**3GPP TSG- Meeting #**

e-meeting, 9 - 17 May 2022

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **Draft CR** | **rev** |  | **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-17 Input to DraftCR 28.623 Enhancement and corrections for IOC "ManagementDataCollection" (stage 3) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | SA5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MADCOL | | | | |  | ***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:*** | | Alignment to stage 2 definition | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Move "NodeFilter" and "CollectionDuration" to an appropriate place and not in between TraceJob attributes definitions * Change attribute "managementDataType" to type string to align with stage 2. * Enhance the attribute "areaOfInterest" to cover in addition to TAI also cell id and geographical area according to the requirements. By the way introduce data type "areaOfInterest" and "GeoAreaToCellMapping". * Rename data type "CollectionDuration" to "TimeWindow" because the attributes do not describe a duration but rather a time window. Furthermore attribute "collectionTimePeriod" is renamed to "collectionTimeWindow" to align to the data type name. * Correct definition of attributes "networkDomain" and "cpUpType" to be aligned with stage 2. * Correct name "ManagementDataCollectionJob" to "ManagementDataCollection" to be aligned with stage 2. * Delete name containment of " ManagementDataCollection" in "ManagedElement" to be aligned with stage 2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment between stage 2 and stage3 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | C.4.2a, C.4.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 28.622 Input to DraftCR S5-223154 | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Baseline DraftCR: S5-222644 | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

***First change***

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

openapi: 3.0.1

info:

title: Common Type Definitions

version: 16.8.0

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

AreaOfInterest:

oneOf:

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

- type: array

items:

$ref: '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'

GeoAreaToCellMapping:

type: object

properties:

convexGeoPolygon:

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

associationThreshold:

type: integer

GeoCoordinate:

type: object

properties:

latitude:

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

longitude:

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

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

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

openapi: 3.0.1

info:

title: Generic NRM

version: 16.8.0

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'

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

UtraCellId:

type: integer 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'

ManagementData:

oneOf:

- type: array

items:

type: string

enum:

- COVERAGE

- CAPACITY

- ENERGY\_EFFICIENCY

- MOBILITY

- ACCESSIBILITY

- type: array

items:

type: string

#-------- 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

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

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

tjPLMNTaget-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:

- 250ms

- 500ms

- 1000ms

- 2000ms

- 3000ms

- 4000ms

- 6000ms

- 8000ms

- 12000ms

- 16000ms

- 20000ms

- 24000ms

- 28000ms

- 32000ms

- 64000ms

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

tjMDTMeasurementPeriodLTE-Type:

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

type: string

enum:

- 1024ms

- 1280ms

- 2048ms

- 2560ms

- 5120ms

- 10240ms

- 1min

tjMDTMeasurementPeriodUMTS-Type:

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

type: string

enum:

- 250ms

- 500ms

- 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

tjMDTPLMList-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

- 3600000ms

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 tceID value may be sent over the air to the UE being configured for Logged MDT.

type: object

properties:

tceID:

type: integer

tcePLMN:

type: object

properties:

mcc:

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

mnc:

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

required:

- mcc

- mnc

tceAddress:

oneOf:

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

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

required:

- tceID

- tcePLMN

- tceAddress

AreaOfInterest

enum:

- CN

- RAN

enum:

- CP

- UP

TimeWindow

#-------- 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

VsDataContainer:

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

Top:

type: object

properties:

id:

type: string

VsDataContainer:

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

#-------- 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'

ManagementDataCollectionJob:

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

TraceJob:

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

AlarmList:

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

ManagementDataCollection:

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

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'

ManagementDataCollectionJob:

$ref: '#/components/schemas/ ManagementDataCollectionJob -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/tjPLMNTaget-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'

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'

tjMDTPLMList:

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

#-------- 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:

type: string

HeartbeatControl:

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

ManagementDataCollection-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

managementData:

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

targetNodeFilter:

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

collectionTimeWindow:

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

reportingCtrl:

type: string

dataScope:

type: string

enum:

- SNSSAI

- 5QI

HeartbeatControl-Single:

allOf:

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

- type: object

properties:

attributes:

type: object

properties:

heartbeatNtfPeriod:

type: integer

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'

#-------- 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'

#-------- 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'

***End of changes***