**3GPP TSG-CT WG3 Meeting #125 *C3-225196\_R1***

**Toulouse, France, 14th – 18th November 2022**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.549** | **CR** | **0122** | **rev** | **-** | **Current version:** | **17.6.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

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

|  |
| --- |
|  |
| ***Title:***  | OpenAPI implementation for the Update\_Unicast\_QoS\_Monitoring\_Subscription service operation in the SS\_NetworkResourceMonitoring API |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eSEAL2 |  | ***Date:*** | 2022-11-01 |
|  |  |  |  |  |
| ***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 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:*** | The VAL server needs a mechanism to update an existing individual unicast QoS monitoring subscription on the NRM server side. The clause 14.4.4.6 of 3GPP TS 23.434 (CR #0112 of 3GPP TS 23.434) defines this functionality. However, the necessary procedure, HTTP metods and data structures are not defined in the current version of 3GPP TS 29.549. |
|  |  |
| ***Summary of change:*** | This CR intoroduces OpenAPI implementations for the Update\_Unicast\_QoS\_Monitoring service operation and related data structure in the SS\_NetworkResourceMonitoring API. |
|  |  |
| ***Consequences if not approved:*** | * Impossiblity to replace or partially modify a unicast QoS monitoring subscription in the SS\_NetworkResourceMonitoring API.
* Misaligment with the Stage 2 requirements.
 |
|  |  |
| ***Clauses affected:*** | A.10; |
|  |  |
|  | **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 provides a backwards compatible feature for TS29549\_SS\_NetworkResourceMonitoring.yaml OpenAPI file.
 |
| ***()*** |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\* \* \* First Change \* \* \* \*

# A.10 SS\_NetworkResourceMonitoring API

openapi: 3.0.0

info:

 title: SS\_NetworkResourceMonitoring

 description: |

 API for SEAL Network Resource Monitoring.

 © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

 All rights reserved.

 version: "1.0.1"

externalDocs:

 description: >

 3GPP TS 29.549 V17.6.0 Service Enabler Architecture Layer for Verticals (SEAL);

 Application Programming Interface (API) specification; Stage 3.

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.549/

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/ss-nrm/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 6.5 of 3GPP TS 29.549

paths:

 /subscriptions:

 post:

 summary: Create individual unicast monitoring subscription resource or obtain unicast QoS monitoring data for VAL UEs, VAL Group, or VAL Streams.

 operationId: SubscribeUnicastMonitoring

 tags:

 - Unicast Monitoring Subscriptions (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: >

 The requested individual monitoring subscription resource is successfully created

 and a representation of the created resource is returned in the response body.

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: Contains the URI of the newly created individual monitoring resource.

 required: true

 schema:

 type: string

 '200':

 description: The requested unicast QoS monitoring data is returned.

 content:

 application/json:

 schema:

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

 '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'

 callbacks:

 NotifyUnicastMonitoringData:

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

 post:

 summary: Notify on updates of the individual monitoring resorce accoring the requested reporting settings.

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: The notification is successfully received.

 '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'

 /subscriptions/{subscriptionId}:

 delete:

 summary: Remove an existing individual unicast monitoring subscription resource according to the subscriptionId.

 operationId: UnsubscribeUnicastMonitoring

 tags:

 - Individual Unicast Monitoring Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: >

 Represents the identifier of an individual unicast monitoring subscription resource.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: >

 The Individual Unicast Monitoring Subscription resource matching the

 subscriptionId is deleted.

 '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'

 get:

 summary: Read an existing individual unicast monitoring subscription resource according to the subscriptionId.

 operationId: ReadUnicastMonitoringSubscription

 tags:

 - Individual Unicast Monitoring Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: >

 Represents the identifier of an individual unicast monitoring subscription resource.

 required: true

 schema:

 type: string

 responses:

 '200':

 description: The requested individual unicast monitoring subscription returned.

 content:

 application/json:

 schema:

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

 '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'

 put:

 summary: >

 Update an individual unicast monitoring subscription identified by the subscriptionId.

 operationId: UpdateUnicastMonitoring

 tags:

 - Individual Unicast Monitoring Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: >

 Represents the identifier of an individual unicast monitoring subscription resource.

 required: true

 schema:

 type: string

 requestBody:

 description: Updated details of the unicast QoS monitoring subscription.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '200':

 description: >

 The subscription is updated successfully, and the updated subscription

 information returned in the response.

 content:

 application/json:

 schema:

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

 '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'

 patch:

 summary: >

 Modify an individual unicast monitoring subscription identified

 by the subscriptionId.

 operationId: ModifyUnicastMonitoring

 tags:

 - Individual Unicast Monitoring Subscription (Document)

 parameters:

 - name: subscriptionId

 in: path

 description: >

 Represents the identifier of an individual unicast monitoring subscription resource.

 required: true

 schema:

 type: string

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: >

 Individual individual unicast QoS monitoring subscription resource is modified

 successfully and representation of the modified individual unicast QoS monitoring

 subscription resource is returned.

 content:

 application/json:

 schema:

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

 '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'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 MonitoringReport:

 description: Indicates the monitoring information for VAL UEs list, VAL Group, or VAL Stream.

 type: object

 properties:

 valUeIds:

 type: array

 minItems: 1

 items:

 $ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

 description: List of VAL UEs whose QoS monitoring data is requested.

 valGroupId:

 type: string

 description: The VAL Group Id which QoS monitoring data is requested.

 valStreamIds:

 type: array

 minItems: 1

 items:

 type: string

 description: List of VAL streams for which QoS monitoring data is requested.

 measData:

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

 failureRep:

 type: array

 items:

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

 description: >

 The failure report indicating the VAL UE(s) or VAL Stream ID(s) whose measurement

 data is not obtained successfully.

 timestamp:

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

 required:

 - measData

 - timestamp

 oneOf:

 - required: [valUeIds]

 - required: [valGroupId]

 - required: [valStreamIds]

 MeasurementData:

 description: Presents the aggregated measurement data.

 type: object

 properties:

 dlDelay:

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

 ulDelay:

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

 rtDelay:

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

 avgPlr:

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

 avgDataRate:

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

 maxDataRate:

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

 avrDlTrafficVol:

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

 avrUlTrafficVol:

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

 anyOf:

 - required: [dlDelay]

 - required: [ulDelay]

 - required: [rtDelay]

 - required: [avgPlr]

 - required: [avgDataRate]

 - required: [maxDataRate]

 - required: [avrDlTrafficVol]

 - required: [avrUlTrafficVol]

 MeasurementPeriod:

 description: >

 Indicates the measurement time period.

 type: object

 properties:

 measStartTime:

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

 measDuration:

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

 required:

 - measStartTime

 - measDuration

 ReportingRequirements:

 description: Indicates the requested frequency of reporting.

 type: object

 properties:

 reportingMode:

 $ref: 'TS29508\_Nsmf\_EventExposure.yaml#/components/schemas/NotificationMethod'

 reportingPeriod:

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

 reportingThrs:

 type: array

 items:

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

 minItems: 1

 immRep:

 type: boolean

 repTerminMode:

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

 expirationTimer:

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

 maxNumRep:

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

 termThr:

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

 termThrMode:

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

 required:

 - reportingMode

 FailureReport:

 description: >

 Represents the failure report indicating the VAL UE(s) or VAL Stream ID(s)

 for which the NRM server failed to obtain the requested data.

 type: object

 properties:

 valUeIds:

 type: array

 minItems: 1

 items:

 $ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

 description: >

 List of VAL UE(s) whose measurement data is not obtained successfully.

 valStreamIds:

 type: array

 minItems: 1

 items:

 type: string

 description: >

 List of VAL stream ID(s) whose measurement data is not obtained successfully.

 failureReason:

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

 measDataType:

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

 required:

 - measDataType

 MeasurementRequirements:

 description: Indicates the measurement requirements.

 type: object

 properties:

 measDataTypes:

 type: array

 items:

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

 minItems: 1

 description: Indicates the required the QoS measurement data types.

 measAggrGranWnd:

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

 measPeriod:

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

 required:

 - measDataTypes

 MonitoringSubscription:

 description: The unicast monitoring subscription request.

 type: object

 properties:

 valUeIds:

 description: List of VAL UEs whose QoS monitoring data is requested.

 type: array

 minItems: 1

 items:

 $ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

 valGroupId:

 type: string

 description: The VAL Group Id which QoS monitoring data is requested.

 valStreamIds:

 type: array

 minItems: 1

 items:

 type: string

 description: List of VAL streams for which QoS monitoring data is requested.

 measReqs:

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

 monRep:

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

 reportReqs:

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

 notifUri:

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

 reqTestNotif:

 type: boolean

 wsNotifCfg:

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

 suppFeat:

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

 oneOf:

 - required: [valUeIds]

 - required: [valGroupId]

 - required: [valStreamIds]

 ReportingThreshold:

 description: >

 Indicates the requested reporting termination threshold for the measurement index(es).

 type: object

 properties:

 measThrValues:

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

 thrDirection:

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

 required:

 - measThrValues

 - thrDirection

 MonitoringSubscriptionPatch:

 description: Represents the monitoring subscription partial modification request.

 type: object

 properties:

 measReqs:

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

 reportReqs:

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

 notifUri:

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

# Simple data types and Enumerations

 MeasurementDataType:

 anyOf:

 - type: string

 enum:

 - DL\_DELAY

 - UL\_DELAY

 - RT\_DELAY

 - AVG\_PLR

 - AVG\_DATA\_RATE

 - MAX\_DATA\_RATE

 - AVG\_DL\_TRAFFIC\_VOLUME

 - AVG\_UL\_TRAFFIC\_VOLUME

 - type: string

 description: >

 Indicates the type of measurement data.

 description: |

 Possible values are:

 - DL\_DELAY: Downlink packet delay.

 - UL\_DELAY: Uplink packet delay.

 - RT\_DELAY: Round trip packet delay.

 - AVG\_PLR: Average packet loss rate.

 - AVG\_DATA\_RATE: Average data rate.

 - MAX\_DATA\_RATE: Maximum data rate.

 - AVG\_DL\_TRAFFIC\_VOLUME: Average downlink traffic volume.

 - AVG\_UL\_TRAFFIC\_VOLUME: Average uplink traffic volume.

 TerminationMode:

 anyOf:

 - type: string

 enum:

 - TIME\_TRIGGERED

 - EVENT\_TRIGGERED\_NUM\_REPORTS\_REACHED

 - EVENT\_TRIGGERED\_MEAS\_THR\_REACHED

 - USER\_TRIGGERED

 - type: string

 description: >

 Indicates the termination mode

 description: |

 Possible values are:

 - TIME\_TRIGGERED: Time-triggered termination mode.

 - EVENT\_TRIGGERED\_NUM\_REPORTS\_REACHED: Event-triggered termination number of reports reached mode.

 - EVENT\_TRIGGERED\_MEAS\_THR\_REACHED: The event-triggered termination measurement index threshold reached mode.

 - USER\_TRIGGERED: User-triggered termination mode.

 FailureReason:

 anyOf:

 - type: string

 enum:

 - USER\_NOT\_FOUND

 - STREAM\_NOT\_FOUND

 - DATA\_NOT\_AVAILABLE

 - OTHER\_REASON

 - type: string

 description: >

 Represents the failure reason.

 description: |

 Possible values are:

 - USER\_NOT\_FOUND: The user is not found.

 - STREAM\_NOT\_FOUND: The stream is not found.

 - DATA\_NOT\_AVAILABLE: The requested data is not available.

 - OTHER\_REASON: Other reason (unspecified).

 ThresholdHandlingMode:

 anyOf:

 - type: string

 enum:

 - ALL\_REACHED

 - ANY\_REACHED

 - type: string

 description: >

 Indicates the multi-parameter threshold handling mode.

 description: |

 Possible values are:

 - ALL\_REACHED: The decision criterion is met when all the provided thresholds are reached.

 - ANY\_REACHED: The decision criterion is met when any of the provided threshold(s) is reached.

\* \* \* End of changes \* \* \* \*