the same as the QosMonitoringInformation data type but with

the nullable:true property.

type: object

properties:

reqQosMonParams:

type: array

items:

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

minItems: 1

repFreqs:

type: array

items:

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

minItems: 1

repThreshDl:

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

repThreshUl:

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

repThreshRp:

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

conThreshDl:

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

conThreshUl:

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

waitTime:

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

repPeriod:

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

repThreshDatRateDl:

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

repThreshDatRateUl:

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

consDataRateThrDl:

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

consDataRateThrUl:

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

QosMonitoringReport:

description: Represents a QoS monitoring report.

type: object

properties:

ulDelays:

type: array

items:

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

minItems: 1

dlDelays:

type: array

items:

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

minItems: 1

rtDelays:

type: array

items:

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

minItems: 1

pdmf:

type: boolean

description: Represents the packet delay measurement failure indicator.

ulDataRate:

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

dlDataRate:

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

ulAggrDataRate:

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

dlAggrDataRate:

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

ulConInfo:

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

dlConInfo:

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

UserPlaneNotificationData:

description: Represents the parameters to be conveyed in a user plane event(s) notification.

type: object

properties:

transaction:

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

eventReports:

type: array

items:

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

minItems: 1

description: Contains the reported event and applicable information

required:

- transaction

- eventReports

UserPlaneEventReport:

description: Represents an event report for user plane.

type: object

properties:

event:

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

accumulatedUsage:

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

flowIds:

type: array

items:

type: integer

minItems: 1

description: >

Identifies the affected flows that were sent during event subscription. It might be

omitted when the reported event applies to all the flows sent during the subscription.

multiModFlows:

type: array

items:

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

minItems: 1

description: >

Identifies the the flow filters for the single-modal data flows thatwere sent

during event subscription.

It may be omitted when the reported event applies to all the

single-modal data flows sent during the subscription.

appliedQosRef:

type: string

description: >

The currently applied QoS reference. Applicable for event QOS\_NOT\_GUARANTEED or

SUCCESSFUL\_RESOURCES\_ALLOCATION.

altQosNotSuppInd:

type: boolean

description: >

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

supported by the access network. Applicable for event QOS\_NOT\_GUARANTEED.

plmnId:

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

qosMonReports:

type: array

items:

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

minItems: 1

description: Contains the QoS Monitoring Reporting information

pdvMonReports:

type: array

items:

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

minItems: 1

description: Contains the PDV Monitoring Reporting information

ratType:

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

batOffsetInfo:

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

rttMonReports:

type: array

items:

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

minItems: 1

description: Contains the round trip delay over two SDFs reporting information

qosMonDatRateReps:

type: array

items:

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

minItems: 1

description: >

Contains QoS Monitoring for data rate information. It shall be present when the notified

event is "QOS\_MONITORING" and data rate measurements are available.

aggrDataRateRpts:

type: array

items:

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

minItems: 1

description: >

Contains QoS Monitoring for aggregated data rate information. It shall be present when

the notified event is "QOS\_MONITORING" and data rate measurements are available.

qosMonConInfoReps:

type: array

items:

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

minItems: 1

description: >

Contains QoS Monitoring for congestion information. It shall be present when the

notified event is "QOS\_MONITORING" and congestion measurements are available.

required:

- event

TscQosRequirement:

description: Represents QoS requirements for time sensitive communication.

type: object

properties:

reqGbrDl:

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

reqGbrUl:

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

reqMbrDl:

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

reqMbrUl:

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

maxTscBurstSize:

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

req5Gsdelay:

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

reqPer:

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

priority:

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

tscaiTimeDom:

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

tscaiInputDl:

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

tscaiInputUl:

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

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.

TscQosRequirementRm:

description: >

Represents the same as the TscQosRequirement data type but with the nullable:true property.

type: object

properties:

reqGbrDl:

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

reqGbrUl:

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

reqMbrDl:

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

reqMbrUl:

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

maxTscBurstSize:

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

req5Gsdelay:

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

reqPer:

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

priority:

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

tscaiTimeDom:

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

tscaiInputDl:

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

tscaiInputUl:

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

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.

nullable: true

AdditionInfoAsSessionWithQos:

description: Describes additional error information specific for this API.

type: object

properties:

acceptableServInfo:

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

ProblemDetailsAsSessionWithQos:

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

allOf:

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

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

AsSessionMediaComponent:

description: >

Representmedia component data for a single-modal data flow of a multi-modal service.

type: object

required:

- medCompN

allOf:

- not:

required: [altSerReqs,altSerReqsData]

- not:

required: [qosReference,altSerReqsData]

properties:

flowInfos:

type: array

items:

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

minItems: 1

nullable: true

description: >

Contains the IP data flow(s) description for a single-modal data flow.

qosReference:

type: string

disUeNotif:

type: boolean

altSerReqs:

type: array

items:

type: string

minItems: 1

altSerReqsData:

type: array

items:

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

minItems: 1

description: >

Contains alternative service requirements that include individual QoS parameter sets.

marBwDl:

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

marBwUl:

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

medCompN:

type: integer

medType:

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

mirBwDl:

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

mirBwUl:

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

tsnQos:

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

tscaiInputDl:

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

tscaiInputUl:

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

tscaiTimeDom:

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

rTLatencyReq:

type: boolean

description: Round-Trip latency requirement of the service data flow.

pduSetQosDl:

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

pduSetQosUl:

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

l4sInd:

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

protoDescDl:

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

protoDescUl:

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

periodUl:

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

periodDl:

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

evSubsc:

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

AsSessionMediaComponentRm:

description: >

Represents the AsSessionMediaComponent data type with nullable information.

type: object

required:

- medCompN

not:

required: [altSerReqs,altSerReqsData]

properties:

flowInfos:

type: array

items:

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

minItems: 1

nullable: true

description: >

Contains the IP data flow(s) description for a single-modal data flow.

qosReference:

type: string

nullable: true

altSerReqs:

type: array

items:

type: string

minItems: 1

nullable: true

altSerReqsData:

type: array

items:

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

minItems: 1

description: >

Contains removable alternative service requirements that include individual QoS

parameter sets.

nullable: true

disUeNotif:

type: boolean

nullable: true

marBwDl:

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

marBwUl:

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

medCompN:

type: integer

medType:

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

mirBwDl:

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

mirBwUl:

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

tsnQos:

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

tscaiInputDl:

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

tscaiInputUl:

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

rTLatencyReq:

type: boolean

description: Round-Trip latency requirement of the service data flow.

pduSetQosDl:

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

pduSetQosUl:

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

l4sInd:

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

protoDescDl:

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

protoDescUl:

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

periodUl:

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

periodDl:

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

evSubsc:

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

nullable: true

MultiModalFlows:

description: Represents a flow information within a single-modal data flow.

type: object

properties:

medCompN:

type: integer

description: >

It contains the ordinal number of the single-modal data flow. Identifies the

single-modal data flow.

flowIds:

type: array

items:

type: integer

minItems: 1

description: >

Identifies the affected flow(s) within the single-modal data flow

(identified by the medCompN attribute).

It may be omitted when all flows are affected.

required:

- medCompN

UeAddInfo:

description: Represent the UE address information.

properties:

ueIpAddr:

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

portNumber:

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

UserPlaneEvent:

anyOf:

- type: string

enum:

- SESSION\_TERMINATION

- LOSS\_OF\_BEARER

- RECOVERY\_OF\_BEARER

- RELEASE\_OF\_BEARER

- USAGE\_REPORT

- FAILED\_RESOURCES\_ALLOCATION

- QOS\_GUARANTEED

- QOS\_NOT\_GUARANTEED

- QOS\_MONITORING

- SUCCESSFUL\_RESOURCES\_ALLOCATION

- ACCESS\_TYPE\_CHANGE

- PLMN\_CHG

- L4S\_NOT\_AVAILABLE

- L4S\_AVAILABLE

- BAT\_OFFSET\_INFO

- RT\_DELAY\_TWO\_QOS\_FLOWS

- PACK\_DELAY\_VAR

- type: string

description: >

This string provides forward-compatibility with future

extensions to the enumeration but is not used to encode

content defined in the present version of this API.

description: |

Represents the user plane event.

Possible values are:

- SESSION\_TERMINATION: Indicates that Rx session is terminated.

- LOSS\_OF\_BEARER : Indicates a loss of a bearer.

- RECOVERY\_OF\_BEARER: Indicates a recovery of a bearer.

- RELEASE\_OF\_BEARER: Indicates a release of a bearer.

- USAGE\_REPORT: Indicates the usage report event.

- FAILED\_RESOURCES\_ALLOCATION: Indicates the resource allocation is failed.

- QOS\_GUARANTEED: The QoS targets of one or more SDFs are guaranteed again.

- QOS\_NOT\_GUARANTEED: The QoS targets of one or more SDFs are not being guaranteed.

- QOS\_MONITORING: Indicates a QoS monitoring event.

- SUCCESSFUL\_RESOURCES\_ALLOCATION: Indicates the resource allocation is successful.

- ACCESS\_TYPE\_CHANGE: Indicates an Access type change.

- PLMN\_CHG: Indicates a PLMN change.

- L4S\_NOT\_AVAILABLE: The ECN marking for L4S of one or more SDFs is not available.

- L4S\_AVAILABLE: The ECN marking for L4S of one or more SDFs is available again.

- BAT\_OFFSET\_INFO: Indicates the network provided BAT offset and the optionally adjusted periodicity.

- RT\_DELAY\_TWO\_QOS\_FLOWS: Indicates round-trip delay on UL and DL flows over two QoS flows.

- PACK\_DELAY\_VAR: Indicates Packet Delay Variation is enabled for the SDF.

\* \* \* \* End of change \* \* \* \*