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| --- |
| CHANGE REQUEST |
| Meeting ID:\* | SDS #46.1 |
| Source:\* | Kenichi Yamamoto, KDDI, kc-yamamoto@kddi.com |
| Date:\* | 2020-08-11 |
| Reason for Change/s:\* | Providing Release 4 Stage 3 for <nwMonitoringReq> |
| CR against: Release\* | Rel-4 |
| CR against: WI\* | [x]  Active WI-0080[ ]  MNT maintenance / < Work Item number(optional)>Is this a mirror CR? Yes [ ]  No [ ] mirror CR number: (Note to Rapporteur - use latest agreed revision)[ ]  STE Small Technical Enhancements / < Work Item number (optional)>Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0004 v4.1.0 |
| Clauses \* | 6.3.3, 6.3.4.2, 6.5.3, 7.4, 8.2.3, 8.2.4 |
| Type of change: \* | [ ]  Editorial change[ ]  Bug Fix or Correction[ ]  Change to existing feature or functionality[x]  New feature or functionalityOnly ONE of the above shall be ticked |
| Other TS/TR(s) impacted | TS-0001, TS-0026 Release 4 |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES [x]  NO [ ] This CR may break backwards compatibility with the last approved version of the TS? YES [ ]  NO [x]  |
| Template Version: January 2019 (do not modify) |

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GUIDELINES for Change Requests:

Provide an informative introduction containing the problem(s) being solved, and a summary list of proposals.

Each CR should contain changes related to only one particular issue/problem.

In case of a correction, and the change apply to previous releases, a separate “mirror CR” should be posted at the same time of this CR

Mirror CR: applies only when the text, including clause numbering are exactly the same.

Companion CR: applies when the change means the same but the baselines differ in some way (e.g. clause number).

Follow the principle of completeness, where all changes related to the issue or problem within a deliverable are simultaneously proposed to be made E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable.

Follow the drafting rules.

All pictures must be editable.

Check spelling and grammar to the extent practicable.

Use Change bars for modifications.

The change should include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change. Additions of complete clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause is proposed to be located.

Multiple changes in a single CR shall be clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.

When subsequent changes are made to content of a CR, then the accepted version should not show changes over changes. The accepted version of the CR should only show changes relative to the baseline approved text.

## Introduction

This contribution provides Stage 3 changes needed for implementation of Network Monitoring Request procedure and the introduction of the <*nwMonitoringReq*> resource (see TS-0001 V4.6.0, sections 9.6.64 and 10.2.23).

R01 updates based on offline discussion.

R02 updates based on the comments from Peter.

* 1. The TS-0001 clause 9.6.64 now includes the owner attribute. Could you please add it to this CR?.
	+ Kenichi - Added the owner attribute to clause 7.4.x in Change 5.
* 2. GeographicArea. With your change this is now a single region (either a country or a circular area) but TS-0001 says that it is a list of regions. If the idea is to keep things simple and only have one region, then you need to change TS-0001. If you want multiple regions then you need to define a new complex type (e.g. GeographicAreas) that contains 1 or more m2m:locationRegion instances.
	+ Kenichi – My idea is to keep things simple and only have one region. So I changed the multiplicity of geographicArea attribute to “0..1” with additional descriptions in TS-0001 of SDS-2020-0249. I changed the attribute as optional in Change 5. In case of Creare operation, we don’t need geographic area information.
* 3. I assume that the resource is Not announceable, as you have listed it in 6.5.3.3 and Change 2 does not include nwMonitoringReqAnnc. However in Change 5 you include an announcedTo attribute. This shouldn't be there for resources that aren't announceable (and for announceable resources it should be just called announceTo, without the d). I see that in TS-0001 there's an announceTo, which should be removed if it isn't announceable.
	+ Kenichi – You’re right. The attribute is incorrect. I removed the announcedTo attribute in Table 7.4.x.1 2 of Change 5 and TS-0001 of SDS-2020-0249.
* 4. The congestionLevels attribute is shown as optional both here and in TS-0001, but there's no description in either document of a default. What happens if you create the resource without providing this attribute? I assume the idea is that it's optional so that you don't have to set it if you have monitorEnable set to 0 or 3, since those values don't include congestion monitoring. However what happens if:

a) You have monitorEnable set to 1 or 2 and you haven't set congestionLevels? Does this just mean that no alerts are generated, or is it an error?

b) You have monitorEnable set to 0 or 3 and you have set congestionLevels? Is it ignored, or is it an error?

* + Kenichi – Thank you for your pointing out. The congestionLevels attribute shall be configured if monitorEnable is set to “1” or “3”. So some descriptions were added to Create/Update operations of Change 5 and TS-0001 of SDS-2020-0249. TS-0026 has already contained the description.
	I also added the description of externalGroupID to Table 9.6.64 in TS-0001 of SDS-2020-0249. The externalGroupID attribute is applicable (optional) if monitorEnable is set to “2” or “3”.
* 5. I wasn't sure how the notification process works. For most resources, a <subscription> child is used to notify people if there's a change to the parent's attributes. Do you just subscribe to changes to congestionStatus, or is there some other connection between congestionLevels and the subscription? If so, I have similar questions to 4 - e.g. what happens if you set congestionLevels but don't have a <subscription> child?.
	+ Kenichi - As you pointed out, there is no attribute to subscribe for this resource. When SCEF returns the response to the Hosting CSE, the Hosting CSE maps the response to <nwMonitoringReq> resource (e.g. congestionStatus, numberOfDevices) and responses back to Originator in Step 4 in clause 7.15.3 of TS-0026. So the <subscription> resource was removed in Change 5, TS-0001 of SDS-2020-0249 and TS-0026 of SDS-2020-0248.
* 6. Since you don't show any interactions with the network in 7.4.x.2.1 Create, I assume that the idea is that monitoring doesn't start until you do an Update to set monitorEnable to a non-zero value. In that case we should have a requirement that says that you have to create the resource with monitorEnable = 0. Alternatively we could have monitorEnable marked as NP in Create and say that it always defaults to 0 in a newly created resource.
	+ Kenichi - You’re right. In case of Create operation, monitorEnable shall be set to 0. So I added monitorEnable operation to 7.4.x.2.1 Create in Change 5, TS-0001 of SDS-2020-0249 and TS-0026 of SDS-2020-0248.
* 7. The procedure in 7.4.x.2.4 Delete doesn't look right - it's a copy of Update at the moment. I looked at TS-0026 and I couldn't follow what that was saying, as there seem to be several steps that are described as "Optional". Does that mean that an implementation can choose to ignore them? For example the response to the Originator is described as Optional. Also it mentions a case in which the oneM2M resource is not deleted. What RSC should be returned in that case?
	+ Kenichi - I understood your comment. Deletion procedures of Network Status Report API in Step 7 and Step 8 of TS-0026 are incorrect. So I moved the deletion procedure to Step 3a and removed optional descriptions in TS-0026 of SDS-2020-0248.
	In that case, all operations for Network Status Report API are completed in Step 3a in TS-0026 and Hosting CSE does not have to communicate with SCEF for Delete operation of <nwMonitoringReq> resource. So I also removed SCEF procedures in 7.4.x.2.4 Delete in Change 5 and TS-0001 of SDS-2020-0249.

### ----------------------start of change 1 ----------------------------------------------------

### 6.3.3 oneM2M simple data types

Table 6.3.3‑1 describes oneM2M-specific simple data type definitions. XML Schema data type definitions for these data types can be found in the XSD file called CDT-commonTypes-v4\_1\_0.xsd.

The types in Table 6.3.3‑1 are either:

* Atomic data types derived from XML Schema data types by restrictions (other than enumeration) or union.
* List data types constructed from other XML Schema or oneM2M-defined atomic data types.

The oneM2M-defined enumeration data types are defined in clause 6.3.4.

Table 6.3.3‑1: oneM2M Simple Data Types

| XSD type name | Type Name | Examples | Description |
| --- | --- | --- | --- |
| … | … | … | ,,, |
| m2m:congestionLevel | Congestion Level | 0 or1 or31 or | Indicates the level of congestion as specified in 3GPP TS 23.003 [17]. It is an integer between 0 and 31 inclusive. |
| m2m:congestionLevels | List of Congestion Levels | 0 7 22 | The list shall contain at least one member  |
|  |  |  |  |

### ----------------------end of change 1 -----------------------------------------------------

### ----------------------start of change 2 -----------------------------------------------------

#### 6.3.4.2 Enumeration type definitions

##### 6.3.4.2.1 m2m:resourceType

Table 6.3.4.2.1‑1: Interpretation of resourceType

| Value | Interpretation | Note |
| --- | --- | --- |
| 1 | accessControlPolicy |  |
| 2 | AE |  |
| 3 | container |  |
| 4 | contentInstance |  |
| 5 | CSEBase |  |
| 6 | delivery |  |
| 7 | eventConfig |  |
| 8 | execInstance |  |
| 9 | group |  |
| 10 | locationPolicy |  |
| 11 | m2mServiceSubscriptionProfile |  |
| 12 | mgmtCmd |  |
| 13 | mgmtObj |  |
| 14 | node |  |
| 15 | pollingChannel |  |
| 16 | remoteCSE |  |
| 17 | request |  |
| 18 | schedule |  |
| 19 | serviceSubscribedAppRule |  |
| 20 | serviceSubscribedNode |  |
| 21 | statsCollect |  |
| 22 | statsConfig |  |
| 23 | subscription |  |
| 24 | semanticDescriptor |  |
| 25 | notificationTargetMgmtPolicyRef |  |
| 26 | notificationTargetPolicy |  |
| 27 | policyDeletionRules |  |
| 28 | flexContainer |  |
| 29 | timeSeries |  |
| 30 | timeSeriesInstance |  |
| 31 | role |  |
| 32 | token |  |
| 33 | void |  |
| 34 | dynamicAuthorizationConsultation |  |
| 35 | authorizationDecision |  |
| 36 | authorizationPolicy |  |
| 37 | authorizationInformation |  |
| 38 | ontologyRepository |  |
| 39 | ontology |  |
| 40 | semanticMashupJobProfile |  |
| 41 | semanticMashupInstance |  |
| 42 | semanticMashupResult |  |
| 43 | AEContactList |  |
| 44 | AEContactListPerCSE |  |
| 45 | localMulticastGroup |  |
| 46 | multimediaSession |  |
| 47 | triggerRequest |  |
| 48 | crossResourceSubscription |  |
| 49 | backgroundDataTransfer |  |
| 50 | transactionMgmt |  |
| 51 | transaction |  |
| 52 | ontologyMapping |  |
| 53 | ontologyMappingAlgorithm |  |
| 54 | ontologyMappingAlgorithmRepository |  |
| 55 | reasoningJobInstance |  |
| 56 | reasoningRules |  |
| 57 | semanticRuleRepository |  |
| 58 | flexContainerInstance |  |
| XX | nwMonitoringReq |  |
| 10001 | accessControlPolicyAnnc |  |
| 10002 | AEAnnc |  |
| 10003 | containerAnnc |  |
| 10004 | contentInstanceAnnc |  |
| 10009 | groupAnnc |  |
| 10010 | locationPolicyAnnc |  |
| 10013 | mgmtObjAnnc |  |
| 10014 | nodeAnnc |  |
| 10016 | remoteCSEAnnc |  |
| 10018 | scheduleAnnc |  |
| 10024 | semanticDescriptorAnnc |  |
| 10028 | flexContainerAnnc |  |
| 10029 | timeSeriesAnnc |  |
| 10030 | timeSeriesInstanceAnnc |  |
| 10033 | void |  |
| 10034 | dynamicAuthorizationConsultationAnnc |  |
| 10038 | ontologyRepositoryAnnc |  |
| 10039 | ontologyAnnc |  |
| 10040 | semanticMashupJobProfileAnnc |  |
| 10041 | semanticMashupInstanceAnnc |  |
| 10042 | semanticMashupResultAnnc |  |
| 10046 | multimediaSessionAnnc |  |
| 10052 | ontologyMappingAnnc |  |
| 10053 | ontologyMappingAlgorithmAnnc |  |
| 10054 | ontologyMappingAlgorithmRepositoryAnnc |  |
| 10055 | reasoningJobInstanceAnnc |  |
| 10056 | reasoningRulesAnnc |  |
| 10057 | semanticRuleRepositoryAnnc |  |
| NOTE: See clause 6.4.1 Request primitive parameter data types. |

### ----------------------end of change 2 -----------------------------------------------------

### ----------------------start of change 3 -----------------------------------------------------

##### 6.3.4.2.x m2m:monitorEnable

Used for the *monitorEnable* attribute of the <nwMonitoringReq> resource.

Table 6.3.4.2.3‑1: Interpretation of monitorEnable

|  |  |  |
| --- | --- | --- |
| Value | Interpretation | Note |
| 0 | disable |  |
| 1 | monitor congestion status in an area |  |
| 2 | monitor number of devices in an area |  |
| 3 | monitor both number of devices and congestion status in an area |  |
| NOTE: See clause 7.4.x "Resource Type nwMonitoringReq". |

### ----------------------end of change 3 -----------------------------------------------------

### ----------------------start of change 4 -----------------------------------------------------

### 6.5.3 regularResource

#### 6.5.3.1 Description

This type definition includes the universal and common attributes used by the non-announceable oneM2M resources.

#### 6.5.3.2 Reference

See Table 6.3.6‑2.

#### 6.5.3.3 Usage

This type is used by the following resource types:

<delivery>, <eventConfig>, <execInstance>, <m2mServiceSubscriptionProfile>, <mgmtCommand>, <request>, <serviceSubscribedNode>, <statsCollect>, <statsConfig>, <subscription>, <serviceSubscribedAppRule>, <notificationTargetMgmtPolicyRef>, <notificationTargetPolicy>, <policyDeletionRules>, <dynamicAuthorizationConsultation>, <role>, <token>, <authorizationDecision>, <authorizationPolicy> <authorizationInformation>, <AEContactList>, <AEContactListPerCSE>, <localMulticastGroup>, <triggerRequest>, <crossResourceSubscription>, <backgroundDataTransfer>, <transactionMgmt>, <transaction>.<nwMonitoringReq>.

### ----------------------end of change 4 -----------------------------------------------------

### ----------------------start of change 5 -----------------------------------------------------

### 7.4.x Resource Type <nwMonitoringReq>

The <nwMonitoringReq> resource is used by an Originator (e.g. AE) to request network status information from an Underlying Network. The resource provides the status information for a particular geographic area of an Underlying Network such as congestion status and number of devices. Additional description of the <nwMonitoringReq> resource is contained in clauses 9.6.64 and 10.2.23 of oneM2M TS-0001 [6]. The corresponding procedures over the Mcn reference point are described in oneM2M TS‑0026 [43].

Table 7.4.x.1‑1: Data type definition of <nwMonitoringReq> resource

|  |  |  |
| --- | --- | --- |
| **Data Type ID** | **File Name** | **Note** |
| nwMonitoringReq | CDT- nwMonitoringReq-v\_4\_XX\_0.xsd |  |

Table 7.4.x.1‑2: Universal/Common Attributes of <nwMonitoringReq> resource

|  |  |
| --- | --- |
| Attribute Name | Request Optionality  |
| Create | Update |
| *@resourceName* | O | NP |
| *resourceType* | NP | NP |
| *resourceID* | NP | NP |
| *parentID* | NP | NP |
| *creationTime* | NP | NP |
| *lastModifiedTime* | NP | NP |
| *expirationTime* | O | O |
| *accessControlPolicyIDs* | O | O |
| *dynamicAuthorizationConsultationIDs* | O | O |
| *owner* | O | O |
| *labels* | O | O |
|  |  |  |

Table 7.4.x.1‑3: Resource Specific Attributes of <nwMonitoringReq> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Request Optionality  | Data Type | Default Value and Constraints |
| Create | Update |
| *monitorEnable* | M | M | m2m: monitorEnable | No default |
| *geographicArea* | NP | M | m2m:locationRegion | No default |
| *congestionLevel* | NP | O | m2m:congestionLevels | No default. |
| *congestionStatus* | NP | NP | m2m:congestionLevel | No default. |
| *numberOfDevices* | NP | NP | xs:nonNegativeInteger | No default |
| *externalGroupID* | NP | O | m2m:externalID | No default |
| *M2M-Ext-IDs* | NP | NP | list of m2m:externalID | No default |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

#### 7.4.x.2 < nwMonitoringReq> resource specific procedures for CRUD operations

##### 7.4.x.2.0 Introduction

This clause describes <nwMonitoringReq> resource specific primitive behaviour for CRUD operations.

##### 7.4.x.2.1 Create

***Originator:***

No change from the generic procedures in clause 7.2.2.1 with the following exception:

The Originator shall set the *monitorEnable* attribute to 0.

***Receiver:***

No change from the generic procedures in clause 7.2.2.2.

##### 7.4.x.2.2 Retrieve

***Originator:***

No change from the generic procedures in clause 7.2.2.1.

***Receiver:***

No change from the generic procedures in clause 7.2.2.2.

##### 7.4.x.2.3 Update

***Originator:***

No change from the generic procedures in clause 7.2.2.1 with the following exception:

The Originator shall set the *monitorEnable* attribute to 1, 2 or 3.

* If the value of *monitorEnable* is 1 or 3, the Originator shall set the *geographicArea* attribute and the *congestionLevel* attribute.
* If the value of *monitorEnable* is 2, the Originator shall set the *geographicArea* attribute.

***Receiver:***

No change from the generic procedures in clause 7.2.2.2 with the following exception:

The Receiver shall interact with the underlying network to request network status information. In the case of interworking with 3GPP networks, the Receiver shall perform the operations defined in clause 7.15.3 in oneM2M TS-0026 [43].

##### 7.4.x.2.4 Delete

***Originator:***

No change from the generic procedures in clause 7.2.2.1.

***Receiver:***

No change from the generic procedures in clause 7.2.2.2.

### ----------------------end of change 5 -----------------------------------------------------

### ----------------------start of change 6 -----------------------------------------------------

### 7.4.3 Resource Type <CSEBase>

#### 7.4.3.1 Introduction

A <CSEBase> resource shall represent a CSE. This <CSEBase> resource shall be the root for all the resources that are residing on the CSE. The detailed description can be found in clause 9.6.3 in oneM2M TS-0001 [6].

Table 7.4.3.1‑1: Data type definition of <CSEBase> resource

|  |  |  |
| --- | --- | --- |
| Data Type ID | File Name | Note |
| CSEBase | CDT-CSEBase-v4\_1\_0.xsd |  |

Table 7.4.3.1‑2: Universal/Common Attributes of <CSEBase> resource

|  |
| --- |
| Attribute Name |
|
| *@resourceName* |
| *resourceType* |
| *resourceID* |
| *parentID* |
| *creationTime* |
| *lastModifiedTime* |
| *labels* |
| *location* |

The value of the parentID attribute for the <CSEBase> resource shall be an empty string since the <CSEBase> resource does not have a parent. The common attributes *accessControlPolicyIDs* and *dynamicAuthorizationConsultationIDs* are treated as resource-specific attributes.

Table 7.4.3.1‑3: Resource Specific Attributes of <CSEBase> resource

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Data Type** | **Default Value and Constraints** |
|
| *accessControlPolicyIDs* | m2m:acpType | No default |
| *cseType* | m2m:cseTypeID | No default |
| *CSE-ID* | m2m:ID | No default |
| *supportedResourceType* | list of m2m:resourceType | No default |
| *pointOfAccess* | m2m:poaList | No default |
| *nodeLink* | xs:anyURI | No default |
| *dynamicAuthorizationConsultationIDs* | list of xs:anyURI | No default |
| *contentSerialization* | m2m:serializations | No default |
| *e2eSecInfo* | m2m:e2eSecInfo | No default |
| *supportedReleaseVersions* | m2m:supportedReleaseVersions | No default |

Table 7.4.3.1‑4: Child resources of <CSEBase> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Child Resource Type | Child Resource Name | Multiplicity | Ref. to Resource Type Definition |
| <remoteCSE> | [variable] | 0..n | Clause 7.4.4 |
| <remoteCSEAnnc> | [variable] | 0..n | Clause 7.4.4 |
| <node> | [variable] | 0..n | Clause 7.4.18 |
| <AE> | [variable] | 0..n | Clause 7.4.5 |
| <container> | [variable] | 0..n | Clause 7.4.6 |
| <group> | [variable] | 0..n | Clause 7.4.13 |
| <accessControlPolicy> | [variable] | 0..n | Clause 7.4.2 |
| <subscription> | [variable] | 0..n | Clause 7.4.8 |
| <mgmtCmd> | [variable] | 0..n | Clause 7.4.16 |
| <locationPolicy> | [variable] | 0..n | Clause 7.4.10 |
| <statsConfig> | [variable] | 0..n | Clause 7.4.23 |
| <statsCollect> | [variable] | 0..n | Clause 7.4.25 |
| <request> | [variable] | 0..n | Clause 7.4.12 |
| <delivery> | [variable] | 0..n | Clause 7.4.11 |
| <schedule> | [variable] | 0..1 | Clause 7.4.9 |
| <m2mServiceSubscriptionProfile> | [variable] | 0..n | Clause 7.4.19 |
| <serviceSubscribedAppRule> | [variable] | 0..n | Clause 7.4.29 |
| <notificationTargetPolicy> | [variable] | 0..n | Clause 7.4.31 |
| <dynamicAuthorizationConsultation> | [variable] | 0..n | Clause 7.4.36 |
| <flexContainer> | [variable] | 0..n | Clause 7.4.37 |
| <timeSeries> | [variable] | 0..n | Clause 7.4.38 |
| <role> | [variable] | 0..n | Clause 7.4.40 |
| <token> | [variable] | 0..n | Clause 7.4.41 |
| <authorizationDecision> | [variable] | 0..n | Clause 7.4.43 |
| <authorizationPolicy> | [variable] | 0..n | Clause 7.4.44 |
| <authorizationInformation> | [variable] | 0..n | Clause 7.4.45 |
| <ontologyRepository> | [variable] | 0..1 | Clause 7.4.46 |
| <semanticMashupJobProfile> | [variable] | 0..n | Clause 7.4.49 |
| <semanticMashupInstance> | [variable] | 0..n | Clause 7.4.50 |
| <AEContactList> | [variable] | 0..1 | Clause 7.4.53 |
| <localMulticastGroup> | [variable] | 0..n | Clause 7.4.55 |
| <crossResourceSubscription> | [variable] | 0..n | Clause 7.4.58 |
| <backgroundDataTransfer> | [variable] | 0..n | Clause 7.4.59 |
| <transactionMgmt> | [variable] | 0..n | Clause 7.4.60 |
| <transaction> | [variable] | 0..n | Clause 7.4.61 |
| <nwMonitoringReq> | [variable] | 0..n | Clause 7.4.x |

### ----------------------end of change 6 -----------------------------------------------------

### ----------------------start of change 7 -----------------------------------------------------

### 7.4.4 Resource Type <remoteCSE>

#### 7.4.4.1 Introduction

A <remoteCSE> resource shall represent a remote CSE that is registered to the Registrar CSE. <remoteCSE> resources shall be located directly under the <CSEBase> of the Registrar CSE.

In addition each registered CSE shall have a <remoteCSE> resource representing its Registrar CSE. This is located directly under the registered CSE's <CSEBase>.

The detailed description can be found in clause 9.6.4 in oneM2M TS-0001 [6].

Table 7.4.4.1‑1: Data type definition of <remoteCSE> resource

|  |  |  |
| --- | --- | --- |
| Data Type ID | File Name | Note |
| remoteCSE | CDT-remoteCSE-v4\_1\_0.xsd |  |

Table 7.4.4.1‑2: Universal/Common Attributes of <remoteCSE> resource

|  |  |
| --- | --- |
| Attribute Name | Request Optionality  |
| Create | Update |
| *@resourceName* | O | NP |
| *resourceType* | NP | NP |
| *resourceID* | NP | NP |
| *parentID* | NP | NP |
| *accessControlPolicyIDs* | O | O |
| *creationTime* | NP | NP |
| *expirationTime* | O | O |
| *lastModifiedTime* | NP | NP |
| *labels* | O | O |
| *announceTo* | O | O |
| *announcedAttribute* | O | O |
| *dynamicAuthorizationConsultationIDs* | O | O |
| *location* | O | O |

Table 7.4.4.1‑3: Resource Specific Attributes of <remoteCSE> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Request Optionality  | Data Type | Default Value and Constraints |
| Create | Update |
| *cseType* | O | NP | m2m:cseTypeID | No default |
| *pointOfAccess* | O | O | m2m:poaList | No default |
| *CSEBase* | M | NP | xs:anyURI | No default |
| *CSE-ID* | M | NP | m2m:ID | No default |
| *M2M-Ext-ID* | O | O | m2m:externalID  | No default |
| *Trigger-Recipient-ID* | O | O | m2m:triggerRecipientID | No default |
| *requestReachability* | M | O | xs:boolean | No default |
| *nodeLink* | O | O | xs:anyURI | No default |
| *triggerReferenceNumber* | O | O | xs:unsignedInt | No default |
| *contentSerialization* | O | O | m2m:serializations | No default |
| *e2eSecInfo* | O | O | m2m:e2eSecInfo | No default |
| *descendantCSEs* | O | O | m2m:listOfM2MID | No default |
| *supportedReleaseVersions* | M | O | m2m:supportedReleaseVersions | No default |
| *multicastCapability* | O | O | m2m:multicastCapability | No default |
| *externalGroupID* | O | O | m2m:externalID | No default |
| *triggerEnable* | O | O | xs:boolean | false |
| *activityPatternElements* | O | O | m2m:activityPatternElements | No default |

Table 7.4.4.1‑4: Child resources of <remoteCSE> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Child Resource Type  | Child Resource Name | Multiplicity | Ref. to Resource Type Definition |
| <container> | [variable] | 0..n | Clause 7.4.6 |
| <containerAnnc> | [variable] | 0..n | Clause 7.4.6 |
| <flexContainer> | [variable] | 0..n | Clause 7.4.37 |
| <flexContainerAnnc> | [variable] | 0..n | Clause 7.4.37 |
| <group> | [variable] | 0..n | Clause 7.4.13 |
| <groupAnnc> | [variable] | 0..n | Clause 7.4.13 |
| <accessControlPolicy> | [variable] | 0..n | Clause 7.4.2 |
| <accessControlPolicyAnnc> | [variable] | 0..n | Clause 7.4.2 |
| <subscription> | [variable] | 0..n | Clause 7.4.8 |
| <pollingChannel> | [variable] | 0..1 | Clause 7.4.21 |
| <nodeAnnc> | [variable] | 0..n | Clause 7.4.36 |
| <dynamicAuthorizationConsultation> | [variable] | 0..n | Clause 7.4.36 |
| <flexContainer> | [variable] | 0..n | Clause 7.4.37 |
| <timeSeries> | [variable] | 0..n | Clause 7.4.38 |
| <timeSeriesAnnc> | [variable] | 0..n | Clause 7.4.38 |
| <remoteCSEAnnc> | [variable] | 0..n | Clause 7.4.4 |
| <AEAnnc> | [variable] | 0..n | Clause 7.4.5 |
| <locationPolicyAnnc> | [variable] | 0..n | Clause 7.4.10 |
| <ontologyRepositoryAnnc> | [variable] | 0..1 | Clause 7.4.46 |
| <semanticMashupJobProfile> | [variable] | 0..n | Clause 7.4.49 |
| <semanticMashupJobProfileAnnc> | [variable] | 0..n | Clause 7.4.49 |
| <semanticMashupInstance> | [variable] | 0..n | Clause 7.4.50 |
| <semanticMashupInstanceAnnc> | [variable] | 0..n | Clause 7.4.50 |
| <crossResourceSubscription> | [variable] | 0..n | Clause 7.4.58 |
| <transactionMgmt> | [variable] | 0..n | Clause 7.4.60 |
| <transaction> | [variable] | 0..n | Clause 7.4.61 |
| <nwMonitoringReq> | [variable] | 0..n | Clause 7.4.x |

### ----------------------end of change 7 -----------------------------------------------------

### ----------------------start of change 8 -----------------------------------------------------

### 7.4.5 Resource Type <AE>

#### 7.4.5.1 Introduction

The <AE> resource represents information about an Application Entity known to a given Common Services Entity.

The detailed description can be found in clause 9.6.5 in oneM2M TS-0001 [6].

Table 7.4.5.1‑1: Data type definition of <AE> resource

|  |  |  |
| --- | --- | --- |
| Data Type ID | File Name | Note |
| AE | CDT-AE-v4\_1\_0.xsd | XSD schema for AE resource |

Table 7.4.5.1‑2: Universal/Common Attributes of <AE> resource

|  |  |
| --- | --- |
| Attribute Name | Request Optionality  |
| Create | Update |
| *@resourceName* | O | NP |
| *resourceType* | NP | NP |
| *resourceID* | NP | NP |
| *parentID* | NP | NP |
| *accessControlPolicyIDs* | O | O |
| *creationTime* | NP | NP |
| *expirationTime* | O | O |
| *lastModifiedTime* | NP | NP |
| *labels* | O | O |
| *announceTo* | O | O |
| *announcedAttribute* | O | O |
| *dynamicAuthorizationConsultationIDs* | O | O |
| *location* | O | O |

Table 7.4.5.1‑3: Resource Specific Attributes of <AE> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Request Optionality  | Data Type | Default Value and Constraints |
| Create | Update |
| *appName* | O | O | xs:string | No default |
| *App-ID* | M | NP | xs:string | No default |
| *AE-ID* | NP | NP | m2m:ID | No default |
| *pointOfAccess* | O | O | m2m:poaList | No default |
| *ontologyRef* | O | O | xs:anyURI | No default |
| *nodeLink* | O | O | xs:anyURI | No default |
| *requestReachability* | M | O | xs:boolean | No default |
| *contentSerialization* | O | O | m2m:serializations | No default |
| *e2eSecInfo* | O | O | m2m:e2eSecInfo | No default |
| *M2M-Ext-ID* | O | O | m2m:externalID | No default |
| *supportedReleaseVersions* | M | O | m2m:supportedReleaseVersions | No default |
| *registrationStatus* | O | O | m2m:AERegistrationStatus | No default |
| *trackRegistrationPoints* | O | O | xs:boolean | No default |
| *sessionCapabilities* | O | O | m2m:sessionCapabilities | No default |
| *triggerEnable* | O | O | xs:boolean | false |
| *activityPatternElements* | O | O | m2m:activityPatternElements | No default |

Table 7.4.5.1‑4: Child resources of <AE> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Child Resource Type  | Child Resource Name | Multiplicity | Ref. to Resource Type Definition |
| <subscription> | [variable] | 0..n | Clause 7.4.8 |
| <container> | [variable] | 0..n | Clause 7.4.6 |
| <group> | [variable] | 0..n | Clause 7.4.13 |
| <accessControlPolicy> | [variable] | 0..n | Clause 7.4.2 |
| <pollingChannel> | [variable] | 0..n | Clause 7.4.21 |
| <semanticDescriptor> | [variable] | 0..n | Clause 7.4.34 |
| <dynamicAuthorizationConsultation> | [variable] | 0..n | Clause 7.4.36 |
| <flexContainer> | [variable] | 0..n | Clause 7.4.37 |
| <timeSeries> | [variable] | 0..n | Clause 7.4.38 |
| <semanticMashupInstance> | [variable] | 0..n | Clause 7.4.50 |
| <multimediaSession> | [variable] | 0..n | Clause 7.4.56 |
| <triggerRequest> | [variable] | 0..n | Clause 7.4.57 |
| <crossResourceSubscription> | [variable] | 0..n | Clause 7.4.58 |
| <transactionMgmt> | [variable] | 0..n | Clause 7.4.60 |
| <transaction> | [variable] | 0..n | Clause 7.4.61 |
| <nwMonitoringReq> | [variable] | 0..n | Clause 7.4.x |

### ----------------------end of change 8 -----------------------------------------------------

### ----------------------start of change 9 -----------------------------------------------------

### 8.2.3 Resource attributes

In protocol bindings, resource attributes names shall be translated into short names shown in the following tables.

…

Table 8.2.3‑3: Resource attribute short names (3/6)

| Attribute Name | Occurs in | Short Name |
| --- | --- | --- |
| *objectPaths* | mgmtObj | ***obps*** |
| *mgmtSchema* | mgmtObj | ***mgs*** |
| *nodeID* | node | ***ni*** |
| *hostedCSELink* | node | ***hcl*** |
| *mgmtClientAddress* | node | ***mgca*** |
| *hostedAELinks* | node | ***hael*** |
| *hostedServiceLinks* | node | ***hsl*** |
| *networkID* | node | ***nid*** |
| *roamingStatus* | node | ***rms*** |
| *nodeType* | node | ***nty*** |
| *CSEBase* | remoteCSE | ***cb\**** |
| *M2M-Ext-ID* | remoteCSE, AE, locationPolicy, triggerRequest, nwMonitoringReq | ***mei*** |
| *Trigger-Recipient-ID* | remoteCSE, triggerRequest | ***tri*** |
| *requestReachability* | remoteCSE | ***rr*** |
| *triggerReferenceNumber* | remoteCSE | ***trn*** |
| *descendantCSEs* | remoteCSE | ***dcse*** |
| *multicastCapability* | remoteCSE | ***mtcc*** |
| *originator* | request | ***org*** |
| *metaInformation* | request | ***mi*** |
| *requestStatus* | request | ***rs*** |
| *operationResult* | request | ***ors*** |
| *operation* | request | ***op\**** |
| *requestID* | request | ***rid*** |
| *scheduleElement* | schedule | ***se*** |
| *networkCoordinated* | schedule | ***nco*** |
| *deviceIdentifier* | serviceSubscribedNode | ***di*** |
| *ruleLinks* | serviceSubscribedNode | ***rlk*** |
| *niddRequired* | serviceSubscribedNode | ***nrq*** |
| *statsCollectID* | statsCollect | ***sci*** |
| *collectingEntityID* | statsCollect | ***cei*** |
| *collectedEntityID* | statsCollect | ***cdi*** |
| *devStatus* | areaNwkDeviceInfo | ***ss*** |
| *statsRuleStatus* | statsCollect | ***srs*** |
| *statModel* | statsCollect | ***sm*** |
| *collectPeriod* | statsCollect | ***cp*** |
| *eventNotificationCriteria* | subscription | ***enc*** |
| *expirationCounter* | subscription, crossResourceSubscription | ***exc*** |
| *notificationURI* | subscription, crossResourceSubscription | ***nu*** |
| *groupID* | subscription | ***gpi*** |
| *notificationForwardingURI* | subscription | ***nfu*** |
| *batchNotify* | subscription | ***bn*** |
| *rateLimit* | subscription | ***rl*** |
| *preSubscriptionNotify* | subscription | ***psn*** |
| *pendingNotification* | subscription | ***pn*** |
| *notificationStoragePriority* | subscription | ***nsp*** |
| *latestNotify* | subscription | ***ln*** |
| *notificationContentType* | subscription | ***nct*** |
| *notificationEventCat* | subscription, crossResourceSubscription | ***nec*** |
| *subscriberURI* | subscription, crossResourceSubscription | ***su*** |
| *version* | firmware, software, token | ***vr*** |
| *URL* | firmware, software | ***url*** |
| *update* | firmware | ***ud*** |
| *updateStatus* | firmware | ***uds*** |
| *install* | software | ***in*** |
| *uninstall* | software | ***un*** |
| *installStatus* | software | ***ins*** |
| *activate* | software | ***act*** |
| *deactivate* | software | ***dea*** |
| *activeStatus* | software, areaNwkInfo | ***acts*** |
| *memAvailable* | memory | ***mma*** |
| *memTotal* | memory | ***mmt*** |

…

Table 8.2.3‑6: Resource attribute short names (6/6)

| Attribute Name | Occurs in | Short Name |
| --- | --- | --- |
| *serviceName* | genericInterworkingService | ***gisn*** |
| *operationName* | genericInterworkingOperationInstance | ***gion*** |
| *inputDataPointLinks* | genericInterworkingService, genericInterworkingOperationInstance | ***giip*** |
| *outputDataPointLinks* | genericInterworkingService, genericInterworkingOperationInstance | ***giop*** |
| *inputLinks* | genericInterworkingOperationInstance | ***giil*** |
| *outputLinks* | genericInterworkingOperationInstance | ***giol*** |
| *operationState* | genericInterworkingOperationInstance | ***gios*** |
| *direction* | allJoynApp | ***dir*** |
| *objectPath* | allJoynSvcObject | ***ajop*** |
| *interfaceIntrospectXmlRef* | allJoynInterface | ***ajir*** |
| *input* | allJoynMethodCall | ***inp*** |
| *callStatus* | allJoynMethodCall | ***clst*** |
| *output* | allJoynMethodCall | ***out*** |
| *currentValue* | allJoynProperty | ***crv*** |
| *requestedValue* | allJoynProperty | ***rqv*** |
| *decision* | authorizationDecision | ***dec*** |
| *status* | authorizationDecision, authorizationPolicy, authorizationInformation | ***sus*** |
| *to* | authorizationDecision, authorizationPolicy | ***to\**** |
| *from* | authorizationDecision, authorizationInformation | ***fr\**** |
| *requestedResourceType* | authorizationDecision | ***rrt*** |
| *operation* | authorizationDecision | ***op\**** |
| *filterUsage* | authorizationDecision | ***fu*** |
| *roleIDs* | authorizationDecision, authorizationInformation | ***rids\**** |
| *tokenIDs* | authorizationDecision, authorizationInformation | ***tids\**** |
| *tokens* | authorizationDecision | ***tkns\**** |
| *requestTime* | authorizationDecision | ***rtm*** |
| *originatorLocation* | authorizationDecision | ***olo*** |
| *originatorIP* | authorizationDecision | ***oip*** |
| *policies* | authorizationPolicy | ***ps*** |
| *combiningAlgorithm* | authorizationPolicy | ***ca*** |
| *ontologyFormat* | ontology | ***ontf*** |
| *ontologyContent* | ontology | ***ontc*** |
| *sourceOntology* | ontologyMapping | ***sont*** |
| *targetOntology* | ontologyMapping | ***tont*** |
| *mappingPolicy* | ontologyMapping | ***mpol*** |
| *mappingAlgorithmLinks* | ontologyMapping | ***mpal*** |
| *mappingResultFormat* | ontologyMapping | ***mprf*** |
| *mappingResult* | ontologyMapping | ***mpr*** |
| *executable* | ontologyMappingAlgorithm | ***exec*** |
| *algorithmType* | ontologyMappingAlgorithm | ***algt*** |
| *mappingThreshold* | ontologyMappingAlgorithm | ***mpth*** |
| *memberFilter* | semanticMashupJobProfile | ***mbft*** |
| *smiID* | semanticMashupJobProfile | ***miid*** |
| *inputDescriptor* | semanticMashupJobProfile | ***iptd*** |
| *outputDescriptor* | semanticMashupJobProfile | ***uptd*** |
| *functionDescriptor* | semanticMashupJobProfile | ***fucd*** |
| *smjpID* | semanticMashupInstance | ***mjid*** |
| *smjpInputParameter* | semanticMashupInstance, semanticMashupResult | ***jpin*** |
| *memberStoreType* | semanticMashupInstance | ***mst*** |
| *mashupMember* | semanticMashupInstance | ***msm*** |
| *resultGenType* | semanticMashupInstance | ***rgt*** |
| *periodForResultGen* | semanticMashupInstance | ***prg*** |
| *mashupResultFormat* | semanticMashupResult | ***mrf*** |
| *mashupResult* | semanticMashupResult | ***mrt*** |
| *ruleRepresentation* | reasoningRules | ***rrep*** |
| *ruleRepresentationFormat* | reasoningRules | ***rrepf*** |
| *reasoningType* | reasoningJobInstance | ***rtyp*** |
| *reasoningMode* | reasoningJobInstance | ***rmod*** |
| *reasoningPeriod* | reasoningJobInstance | ***rper*** |
| *factSet* | reasoningJobInstance | ***rfst*** |
| *ruleSet* | reasoningJobInstance | ***rrst*** |
| *resultRepresentation* | reasoningJobInstance | ***rsrp*** |
| *resultRepresentationFormat* | reasoningJobInstance | ***rsrpf*** |
| *numberImpactedCSEs* | AEContactList | ***nic*** |
| *externalGroupID* | LocalMulticastGroup, remoteCSE, nwMonitoringReq | ***egid*** |
| *multicastAddress* | LocalMulticastGroup | ***mad*** |
| *multicastGroupFanoutTarget* | LocalMulticastGroup | ***mgft*** |
| *memberList* | LocalMulticastGroup | ***mli*** |
| *responseTarget* | LocalMulticastGroup | ***rstt*** |
| *responseTimeWindow* | LocalMulticastGroup | ***rstw*** |
| *TMGI* | LocalMulticastGroup | ***tmgi*** |
| *sessionOriginatorID* | multimediaSession | ***soi*** |
| *acceptedSessionDescriptions* | multimediaSession | ***asd*** |
| *offeredSessionDescriptions* | multimediaSession | ***osd*** |
| *sessionState* | multimediaSession | ***sst*** |
| *triggerPurpose* | triggerRequest | ***tpe*** |
| *triggerStatus* | triggerRequest | ***tst*** |
| *triggerValidityTime* | triggerRequest | ***tvt*** |
| *triggerInfoAE-ID* | triggerRequest | ***tiae*** |
| *triggerInfoAddress* | triggerRequest | ***tia*** |
| *triggerInfoOperation* | triggerRequest | ***tio***  |
| *targetedResourceType* | triggerRequest | ***tirt***  |
| *triggerReference* | triggerRequest | ***trf*** |
| *regularResourcesAsTarget* | crossResourceSubscription | ***rrat*** |
| *subscriptionResourcesAsTarget* | crossResourceSubscription | ***srat*** |
| *timeWindowType* | crossResourceSubscription | ***twt*** |
| *timeWindowSize* | crossResourceSubscription | ***tws*** |
| *eventNotificationCriteriaSet* | crossResourceSubscription | ***encs*** |
| *associatedCrossResourceSub* | subscription | ***acrs*** |
| *volumePerNode* | backgroundDataTransfer | ***vpn*** |
| *numberOfNodes* | backgroundDataTransfer | ***non*** |
| *desiredTimeWindow* | backgroundDataTransfer | ***dtw*** |
| *transferSelectionGuidance* | backgroundDataTransfer | ***tsg*** |
| *geographicInformation* | backgroundDataTransfer | ***ggi*** |
| *groupLink* | backgroundDataTransfer | ***gli*** |
| *transactionLockTime* | transactionMgmt, transaction | ***tltm*** |
| *transactionExecuteTime* | transactionMgmt, transaction | ***text*** |
| *transactionCommitTime* | transactionMgmt, transaction | ***tct*** |
| *transactionExpirationTime* | transactionMgmt | ***tept*** |
| *transactionMode* | transactionMgmt | ***tmd*** |
| *transactionLockType* | transactionMgmt, transaction | ***tltp*** |
| *transactionControl* | transactionMgmt, transaction | ***tctl*** |
| *transactionState* | transactionMgmt, transaction | ***trst*** |
| *transactionMaxRetries* | transactionMgmt | ***tmr*** |
| *transactionMgmtHandling* | transactionMgmt | ***tmh*** |
| *requestPrimitives* | transactionMgmt | ***rqps*** |
| *responsePrimitives* | transactionMgmt | ***rsps*** |
| *transactionID* | transaction | ***tid*** |
| *monitorEnable* | nwMonitoringReq |  |
| *geographicArea* | nwMonitoringReq |  |
| *congestionLevel* | nwMonitoringReq |  |
| *congestionStatus* | nwMonitoringReq |  |
| *numberOfDevices* | nwMonitoringReq |  |
| NOTE: \* marked short names have been already assigned in Table 8.2.2-1. |

### ----------------------end of change 9 -----------------------------------------------------

### ----------------------start of change 10 -----------------------------------------------------

### 8.2.4 Resource types

In protocol bindings resource type names shall be translated into short names of Table 8.2.4‑1.

**Table 8.2.4‑1: Resource and specialization type short names**

| Resource Type Name | Short Name |
| --- | --- |
| … | ***…*** |
| *nwMonitoringReq* |  |

### ----------------------end of change 10 -----------------------------------------------------

### ----------------------start of change 11 -----------------------------------------------------

##### 6.3.4.2.11 m2m:memberType

Used for the *memberType* attribute of the <group> resource.

Table 6.3.4.2.11‑1: Interpretation of memberType

| Value | Interpretation | Note |
| --- | --- | --- |
| 0 | mixed | A mixture of all the resource types (except mixed itself). |
| 1 | accessControlPolicy |  |
| 2 | AE |  |
| 3 | container |  |
| 4 | contentInstance |  |
| 5 | CSEBase |  |
| 6 | delivery |  |
| 7 | eventConfig |  |
| 8 | execInstance |  |
| 9 | group |  |
| 10 | locationPolicy |  |
| 11 | m2mServiceSubscription |  |
| 12 | mgmtCmd |  |
| 13 | mgmtObj |  |
| 14 | node |  |
| 15 | pollingChannel |  |
| 16 | remoteCSE |  |
| 17 | request |  |
| 18 | schedule |  |
| 19 | serviceSubscribedAppRule |  |
| 20 | serviceSubscribedNode |  |
| 21 | statsCollect |  |
| 22 | statsConfig |  |
| 23 | subscription |  |
| 24 | semanticDescriptor |  |
| 25 | notificationTargetMgmtPolicyRef |  |
| 26 | notificationTargetPolicy |  |
| 27 | policyDeletionRules |  |
| 28 | flexContainer |  |
| 29 | timeSeries |  |
| 30 | timeSeriesInstance |  |
| 31 | role |  |
| 32 | token |  |
| 33 | void |  |
| 34 | dynamicAuthorizationConsultation |  |
| 35 | authorizationDecision |  |
| 36 | authorizationPolicy |  |
| 37 | authorizationInformation |  |
| 38 | ontologyRepository |  |
| 39 | ontology |  |
| 40 | semanticMashupJobProfile |  |
| 41 | semanticMashupInstance |  |
| 42 | semanticMashupResult |  |
| 43 | AEContactList |  |
| 44 | AEContactListPerCSE |  |
| 46 | multimediaSession |  |
| 47 | triggerRequest |  |
| 48 | crossResourceSubscription |  |
| 49 | backgroundDataTransfer |  |
| 50 | transactionMgmt |  |
| 51 | transaction |  |
| 52 | ontologyMapping |  |
| 53 | ontologyMappingAlgorithm |  |
| 54 | ontologyMappingAlgorithmRepository |  |
| 55 | reasoningJobInstance |  |
| 56 | reasoningRules |  |
| 57 | semanticRuleRepository |  |
| 58 | flexContainerInstance |  |
| XX | nwMonitoringReq |  |
| 10001 | accessControlPolicyAnnc |  |
| 10002 | AEAnnc |  |
| 10003 | containerAnnc |  |
| 10004 | contentInstanceAnnc |  |
| 10009 | groupAnnc |  |
| 10010 | locationPolicyAnnc |  |
| 10013 | mgmtObjAnnc |  |
| 10014 | nodeAnnc |  |
| 10016 | remoteCSEAnnc |  |
| 10018 | scheduleAnnc |  |
| 10024 | semanticDescriptorAnnc |  |
| 10028 | flexContainerAnnc |  |
| 10029 | timeSeriesAnnc |  |
| 10030 | timeSeriesInstanceAnnc |  |
| 10033 | void |  |
| 10034 | dynamicAuthorizationConsultationAnnc |  |
| 10038 | ontologyRepositoryAnnc |  |
| 10039 | ontologyAnnc |  |
| 10040 | semanticMashupJobProfileAnnc |  |
| 10041 | semanticMashupInstanceAnnc |  |
| 10042 | semanticMashupResultAnnc |  |
| 10046 | multimediaSessionAnnc |  |
| 10052 | ontologyMappingAnnc |  |
| 10053 | ontologyMappingAlgorithmAnnc |  |
| 10054 | ontologyMappingAlgorithmRepositoryAnnc |  |
| 10055 | reasoningJobInstanceAnnc |  |
| 10056 | reasoningRulesAnnc |  |
| 10057 | semanticRuleRepositoryAnnc |  |
| 20001 | oldest |  |
| 20002 | latest |  |
| 20003 | mashup |  |
| NOTE: See clause 7.4.13 "Resource Type group". |

### ----------------------end of change 11 -----------------------------------------------------