**3GPP TSG- Meeting #**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **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 | **X** | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Rel-19 CR TS 28.623 Implement readonly attributes for openAPI SS | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The property “isWritable=False” for several attributes are described in Stage 2 NRM definition, however, it is missing in open API Solution Set. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Implement the readOnly attributes in open API Solution Set to align with stage2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The property “isWritable=False” is not implemented in openAPI Solution Set. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | The following YAML files are normatively stored in 3GPP forge:  - TS28623\_ComDefs.yaml  - TS28623\_FileManagementNrm.yaml  - TS28623\_GenericNrm.yaml  - TS28623\_MnSRegistryNrm.yaml  - TS28623\_QoEMeasurementCollectionNrm.yaml | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1237> at commit 4594024a059d94b8cd0fbdfe67cdd4213a1f7394 | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

|  |
| --- |
| **1st Change** |

\*\*\* START OF CHANGE 4 \*\*\*

\*\*\* OpenAPI/TS28623\_ComDefs.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

title: Common Type Definitions

version: 19.0.0

description: >-

OAS 3.0.1 specification of common type definitions in the Generic NRM

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externalDocs:

description: 3GPP TS 28.623; Generic NRM; Common type definitions

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.623/

paths: {}

components:

schemas:

Float:

description: This datatype is used for writable attribute

type: number

format: float

FloatRo:

description: This datatype is used for readOnly attribute

type: number

format: float

readOnly: true

DateTime:

description: This datatype is used for writable attribute

type: string

format: date-time

DateTimeRo:

description: This datatype is used for readOnly attribute

type: string

format: date-time

readOnly: true

FullTime:

type: string

description: format (e.g., full-time) is from RFC 3339

format: full-time

DateMonth:

type: string

format: date-month

DateMonthDay:

type: string

format: date-mday

DayInYear:

type: object

properties:

month:

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

monthDay:

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

Latitude:

type: number

format: float

minimum: -90

maximum: 90

Longitude:

type: number

format: float

minimum: -180

maximum: 180

Dn:

description: This datatype is used for writable attribute

type: string

DnRo:

description: This datatype is used for readOnly attribute

type: string

readOnly: true

DnList:

description: This datatype is used for writable attribute

type: array

items:

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

DnListRo:

description: This datatype is used for readOnly attribute

type: array

items:

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

Mcc:

description: This datatype is used for writable attribut

type: string

pattern: '^[0-9]{3}$'

MccRo:

description: This datatype is used for readOnly attribute

type: string

pattern: '^[0-9]{3}$'

readOnly: true

Mnc:

description: This datatype is used for writable attribut

type: string

pattern: '^[0-9]{2,3}$'

MncRo:

description: This datatype is used for readOnly attribute

type: string

pattern: '^[0-9]{2,3}$'

readOnly: true

Nid:

type: string

pattern: '^[A-Fa-f0-9]{11}$'

PlmnId:

description: This datatype is used for writable attribute

type: object

properties:

mcc:

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

mnc:

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

PlmnIdRo:

description: This datatype is used for readOnly attribute

type: object

properties:

mcc:

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

mnc:

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

Tac:

type: string

pattern: '(^[A-Fa-f0-9]{4}$)|(^[A-Fa-f0-9]{6}$)'

UtraCellId:

type: integer

EutraCellId:

type: string

pattern: '^[A-Fa-f0-9]{7}$'

NrCellId:

type: string

pattern: '^[A-Fa-f0-9]{9}$'

TimeWindow:

description: This datatype is used for writable attribute

oneOf:

- type: object

properties:

startTime:

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

endTime:

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

- type: object

properties:

startTime:

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

- type: object

properties:

endTime:

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

TimeWindowRo:

description: This datatype is used for readOnly attribute

oneOf:

- type: object

properties:

startTime:

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

endTime:

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

- type: object

properties:

startTime:

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

- type: object

properties:

endTime:

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

GeoCoordinate:

type: object

properties:

latitude:

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

longitude:

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

altitude:

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

ConvexGeoPolygon:

type: array

items:

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

minItems: 3

GeoArea:

type: object

properties:

convexGeoPolygon:

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

GeoAreaToCellMapping:

type: object

properties:

geoArea:

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

associationThreshold:

type: integer

AreaOfInterest:

oneOf:

- type: array

items:

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

- type: array

items:

$ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Tai'

- type: array

items:

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

- type: array

items:

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

- type: array

items:

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

Fqdn:

type: string

description: This datatype is used for writable attribute

pattern: '^([0-9A-Za-z]([-0-9A-Za-z]{0,61}[0-9A-Za-z])?\.)+[A-Za-z]{2,63}\.?$'

minLength: 4

maxLength: 253

FqdnRo:

type: string

description: This datatype is used for readOnly attribute

pattern: '^([0-9A-Za-z]([-0-9A-Za-z]{0,61}[0-9A-Za-z])?\.)+[A-Za-z]{2,63}\.?$'

minLength: 4

maxLength: 253

readOnly: true

Ipv4Addr:

description: This datatype is used for writable attribute

type: string

pattern: '^(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])$'

example: '198.51.100.1'

Ipv4AddrRo:

description: This datatype is used for readOnly attribute

type: string

pattern: '^(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])$'

example: '198.51.100.1'

readOnly: true

Ipv6Addr:

description: This datatype is used for writable attribute

type: string

allOf:

- pattern: '^((:|(0?|([1-9a-f][0-9a-f]{0,3}))):)((0?|([1-9a-f][0-9a-f]{0,3})):){0,6}(:|(0?|([1-9a-f][0-9a-f]{0,3})))$'

- pattern: '^((([^:]+:){7}([^:]+))|((([^:]+:)\*[^:]+)?::(([^:]+:)\*[^:]+)?))$'

example: '2001:db8:85a3::8a2e:370:7334'

Ipv6AddrRo:

description: This datatype is used for readOnly attribute

type: string

allOf:

- pattern: '^((:|(0?|([1-9a-f][0-9a-f]{0,3}))):)((0?|([1-9a-f][0-9a-f]{0,3})):){0,6}(:|(0?|([1-9a-f][0-9a-f]{0,3})))$'

- pattern: '^((([^:]+:){7}([^:]+))|((([^:]+:)\*[^:]+)?::(([^:]+:)\*[^:]+)?))$'

example: '2001:db8:85a3::8a2e:370:7334'

readOnly: true

Ipv6Prefix:

description: This datatype is used for writable attribute

type: string

allOf:

- pattern: '^((:|(0?|([1-9a-f][0-9a-f]{0,3}))):)((0?|([1-9a-f][0-9a-f]{0,3})):){0,6}(:|(0?|([1-9a-f][0-9a-f]{0,3})))(\/(([0-9])|([0-9]{2})|(1[0-1][0-9])|(12[0-8])))$'

- pattern: '^((([^:]+:){7}([^:]+))|((([^:]+:)\*[^:]+)?::(([^:]+:)\*[^:]+)?))(\/.+)$'

example: '2001:db8:abcd:12::0/64'

Ipv6PrefixRo:

description: This datatype is used for readOnly attribute

type: string

allOf:

- pattern: '^((:|(0?|([1-9a-f][0-9a-f]{0,3}))):)((0?|([1-9a-f][0-9a-f]{0,3})):){0,6}(:|(0?|([1-9a-f][0-9a-f]{0,3})))(\/(([0-9])|([0-9]{2})|(1[0-1][0-9])|(12[0-8])))$'

- pattern: '^((([^:]+:){7}([^:]+))|((([^:]+:)\*[^:]+)?::(([^:]+:)\*[^:]+)?))(\/.+)$'

example: '2001:db8:abcd:12::0/64'

readOnly: true

IpAddr:

description: This datatype is used for writable attribute

oneOf:

- $ref: '#/components/schemas/Ipv4Addr'

- $ref: '#/components/schemas/Ipv6Addr'

- $ref: '#/components/schemas/Ipv6Prefix'

IpAddrRo:

description: This datatype is used for readOnly attribute

oneOf:

- $ref: '#/components/schemas/Ipv4AddrRo'

- $ref: '#/components/schemas/Ipv6AddrRo'

- $ref: '#/components/schemas/Ipv6PrefixRo'

HostAddr:

# This definition will be deprecated, when all occurances of HostAddr

# are replaced by Host.

oneOf:

- $ref: '#/components/schemas/Ipv4Addr'

- $ref: '#/components/schemas/Ipv6Addr'

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

Host:

oneOf:

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

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

Uri:

description: This datatype is used for writable attribute

type: string

UriRo:

type: string

description: This datatype is used for readOnly attribute

readOnly: true

TimeInterval:

type: object

properties:

intervalStart:

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

intervalEnd:

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

AdministrativeState:

type: string

enum:

- LOCKED

- UNLOCKED

default: LOCKED

BasicAdministrativeState:

type: string

enum:

- LOCKED

- UNLOCKED

OperationalState:

type: string

enum:

- ENABLED

- DISABLED

default: DISABLED

readOnly: true

UsageState:

type: string

readOnly: true

enum:

- IDLE

- ACTIVE

- BUSY

AvailabilityStatus:

type: string

enum:

- IN\_TEST

- FAILED

- POWER\_OFF

- OFF\_LINE

- OFF\_DUTY

- DEPENDENCY

- DEGRADED

- NOT\_INSTALLED

- LOG\_FULL

readOnly: true

AttributeNameValuePairSet:

description: >-

The key of this map is the attribute name, and the value the attribute value.

type: object

minProperties: 1

additionalProperties:

nullable: true

AttributeValueChangeSet:

description: >-

The first array item contains the attribute name value pairs with the new values,

and the second array item the attribute name value pairs with the optional old values.

type: array

items:

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

minItems: 1

maxItems: 2

Filter:

description: >-

The filter format shall be compliant to Jex (TS 32.161).

type: string

SystemDN:

type: string

NotificationId:

type: integer

NotificationType:

oneOf:

- $ref: 'TS28111\_FaultNrm.yaml#/components/schemas/AlarmNotificationTypes'

- $ref: 'TS28532\_ProvMnS.yaml#/components/schemas/CmNotificationTypes'

- $ref: 'TS28532\_PerfMnS.yaml#/components/schemas/PerfNotificationTypes'

- $ref: 'TS28532\_HeartbeatNtf.yaml#/components/schemas/HeartbeatNotificationTypes'

- $ref: 'TS28532\_FileDataReportingMnS.yaml#/components/schemas/FileNotificationTypes'

NotificationHeader:

type: object

properties:

href:

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

notificationId:

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

notificationType:

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

eventTime:

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

systemDN:

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

required:

- href

- notificationId

- notificationType

- eventTime

- systemDN

ErrorResponse:

description: >-

Default schema for the response message body in case the request

is not successful.

type: object

properties:

error:

type: object

properties:

errorInfo:

type: string

Subscription:

type: object

properties:

consumerReference:

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

timeTick:

type: integer

filter:

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

ErrorResponseGet:

description: >-

Default schema for the response message body in case the Get

is not successful.

type: object

properties:

status:

type: string

type:

type: string

reason:

type: string

title:

type: string

badQueryParams:

type: array

items:

type: string

otherProblems:

type: array

items:

type: object

properties:

status:

type: string

type:

type: string

reason:

type: string

title:

type: string

badQueryParams:

type: array

items:

type: string

required:

- type

required:

- type

ErrorResponseDefault:

type: object

properties:

status:

type: string

type:

type: string

reason:

type: string

title:

type: string

badAttributes:

type: array

items:

type: string

badObjects:

type: array

items:

type: string

otherProblems:

type: array

items:

type: object

properties:

status:

type: string

type:

type: string

reason:

type: string

title:

type: string

badAttributes:

type: array

items:

type: string

badObjects:

type: array

items:

type: string

required:

- type

required:

- type

ErrorResponsePatch:

description: >-

Default schema for the response message body in case the patch

is not successful.

type: object

properties:

status:

type: string

type:

type: string

reason:

type: string

title:

type: string

badOP:

type: string

otherProblems:

type: array

items:

type: object

properties:

status:

type: string

type:

type: string

reason:

type: string

title:

type: string

badOp:

type: string

required:

- type

- badOp

required:

- type

- badOp

<CODE ENDS>

\*\*\* END OF CHANGE 4 \*\*\*

\*\*\* START OF CHANGE 5 \*\*\*

\*\*\* OpenAPI/TS28623\_FileManagementNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

title: File Management NRM

version: 19.0.0

description: >-

OAS 3.0.1 definition of the File Management NRM fragment

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externalDocs:

description: 3GPP TS 28.623; Generic NRM, File Management NRM

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.623/

paths: {}

components:

schemas:

#-------- Definition of types for name-containments ------

SubNetwork-ncO-FileManagementNrm:

type: object

properties:

FileDownloadJob:

$ref: '#/components/schemas/FileDownloadJob-Multiple'

Files:

$ref: '#/components/schemas/Files-Multiple'

ManagedElement-ncO-FileManagementNrm:

type: object

properties:

FileDownloadJob:

$ref: '#/components/schemas/FileDownloadJob-Multiple'

Files:

$ref: '#/components/schemas/Files-Multiple'

#-------Definition of generic IOCs ----------#

#-------- Definition of types-----------------------------------------------------

FileDownloadJobProcessMonitor:

description: >-

This data type is the "ProcessMonitor" data type with specialisations

for usage in the "FileDownloadJob".

type: object

properties:

jobId:

type: string

readOnly: true

status:

type: string

readOnly: true

enum:

- NOT\_STARTED

- RUNNING

- FINSHED

- FAILED

- CANCELLING

- CANCELLED

progressPercentage:

type: integer

readOnly: true

minimum: 0

maximum: 100

progressStateInfo:

readOnly: true

type: string

resultStateInfo:

oneOf:

- type: string

readOnly: true

enum:

- NULL

- UNKNOWN

- NO\_STORAGE

- LOW\_MEMROY

- NO\_CONNECTION\_TO\_REMOTE\_SERVER

- FILE\_NOT\_AVAILABLE

- DNS\_CANNOT\_BE\_RESOLVED

- TIMER\_EXPIRED

- OTHER

- type: string

readOnly: true

startTime:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

endTime:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

timer:

type: integer

#-------- Definition of concrete IOCs --------------------------------------------

FileDownloadJob-Single:

allOf:

- $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

- type: object

properties:

attributes:

type: object

properties:

fileLocation:

type: string

notificationRecipientAddress:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Uri'

cancelJob:

type: string

enum:

- TRUE

- FALSE

default: FALSE

jobMonitor:

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

Files-Single:

allOf:

- $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

- type: object

properties:

attributes:

type: object

properties:

numberOfFiles:

type: integer

readOnly: true

jobRef:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

jobId:

type: string

readOnly: true

File:

$ref: '#/components/schemas/File-Multiple'

File-Single:

allOf:

- $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

- type: object

properties:

attributes:

type: object

properties:

fileLocation:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/UriRo'

fileCompression:

type: string

readOnly: true

fileSize:

type: integer

readOnly: true

fileDataType:

type: string

readOnly: true

enum:

- PERFORMANCE

- TRACE

- ANALYTICS

- PROPRIETARY

fileFormat:

type: string

readOnly: true

fileReadyTime:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

fileExpirationTime:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

fileContent:

type: string

readOnly: true

jobRef:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

jobId:

type: string

readOnly: true

#-------- Definition of YAML arrays for name-contained IOCs ----------------------

FileDownloadJob-Multiple:

type: array

items:

$ref: '#/components/schemas/FileDownloadJob-Single'

Files-Multiple:

type: array

items:

$ref: '#/components/schemas/Files-Single'

File-Multiple:

type: array

items:

$ref: '#/components/schemas/File-Single'

#-------- Definitions in TS 28.623 for TS 28.532 ---------------------------------

resources-fileMgmtNrm:

oneOf:

- $ref: '#/components/schemas/FileDownloadJob-Single'

- $ref: '#/components/schemas/Files-Single'

- $ref: '#/components/schemas/File-Single'

<CODE ENDS>

\*\*\* END OF CHANGE 5 \*\*\*

\*\*\* START OF CHANGE 6 \*\*\*

\*\*\* OpenAPI/TS28623\_GenericNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

title: Generic NRM

version: 19.0.0

description: >-

OAS 3.0.1 definition of the Generic NRM

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externalDocs:

description: 3GPP TS 28.623; Generic NRM

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.623/

paths: {}

components:

schemas:

#-------- Definition of types-----------------------------------------------------

VnfParameter:

type: object

properties:

vnfInstanceId:

type: string

vnfdId:

type: string

flavourId:

type: string

autoScalable:

type: boolean

PeeParameter:

type: object

properties:

siteIdentification:

type: string

siteDescription:

type: string

siteLatitude:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Latitude'

siteLongitude:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Longitude'

siteAltitude:

type: number

format: float

equipmentType:

type: string

environmentType:

type: string

powerInterface:

type: string

TransportProtocol:

anyOf:

- type: string

enum:

- TCP

- type: string

SupportedPerfMetricGroup:

type: object

properties:

performanceMetrics:

type: array

items:

type: string

readOnly: true

granularityPeriods:

type: array

items:

type: integer

minimum: 1

readOnly: true

reportingMethods:

type: array

items:

type: string

enum:

- FILE\_BASED\_LOC\_SET\_BY\_PRODUCER

- FILE\_BASED\_LOC\_SET\_BY\_CONSUMER

- STREAM\_BASED

readOnly: true

reportingPeriods:

type: array

items:

type: integer

minimum: 1

readOnly: true

ReportingCtrl:

oneOf:

- type: object

properties:

fileReportingPeriod:

type: integer

- type: object

properties:

fileReportingPeriod:

type: integer

notificationRecipientAddress:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Uri'

- type: object

properties:

fileReportingPeriod:

type: integer

fileLocation:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Uri'

- type: object

properties:

streamTarget:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Uri'

Scope:

oneOf:

- type: object

properties:

scopeType:

type: string

enum:

- BASE\_ONLY

- BASE\_ALL

- BASE\_NTH\_LEVEL

- BASE\_SUBTREE

scopeLevel:

type: integer

- type: object

properties:

dataNodeSelector:

type: string

ProcessMonitor:

description: >-

This data type is the "ProcessMonitor" data type without specialisations.

type: object

properties:

jobId:

type: string

readOnly: true

status:

type: string

enum:

- NOT\_STARTED

- RUNNING

- FINSHED

- FAILED

- PARTIALLY\_FAILED

- CANCELLING

- CANCELLED

readOnly: true

progressPercentage:

type: integer

minimum: 0

maximum: 100

readOnly: true

progressStateInfo:

type: string

readOnly: true

resultStateInfo:

type: string

readOnly: true

startTime:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

endTime:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

timer:

type: integer

AreaScope:

oneOf:

- type: array

items:

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

- type: array

items:

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

- type: array

items:

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

- type: array

items:

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

- type: array

items:

$ref: '#/components/schemas/NpnId-Type'

Tai:

type: object

properties:

mcc:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Mcc'

mnc:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Mnc'

tac:

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

Tac:

type: string

pattern: '(^[A-Fa-f0-9]{4}$)|(^[A-Fa-f0-9]{6}$)'

EutraCellId:

type: string

pattern: '^[A-Fa-f0-9]{7}$'

NrCellId:

type: string

pattern: '^[A-Fa-f0-9]{9}$'

IpAddr:

oneOf:

- $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Ipv4Addr'

- $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Ipv6Addr'

SchedulingTime:

oneOf:

- $ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeWindow'

- type: object

properties:

timeIntervals:

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeInterval'

- type: object

properties:

timeIntervals:

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeInterval'

daysOfWeek:

type: array

items:

type: string

enum:

- MONDAY

- TUESDAY

- WEDNESDAY

- THURSDAY

- FRIDAY

- SATURDAY

- SUNDAY

- type: object

properties:

timeIntervals:

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeInterval'

daysOfMonth:

type: array

items:

type: integer

minimum: 0

maximum: 31

NpnId-Type:

type: object

properties:

plmnId:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/PlmnId'

cAGIdList:

type: array

items:

type: string

minItems: 1

maxItems: 256

nIDList:

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Nid'

minItems: 1

maxItems: 16

oneOf:

- required: [plmnId, cAGIdList]

- required: [plmnId, nIDList]

#-------- Definition of abstract IOC Top -----------------------------------------

Top-Attr:

# This definition will be deprecated, when all occurances of Top-Attr

# are replaced by Top.

type: object

properties:

id:

type: string

nullable: true

objectClass:

type: string

objectInstance:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

VsDataContainer:

$ref: '#/components/schemas/VsDataContainer-Multiple'

required:

- id

Top:

type: object

properties:

id:

type: string

nullable: true

objectClass:

type: string

objectInstance:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

VsDataContainer:

$ref: '#/components/schemas/VsDataContainer-Multiple'

required:

- id

#-------- Definition of IOCs with new name-containments defined in other TS ------

SubNetwork-Attr:

type: object

properties:

dnPrefix:

type: string

userLabel:

type: string

userDefinedNetworkType:

type: string

setOfMcc:

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/Mcc'

readOnly: true

priorityLabel:

type: integer

readOnly: true

supportedPerfMetricGroups:

type: array

items:

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

supportedTraceMetrics:

type: array

items:

type: string

ManagedElement-Attr:

type: object

properties:

dnPrefix:

type: string

managedElementTypeList:

type: array

items:

type: string

userLabel:

type: string

locationName:

type: string

managedBy:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnList'

vendorName:

type: string

readOnly: true

userDefinedState:

type: string

swVersion:

type: string

readOnly: true

priorityLabel:

type: integer

supportedPerfMetricGroups:

type: array

items:

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

supportedTraceMetrics:

type: array

items:

type: string

readOnly: true

SubNetwork-ncO:

type: object

properties:

SubNetwork:

$ref: '#/components/schemas/SubNetwork-Multiple'

ManagedElement:

$ref: '#/components/schemas/ManagedElement-Multiple'

ManagementNode:

$ref: '#/components/schemas/ManagementNode-Multiple'

MnsAgent:

$ref: '#/components/schemas/MnsAgent-Multiple'

MeContext:

$ref: '#/components/schemas/MeContext-Multiple'

AlarmList:

$ref: 'TS28111\_FaultNrm.yaml#/components/schemas/AlarmList-Single'

Scheduler:

$ref: '#/components/schemas/Scheduler-Multiple'

ConditionMonitor:

$ref: '#/components/schemas/ConditionMonitor-Multiple'

SupportedNotifications:

$ref: '#/components/schemas/SupportedNotifications-Single'

ManagedElement-ncO:

type: object

properties:

MnsAgent:

$ref: '#/components/schemas/MnsAgent-Multiple'

AlarmList:

$ref: 'TS28111\_FaultNrm.yaml#/components/schemas/AlarmList-Single'

Scheduler:

$ref: '#/components/schemas/Scheduler-Multiple'

ConditionMonitor:

$ref: '#/components/schemas/ConditionMonitor-Multiple'

SupportedNotifications:

$ref: '#/components/schemas/SupportedNotifications-Single'

#-------- Definition of abstract IOCs --------------------------------------------

ManagedFunction-Attr:

type: object

properties:

userLabel:

type: string

vnfParametersList:

type: array

items:

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

peeParametersList:

type: array

items:

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

priorityLabel:

type: integer

supportedPerfMetricGroups:

type: array

items:

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

supportedTraceMetrics:

type: array

items:

type: string

EP\_RP-Attr:

type: object

properties:

userLabel:

type: string

farEndEntity:

type: string

readOnly: true

supportedPerfMetricGroups:

type: array

items:

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

ManagedFunction-ncO:

type: object

properties:

PerfMetricJob:

$ref: 'TS28623\_PmControlNrm.yaml#/components/schemas/PerfMetricJob-Multiple'

ThresholdMonitor:

$ref: 'TS28623\_ThresholdMonitorNrm.yaml#/components/schemas/ThresholdMonitor-Multiple'

TraceJob:

$ref: 'TS28623\_TraceControlNrm.yaml#/components/schemas/TraceJob-Multiple'

#-------- Definition of concrete IOCs --------------------------------------------

VsDataContainer-Single:

type: object

properties:

id:

type: string

attributes:

type: object

properties:

vsDataType:

type: string

readOnly: true

vsDataFormatVersion:

type: string

readOnly: true

vsData:

nullable: true

VsDataContainer:

$ref: '#/components/schemas/VsDataContainer-Multiple'

ManagementNode-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

userLabel:

type: string

managedElements:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnList'

vendorName:

type: string

readOnly: true

userDefinedState:

type: string

locationName:

type: string

readOnly: true

swVersion:

type: string

readOnly: true

MnsAgent:

$ref: '#/components/schemas/MnsAgent-Multiple'

MnsAgent-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

systemDN:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

MeContext-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

dnPrefix:

type: string

readOnly: true

Scheduler-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

schedulingTimes:

type: array

items:

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

minItems: 1

schedulerStatus:

type: boolean

readOnly: true

ConditionMonitor-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

condition:

type: string

conditionStatus:

type: boolean

readOnly: true

SupportedNotifications-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

notificationTypes:

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/NotificationType'

notificationProtocols:

type: array

items:

type: string

enum:

- HTTP

- HTTP\_VES\_ENCAPS

minItems: 1

readOnly: true

SubNetwork-Single:

allOf:

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

- $ref: '#/components/schemas/SubNetwork-Attr'

- $ref: '#/components/schemas/SubNetwork-ncO'

- $ref: '#/components/schemas/SubNetwork-Multiple'

- $ref: '#/components/schemas/ManagedElement-Multiple'

- $ref: 'TS28623\_FileManagementNrm.yaml#/components/schemas/SubNetwork-ncO-FileManagementNrm'

- $ref: 'TS28623\_PmControlNrm.yaml#/components/schemas/SubNetwork-ncO-PmControlNrm'

- $ref: 'TS28623\_SubscriptionControlNrm.yaml#/components/schemas/SubNetwork-ncO-SubscriptionControlNrm'

- $ref: 'TS28623\_ThresholdMonitorNrm.yaml#/components/schemas/SubNetwork-ncO-ThresholdMonitorNrm'

- $ref: 'TS28623\_TraceControlNrm.yaml#/components/schemas/SubNetwork-ncO-TraceControlNrm'

- $ref: 'TS28623\_QoEMeasurementCollectionNrm.yaml#/components/schemas/SubNetwork-ncO-QoEMeasurementCollectionNrm'

- $ref: 'TS28623\_ManagementDataCollectionNrm.yaml#/components/schemas/SubNetwork-ncO-ManagementDataCollectionNrm'

- $ref: 'TS28623\_MnSRegistryNrm.yaml#/components/schemas/SubNetwork-ncO-MnSRegistryNrm'

- $ref: 'TS28104\_MdaNrm.yaml#/components/schemas/SubNetwork-ncO-MdaNrm'

- $ref: 'TS28105\_AiMlNrm.yaml#/components/schemas/SubNetwork-ncO-AiMlNrm'

- $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/SubNetwork-ncO-IntentNrm'

- $ref: 'TS28317\_RanScNrm.yaml#/components/schemas/SubNetwork-ncO-RanScNrm'

- $ref: 'TS28536\_CoslaNrm.yaml#/components/schemas/SubNetwork-ncO-CoslaNrm'

- $ref: 'TS28538\_EdgeNrm.yaml#/components/schemas/SubNetwork-ncO-EdgeNrm'

- $ref: 'TS28541\_SliceNrm.yaml#/components/schemas/SubNetwork-ncO-SliceNrm'

- $ref: 'TS28541\_NrNrm.yaml#/components/schemas/SubNetwork-ncO-NrNrm'

- $ref: 'TS28541\_5GcNrm.yaml#/components/schemas/SubNetwork-ncO-5GcNrm'

- $ref: 'TS28318\_DsoNrm.yaml#/components/schemas/SubNetwork-ncO-DsoNrm'

ManagedElement-Single:

allOf:

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

- $ref: '#/components/schemas/ManagedElement-Attr'

- $ref: '#/components/schemas/ManagedElement-ncO'

- $ref: 'TS28623\_FileManagementNrm.yaml#/components/schemas/ManagedElement-ncO-FileManagementNrm'

- $ref: 'TS28623\_PmControlNrm.yaml#/components/schemas/ManagedElement-PmControlNrm'

- $ref: 'TS28623\_SubscriptionControlNrm.yaml#/components/schemas/ManagedElement-ncO-SubscriptionControlNrm'

- $ref: 'TS28623\_ThresholdMonitorNrm.yaml#/components/schemas/ManagedElement-ncO-ThresholdMonitorNrm'

- $ref: 'TS28623\_TraceControlNrm.yaml#/components/schemas/SubNetwork-ncO-TraceControlNrm'

- $ref: 'TS28623\_QoEMeasurementCollectionNrm.yaml#/components/schemas/ManagedElement-ncO-QoEMeasurementCollectionNrm'

- $ref: 'TS28104\_MdaNrm.yaml#/components/schemas/ManagedElement-ncO-MdaNrm'

- $ref: 'TS28105\_AiMlNrm.yaml#/components/schemas/ManagedElement-ncO-AiMlNrm'

- $ref: 'TS28536\_CoslaNrm.yaml#/components/schemas/ManagedElement-ncO-CoslaNrm'

- $ref: 'TS28541\_NrNrm.yaml#/components/schemas/ManagedElement-ncO-NrNrm'

- $ref: 'TS28541\_5GcNrm.yaml#/components/schemas/ManagedElement-ncO-5GcNrm'

NrmRoot:

oneOf:

- type: object

properties:

SubNetwork:

$ref: '#/components/schemas/SubNetwork-Multiple'

- type: object

properties:

ManagedElement:

$ref: '#/components/schemas/ManagedElement-Multiple'

#-------- Definition of YAML arrays for name-contained IOCs ----------------------

VsDataContainer-Multiple:

type: array

items:

$ref: '#/components/schemas/VsDataContainer-Single'

ManagementNode-Multiple:

type: array

items:

$ref: '#/components/schemas/ManagementNode-Single'

MnsAgent-Multiple:

type: array

items:

$ref: '#/components/schemas/MnsAgent-Single'

MeContext-Multiple:

type: array

items:

$ref: '#/components/schemas/MeContext-Single'

Scheduler-Multiple:

type: array

items:

$ref: '#/components/schemas/Scheduler-Single'

ConditionMonitor-Multiple:

type: array

items:

$ref: '#/components/schemas/ConditionMonitor-Single'

SubNetwork-Multiple:

type: array

items:

$ref: '#/components/schemas/SubNetwork-Single'

ManagedElement-Multiple:

type: array

items:

$ref: '#/components/schemas/ManagedElement-Single'

#-------- Definitions in TS 28.623 for TS 28.532 ---------------------------------

resources-genericNrm:

oneOf:

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

- $ref: '#/components/schemas/VsDataContainer-Single'

- $ref: '#/components/schemas/ManagementNode-Single'

- $ref: '#/components/schemas/MnsAgent-Single'

- $ref: '#/components/schemas/MeContext-Single'

- $ref: '#/components/schemas/Scheduler-Single'

- $ref: '#/components/schemas/ConditionMonitor-Single'

- $ref: '#/components/schemas/SupportedNotifications-Single'

- $ref: '#/components/schemas/SubNetwork-Single'

- $ref: '#/components/schemas/ManagedElement-Single'

<CODE ENDS>

\*\*\* END OF CHANGE 6 \*\*\*

\*\*\* START OF CHANGE 7 \*\*\*

\*\*\* OpenAPI/TS28623\_MnSRegistryNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

title: MnS Registry NRM

version: 19.0.0

description: >-

OAS 3.0.1 definition of the MnS Registry NRM fragment

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externalDocs:

description: 3GPP TS 28.623; Generic NRM, MnS Registry NRM

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.623/

paths: {}

components:

schemas:

#-------- Definition of types for name-containments ------

SubNetwork-ncO-MnSRegistryNrm:

type: object

properties:

MnsRegistry:

$ref: '#/components/schemas/MnsRegistry-Single'

#-------Definition of generic IOCs ----------#

#-------- Definition of types-----------------------------------------------------

#-------- Definition of concrete IOCs --------------------------------------------

MnsRegistry-Single:

allOf:

- $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

- type: object

properties:

MnsInfo:

$ref: '#/components/schemas/MnsInfo-Multiple'

MnsInfo-Single:

allOf:

- $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

- type: object

properties:

mnsLabel:

type: string

readOnly: true

mnsType:

type: string

readOnly: true

enum:

- PROV\_MNS

- FAULT\_SUPERVISION\_MNS

- STREAMING\_DATA\_REPORTING\_MNS

- FILE\_DATA\_REPORTING\_MNS

mnsVersion:

type: string

readOnly: true

mnsAddress:

description: Resource URI as defined in the relevant Technical Specification

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/UriRo'

mnsScope:

description: >-

List of the managed object instances that can be accessed using the MnS.

If a complete SubNetwork can be accessed using the MnS, this attribute may

contain the DN of the SubNetwork instead of the DNs of the individual managed

entities within the SubNetwork.

type: array

items:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

#-------- Definition of YAML arrays for name-contained IOCs ----------------------

MnsInfo-Multiple:

type: array

items:

$ref: '#/components/schemas/MnsInfo-Single'

#-------- Definitions in TS 28.623 for TS 28.532 ---------------------------------

resources-mnSRegistryNrm:

oneOf:

- $ref: '#/components/schemas/MnsInfo-Single'

- $ref: '#/components/schemas/MnsRegistry-Single'

<CODE ENDS>

\*\*\* END OF CHANGE 7 \*\*\*

\*\*\* START OF CHANGE 8 \*\*\*

\*\*\* OpenAPI/TS28623\_QoEMeasurementCollectionNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

title: QoE Measurement Collection NRM

version: 19.0.0

description: >-

OAS 3.0.1 definition of the QoE Measurement Collection NRM

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externalDocs:

description: 3GPP TS 28.623; Generic NRM,QoE Measurement Collection NRM fragment

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.623/

paths: {}

components:

schemas:

#-------- Definition of types for name-containments ------

SubNetwork-ncO-QoEMeasurementCollectionNrm:

type: object

properties:

QMCJobs:

$ref: '#/components/schemas/QMCJob-Multiple'

ManagedElement-ncO-QoEMeasurementCollectionNrm:

type: object

properties:

QMCJobs:

$ref: '#/components/schemas/QMCJob-Multiple'

#-------Definition of generic IOCs ----------#

#-------- Definition of types-----------------------------------------------------

#-------- Definition of concrete IOCs --------------------------------------------

QMCJob-Single:

allOf:

- $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

- type: object

properties:

attributes:

type: object

properties:

serviceType:

type: string

enum:

- DASH

- MTSI

- VR

areaScope:

type: array

items:

$ref: 'TS28623\_GenericNrm.yaml#/components/schemas/AreaScope'

qoECollectionEntityAddress:

$ref: 'TS28623\_GenericNrm.yaml#/components/schemas/IpAddr'

pLMNTarget:

$ref: 'TS28623\_ComDefs.yaml#/components/schemas/PlmnId'

qoETarget:

type: string

qoEReference:

type: string

jobId:

type: string

sliceScope:

type: array

items:

$ref: 'TS28541\_NrNrm.yaml#/components/schemas/Snssai'

qMCConfigFile:

type: string

mDTAlignmentInformation:

$ref: 'TS28623\_TraceControlNrm.yaml#/components/schemas/traceReference-Type'

availableRANqoEMetrics:

type: array

items:

type: string

enum:

- APPLAYERBUFFERLEVELLIST

- PLAYOUTDELAYFORMEDIA\_STARTUP

minItems: 0

maxItems: 2

mBSCommunicationServiceType:

type: string

readOnly: true

enum:

- BROADCAST

- MULTICAST

#-------- Definition of YAML arrays for name-contained IOCs ----------------------

QMCJob-Multiple:

type: array

items:

$ref: '#/components/schemas/QMCJob-Single'

#-------- Definitions in TS 28.623 for TS 28.532 ---------------------------------

resources-qoEMeasuremetCollectionNrm:

oneOf:

- $ref: '#/components/schemas/QMCJob-Single'

<CODE ENDS>

\*\*\* END OF CHANGE 8 \*\*\*

|  |
| --- |
| **2nd Change** |