**3GPP TSG- Meeting #-bis-**

**, –**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 API support | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***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:*** | | 3GPP TS 23.434 defines the SS\_NetworkResourceMonitoring API and the related Obtain/Subscribe/Unsubscribe/Notify Unicast QoS Monitoring Data service operations in clause 14.4.4. Thus, need to support the SS\_NetworkResourceMonitoring API in this specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | This CR provides new functionality of the SS\_NetworkResourceMonitoring API for the VAL server to Obtain/Subscribe/Unsubscribe/Notify QoS Monitoring Data from the NRM server. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Missing the SS\_NetworkResourceMonitoring API surrort that is not aligned with Stage 2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.4.Z(new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not affect OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

### 7.4.Z SS\_NetworkResourceMonitoring API

#### 7.4.Z.1 API URI

The SS\_NetworkResourceMonitoring service shall use the SS\_NetworkResourceMonitoring API.

The request URIs used in HTTP requests from the VAL server towards the NRM server shall have the Resource URI structure as defined in clause 6.5 with the following clarifications:

- The <apiName>shall be "ss-nrm".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 7.Z.1.2

#### 7.4.Z.2 Resources

##### 7.4.Z.2.1 Overview



Figure 7.4.Z.2.1-1: Resource URI structure of the SS\_NetworkResourceMonitoring API

Table 7.4.Z.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 7.4.Z.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| Measurement Data | /measurement-data | GET | Retreive measurement data for VAL UEs, VAL Group, or VAL Streams according to the query parameters. |
| Measurements | /measurements | POST | Create individual measurement resource for VAL UEs, VAL Group, or VAL Streams according to the query parameters. |
| Individual Measurement | /measurements/{measurementId} | DELETE | Remove individual measurement resource according to the measurementId. |
| GET | Read individual measurement resource according to the measurementId. |

##### 7.4.Z.2.2 Resource: Measurement Data

###### 7.4.Z.2.2.1 Description

###### 7.4.Z.2.2.2 Resource Definition

Resource URI: {**apiRoot**}/ss-nrm/<**apiVersion**>/**measurement-data**

This resource shall support the resource URI variables defined in table 7.4.Z.2.2.2-1.

Table 7.4.Z.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.4.1.1. |
| apiVersion | string | See clause 7.4.1.1. |

###### 7.4.Z.2.2.3 Resource Standard Methods

7.4.Z.2.2.3.1 GET

This operation retrieves the measurement information for VAL UEs, VAL Group, or VAL. This method shall support the URI query parameters specified in table 7.4.Z.2.3.3.2-1.

Table 7.4.Z.2.2.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| val-ue-ids | array(ValTargetUe) | O | 1..N | List of VAL UEs whose measurement data is requested. (NOTE 1) |
| val-group-id | string | O | 0..1 | The group ID used for the VAL group for which measurement data is requested. (NOTE 1) |
| val-stream-ids | array(string) | O | 1..N | List of VAL streams for which measurement data is requested. (NOTE 1) |
| meas-reqs | MeasurementRequirements | O | 0..1 | The measurement requirements. (NOTE 2) |
| NOTE 1: Only one of these query parameters shall be presented.  NOTE 2: If absent, the default values shall be used. | | | | |

This method shall support the request data structures specified in table 7.4.Z.2.2.3.1-2 and the response data structures and response codes specified in table 7.4.Z.2.2.3.1-3.

Table 7.4.Z.2.2.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.4.Z.2.2.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| MeasurementInformation | M | 1 | 200 OK | The requested measurement data. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative network resource management server.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative network resource management server.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [22] shall also apply. | | | | |

Table 7.4.Z.2.2.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative network resource management server. |

Table 7.4.Z.2.2.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative network resource management server. |

##### 7.4.Z.2.3 Resource: Measurements

###### 7.4.Z.2.3.1 Description

###### 7.4.Z.2.3.2 Resource Definition

Resource URI: {**apiRoot**}/**ss-nrm**/<**apiVersion**>/**measurements**

This resource shall support the resource URI variables defined in table 7.4.Z.2.3.2-1.

Table 7.4.Z.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.4.1.1. |
| apiVersion | string | See clause 7.4.1.1. |

###### 7.4.Z.2.3.3 Resource Standard Methods

7.4.Z.2.3.3.1 POST

Table 7.4.Z.2.3.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

This method shall support the request data structures specified in table 7.4.Z.2.3.3.1-2 and the response data structures and response codes specified in table 7.4.Z.2.3.3.1-3.

Table 7.4.Z.2.3.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MeasurementSubscription | M | 1 |  |

Table 7.4.Z.2.3.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| MeasurementSubscription | M | 1 | 201 Created |  |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [22] shall also apply. | | | | |

Table 7.4.Z.2.3.3.1-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/ss-nrm/<apiVersion>/trigger- measurements /{measurementId} |

Table 7.4.Z.2.3.3.1-5: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative network resource management server. |

Table 7.4.Z.2.3.3.1-6: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative network resource management server. |

###### 7.4.Z.2.3.4 Resource Custom Operations

None.

##### 7.4.Z.2.4 Resource: Individual Measurement

###### 7.4.Z.2.4.1 Description

###### 7.4.Z.2.4.2 Resource Definition

Resource URI: {**apiRoot**}/**ss-nrm**/<**apiVersion**>/**measurements**/{**measurementId**}

This resource shall support the resource URI variables defined in table 7.4.Z.2.4.2-1.

Table 7.4.Z.2.4.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.4.1.1. |
| apiVersion | string | See clause 7.4.1.1. |
| measurementId | string | Represents an individual measurement resource. |

###### 7.4.Z.2.4.3 Resource Standard Methods

7.4.Z.2.4.3.1 DELETE

This operation deletes the individual measurement resource. This method shall support the URI query parameters specified in table 7.4.Z.2.4.3.1-1.

Table 7.4.Z.2.4.3.1-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.4.Z.2.4.3.1-2 and the response data structures and response codes specified in table 7.4.Z.2.4.3.1-3.

Table 7.4.Z.2.4.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.4.Z.2.4.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | The individual measurement resource matching the measurementId is deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative group management server.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative group management server.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. | | | | |

Table 7.4.Z.2.4.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative group management server. |

Table 7.4.Z.2.4.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative group management server. |

7.4.Z.2.4.3.2 GET

This operation reads the individual measurement resource. This method shall support the URI query parameters specified in table 7.4.Z.2.4.3.2-1.

Table 7.4.Z.2.3.3.2-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

This method shall support the request data structures specified in table 7.4.Z.2.4.3.2-2 and the response data structures and response codes specified in table 7.4.Z.2.4.3.2-3.

Table 7.4.Z.2.4.3.2-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.4.Z.2.4.3.2-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| MeasurementInformation | M | 1 | 200 OK |  |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative network resource management server.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative network resource management server.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [22] shall also apply. | | | | |

Table 7.4.Z.2.4.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative network resource management server. |

Table 7.4.Z.2.4.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative network resource management server. |

7.4.Z.3 Notifications

7.4.Z.3.1 General

Table 7.4.1.3.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description  (service operation) |
| Notify\_Individual\_Measurement\_Data | {notifUri} | POST | Report measurement data notification |

##### 7.4.Z.3.2 Notify\_Individual\_Measurement

###### 7.4.Z.3.2.1 Description

###### 7.4.Z.3.2.2 Notification definition

Callback URI: {**notifUri**}

This method shall support the URI query parameters specified in table 7.4.Z.3.2.2-1.

Table 7.4.Z.3.2.2-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.4.Z.3.2.2-2 and the response data structures and response codes specified in table 7.4.Z.3.2.2-3.

Table 7.4.Z.3.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MeasurementInformation | M | 1 |  |

Table 7.4.Z.3.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative notification destination where the notification should be sent.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative notification destination where the notification should be sent.  Redirection handling is described in subclause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [22] also apply. | | | | |

Table 7.4.Z.3.2.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI representing the end point of an alternative notification destination towards which the notification should be redirected. |

Table 7.4.Z.3.2.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI representing the end point of an alternative notification destination towards which the notification should be redirected. |

#### 7.4.Z.4 Data Model

##### 7.4.Z.4.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 6.2 apply to this API

Table 7.4.Z.4.1-1 specifies the data types defined specifically for the SS\_NetworkResourceMonitoring API service.

Table 7.4.Z.4.1-1: SS\_NetworkResourceMonitoring API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| MeasurementInformation | 7.4.Z.4.2.2 | Indicates the measurement information for VAL UEs list, VAL Group, or VAL Stream. |  |
| MeasurementData | 7.4.Z.4.2.3 | Presents the aggregated measurement data. |  |
| MeasurementPeriod | 7.4.Z.4.2.4 | Indicates the measurement time period. |  |
| ReportingFrequency | 7.4.Z.4.2.5 | Indicates the requested frequency of reporting. |  |
| ReportingTermination | 7.4.Z.4.2.6 | Indicates when the reporting shall stop. |  |
| MeasurementRequirements | 7.4.Z.4.2.7 | Indicates the measurement requirements. |  |
| MeasurementSubscription | 7.4.Z.4.2.8 | The measurement subscription request. |  |
| MeasurementDataType | 7.4.Z.4.3.1 | Indicates the requested measurement data type. |  |
| ReportingMode | 7.4.Z.4.3.2 | Indicates the reporting mode. |  |
| TerminationMode | 7.4.Z.4.3.3 | Indicates the termination mode. |  |

Table 7.4.Z.4.1-2 specifies data types re-used by the SS\_NetworkResourceMonitoring API service.

Table 7.4.Z.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.571 [21] |  |  |
| DurationSec | 3GPP TS 29.571 [21] |  |  |
| ValTargetUe | clause 7.3.1.4.2.3 | Used to identify either a VAL User ID or a VAL UE ID. |  |
| BitRate | 3GPP TS 29.571 [21] |  |  |
| Uinteger | 3GPP TS 29.571 [21] |  |  |
| AverWindow | 3GPP TS 29.571 [21] |  |  |
| Uri | 3GPP TS 29.571 [21] |  |  |
| SupportedFeatures | 3GPP TS 29.571 [21] |  |  |
| WebsockNotifConfig | 3GPP TS 29.122 [3] |  |  |

##### 7.4.Z.4.2 Structured data types

###### 7.4.Z.4.2.1 Introduction

###### 7.4.Z.4.2.2 Type: MeasurementInformation

Table 7.4.Z.4.2.2-1: Definition of type MeasurementInformation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valUeIds | array(ValTargetUe) | O | 1..N | List of VAL UEs whose measurement data is provided. (NOTE) |  |
| valGroupId | string | O | 0..1 | The group ID used for the VAL group for which measurement data is provided. (NOTE) |  |
| valStreamIds | array(string) | O | 1..N | List of VAL stream IDs whose measurement data. (NOTE) |  |
| measData | MeasurementData | M | 1 | The aggregated measurement data. |  |
| NOTE: Only one of these attributes shall be present. | | | | | |

###### 7.4.Z.4.2.3 Type: MeasurementData

Table 7.4.Z.4.2.3-1: Definition of type MeasurementData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| dlDelay | Uinteger | O | 0..1 | The downlink packets delay in milliseconds. (NOTE) |  |
| ulDelay | Uinteger | O | 0..1 | The uplink packets delay in milliseconds. (NOTE) |  |
| rtDelay | Uinteger | O | 0..1 | The packets round trip time in milliseconds. (NOTE) |  |
| dlDataRate | BitRate | O | 0..1 | The downlink bitrate. (NOTE) |  |
| ulDataRate | BitRate | O | 0..1 | The uplink bitrate. (NOTE) |  |
| trafficVolume | Uinteger | O | 0..1 | The traffic volume in bytes. (NOTE) |  |
| NOTE: The attributes shall be presented based on the measDataTypes attribute in the received MeasurementRequirements. | | | | | |

Editor's Note: The content of MeasurementData and MeasurementDataType are FFS.

###### 7.4.Z.4.2.4 Type: MeasurementPeriod

Table 7.4.Z.4.2.4-1: Definition of type MeasurementPeriod

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| measStartTime | DateTime | M | 1 | Indicate the starting time for the measurement. |  |
| measDuration | DurationSec | M | 1 | Indicate the duration for the measurement. |  |

###### 7.4.Z.4.2.5 Type: ReportingFrequency

Table 7.4.Z.4.2.5-1: Definition of type ReportingFrequency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| reportingMode | ReportingMode | M | 1 | The indication of the requested reporting option: periodic or event-triggered. |  |
| reportingPeriod | DurationSec | O | 0..1 | Identifies the reporting time interval for the periodic reporting. (NOTE 1) |  |
| reportingEvents | array(string) | O | 1..N | Identifies the reporting events for the event-triggered reporting. (NOTE 2) |  |
| NOTE 1: reportingPeriod shall be presented for the time-triggered reporting option.  NOTE 2: reportingEvents shall be presented for the event-triggered reporting option. | | | | | |

Editor's Note: the reportingEvents attribute in the ReportingFrequency data type is FFS.

###### 7.4.Z.4.2.6 Type: ReportingTermination

Table 7.4.Z.4.2.6-1: Definition of type ReportingTermination

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| repTerminMode | TerminationMode | M | 1 | The indication of the requested reporting termination option: time-triggered, event-triggered, or user-triggered. |  |
| expirationTimer | DurationSec | O | 0..1 | Identifies the reporting time interval for the time triggered termination option. (NOTE 1) |  |
| termEvents | array(string) | O | 1..N | Identifies the reporting termination events for the event-triggered termination option. (NOTE 2) |  |
| NOTE 1: expirationTimer shall be presented for the time-triggered termination option.  NOTE 2: termEvents shall be presented for the event-triggered termination option. | | | | | |

Editor's Note: the termEvents attribute in the ReportingTermination data type is FFS.

###### 7.4.Z.4.2.7 Type: MeasurementRequirements

Table 7.4.Z.4.2.7-1: Definition of type MeasurementRequirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| measDataTypes | array(MeasurementDataType) | M | 1..N | Indicates the required the measurement data types. |  |
| measAggrGranWnd | AverWindow | O | 0..1 | It indicates the aggregation granularity window for the measured data. |  |
| measPeriod | MeasurementPeriod | O | 0..1 | It indicates the required measurement time period. |  |

Editor's Note: The default values for the measPeriod and measAggrGranWnd in MeasurementRequirements data model are FFS.

###### 7.4.Z.4.2.8 Type: MeasurementSubscription

Table 7.4.Z.4.2.8-1: Definition of type MeasurementSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| valUeIds | array(ValTargetUe) | O | 1..N | List of VAL UEs whose measurement data is requested. (NOTE 1) |  |
| valGroupId | string | O | 0..1 | The group ID used for the VAL group for which measurement data is requested. (NOTE 1) |  |
| valStreamIds | array(string) | O | 1..N | List of VAL streams for which measurement data is requested. (NOTE 1) |  |
| measReqs | MeasurementRequirements | O | 0..1 | It indicates the measurement requirements. (NOTE 2) |  |
| reportFreq | ReportingFrequency | O | 0..1 | It indicates the requested frequency of reporting. (NOTE 3) |  |
| reportTerm | ReportingTermination | O | 0..1 | It indicates when the reporting shall stop. (NOTE 4) |  |
| notifiUri | Uri | M | 1 | It indicates the URI where the notification should be delivered to. |  |
| reqTestNotif | Boolean | O | 0..1 | Set to true by the NF service consumer to request the VAL server to send a test notification as defined in clause 6.3.5.3. Set to false or omitted otherwise. | Notification\_test\_event |
| wsNotifCfg | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in clause 6.3.5.4. | Notification\_websocket |
| suppFeat | SupportedFeatures | O | 1 | This parameter may be supplied by VAL server in the POST request that request the creation of an individual measurement resource and may be supplied in the reply of corresponding request. |  |
| NOTE 1: Only one of these query parameters shall be presented.  NOTE 2: If absent, the default values will be used.  NOTE 3: If absent, the default event triggered reporting is used.  NOTE 4: If absent, it defaults to event triggered reporting. | | | | |  |

##### 7.4.Z.4.3 Simple data types and enumerations

###### 7.4.Z.4.3.1 Enumeration: MeasurementDataType

Table 7.4.Z.4.3.1-1: Enumeration MeasurementDataType

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| DL\_DELAY | The indication for requesting the downlink packets delay data type. |  |
| UL\_DELAY | The indication for requesting the downlink packets delay data type. |  |
| RT\_DELAY | The indication for requesting the packets round trip delay data type. |  |
| DL\_DATA\_RATE | The indication for requesting the downlink data rate data type. |  |
| UL\_DATA\_RATE | The indication for requesting the uplink data rate data type. |  |
| TRAFFIC\_VOLUME | The indication for requesting the traffic volume data type. |  |

###### 7.4.Z.4.3.2 Enumeration: ReportingMode

Table 7.4.Z.4.3.2-1: Enumeration ReportingMode

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| PERIODIC | The periodic reporting mode. |  |
| EVENT\_TRIGGERED | The event-triggered reporting mode. |  |

###### 7.4.Z.4.3.3 Enumeration: TerminationMode

Table 7.4.Z.4.3.3-1: Enumeration TerminationMode

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| TIME\_TRIGGERED | The time-triggered termination mode. |  |
| EVENT\_TRIGGERED | The event-triggered termination mode. |  |
| USER\_TRIGGERED | The user-triggered termination mode. |  |

7.4.Z.5 Error HandlingGeneral error responses are defined in clause 6.7.

#### 7.4.Z.6 Feature negotiation

General feature negotiation procedures are defined in clause 6.8. Table 7.4.Z.6-1 lists the supported features for SS\_NetworkResourceMonitoring API.

Table 7.4.Z.6-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | Notification\_test\_event | The testing of notification connection is supported according to clause 6.6. |
| 2 | Notification\_websocket | The delivery of notifications over Websocket is supported according to clause 6.6. This feature requires that the Notification\_test\_event feature is also supported. |

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