**3GPP TSG-SA5 Meeting #141e *S5-221077rev1***

**17 - 26 January 2022, E-meeting**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.623** | **CR** | **0146** | **rev** | **1** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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 | **X** | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Enhance NRM with geographical information supporting MDA | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Intel | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMDAS | | | | |  | ***Date:*** | | | 2022-01-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | 17 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)*  *Rel-17 (Release 17)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As specified in draft TS 28.104, the geographical data in the table below are needed to support coverage problem analysis for MDA.   |  |  | | --- | --- | | Geographical data | The geographical information (longitude, latitude, altitude) of the deployed RAN (NG-RAN and E-UTRAN). |   This CR is to enhance the NRM with geographical data. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Added the altitude information to the attribute peeParametersList. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The altitude information of deployed NG-RAN node is not available thus the MDA using the geographical data cannot be supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | C.4.2a, C4.3, D.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **x** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Link of branch on ETSI Forge: https://forge.3gpp.org/rep/sa5/MnS/-/tree/28.623\_Rel17\_CR0146\_Enhance\_NRM\_with\_geographical\_information\_supporting\_MDA | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

|  |
| --- |
| **1st modified section** |

## C.4.2a OpenAPI document "comDefs.yaml"

openapi: 3.0.1

info:

title: Common Type Definitions

version: 17.1.0

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:

type: number

format: float

DateTime:

type: string

format: date-time

Latitude:

type: number

format: float

minimum: -90

maximum: 90

Longitude:

type: number

format: float

minimum: -180

maximum: 180

Dn:

type: string

DnList:

type: array

items:

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

Mcc:

type: string

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

Mnc:

type: string

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

Nid:

type: string

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

PlmnId:

type: object

properties:

mcc:

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

mnc:

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

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}$'

Fqdn:

type: string

Ipv4Addr:

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'

Ipv6Addr:

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'

Ipv6Prefix:

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'

IpAddr:

oneOf:

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

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

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:

type: string

AdministrativeState:

type: string

enum:

- LOCKED

- UNLOCKED

OperationalState:

type: string

enum:

- ENABLED

- DISABLED

UsageState:

type: string

enum:

- IDEL

- ACTIVE

- BUSY

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 XPath 1.0.

type: string

SystemDN:

type: string

NotificationId:

type: integer

NotificationType:

oneOf:

- $ref: 'faultMnS.yaml#/components/schemas/AlarmNotificationTypes'

- $ref: 'provMnS.yaml#/components/schemas/CmNotificationTypes'

- $ref: 'perfMnS.yaml#/components/schemas/PerfNotificationTypes'

- $ref: 'heartbeatNtf.yaml#/components/schemas/HeartbeatNotificationTypes'

- $ref: '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

|  |
| --- |
| **Next modified section** |

## C.4.3 OpenAPI document "genericNrm.yaml"

openapi: 3.0.1

info:

title: Generic NRM

version: 17.1.0

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-----------------------------------------------------

RegistrationState:

type: string

enum:

- REGISTERED

- DEREGISTERED

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: 'comDefs.yaml#/components/schemas/Latitude'

siteLongitude:

$ref: 'comDefs.yaml#/components/schemas/Longitude'

siteAltitude:

type: number

format: float

equipmentType:

type: string

environmentType:

type: string

powerInterface:

type: string

ThresholdInfo:

type: object

properties:

thresholdDirection:

type: string

enum:

- UP

- DOWN

- UP\_AND\_DOWN

thresholdValue:

oneOf:

- type: integer

- $ref: 'comDefs.yaml#/components/schemas/Float'

hysteresis:

oneOf:

- type: integer

minimum: 0

- type: number

format: float

minimum: 0

Operation:

type: object

properties:

name:

type: string

allowedNFTypes:

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

operationSemantics:

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

NFType:

type: string

description: ' NF name defined in TS 23.501'

enum:

- NRF

- UDM

- AMF

- SMF

- AUSF

- NEF

- PCF

- SMSF

- NSSF

- UDR

- LMF

- GMLC

- 5G\_EIR

- SEPP

- UPF

- N3IWF

- AF

- UDSF

- DN

OperationSemantics:

type: string

enum:

- REQUEST\_RESPONSE

- SUBSCRIBE\_NOTIFY

SAP:

type: object

properties:

host:

$ref: 'comDefs.yaml#/components/schemas/HostAddr'

port:

type: integer

NFServiceType:

type: string

enum:

- Namf\_Communication

- Namf\_EventExposure

- Namf\_MT

- Namf\_Location

- Nsmf\_PDUSession

- Nsmf\_EventExposure

- Others

TransportProtocol:

anyOf:

- type: string

enum:

- TCP

- type: string

SupportedPerfMetricGroup:

type: object

properties:

performanceMetrics:

type: array

items:

type: string

granularityPeriods:

type: array

items:

type: integer

minimum: 1

reportingMethods:

type: array

items:

type: string

enum:

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

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

- STREAM\_BASED

monitorGranularityPeriods:

type: array

items:

type: integer

minimum: 1

ReportingCtrl:

oneOf:

- type: object

properties:

fileReportingPeriod:

type: integer

- type: object

properties:

fileReportingPeriod:

type: integer

fileLocation:

$ref: 'comDefs.yaml#/components/schemas/Uri'

- type: object

properties:

streamTarget:

$ref: 'comDefs.yaml#/components/schemas/Uri'

Scope:

type: object

properties:

scopeType:

type: string

enum:

- BASE\_ONLY

- BASE\_ALL

- BASE\_NTH\_LEVEL

- BASE\_SUBTREE

scopeLevel:

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'

Tai:

type: object

properties:

mcc:

$ref: 'comDefs.yaml#/components/schemas/Mcc'

mnc:

$ref: 'comDefs.yaml#/components/schemas/Mnc'

tac:

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

AreaConfig:

type: object

properties:

freqInfo:

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

pciList:

type: array

items:

type: integer

FreqInfo:

description: specifies the carrier frequency and bands used in a cell.

type: object

properties:

arfcn:

type: integer

freqBands:

type: array

items:

type: integer

MbsfnArea:

type: object

properties:

mbsfnAreaId:

type: integer

minimum: 1

earfcn:

type: integer

minimum: 1

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: 'comDefs.yaml#/components/schemas/Ipv4Addr'

- $ref: 'comDefs.yaml#/components/schemas/Ipv6Addr'

#-------- Definition of types used in Trace control NRM fragment------------------

tjJobType-Type:

type: string

description: Specifies whether the TraceJob represents only MDT, Logged MBSFN MDT, Trace or a combined Trace and MDT job. Applicable for Trace, MDT, RCEF and RLF reporting. See 3GPP TS 32.422 clause 5.9a for additional details.

enum:

- IMMEDIATE\_MDT\_ONLY

- LOGGED\_MDT\_ONLY

- TRACE\_ONLY

- IMMEDIATE\_MDT AND TRACE

- RLF\_REPORT\_ONLY

- RCEF\_REPORT\_ONLY

- LOGGED\_MBSFN\_MDT

tjListOfInterfaces-Type:

description: The interfaces to be recorded in the Network Element. See 3GPP TS 32.422 clause 5.5 for additional details.

type: object

properties:

MSCServerInterfaces:

type: array

items:

type: string

enum:

- A

- Iu-CS

- Mc

- MAP-G

- MAP-B

- MAP-E

- MAP-F

- MAP-D

- MAP-C

- CAP

MGWInterfaces:

type: array

items:

type: string

enum:

- Mc

- Nb-UP

- Iu-UP

RNCInterfaces:

type: array

items:

type: string

enum:

- Iu-CS

- Iu-PS

- Iur

- Iub

- Uu

SGSNInterfaces:

type: array

items:

type: string

enum:

- Gb

- Iu-PS

- Gn

- MAP-Gr

- MAP-Gd

- MAP-Gf

- Ge

- Gs

- S6d

- S4

- S3

- S13

GGSNInterfaces:

type: array

items:

type: string

enum:

- Gn

- Gi

- Gmb

S-CSCFInterfaces:

type: array

items:

type: string

enum:

- Mw

- Mg

- Mr

- Mi

P-CSCFInterfaces:

type: array

items:

type: string

enum:

- Gm

- Mw

I-CSCFInterfaces:

type: array

items:

type: string

enum:

- Cx

- Dx

- Mg

- Mw

MRFCInterfaces:

type: array

items:

type: string

enum:

- Mp

- Mr

MGCFInterfaces:

type: array

items:

type: string

enum:

- Mg

- Mj

- Mn

IBCFInterfaces:

type: array

items:

type: string

enum:

- Ix

- Mx

E-CSCFInterfaces:

type: array

items:

type: string

enum:

- Mw

- Ml

- Mm

- Mi/Mg

BGCFInterfaces:

type: array

items:

type: string

enum:

- Mi

- Mj

- Mk

ASInterfaces:

type: array

items:

type: string

enum:

- Dh

- Sh

- ISC

- Ut

HSSInterfaces:

type: array

items:

type: string

enum:

- MAP-C

- MAP-D

- Gc

- Gr

- Cx

- S6d

- S6a

- Sh

- N70

- N71

- NU1

EIRInterfaces:

type: array

items:

type: string

enum:

- MAP-F

- S13

- MAP-Gf

BM-SCInterfaces:

type: array

items:

type: string

enum:

- Gmb

MMEInterfaces:

type: array

items:

type: string

enum:

- S1-MME

- S3

- S6a

- S10

- S11

- S13

SGWInterfaces:

type: array

items:

type: string

enum:

- S4

- S5

- S8

- S11

- Gxc

PDN\_GWInterfaces:

type: array

items:

type: string

enum:

- S2a

- S2b

- S2c

- S5

- S6b

- Gx

- S8

- SGi

eNBInterfaces:

type: array

items:

type: string

enum:

- S1-MME

- X2

en-gNBInterfaces:

type: array

items:

type: string

enum:

- S1-MME

- X2

- Uu

- F1-C

- E1

AMFInterfaces:

type: array

items:

type: string

enum:

- N1

- N2

- N8

- N11

- N12

- N14

- N15

- N20

- N22

- N26

AUSFInterfaces:

type: array

items:

type: string

enum:

- N12

- N13

NEFInterfaces:

type: array

items:

type: string

enum:

- N29

- N30

- N33

NRFInterfaces:

type: array

items:

type: string

enum:

- N27

NSSFInterfaces:

type: array

items:

type: string

enum:

- N22

- N31

PCFInterfaces:

type: array

items:

type: string

enum:

- N5

- N7

- N15

SMFInterfaces:

type: array

items:

type: string

enum:

- N4

- N7

- N10

- N11

- S5-C

SMSFInterfaces:

type: array

items:

type: string

enum:

- N20

- N21

UDMInterfaces:

type: array

items:

type: string

enum:

- N8

- N10

- N13

- N21

- NU1

UPFInterfaces:

type: array

items:

type: string

enum:

- N4

ng-eNBInterfaces:

type: array

items:

type: string

enum:

- NG-C

- Xn-C

- Uu

gNB-CU-CPInterfaces:

type: array

items:

type: string

enum:

- NG-C

- Xn-C

- Uu

- F1-C

- E1

- X2-C

gNB-CU-UPInterfaces:

type: array

items:

type: string

enum:

- E1

gNB-DUInterfaces:

type: array

items:

type: string

enum:

- F1-C

tjListOfNeTypes-Type:

description: The Network Element types where Trace Session activation is needed. See 3GPP TS 32.422 clause 5.4 for additional details.

type: array

items:

type: string

enum:

- MSC\_SERVER

- SGSN

- MGW

- GGSN

- RNC

- BM\_SC

- MME

- SGW

- PGW

- ENB

- EN\_GNB

- GNB\_CU\_CP

- GNB\_CU\_UP

- GNB\_DU

- AMF

- PCF

- SMF

- UPF

- AUSF

- SMSF

- HSS

- UDM

tjPLMNTarget-Type:

type: object

description: The PLMN for which sessions shall be selected in the Trace Session in case of management based activation when several PLMNs are supported in the RAN (this means that shared cells and not shared cells are allowed for the specified PLMN. Note that the PLMN Target might differ from the PLMN specified in the Trace Reference, as that specifies the PLMN that is containing the management system requesting the Trace Session from the NE. See 3GPP TS 32.422 clause 5.9b for additional details.

properties:

mcc:

$ref: 'comDefs.yaml#/components/schemas/Mcc'

mnc:

$ref: 'comDefs.yaml#/components/schemas/Mnc'

required:

- mcc

- mnc

tjTraceDepth-Type:

description: Specifies how detailed information should be recorded in the Network Element. The Trace Depth is a paremeter for Trace Session level, i.e., the Trace Depth is the same for all of the NEs to be traced in the same Trace Session. See 3GPP TS 32.422 clause 5.3 for additional details.

type: string

enum:

- MINIMUM

- MEDIUM

- MAXIMUM

- VENDORMINIMUM

- VENDORMEDIUM

- VENDORMAXIMUM

tjTraceReference-Type:

type: object

description: The Trace Reference parameter shall be globally unique, therefore the Trace Reference shall compose as follows - MCC+MNC+Trace ID, where the MCC and MNC are coming with the Trace activation request from the management system to identify one PLMN containing the management system, and Trace ID is a 3 byte Octet String. See 3GPP TS 32.422 clause 5.6 for additional details.

properties:

mcc:

$ref: 'comDefs.yaml#/components/schemas/Mcc'

mnc:

$ref: 'comDefs.yaml#/components/schemas/Mnc'

traceId:

type: string

required:

- mcc

- mnc

- traceId

tjTraceReportingFormat-Type:

type: string

description: Specifies whether file-based or streaming reporting shall be used for this Trace Session. See 3GPP TS 32.422 clause 5.11 for additional details.

enum:

- FILE-BASED

- STREAMING

tjTraceTarget-Type:

type: object

description: Trace target conveying both the type and value of the target ID. For additional details see 3GPP TS 32.422

properties:

TargetIdType:

type: string

enum:

- IMSI

- IMEI

- IMEISV

- PUBLIC\_ID

- UTRAN\_CELL

- E-UTRAN\_CELL

- NG-RAN\_CELL

- eNB

- RNC

- gNB

- SUPI

TargetIdValue:

type: string

required:

- TargetIdType

- TargetIdValue

tjTriggeringEvent-Type:

type: object

description: Specifies when to start a Trace Recording Session and which message shall be recorded first, when to stop a Trace Recording Session and which message shall be recorded last respectively. See 3GPP TS 32.422 clause 5.1 for additional detials.

properties:

NetworkElement:

type: string

enum:

- MSC\_SERVER

- SGSN

- MGW

- GGSN

- BM\_SC

- MME

- SGW

- PGW

- AMF

- SMF

- PCF

- UPF

- AUSF

- NEF

- NRF

- NSSF

- SMSF

- UDM

EventBitmap:

type: integer

required:

- NetworkElement

- EventBitmap

tjMDTAnonymizationOfData-Type:

description: Specifies level of MDT anonymization. For additional details see 3GPP TS 32.422 clause 5.10.12.

type: string

enum:

- NO\_IDENTITY

- TAC\_OF\_IMEI

tjMDTCollectionPeriodRrmLte-Type:

description: See details in 3GPP TS 32.422 clause 5.10.20.

type: string

enum:

- 100ms

- 1000ms

- 1024ms

- 1280ms

- 2048ms

- 2560ms

- 5120ms

- 10000ms

- 10240ms

- 60000ms

tjMDTCollectionPeriodM6Lte-Type:

description: See details in 3GPP TS 32.422 clause 5.10.32.

type: string

enum:

- 1024ms

- 2048ms

- 5120ms

- 10240ms

tjMDTCollectionPeriodM7Lte-Type:

description: See details in 3GPP TS 32.422 clause 5.10.33.

type: integer

minimum: 1

maximum: 60

tjMDTCollectionPeriodRrmUmts-Type:

description: See details in 3GPP TS 32.422 clause 5.10.21.

type: string

enum:

- 100ms

- 250ms

- 500ms

- 1000ms

- 2000ms

- 3000ms

- 4000ms

- 6000ms

tjMDTCollectionPeriodRrmNR-Type:

description: See details in 3GPP TS 32.422 clause 5.10.30.

type: string

enum:

- 1024ms

- 2048ms

- 5120ms

- 10240ms

- 60000ms

tjMDTCollectionPeriodM6NR-Type:

description: See details in 3GPP TS 32.422 clause 5.10.34.

type: string

enum:

- 120ms

- 240ms

- 480ms

- 640ms

- 1024ms

- 2048ms

- 5120ms

- 10240ms

- 20480ms

- 40960ms

- 1min

- 6min

- 12min

- 30min

tjMDTCollectionPeriodM7NR-Type:

description: See details in 3GPP TS 32.422 clause 5.10.35.

type: integer

minimum: 1

maximum: 60

tjMDTEventListForTriggeredMeasurement-Type:

description: See details in 3GPP TS 32.422 clause 5.10.28.

type: string

enum:

- OUT\_OF\_COVERAGE

- A2\_EVENT

tjMDTEventThreshold-Type:

description: See details in 3GPP TS 32.422 clause 5.10.7, 5.10.7a, 5.10.13 and 5.10.14.

type: object

properties:

EventThresholdRSRP:

oneOf:

- type: integer

minimum: 0

maximum: 97

- type: integer

minimum: 0

maximum: 127

EventThresholdRSRQ:

oneOf:

- type: integer

minimum: 0

maximum: 34

- type: integer

minimum: 0

maximum: 127

EventThreshold1F:

type: object

properties:

CPICH\_RSCP:

type: integer

minimum: -120

maximum: 25

CPICH\_EcNo:

type: integer

minimum: -24

maximum: 0

PathLoss:

type: integer

minimum: 30

maximum: 165

EventThreshold1I:

type: integer

minimum: -120

maximum: 25

tjMDTListOfMeasurements-Type:

description: See details in 3GPP TS 32.422 clause 5.10.3 for details.

type: object

properties:

UMTS:

type: array

items:

type: string

enum:

- M1

- M2

- M3

- M4

- M5

- M6\_DL

- M6\_UL

- M7\_DL

- M7\_UL

LTE:

type: array

items:

type: string

enum:

- M1

- M2

- M3

- M4

- M5

- M1\_EVENT\_TRIGGERED

- M6

- M7

- M8

- M9

NR:

type: array

items:

type: string

enum:

- M1

- M2

- M3

- M4

- M5

- M6

- M7

- M1\_EVENT\_TRIGGERED

- M8

- M9

tjMDTLoggingDuration-Type:

description: See details in 3GPP TS 32.422 clause 5.10.9.

type: string

enum:

- 600s

- 1200s

- 2400s

- 3600s

- 5400s

- 7200s

tjMDTLoggingInterval-Type:

description: See details in 3GPP TS 32.422 clause 5.10.8.

type: object

properties:

UMTS:

type: array

items:

type: string

enum:

- 1.28s

- 2.56s

- 5.12s

- 10.24s

- 20.48s

- 30.72s

- 40.96s

- 61.44s

LTE:

type: array

items:

type: string

enum:

- 1.28s

- 2.56s

- 5.12s

- 10.24s

- 20.48s

- 30.72s

- 40.96s

- 61.44s

NR:

type: array

items:

type: string

enum:

- 0.32s

- 0.64s

- 1.28s

- 2.56s

- 5.12s

- 10.24s

- 20.48s

- 30.72s

- 40.96s

- 61.44s

- INFINITY

tjMDTLoggingEventThreshold-Type:

description: See details in 3GPP TS 32.422 clause 5.10.X.

type: object

properties:

RSRP:

type: integer

minimum: 0

maximum: 127

RSRQ:

type: integer

minimum: 0

maximum: 127

tjMDTLoggingHysteresis-Type:

description: See details in 3GPP TS 32.422 clause 5.10.Y.

type: integer

minimum: 0

maximum: 30

tjMDTLoggingTimeToTrigger-Type:

description: See details in 3GPP TS 32.422 clause 5.10.Z.

type: string

enum:

- 0ms

- 40ms

- 64ms

- 80ms

- 100ms

- 128ms

- 160ms

- 256ms

- 320ms

- 480ms

- 512ms

- 640ms

- 1024ms

- 1280ms

- 2560ms

- 5120ms

tjMDTMeasurementPeriodLTE-Type:

description: See details in 3GPP TS 32.422 clause 5.10.23.

type: string

enum:

- 1024ms

- 2048ms

- 5120ms

- 10240ms

- 1min

tjMDTMeasurementPeriodUMTS-Type:

description: See details in 3GPP TS 32.422 clause 5.10.22.

type: string

enum:

- 1000ms

- 2000ms

- 3000ms

- 4000ms

- 6000ms

- 8000ms

- 12000ms

- 16000ms

- 20000ms

- 24000ms

- 28000ms

- 32000ms

- 64000ms

tjMDTMeasurementQuantity-Type:

description: See details in 3GPP TS 32.422 clause 5.10.15.

type: string

enum:

- CPICH\_EcNo

- CPICH\_RSCP

- PathLoss

tjMDTM4ThresholdUmts-Type:

description: See details in 3GPP TS 32.422 clause 5.10.A.

type: integer

minimum: 0

maximum: 31

tjMDTPLMNList-Type:

description: See details in 3GPP TS 32.422 clause 5.10.24.

type: array

items:

type: object

properties:

mcc:

$ref: 'comDefs.yaml#/components/schemas/Mcc'

mnc:

$ref: 'comDefs.yaml#/components/schemas/Mnc'

required:

- mcc

- mnc

maxItems: 16

tjMDTPositioningMethod-Type:

description: See details in 3GPP TS 32.422 clause 5.10.19.

type: string

enum:

- GNSS

- E-CELL\_ID

tjMDTReportAmount-Type:

description: See details in 3GPP TS 32.422 clause 5.10.6.

type: string

enum:

- 1

- 2

- 4

- 8

- 16

- 32

- 64

- INFINITY

tjMDTReportingTrigger-Type:

description: See details in 3GPP TS 32.422 clause 5.10.4.

type: array

items:

type: string

enum:

- PERIODICAL

- A2\_FOR\_LTE\_NR

- 1F\_FOR\_UMTS

- 1I\_FOR\_UMTS\_MCPS\_TDD

- A2\_TRIGGERED\_PERIODIC\_FOR\_LTE\_NR

- ALL\_CONFIGURED\_RRM\_FOR\_LTE\_NR

- ALL\_CONFIGURED\_RRM\_FOR\_UMTS

tjMDTReportInterval-Type:

description: See details in 3GPP TS 32.422 clause 5.10.5.

type: object

properties:

UMTS:

type: array

items:

type: string

enum:

- 250ms

- 500ms

- 1000ms

- 2000ms

- 3000ms

- 4000ms

- 6000ms

- 8000ms

- 12000ms

- 16000ms

- 20000ms

- 24000ms

- 28000ms

- 32000ms

- 64000ms

LTE:

type: array

items:

type: string

enum:

- 120ms

- 240ms

- 480ms

- 640ms

- 1024ms

- 2048ms

- 5120ms

- 10240ms

- 60000ms

- 360000ms

- 720000ms

- 1800000ms

- 3600000ms

NR:

type: array

items:

type: string

enum:

- 120ms

- 240ms

- 480ms

- 640ms

- 1024ms

- 2048ms

- 5120ms

- 10240ms

- 60000ms

- 360000ms

- 720000ms

- 1800000ms

tjMDTReportType-Type:

description: Report type for logged NR MDT. See details in 3GPP TS 32.422 clause 5.10.27.

type: string

enum:

- PERIODICAL

- EVENT\_TRIGGERED

tjMDTSensorInformation-Type:

description: See details in 3GPP TS 32.422 clause 5.10.29.

type: array

items:

type: string

enum:

- BAROMETRIC\_PRESSURE

- UE\_SPEED

- UE\_ORIENTATION

tjMDTTraceCollectionEntityID-Type:

description: See details in 3GPP TS 32.422 clause 5.10.11. Only TCE Id value may be sent over the air to the UE being configured for Logged MDT.

type: integer

#-------- end of Definition of types used in Trace control NRM fragment ----------

#-------- 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: '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: '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: 'comDefs.yaml#/components/schemas/Mcc'

priorityLabel:

type: integer

supportedPerfMetricGroups:

type: array

items:

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

ManagedElement-Attr:

type: object

properties:

dnPrefix:

type: string

managedElementTypeList:

type: array

items:

type: string

userLabel:

type: string

locationName:

type: string

managedBy:

$ref: 'comDefs.yaml#/components/schemas/DnList'

vendorName:

type: string

userDefinedState:

type: string

swVersion:

type: string

priorityLabel:

type: integer

supportedPerfMetricGroups:

type: array

items:

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

SubNetwork-ncO:

type: object

properties:

ManagementNode:

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

MnsAgent:

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

MeContext:

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

PerfMetricJob:

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

ThresholdMonitor:

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

NtfSubscriptionControl:

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

TraceJob:

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

AlarmList:

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

MnsRegistry:

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

ManagedElement-ncO:

type: object

properties:

MnsAgent:

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

PerfMetricJob:

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

ThresholdMonitor:

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

NtfSubscriptionControl:

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

TraceJob:

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

AlarmList:

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

EP\_RP-Attr:

type: object

properties:

userLabel:

type: string

farEndEntity:

type: string

supportedPerfMetricGroups:

type: array

items:

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

TraceJob-Attr:

type: object

description: abstract class used as a container of all TraceJob attributes

properties:

tjJobType:

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

tjListOfInterfaces:

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

tjListOfNeTypes:

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

tjPLMNTarget:

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

tjStreamingTraceConsumerURI:

$ref: 'comDefs.yaml#/components/schemas/Uri'

tjTraceCollectionEntityAddress:

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

tjTraceDepth:

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

tjTraceReference:

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

tjTraceRecordSessionReference:

type: string

tjTraceReportingFormat:

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

tjTraceTarget:

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

tjTriggeringEvent:

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

tjMDTAnonymizationOfData:

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

tjMDTAreaConfigurationForNeighCell:

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

tjMDTAreaScope:

type: array

items:

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

tjMDTCollectionPeriodRrmLte:

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

tjMDTCollectionPeriodM6Lte:

$ref: '#/components/schemas/tjMDTCollectionPeriodM6Lte-Type'

tjMDTCollectionPeriodM7Lte:

$ref: '#/components/schemas/tjMDTCollectionPeriodM7Lte-Type'

tjMDTCollectionPeriodRrmUmts:

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

tjMDTCollectionPeriodRrmNR:

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

tjMDTCollectionPeriodM6NR:

$ref: '#/components/schemas/tjMDTCollectionPeriodM6NR-Type'

tjMDTCollectionPeriodM7NR:

$ref: '#/components/schemas/tjMDTCollectionPeriodM7NR-Type'

tjMDTEventListForTriggeredMeasurement:

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

tjMDTEventThreshold:

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

tjMDTListOfMeasurements:

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

tjMDTLoggingDuration:

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

tjMDTLoggingInterval:

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

tjMDTLoggingEventThreshold:

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

tjMDTLoggingHysteresis:

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

tjMDTLoggingTimeToTrigger:

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

tjMDTMBSFNAreaList:

type: array

items:

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

tjMDTMeasurementPeriodLTE:

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

tjMDTMeasurementPeriodUMTS:

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

tjMDTMeasurementQuantity:

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

tjMDTM4ThresholdUmts:

$ref: '#/components/schemas/tjMDTM4ThresholdUmts-Type'

tjMDTPLMNList:

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

tjMDTPositioningMethod:

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

tjMDTReportAmount:

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

tjMDTReportingTrigger:

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

tjMDTReportInterval:

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

tjMDTReportType:

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

tjMDTSensorInformation:

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

tjMDTTraceCollectionEntityID:

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

ManagedFunction-ncO:

type: object

properties:

PerfMetricJob:

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

ThresholdMonitor:

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

ManagedNFService:

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

TraceJob:

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

MnsRegistry-Single:

type: object

properties:

MnsInfo:

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

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

VsDataContainer-Single:

type: object

properties:

id:

type: string

attributes:

type: object

properties:

vsDataType:

type: string

vsDataFormatVersion:

type: string

vsData:

nullable: true

VsDataContainer:

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

ManagedNFService-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

userLabel:

type: string

nFServiceType:

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

sAP:

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

operations:

type: array

items:

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

administrativeState:

$ref: 'comDefs.yaml#/components/schemas/AdministrativeState'

operationalState:

$ref: 'comDefs.yaml#/components/schemas/OperationalState'

usageState:

$ref: 'comDefs.yaml#/components/schemas/UsageState'

registrationState:

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

ManagementNode-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

userLabel:

type: string

managedElements:

$ref: 'comDefs.yaml#/components/schemas/DnList'

vendorName:

type: string

userDefinedState:

type: string

locationName:

type: string

swVersion:

type: string

MnsAgent:

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

MnsAgent-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

systemDN:

$ref: 'comDefs.yaml#/components/schemas/Dn'

MeContext-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

dnPrefix:

type: string

PerfMetricJob-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

administrativeState:

$ref: 'comDefs.yaml#/components/schemas/AdministrativeState'

operationalState:

$ref: 'comDefs.yaml#/components/schemas/OperationalState'

jobId:

type: string

performanceMetrics:

type: array

items:

type: string

granularityPeriod:

type: integer

minimum: 1

objectInstances:

$ref: 'comDefs.yaml#/components/schemas/DnList'

rootObjectInstances:

$ref: 'comDefs.yaml#/components/schemas/DnList'

reportingCtrl:

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

ThresholdMonitor-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

administrativeState:

$ref: 'comDefs.yaml#/components/schemas/AdministrativeState'

operationalState:

$ref: 'comDefs.yaml#/components/schemas/OperationalState'

performanceMetrics:

type: array

items:

type: string

thresholdInfoList:

type: array

items:

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

monitorGranularityPeriod:

type: integer

minimum: 1

objectInstances:

$ref: 'comDefs.yaml#/components/schemas/DnList'

rootObjectInstances:

$ref: 'comDefs.yaml#/components/schemas/DnList'

NtfSubscriptionControl-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

notificationRecipientAddress:

$ref: 'comDefs.yaml#/components/schemas/Uri'

notificationTypes:

type: array

items:

$ref: 'comDefs.yaml#/components/schemas/NotificationType'

scope:

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

notificationFilter:

$ref: 'comDefs.yaml#/components/schemas/Filter'

HeartbeatControl:

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

HeartbeatControl-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

heartbeatNtfPeriod:

type: integer

minimum: 0

triggerHeartbeatNtf:

type: boolean

TraceJob-Single:

allOf:

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

- type: object

properties:

attributes:

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

AlarmList-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

administrativeState:

$ref: 'comDefs.yaml#/components/schemas/AdministrativeState'

operationalState:

$ref: 'comDefs.yaml#/components/schemas/OperationalState'

numOfAlarmRecords:

type: integer

lastModification:

$ref: 'comDefs.yaml#/components/schemas/DateTime'

alarmRecords:

description: >-

This resource represents a map of alarm records.

The alarmIds are used as keys in the map.

type: object

additionalProperties:

$ref: 'faultMnS.yaml#/components/schemas/AlarmRecord'

MnsInfo-Single:

type: object

properties:

mnsLabel:

type: string

mnsType:

type: string

enum:

- ProvMnS

- FaultSupervisionMnS

- StreamingDataReportingMnS

- FileDataReportingMnS

mnsVersion:

type: string

mnsAddress:

description: Resource URI as defined in the relevant Technical Specification

$ref: 'comDefs.yaml#/components/schemas/Uri'

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

VsDataContainer-Multiple:

type: array

items:

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

ManagedNFService-Multiple:

type: array

items:

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

PerfMetricJob-Multiple:

type: array

items:

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

ThresholdMonitor-Multiple:

type: array

items:

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

TraceJob-Multiple:

type: array

items:

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

NtfSubscriptionControl-Multiple:

type: array

items:

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

MnsInfo-Multiple:

type: array

items:

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

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

resources-genericNrm:

oneOf:

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

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

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

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

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

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

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

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

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

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

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

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

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

|  |
| --- |
| **Next modified section** |

## D.2.3 module \_3gpp-common-managed-function.yang

<CODE BEGINS>

module \_3gpp-common-managed-function {

yang-version 1.1;

namespace urn:3gpp:sa5:\_3gpp-common-managed-function;

prefix mf3gpp;

import \_3gpp-common-yang-types { prefix types3gpp; }

import \_3gpp-common-top { prefix top3gpp; }

import \_3gpp-common-measurements { prefix meas3gpp; }

import \_3gpp-common-trace { prefix trace3gpp; }

organization "3GPP SA5";

contact "<https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464>";

description "The module defines a base class/grouping for major 3GPP

functions.";

reference

"3GPP TS 28.622

Generic Network Resource Model (NRM)

Integration Reference Point (IRP);

Information Service (IS)

3GPP TS 28.620

Umbrella Information Model (UIM)";

revision 2022-01-07 { reference "CR-0146"; }

revision 2021-01-25 { reference "CR-0122"; }

revision 2020-09-30 { reference "CR-bbbb"; }

revision 2020-08-06 { reference "CR-0102"; }

revision 2020-08-03 { reference "CR-0095"; }

revision 2020-06-23 { reference "CR-085"; }

revision 2020-06-08 { reference "CR-0092"; }

revision 2019-11-21 { reference "S5-197275, S5-197735"; }

revision 2019-10-28 { reference S5-193518 ; }

revision 2019-06-18 { reference "Initial revision"; }

feature MeasurementsUnderManagedFunction {

description "The MeasurementSubtree shall be contained under ManageElement";

}

feature TraceUnderManagedFunction {

description "The TraceSubtree shall be contained under ManagedFunction";

}

grouping Operation {

description "This data type represents an Operation.";

reference "3gpp TS 28.622";

leaf name {

type string;

mandatory true;

}

leaf-list allowedNFTypes {

type string;

min-elements 1;

description "The type of the managed NF service instance

The specifc values allowed are described in TS 23.501";

}

leaf operationSemantics {

type enumeration {

enum REQUEST\_RESPONSE;

enum SUBSCRIBE\_NOTIFY;

}

config false;

mandatory true;

description "Semantics type of the operation.";

reference "3GPP TS 23.502";

}

}

grouping ManagedNFServiceGrp {

description "A ManagedNFService represents a Network Function (NF) service.";

reference "Clause 7 of 3GPP TS 23.501.";

leaf userLabel {

type string;

description "A user-friendly (and user assignable) name of this object.";

}

leaf nFServiceType {

config false;

mandatory true;

type string;

description "The type of the managed NF service instance

The specifc values allowed are described in clause 7.2 of TS 23.501";

}

list sAP {

key "host port";

min-elements 1;

max-elements 1;

description "The service access point of the managed NF service instance";

uses types3gpp:SAP;

}

list operations {

key name;

min-elements 1;

uses Operation ;

description "Set of operations supported by the managed NF

service instance";

}

leaf administrativeState {

type types3gpp:AdministrativeState;

mandatory true;

description "Permission to use or prohibition against using the instance";

}

leaf operationalState {

type types3gpp:OperationalState;

config false;

mandatory true;

description "Describes whether the resource is installed and working";

}

leaf usageState {

type types3gpp:usageState ;

config false;

mandatory true;

description "Describes whether the resource is actively in use at a

specific instant, and if so, whether or not it has spare

capacity for additional users.";

}

leaf registrationState {

type enumeration {

enum REGISTERED;

enum DEREGISTERED;

}

config false;

}

}

grouping Function\_Grp {

description "A base grouping for 3GPP functions.";

leaf userLabel {

type string;

description "A user-friendly (and user assignable) name of this object.";

}

}

grouping ManagedFunctionGrp {

description "Abstract root class to be inherited/reused by classes

representing 3GPP functions.

Anywhere this grouping is used by classes inheriting from ManagedFunction

the list representing the inheriting class needs to include all

contained classes of ManagedFunction too. Contained classes are

either

- augmented into the Function class or

- shall be included in the list representing the inheriting class

using the grouping ManagedFunctionContainedClasses:

1) EP\_RP solved using augment

2) uses mf3gpp:ManagedFunctionContainedClasses;

";

uses Function\_Grp;

list vnfParametersList {

key vnfInstanceId;

description "Contains the parameter set of the VNF

instance(s) corresponding to an NE.

The presence of this list indicates that the ManagedFunction

represented is realized by one or more VNF instance(s). Otherwise it

shall be absent.

The presence of a vnfParametersList entry, whose vnfInstanceId with a

string length of zero, in createMO operation can trigger the

instantiation of the related VNF/VNFC instances.";

leaf vnfInstanceId {

type string ;

description "VNF instance identifier";

reference "ETSI GS NFV-IFA 008 v2.1.1:

Network Functions Virtualisation (NFV); Management and Orchestration;

Ve-Vnfm reference point - Interface and Information Model Specification

section 9.4.2

ETSI GS NFV-IFA 015 v2.1.2: Network Functions Virtualisation (NFV);

Management and Orchestration; Report on NFV Information Model

section B2.4.2.1.2.3";

}

leaf vnfdId {

type string ;

description "Identifier of the VNFD on which the VNF instance is based.

The absence of the leaf or a string length of zero for vnfInstanceId

means the VNF instance(s) does not exist (e.g. has not been

instantiated yet, has already been terminated).";

reference "ETSI GS NFV-IFA 008 v2.1.1:

Network Functions Virtualisation (NFV); Management and Orchestration;

Ve-Vnfm reference point - Interface and Information Model Specification

section 9.4.2";

}

leaf flavourId {

type string ;

description "Identifier of the VNF Deployment Flavour applied to this

VNF instance.";

reference "ETSI GS NFV-IFA 008 v2.1.1:

Network Functions Virtualisation (NFV) Management and Orchestration";

}

leaf autoScalable {

type boolean ;

mandatory true;

description "Indicator of whether the auto-scaling of this

VNF instance is enabled or disabled.";

}

}

list peeParametersList {

key idx;

description "Contains the parameter set for the control

and monitoring of power, energy and environmental parameters of

ManagedFunction instance(s).";

leaf idx { type uint32; }

leaf siteIdentification {

type string;

mandatory true;

description "The identification of the site where the

ManagedFunction resides.";

}

leaf siteLatitude {

type decimal64 {

fraction-digits 4;

range "-90.0000..+90.0000";

}

description "The latitude of the site where the ManagedFunction

instance resides, based on World Geodetic System (1984 version)

global reference frame (WGS 84). Positive values correspond to

the northern hemisphere. This attribute is optional

for BTSFunction, RNCFunction, GNBDUFunction and

NRSectorCarrier instance(s).";

}

leaf siteLongitude {

type decimal64 {

fraction-digits 4;

range "-180.0000..+180.0000";

}

description "The longitude of the site where the ManagedFunction

instance resides, based on World Geodetic System (1984 version)

global reference frame (WGS 84). Positive values correspond to

degrees east of 0 degrees longitude. This attribute is optional

for BTSFunction, RNCFunction, GNBDUFunction and

NRSectorCarrier

instance(s).";

}

leaf siteAltitude {

type decimal64 {

fraction-digits 4;

}

description "The altitude of the site where the ManagedFunction

instance resides, in the unit of meter. This attribute is

optional for BTSFunction, RNCFunction, GNBDUFunction and

NRSectorCarrier instance(s).";

}

leaf siteDescription {

type string;

mandatory true;

description "An operator defined description of the site where

the ManagedFunction instance resides.";

}

leaf equipmentType {

type string;

mandatory true;

description "The type of equipment where the managedFunction

instance resides.";

reference "clause 4.4.1 of ETSI ES 202 336-12";

}

leaf environmentType {

type string;

mandatory true;

description "The type of environment where the managedFunction

instance resides.";

reference "clause 4.4.1 of ETSI ES 202 336-12";

}

leaf powerInterface {

type string;

mandatory true;

description "The type of power.";

reference "clause 4.4.1 of ETSI ES 202 336-12";

}

}

leaf priorityLabel {

mandatory true;

type uint32;

}

uses meas3gpp:SupportedPerfMetricGroupGrp;

}

grouping ManagedFunctionContainedClasses {

description "A grouping used to containe classes (lists) contained by

the abstract IOC ManagedFunction";

list ManagedNFService {

description "Represents a Network Function (NF)";

reference "3GPP TS 23.501";

key id;

uses top3gpp:Top\_Grp;

container attributes {

uses ManagedNFServiceGrp;

}

}

uses meas3gpp:MeasurementSubtree {

if-feature MeasurementsUnderManagedFunction ;

}

uses trace3gpp:TraceSubtree {

if-feature TraceUnderManagedFunction ;

}

}

}

<CODE ENDS>

|  |
| --- |
| **End of modified sections** |