**3GPP TSG-CT WG3 Meeting #120e *C3-221274***

**E-meeting, 17th – 25th February 2022**

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.549** | **CR** | **0057** | **rev** | **2** | **Current version:** | **17.3.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| --- |
|  |
| ***Title:***  | SS\_NetworkResourceMonitoring OpenAPI implementation |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** | 1 |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The CR #0092 on TS 23.434 presented in SA6 #47e meeting provides new clarifications for SS\_NetworkResourceMonitoring API.3GPP TS 23.434 defines the SS\_NetworkResourceMonitoring API in clause 14.4.4. Thus, need to support OpenAPI functionality for the SS\_NetworkResourceMonitoring API in this specification.In this CR, the compromise design for Obtain service operation based on one-time immediate response is implemented due to time limitation for Rel-17. |
|  |  |
| ***Summary of change:*** | This CR provides the OpenAPI implementation for the SS\_NetworkResourceMonitoring API. |
|  |  |
| ***Consequences if not approved:*** | Missing the OpenAPI implementation for the SS\_NetworkResourceMonitoring API that is not aligned with stage 2. |
|  |  |
| ***Clauses affected:*** | A.Z(new) |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.434 CR #0092 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces new OpenAPI file TS29549\_SS\_NetworkResourceMonitoring.yaml |
|  |  |
| ***This CR's revision history:*** | The following updates are done in r2 version:* data models according to CR #0092 on TS 23.434;
* introduced terminiation reporting indication mechanism; and
* added the timestamp for the notification.
 |

**Additional discussion(if needed):**

**Proposed changes:**

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

## A.Z SS\_NetworkResourceMonitoring

openapi: 3.0.0

info:

 title: SS\_NetworkResourceMonitoring

 description: |

 API for SEAL Network Resource Monitoring.

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 version: "1.0.0-alpha.1"

externalDocs:

 description: >

 3GPP TS 29.549 V17.3.0 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:

 /measurements:

 post:

 summary: Create individual measurement resource or obtain measurement data for VAL UEs, VAL Group, or VAL Streams according to the query parameters.

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Unicast QoS Monitoring Data subscription is created sucessfully.

 content:

 application/json:

 schema:

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

 headers:

 Location:

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

 required: true

 schema:

 type: string

 '200':

 description: The requested measurement data.

 content:

 application/json:

 schema:

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

 '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:

 NotifyIndividualMeasurementData:

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

 post:

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

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: No Content, Notification was succesfull

 '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'

 /measurements{measurementId}:

 delete:

 summary: Remove individual measurement resource according to the measurementId.

 parameters:

 - name: measurementId

 in: path

 description: String identifying an individual measurement resource.

 required: true

 schema:

 type: string

 responses:

 '204':

 description: The subscription matching 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 individual measurement resource according to the measurementId.

 parameters:

 - name: measurementId

 in: path

 description: String identifying an individual measurement resource.

 required: true

 schema:

 type: string

 responses:

 '200':

 description: The requested measurement data.

 content:

 application/json:

 schema:

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

 '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:

 MeasurementInformation:

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

 type: object

 properties:

 valUeIds:

 type: array

 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

 items:

 type: string

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

 measData:

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

 timestamp:

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

 isLastNotif:

 type: boolean

 description: The indication of the last notification.

 required:

 - measData

 - timestamp

 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'

 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

 ReportingFrequency:

 description: Indicates the requested frequency of reporting.

 type: object

 properties:

 reportingMode:

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

 reportingPeriod:

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

 reportingThr:

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

 required:

 - reportingMode

 ReportingTermination:

 description: Indicates when the reporting shall stop.

 type: object

 properties:

 repTerminMode:

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

 expirationTimer:

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

 maxRepNum:

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

 termThr:

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

 required:

 - repTerminMode

 MeasurementRequirements:

 description: Indicates the measurement requirements.

 type: object

 properties:

 measDataTypes:

 type: array

 items:

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

 description: Indicates the required the QoS measurement data types.

 measAggrGranWnd:

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

 measPeriod:

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

 required:

 - measDataTypes

 MeasurementSubscription:

 description: The measurement subscription request.

 type: object

 properties:

 valUeIds:

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

 type: array

 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

 items:

 type: string

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

 measReqs:

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

 immRep:

 type: boolean

 reportFreq:

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

 reportTerm:

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

 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'

# Simple data types and Enumerations

 MeasurementDataType:

 description: |

 Indicates the requested measurement data type.

 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.

 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: >

 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.

 ReportingMode:

 description: |

 Indicates the reporting mode.

 Possible values are:

 - PERIODIC: Periodic reporting mode.

 - EVENT\_TRIGGERED: Event-triggered reporting mode.

 anyOf:

 - type: string

 enum:

 - PERIODIC

 - EVENT\_TRIGGERED

 - 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.

 TerminationMode:

 description: |

 Indicates the termination mode.

 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.

 anyOf:

 - type: string

 enum:

 - TIME\_TRIGGERED

 - EVENT\_TRIGGERED\_NUM\_REPORTS\_REACHED

 - EVENT\_TRIGGERED\_MEAS\_THR\_REACHED

 - USER\_TRIGGERED

 - 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.

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