**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 canbe 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** |