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

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***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 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-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.

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

All rights reserved.

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 \* \* \* \*