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| CHANGE REQUEST |
| Meeting ID:\* |  SDS #45.2 |
| Source:\* | JaeSeung Song, KETI, jssong@sejong.ac.krMinbyeong Lee, Hyundai Motors, minbyeong.lee@hyundai.com  |
| Date:\* | 2020-06-11 |
| Reason for Change/s:\* | See the introduction below |
| CR against: Release\* | Release 4 |
| CR against: WI\* | [ ]  Active WI-0084[ ]  MNT maintenance / < Work Item number(optional)>Is this a mirror CR? Yes [ ]  No [ ] mirror CR number: (Note to Rapporteur - use latest agreed revision)[x]  STE Small Technical Enhancements / < Work Item number (optional)>Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0001 v.4.4.0 |
| Clauses \* | 9.6.59, 10.2.4.30 |
| 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 |
| Impacted other TS/TR(s) |  |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES [ ]  NO [x] This CR may break backwards compatibility with the last approved version of the TS? YES [ ]  NO [x]  |
| Template Version: January 2017 (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

Based on the recommendation for the offloading feature of Edge/Fog computing in TR-0052, this contribution proposes to add additional attributes and behavior to the announcement resource in TS-0001.

* 0144R04:
	+ fixed typos and clarified Figure X
	+ addressed comments on the backward compatibility
	+ added the new attribute to resources in Chapter 9.6

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] oneM2M TS-0002: "Requirements".

[i.2] Broadband Forum TR-069: "CPE WAN Management Protocol Issue": 1 Amendment 5, November 2013.

[i.3] OMA-DM: "OMA Device Management Protocol", Version 1.3, Open Mobile Alliance.

[i.4] LWM2M: "OMA LightweightM2M", Version 1.0, Open Mobile Alliance.

[i.5] OMA-TS-MLP-V3-4-20130226-C: "Mobile Location Protocol", Version 3.4.

[i.6] OMA-TS-REST-NetAPI\_TerminalLocation-V1\_0-20130924-A: "RESTful Network API for Terminal Location", Version 1.0.

[i.7] IETF RFC 1035: "Domain names - Implementation and specification".

[i.8] IETF RFC 3588: "Diameter Base Protocol".

[i.9] IETF RFC 3596: "DNS Extensions to Support IP Version 6".

[i.10] IETF RFC 3986: "Uniform Resource Identifier (URI): General Syntax".

[i.11] IETF RFC 4006: "Diameter Credit-Control Application".

[i.12] IETF RFC 6895: "Domain Name System (DNS) IANA Considerations".

[i.13] GSMA-IR.67: "DNS/ENU Guidelines for Service Providers & GRX/IPX Providers".

[i.14] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications (Release 13)".

[i.15] ETSI TS 132 240: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Charging architecture and principles (3GPP TS 32.240)".

[i.16] ETSI TS 132 299: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Diameter charging applications (3GPP TS 32.299)".

[i.17] 3GPP2.S0068: "Network Enhancements for Machine to Machine (M2M)".

[i.18] JNI 6.0 API Specification: "Java Native Interface 6.0 Specification". .

Void

Void

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[i.23] 3GPP TS 23.003: "Numbering, addressing and identification".

[i.24] Recommendation ITU-T X.660 | ISO/IEC 9834-1: "Information technology - Procedures for the operation of object identifier registration authorities: General procedures and top arcs of the international object identifier tree".

[i.25] oneM2M TR-0008: "Analysis of Security Solutions for oneM2M System".

[i.26] IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

[i.27] oneM2M Drafting Rules.

NOTE: Available at <http://www.onem2m.org/images/files/oneM2M-Drafting-Rules.pdf>

[i.28] oneM2M TR-0007: "Study of Abstraction and Semantics Enablement".

Void

Void

[i.31] OMA-TS-REST-NetAPI-CommunicationPatterns-V1-0: '"RESTful Network API for Communication Patterns'", Version 1.0, Open Mobile Alliance.

[i.[32](#REF_3GPPTS23246)] 3GPP TS 23.246: Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description; (Release 14).

[i.33] 3GPP TS 23.468: Group Communication System Enablers for LTE (GCSE\_LTE); (Release 14).

[i.34] IETF RFC 3171: “IANA Guidelines for IPv4 Multicast Address Assignments”, 2001

[i.35] IETF RFC 4291: “IP Version 6 Addressing Architecture”, 2006

[i.36] IETF RFC 6838: “Media Type Specifications and Registration Procedures”, 2013

[i.[37](#REF_IETFRFC3987)] IETF RFC 3987: "Internationalized Resource Identifiers (IRIs)".

[i.38] oneM2M TR-0052: "Study on Edge and Fog Computing in oneM2M systems".

NOTE: Available at <https://www.ietf.org/rfc/rfc3987.txt>.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 9.2 Resources

### 9.2.0 Overview

This clause introduces the resources used in a CSE. A resource scheme is used for modelling the resource structure and associated relationships. Clause 9.5 provides guidelines on how to describe a resource. The present document identifies three categories of resources:

* Normal resources (clause 9.2.1).
* Virtual resources (clause 9.2.2).
* Announced resources (clause 9.2.3).

### 9.2.1 Normal Resources

Normal resources include the complete set of representations of data which constitutes the base of the information to be managed.

Unless qualified as either "virtual" or "announced", the resource types in the present document are normal resources.

### 9.2.2 Virtual Resources

A virtual resource is used to trigger processing and/or retrieve results, but they do not have a permanent representation in a CSE.

### 9.2.3 Announced Resources

An announced resource contains a set of attributes of the original resource. An announced resource is updated automatically by the Hosting CSE of the original resource whenever the original resource changes. The announced resource contains a link to the original resource.

Resource announcement can facilitate resource discovery. The announced resource at a remote CSE can also be used for creating child resources at the remote CSE that are not present as children of the original resource or are not announced children of the original resource.

The following are the resource specification guidelines for resource announcement:

* In order to support announcement of resources, an additional column in the resource template (clause 9.5.1), shall specify the attributes to be announced for inclusion in the associated announced resource type.
* For each announced *<resourceType>*, the addition of suffix "Annc" to the original *<resourceType>* shall be used to indicate its associated announced resource type. For example, resource *<containerAnnc>* shall indicate the announced resource type for *<container>* resource; *<groupAnnc>* shall indicate announced resource type for *<group>* resource, etc.

Resource announcement can also facilitate resource offloading to be used for Edge/Fog computing described in TR-0052 [i38]. In this case, when an announced resource (e.g., deployed at an Edge/Fog node) is updated by an entity other than the original resource Hosting CSE (i.e. other AE(s)/CSE(s) having privileges to update the announced resource), the announced resource Hosting CSE issues an update request to the original resource Hosting CSE to update the original resource. If applicable, the original resource Hosting CSE then reflects this update to any other announced resources. Figure X shows examples of different types of synchronization performed between original and announced resources. For example, if there is an announced resource(s), any updates to the original resource shall be reflected to all the announced resources (left). If an announced resource is updated by an entity other than the original resource Hosting CSE, any updates to the announced resource shall be reflected to the original resource and in turn to any other announced resources if applicable (right).



Figure x. Synchronizations based on update to original resource and announced resource

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 9.6.1.3.2 Common attributes

The following attributes are commonly used in multiple, but not all, resource types which are normal, not virtual or announced. Common attributes for announced resource types are independently defined in clause 9.6.26.3.

NOTE: The list of attributes in table 9.6.1.3.2-1 is not exhaustive.

Table 9.6.1.3.2-1: Common Attributes

| Attribute Name | Description |
| --- | --- |
| *accessControlPolicyIDs* | The attribute contains a list of identifiers for *<accessControlPolicy>* resources. The privileges defined in the *<accessControlPolicy>* resources that are referenced determine who is allowed to access the resource containing this attribute for a specific purpose (e.g. Retrieve, Update, Delete, etc.).For an Update operation to a resource, it is forbidden to change the *accessControlPolicyIDs* attribute in the same request to Update other attributes of the targeted resource, i.e a request to Update the *accessControlPolicyIDs* attribute shall be the only attribute in the UPDATE request.To update the *accessControlPolicyIDs* attribute, a Hosting CSE shall check whether the Originator has Update privilege in any current *selfPrivileges* of the *<accessControlPolicy>* resources which this attribute references.To update any attribute other than the *accessControlPolicyIDs* attribute, a Hosting CSE shall check whether the Originator has Update privilege in any *privileges,* of the *<accessControlPolicy>* resources which the *accessControlPolicyIDs* attribute references.If a resource type does not have an *accessControlPolicyIDs* attribute definition, then the *accessControlPolicyIDs* for that resource is governed in a different way, for example, the *accessControlPolicy* associated with the parent may apply to a child resource that does not have an *accessControlPolicyIDs* attribute definition, or the privileges for access are fixed by the system. Refer to the corresponding resource type definitions and procedures to see how access control is handled in such cases.If a resource type does have an *accessControlPolicyIDs* attribute definition, but the (optional) *accessControlPolicyIDs* attribute value is not set in a resource instance, then the Hosting CSE shall apply the concept of the default access policy. The Hosting CSE shall first check whether the resource has an *owner* attribute configured and if so, the default policy shall provide unrestricted access only to the owner. If the *owner* attribute is not configured, then the default policy shall provide unrestricted access only to the Originator of the successful resource creation request. All other entities shall be denied to access the resource. For that purpose, the Hosting CSE shall keep that Originator information of the resource. Note that how to keep that information is implementation specific. The default access policy is not applied to a resource which has a value assigned to the a*ccessControlPolicyIDs* attribute.All resources are accessible if and only if the privileges (i.e. configured as *privileges* or *selfPrivileges* attribute of <accessControlPolicy> resource) allow it, therefore all resources shall have an associated *accessControlPolicyIDs* attribute, either explicitly (setting the attribute in the resource itself) or implicitly (either by using the parent privileges or the system default policies). Which means that the system shall provide default access privileges in case that the Originator does not provide a specific *accessControlPolicyIDs* during the creation of the resource. |
| *expirationTime* | Time/date after which the resource will be deleted by the Hosting CSE. This attribute can be provided by the Originator, and in such a case it will be regarded as a hint to the Hosting CSE on the lifetime of the resource. The Hosting CSE shall configure the *expirationTime* value. If the Hosting CSE configures the new *expirationTime* attribute value rather than the Originator suggested value, the new value can be sent back to the Originator depending on the ***Result Content*** value.The lifetime of the resource can be extended by providing a new value for this attribute in an UPDATE operation. Or by deleting the attribute value, e.g. by updating the attribute with NULL when doing a full UPDATE, in which case the Hosting CSE can decide on a new value.If the Originator does not provide a value in the CREATE operation the system shall assign an appropriate value depending on its local policies and/or M2M service subscription agreements.A resource is known as 'obsolete' when the resource contains the attribute "expirationTime" and the lifetime of this resource has reached the value of this attribute. If the ‘obsolete’ resource had a reference to an Application Entity Resource ID, the Hosting CSE shall send a NOTIFY request to the IN-CSE, requesting to delete the entry from the <AEContactList> resource. |
| *stateTag* | An incremental counter of modification on the resource. When a resource is created, this counter is set to 0, and it will be incremented on every modification of the resource (see notes 1 and 2).  |
| *announceTo* | This attribute may be included in a CREATE or UPDATE Request in which case it contains a list of addresses/CSE-IDs where the resource is to be announced. For the case that CSE-IDs are provided, the announced-to CSE shall decide the location of the announced resources based on the rules described in clause 9.6.26.For the original resource, this attribute shall only be present if it has been successfully announced to other CSEs. This attribute maintains the list of the resource addresses to the successfully announced resources. Updates on this attribute will trigger new resource announcement or de-announcement.If the *announceTo* attribute includes resource address(s), the present document does not provide any means for validating these address(s) for announcement purposes. It is the responsibility of the Hosting-CSE referenced by the resource address(s) to validate the access privileges of the originator of the Request that triggers the announcement. |
| *announcedAttribute* | This attributes shall only be present at the original resource if some Optional Announced **(OA)** type attributes have been announced to other CSEs. This attribute maintains the list of the announced Optional Attributes (**OA** type attributes) in the original resource. Updates to this attribute will trigger new attribute announcement if a new attribute is added or de-announcement if the existing attribute is removed. |
| *announceSyncType* | This attribute indicates the types of synchronization for resource announcement. Possible values are as follows: * Uni-directional synchronization: Announced resource(s) is updated if the original resource is updated
* Bi-directional synchronization: Announced resource(s) is updated if the original resource is updated and vice versa

 This attribute is presented in both the original resource and the announced resource(s).The absence of this attribute implies that uni-directional synchronization is the type of supported synchronization for resource announcement. |
| *labels* | Tokens used to add meta-information to resources.This attribute is optional.The value of the *labels* attribute is a list of individual labels, each of them being:* Either a standalone label-key, used as a simple "tag", that can be used for example for discovery purposes when looking for particular resources that one can "tag" using that label-key
* Or a composite element made of a label-key and a label-value, separated by a special character defined in [3].

The list of allowed characters in a label (and in label-keys and label-values) and separator characters is defined in [3], clause 6.3.3. |
| *e2eSecInfo* | Present in a resource representing an AE or CSE. Indicates the end-to-end security capabilities supported by the AE or CSE. May indicate supported end-to-end security frameworks. May also contains a certificate or credential identifier used by the AE or CSE. May include random values for use in end-to-end security protocols. The details of this attributes are described in oneM2M TS-0003 [2].This attribute is optional and if not present it means that the represented entity does not support oneM2M end-to-end security procedures. |
| *dynamicAuthorizationConsultationIDs* | This attribute contains a list of identifiers of *<dynamicAuthorizationConsultation>* resources. The information defined in a *<dynamicAuthorizationConsultation>* resource is used by a CSE for initiating consultation-based dynamic authorization requests.Consultation-based dynamic authorization is only performed for a targeted resource if and only if it is linked to an enabled *<dynamicAuthorizationConsultation>* resource.If the attribute is not set or has a value that does not correspond to a valid *<dynamicAuthorizationConsultation>* resource(s), or it refers to an *<dynamicAuthorizationConsultation>* resource(s) that is not reachable, then the *dynamicAuthorizationConsultationIDs* associated with the parent may apply to the child resource if present, or a system default *<dynamicAuthorizationConsultation>* may apply if present. |
| *creator* | The AE-ID or CSE-ID of the entity which created the resource containing this attribute. |
| *location* | This attribute contains the geo-coordinates of entities or things represented by its resource types (e.g. AE, container). Longitude and Latitude are shall be included as a coordinate and optionally altitude may also be included. The representation format shall follow the definition in the GeoJSON format [16]. This attribute can be used for geo-query (Clause 10.2.6) with relevant filter conditions (Clause 8.1.2). |
| *resourceMappingRules* | This attribute contains a list of rules for mapping the resource and/or its attributes on a Registrar CSE to one or more corresponding resources/attributes hosted by a Registree AE. Each mapping rule contains various information elements as defined in table 9.6.1.3.2.1-1. The mapping rule information stored in this attribute enables a Registrar CSE to receive a request from an Originator that targets the local resource hosted by the Registrar CSE and retarget this request to a Registree AE for processing. Once the Registree AE finishes processing the retargeted request and returns a response, the Registrar CSE uses the mapping rule information contained in this attribute to update the local resource with the contents of the response and to formulate a response that it returns back to the request Originator. This attribute is applicable to a subset of content sharing resources (i.e. <container>, <flexContainer> and <timeSeries>) and the <mgmtObj> resource. |
| *owner* | The AE-ID, M2M-User-ID or CSE-ID of the entity which owns the resource containing this attribute. |
| NOTE 1: In order to enable detection of overflow, the counter needs to be capable of expressing sufficiently long numbers.NOTE 2: This attribute has the scope to allow identifying changes in resources within a time interval that is lower than the one supported by the attribute *lastModifiedTime* (e.g. less than a second or millisecond). This attribute can also be used to avoid race conditions in case of competing modifications. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.26 Resource Announcement

#### 9.6.26.1 Overview

A resource can be announced to one or more remote CSEs to inform the remote CSEs of the existence of the original resource. An announced resource can have a limited set of attributes and a limited set of child resources from the original resource. The announced resource includes a link to the original resource hosted by the original resource‑Hosting CSE.

In case that the original resource is deleted, all announced resources for the original resource shall be deleted, except for *<AEAnnc>* resources that were created during the registration of an AE with AE-ID-Stem starting with "S", which shall not be deleted. If the announced resource is not deleted promptly (e.g. the announced resource is not reachable), the announced resource can be deleted later either by the original resource Hosting CSE or by the expiration of the announced resource itself. The original resource shall store the list of links for the announced resources for those purposes.

Synchronization between the attributes announced by the original resource and the announced resource shall be the responsibility of the original resource Hosting CSE and announced resource Hosting CSE depending on the value of the *announceSyncType* attribute. There shall not be any synchronization for unannounced children created at the original resource and the announced resource. The access control policy for the announced resource shall synchronize with the one from the original resource. In case that the attribute *accessControlPolicyIDs* is not present in the original resource it is the responsibility of the original resource Hosting CSE to choose the appropriate value depending on the policy for the original resource (e.g. take the parent *accessControlPolicyIDs* value).

The original resource shall have at least *announceTo* attribute present if the resource itself has been announced. If any of the Optional Announced (OA) attributes are also announced, then *announcedAttribute* attribute shall also be present. An AE or other CSE can request the original resource Hosting CSE for announcing the original resource to the list of CSE‑IDs or the address(es) listed in the *announceTo* attribute in the announcing request. An Update to the *announceTo* attribute will trigger new resource announcement(s) or the de-announcement(s) of the announced resource. After a successful announcement procedure the attribute *announceTo* contains only the list of address(es) of the announced resources.

In order to announce an attribute marked as **OA**(see clause 9.5.0), the attribute shall be included in the *announcedAttribute* attribute list at the original resource. The attributes included in the *announcedAttribute* attribute are announced to the announced resource. On successful announcement of the resource, such attributes shall be created at the announced resource; otherwise they shall not be present in the announced resource. Update to the *announcedAttribute* attribute in the original resource will trigger new attribute announcement or the de-announcement of the announced attribute(s). The announced attributes shall have the same value as the original resource, and synchronization between the value of the announced attributes at the original resource and the announced resource is the responsibility of the original resource Hosting CSE and announced resource Hosting CSE depending on the value of the *announceSyncType* attribute.

If an announced resource is updated by an entity other than the original resource Hosting CSE and the *announceSyncType* attribute of the announced resource has a value of “Bi-directional synchronization”, then the announced resource Hosting CSE shall update the original resource to synchronize the values of the announced resource attributes to the original resource. In this case, the original resource Hosting CSE shall UPDATE all other announced resource(s) listed in the *announceTo* attribute.

An announced resource may have child resources. In general, a child resource of an announced resource shall be of one of the resource types that are specified as possible child resource types for the original resource or of one of their associate announced resource types. However, for specific announced resource types, specific exceptions apply regarding which child resource types can occur. The details on which child resources are specified for each announced resource type are summarized in Table 9.6.26.1-1.

Child resources of the original resource can be announced independently as needed. In this case, the child resources at the announced resource shall be of the child resource’s associated announced type. When a child resource at the announced resource is created locally at the remote CSE, the child resource shall be of ordinary – i.e. not-announced – child resource type.

When a Hosting CSE of an original resource is initiating an announcement, it shall first check if it is a Registree or the Registrar of the announcement target CSE. If that is the case, the announced resource shall be created as a direct child of the Hosting CSE’s <*remoteCSE*> hosted by the announcement target CSE. If that is not the case, the Hosting CSE shall next check if its <*remoteCSE*> resource has been announced to the announcement target CSE. The Hosting CSE shall perform this check by checking the *announceTo* attribute of its <*remoteCSE*> resource hosted on its Registrar CSE if the announcement target CSE is not a descendent CSE, or the corresponding Registree CSE if the announcement target CSE is a descendent CSE. If it is not announced, the Hosting CSE shall request that its Registrar CSE (If the target CSE is not its descendant CSE) or Registree CSE (if the target CSE is its descendant CSE) to create a <*remoteCSEAnnc*> resource representing the Hosting CSE as a direct child of the <*CSEBase*> representing the announcement target CSE. The announced resource shall then be created as a child resource of the <*remoteCSEAnnc*> resource.

When a Hosting CSE of an original resource is initiating an announcement, the *From* parameter of the announce request shall contain either a SP-relative-CSE-ID of the Hosting CSE of the original resource if the announcement target CSE resides in the same SP domain or an Absolute-CSE-ID of the Hosting CSE of the original resource if the announcement target CSE resides in a different SP domain.

If an attribute is marked as **RO** and also marked as **MA** or **OA**, then only the attribute of the original resource shall be interpreted as **RO**. The corresponding attribute of the announced resource shall be always writable to the original resource hosting CSE to allow it to properly announce and de-announce the attribute and keep the announced attribute synchronized with the original one. Only the original resource Hosting CSE shall be allowed to update and delete the announced attribute which is created by the original resource Hosting CSE.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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### 9.6.2 Resource Type *accessControlPolicy*

#### 9.6.2.0 Introduction

The Access Control Policies (ACPs) shall be used by the CSE to control access to the resources and their attributes as specified in the present document and in oneM2M TS-0003 [2].

….

The *<accessControlPolicy>* resource shall contain the attributes specified in table 9.6.2.0-2.

Table 9.6.2.0-2: Attributes of *<accessControlPolicy>* resource

| Attributes of *<accessControlPolicy>* | Multiplicity | RW/RO/WO | Description | *<accessControlPolicyAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType*  | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1(L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *privileges* | 1 | RW | A set of access control rules that applies to resources referencing this *<accessControlPolicy>* resource using the *accessControlPolicyID* attribute. | MA |
| *selfPrivileges* | 1 | RW | A set of access control rules that apply to the *<accessControlPolicy>* resource itself and *accessControlPolicyIDs* attribute of any other resource which is linked to this <accessControlPolicy> resource. | MA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.4 Resource Type *remoteCSE*

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

Similarly *<remoteCSE>* resource shall also represent a Registrar CSE. *<remoteCSE>* resource shall be located directly under the *<CSEBase>* resource of Registree CSE.

For example, when CSE1 (Registree CSE) registers with CSE2 (Registrar CSE), there will be two *<remoteCSE>* resources created: one in CSE1: *<CSEBase1>/<remoteCSE2>* and one in CSE2: *<CSEBase2>/<remoteCSE1>.*

Note that the creation of the two resources does not imply mutual registration. The *<CSEBase1>/<remoteCSE2>* does not mean CSE2 registered with CSE1 in the example above.

### …..

The <remoteCSE> resource shall contain the attributes specified in table 9.6.4-2.

Table 9.6.4-2: Attributes of *<remoteCSE>* resource

| Attributes of *<remoteCSE>* | Multiplicity | RW/RO/WO | Description | *<remoteCSEAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *location* | 0..1 | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 6 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.5 Resource Type *AE*

An *<AE>* resource shall represent information about an Application Entity registered to a CSE.

The *<AE>* resource shall contain the child resources specified in table 9.6.5-1.

The *<AE>* resource shall contain the attributes specified in table 9.6.5-2.

Table 9.6.5-2: Attributes of *<AE>* resource

| Attributes of *<AE>* | Multiplicity | RW/RO/WO | Description | *<AEAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. Contains the AE-ID-Stem of the AE (see clause 7.2 on identifier formats and clause 10.2.2.2 for AE registration procedure). | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *location* | 0..1 | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *appName* | 0..1 | RW | The name of the application, as declared by the application developer (e.g. "HeatingMonitoring").Several sibling resources may share the *appName*. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 6 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 7 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.6 Resource Type *container*

The *<container>* resource represents a container for data instances. It is used to share information with other entities and potentially to track the data. A *<container>* resource has no associated content. It has only attributes and child resources.

The *<container>* resource shall contain the child resources specified in table 9.6.6-1.

…..

The *<container>* resource shall contain the attributes specified in table 9.6.6-2.

Table 9.6.6-2: Attribute of *<container>* resource

| Attributes of *<container>* | Multiplicity | RW/RO/WO | Description | *<containerAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *stateTag* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *location* | 0..1 | RW | See clause 9.6.1.3. | OA |
| *resourceMappingRules* | 0..1 | RW | See clause 9.6.1.3 | OA |
| *maxNrOfInstances* | 0..1 | RW | Maximum number of direct child *<contentInstance>* resources in the <*container*> resource. | OA |
| *maxByteSize* | 0..1 | RW | Maximum size in bytes of data (i.e. *content* attribute of a <*contentInstance*> resource) that is allocated for the *<container>* resource for all direct child <*contentInstance*> resources in the *<container>* resource. | OA |
| *maxInstanceAge* | 0..1 | RW | Maximum age of a direct child *<contentInstance>* resource in the *<container> resource*. The value is expressed in seconds. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 7 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 8 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.7 Resource Type *contentInstance*

The *<contentInstance>* resource represents a data instance in the <*container*> resource. The content of the *contentInstance* can be encrypted.

Unlike other resources, the *<contentInstance>* resource shall not be modified once created. This pertains to its attributes, but not to the creation of child resources. An AE shall be able to delete a *contentInstance* resource explicitly or it may be deleted by the platform based on policies. If the platform has policies for *contentInstance* retention, these shall be represented by the attributes *maxByteSize*, *maxNrOfInstances* and/or *maxInstanceAge* attributes in the *<container>* resource. If multiple policies are in effect, the strictest policy shall apply.

The *<contentInstance>* resource inherits the same access control policies of the parent *<container>* resource, and does not have its own *accessControlPolicyIDs* attribute.

The *<contentInstance>* resource shall contain the child resources specified in table 9.6.7-1.

……

Table 9.6.7-2: Attributes of *<contentInstance>* resource

| Attributes of *<contentInstance>* | Multiplicity | RW/RO/WO | Description | *<contentInstanceAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | WO | See clause 9.6.1.3. | MA |
| *expirationTime* | 1 | WO | See clause 9.6.1.3. | NA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *stateTag* | 1 | RO | See clause 9.6.1.3.The *stateTag* attribute of the parent resource should be incremented first and copied into this *stateTag* attribute when a new instance is added to the parent resource. | NA |
| *announceTo* | 0..1 (L) | WO | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | WO | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 8 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 9 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.9 Resource Type *schedule*

The *<schedule>* resource contains scheduling information. The usage of the *<schedule>* resource is slightly different depending on the associated resource type, as follows:

* A child *<schedule>* resource of the *<node>* resource shall indicate the time periods when the node can communicate via the Underlying Network. If multiple Underlying Networks are supported, for each there can be a maximum of one <schedule> resources. One <schedule> resource may be used for multiple Underlying Networks.

The *mgmtLink* attribute of the *<cmdhNwAccessRule>* child of a <node> resource shall link to a <schedule> resource, child of the same <node> resource.

Note: The node will obey the communication schedule indicated for the Underlying Network. If the schedule information is modified, the node will ensure that the change of schedule is detected e.g. via external DM, subscription/notification mechanisms, polling, etc.

* A child <*schedule*> resource of the <*CSEBase*> resource shall indicate the anticipated time periods when the CSE is available for processing.
* A child *<schedule>* resource of the *<subscription>* resource shall indicate the time periods when the notifications can be sent to the notification targets.

The <schedule> resource shall contain the child resource specified in table 9.6.9-1.

Table 9.6.9-1: Child resources of *<schedule>* resource

| Child Resources of *<schedule>* | Child Resource Type | Multiplicity | Description | *<scheduleAnnc>* Child Resource Types |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | None |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 | *<transaction>* |

The *<schedule>* resource shall contain the attributes specified in table 9.6.9-2.

Table 9.6.9-2: Attributes of *<schedule>* resource

| Attributes of *<schedule>* | Multiplicity | RW/RO/WO | Description | *<scheduleAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3  | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 9 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 10 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.10 Resource Type *locationPolicy*

The *<locationPolicy>* resource represents the method for obtaining and managing geographical location information of an M2M Node.

The actual location or event result (in case Geo-fence-Based method) information shall be stored in a *<contentInstance>* resource which is a child resource of the *<container>* resource. The *<container>* resource includes the *locationID* attribute which holds the ID of this *<locationPolicy>* resource. A CSE can obtain location information based on the attributes defined under *<locationPolicy>* resource, and store the location information in the target *<container>* resource.

……

The *<locationPolicy>* resource shall contain the attributes specified in table 9.6.10-2.

Table 9.6.10-2: Attributes of *<locationPolicy>* resource

| Attributes of *<locationPolicy>* | Multiplicity | RW/RO/WO | Description | *<locationPolicyAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 10 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 11 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.13 Resource Type *group*

The *<group>* resource represents a group of resources of the same or mixed types. The *<group>* resource can be used to do bulk manipulations on the resources represented by the *memberIDs* attribute. The *<group>* resource contains an attribute that represents the members of the group and the *<fanOutPoint>* virtual resource that enables generic operations to be applied to all the resources represented by those members. By grouping <*semanticDescriptor*> resources across which a semantic description is distributed, another virtual resource (<*semanticFanOutPoint*>) enables semantic discovery procedures to be applied across the full logical tree in the description.

…..

The *<group>* resource shall contain the attributes specified in table 9.6.13-2.

Table 9.6.13-2: Attributes of *<group>* resource

| Attributes of *<group>* | Multiplicity | RW/RO/WO | Description | *<groupAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO |  See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 11 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 12 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.15 Resource Type *mgmtObj*

The *<mgmtObj>* resource contains management data which represents individual M2M management functions. It represents a general structure to map to technology specific data model e.g. OMA DM [i.3], BBF TR-069 [i.2] and LWM2M [i.4]. Each instance of *<mgmtObj>* resource shall be mapped to single technology specific protocol.

…….

The *<mgmtObj>* resource shall contain the attributes specified in table 9.6.15-2.

Table 9.6.15-2: Attributes of *<mgmtObj>* resource

| Attributes of *<mgmtObj>* | Multiplicity | RW/RO/WO | Description | *<mgmtObjAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *resourceMappingRules* | 0..1 | RW | See clause 9.6.1.3 | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 12 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 13 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.18 Resource Type *node*

The *<node>* resource represents specific information that provides properties of an M2M Node that can be utilized by other oneM2M operations. The *<node>* resource has specialization of the *<mgmtObj>* as its child resources. These resources represent the Node's context information (e.g. memory and battery), network topology, device information, device capability etc. The specialized *<mgmtObj>* resources are used to perform management of the Node.

… …

Table 9.6.18-2: Attributes of *<node>* resource

| Attributes of *<node>* | Multiplicity | RW/RO/WO | Description | *<nodeAnnc>* attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *nodeID* | 1 | RW | The M2M-Node-ID of the node which is represented by this *<node>* resource. | MA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 13 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 14 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.30 Resource Type *semanticDescriptor*

The *<semanticDescriptor>* resource is used to store a semantic description pertaining to a resource and potentially sub-resources. Such a description may be provided according to ontologies. The semantic information is used by the semantic functionalities of the oneM2M system and is also available to applications or CSEs. [i.28] provides an informative example of a descriptor attribute.

The *<semanticDescriptor>* resource shall contain the child resources specified in table 9.6.30-1.

… … …

Table 9.6.30-2: Attributes of *<semanticDescriptor>* resource

| Attributes of *<semanticDescriptor>* | Multiplicity | RW/RO/WO | Description | *<semanticDescriptorAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *descriptorRepresentation* | 1 | RW | Indicates the type used for the serialization of the descriptor attribute, e.g. RDF/XML, OWL/XML. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 14 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 15 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.35 Resource Type *flexContainer*

The *<flexContainer>* resource type is a customizable container for data instances. It is a template for the definition of flexible specializations of data containers. Like a <*container*> resource, specializations of this *<flexContainer>* resource type are used to share information with other entities and potentially to track the data. While the <*container*> resources includes data to be made accessible to oneM2M entities inside <*contentInstance*> children, a specialization of the *<flexContainer>* resource includes associated content directly inside the <*flexContainer*> by means of one or more [*customAttribute*] attribute(s). The attribute name and attribute data type of [*customAttribute*] attributes are defined explicitly for each specialization of <*flexContainer>*, i.e. the specific set of attribute name and type are defined in a corresponding XSD-file.

… …

The *<flexContainer>* resource shall contain the attributes specified in table 9.6.35-2.

Table 9.6.35-2: Attributes of <*flexContainer*> resource

| **Attributes of *<flexContainer>*** | **Multiplicity** | **RW/****RO/****WO** | **Description** | ***<flexContainerAnnc>* Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 0..1 (note) | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 0..1(note) | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 0..1(note) | RO | See clause 9.6.1.3. | NA |
| *stateTag* | 1 | RO | See clause 9.6.1.3.This *stateTag* attribute value shall be incremented when a custom attribute of the flexContainer is modified. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 15 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 16 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.36 Resource Type *timeSeries*

The *<timeSeries>* resource represents a container for Time Series Data instances. It is used to share information with other entities and potentially to track, detect and report the missing data in Time Series. A *<timeSeries>* resource has no associated content. It has only attributes and child resources.

Table 9.6.36-1: Child resources of <*timeSeries*> resource

| Child Resources of *<timeSeries>* | Child Resource Type | Multiplicity | Description | *<timeSeriesAnnc>* Child Resource Types |
| --- | --- | --- | --- | --- |
| *[variable]* | *<semanticDescriptor>* | 0..n | See clause 9.6.30 | *<semanticDescriptor>, <semanticDescriptorAnnc>* |
| *[variable]* | *<timeSeriesInstance>* | 0..n | See clause 9.6.37 | *<timeSeriesInstance>,**<timeSeriesInstanceAnnc>* |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *<subscription>* |
| *la* | *<latest>* | 1 | See clause 9.6.27 | *None* |
| *ol* | *<oldest>* | 1 | See clause 9.6.28 | *None* |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 | *<transaction>* |
| *[variable]* | *<action>* | 0..n | See clause 9.6.61 | *None* |

The *<timeSeries>* resource shall contain the attributes specified in table 9.6.36-2.

Table 9.6.36-2: Attributes of <*timeSeries*> resource

| Attributes of *<timeSeries>* | Multiplicity | RW/RO/WO | Description | *<timeSeriesAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO |  See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 16 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 17 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.37 Resource Type *timeSeriesInstance*

The *<timeSeriesInstance>* resource represents a data instance in the *<timeSeries>* resource. The *<timeSeriesInstance>* resource shall not be modified once created. An AE shall be able to delete a *<timeSeriesInstance>* resource explicitly or it may be deleted by the platform based on policies. If the platform has policies for *<timeSeriesInstance>* retention, these shall be represented by the attributes *maxByteSize*, *maxNrOfInstances* and/or *maxInstanceAge* attributes in the *<timeSeries>* resource. If multiple policies are in effect, the strictest policy shall apply. The *<timeSeriesInstance>* resource inherits the same access control policies of the parent *<timeSeries>* resource, and does not have its own *accessControlPolicyIDs* attribute.

… …

The < *timeSeriesInstance*> resource shall contain the attributes specified in table 9.6.37-2.

Table 9.6.37-2: Attributes of <*timeSeriesInstance*> resource

| Attributes of *<timeSeriesInstance>* | Multiplicity | RW/RO/WO | Description | *<timeSeriesInstanceAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | WO | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | WO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | WO | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | WO | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *dataGenerationTime*  | 1  | WO  | This attribute contains the time when the data was generated by the Originator. The value of this attribute shall be unique among the child <*timeSeriesInstance*> resources belonging to the same parent <*timeSeries*> resource. | OA  |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 17 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 18 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.44 Resource Type *localMulticastGroup*

The *<localMulticastGroup>* resource is used by a member hosting CSE to indicate that this CSE is a member of a multicast group. *<localMulticastGroup>* is created as the child resource of the *<CSEBase>* resource. And there may be multiple *<localMulticastGroup>* resources under the same <CSEBase>.

The <*localMulticastGroup>* resource shall contain the child resources specified in table 9.6.44-1.

Table 9.6.44-1: Child resources of <*localMulticastGroup*> resource

| Child Resources of *<localMulticastGroup>* | Child Resource Type | Multiplicity | Description |
| --- | --- | --- | --- |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 |

The *<localMulticastGroup>* resource shall contain the attributes specified in table 9.6.44-2.

Table 9.6.44-2: Attributes of *<localMulticastGroup>* resource

| Attributes of *< localMulticastGroup >* | Multiplicity | RW/RO/WO | Description |
| --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. |
| *resourceID* | 1 | RO | See clause 9.6.1.3. |
| *resourceName* | 1 | WO | See clause 9.6.1.3. |
| *parentID* | 1 | RO | See clause 9.6.1.3. |
| *creationTime* | 1 | RO | See clause 9.6.1.3. |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *owner* | 0..1 | RW | See clause 9.6.1.3. |
| *announceTo* | 0..1(L) | RW | See clause 9.6.1.3. |
| *announcedAttribute* | 0..1(L) | RW | See clause 9.6.1.3. |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. |
| *externalGroupID* | 0..1 | RW | It is used by an M2M Service Provider (M2M SP) when services targeted to a group of M2M Devices are requested from the Underlying Network. It is assumed to be a globally unique ID exposed by the underlying network to identify a group of M2M Devices (e.g. ASN, MN) that is mapped to an internally used identifier for group related services. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 18 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 19 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.50 Resource Type *ontologyRepository*

An *<ontologyRepository>* resource is a child resource of the *<CSEBase>* resource.

The *<ontologyRepository>* resource may have one or multiple <*ontology*> child resources to represent and manage both internal and external ontologies in the oneM2M system. By performing the CRUD operations on the <*ontology*> resources, explicit ontologies can be imported (created), discovered, retrieved, updated and deleted inside the oneM2M system, and can be used for semantic validation when they are referenced by <*semanticDescriptor*> resources. The details of <*ontology*> resource are specified in clause 9.6.51.

The *<ontologyRepository>* resource may also contain a (virtual) child resource *<semanticValidation>* as the interface to accept semantic validation request from an AE or a CSE. Upon receiving an Update request with *<semanticDescriptor>* resource representation addressing the *<semanticValidation>* resource, the hosting CSE shall perform the semantic validation against the *<semanticDescriptor>* resource received in the request. The details of <*semanticValidation*> resource are specified in clause 9.6.52.

The *<ontologyRepository>* resource shall contain the child resources as specified in table 9.6.50-1.

**Table 9.6.50-1: Child resources of *<ontologyRepository>* resource**

| **Child Resources of *<ontologyRepository>*** | **Child Resource Type** | **Multiplicity** | **Description** | **<*ontologyRepositoryAnnc*> Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<ontology>* | 0..n | See clause 9.6.51 | *<ontologyAnnc>* |
| *smv* | *<semanticValidation>* | 1 | See clause 9.6.52 | *None* |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *<subscription>* |

The *< ontologyRepository >* resource above contains the attributes specified in table9.6.50-2.

**Table 9.6.50-2: Attributes of *<ontologyRepository>* resource**

| **Attribute Name** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*ontologyRepositoryAnnc*> Attributes** |
| --- | --- | --- | --- | --- |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO |  See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 19 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 20 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.51 Resource Type *ontology*

The *<ontology>* resource is a child resource of the *<ontologyRepository>* resource. The *<ontology>* resource is used to store the representation of an ontology. This representation may contain ontology descriptions in a variety of formats, given the requirements for re-use of existing ontologies, for support of ontologies available only externally and for support of ontology imported into the system. The ontology description is made available to the semantic-related functions of the oneM2M system provided by applications or CSEs.

Given the possible need to have access to multiple versions of an ontology, and to different formats, a *ontologyFormat* attribute provides information necessary for the system to interpret the information available in the *ontologyContent* attribute.

The *<ontology>* resource above contains the child resources specified in table 9.6.51-1.

**Table 9.6.51 -1: Child resources of *<ontology>* resource**

| **Child Resources of <semanticDescriptor>** | **Child Resource Type** | **Multiplicity** | **Description** | **<*ontologyAnnc*> Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 where the type of this resource is described. | *<subscription>* |

The *<ontology>* resource above contains the attributes specified in table9.6.51-2.

**Table 9.6.51-2: Attributes of *<ontology>* resource**

| **Attribute Name** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*ontologyAnnc*> Attributes** |
| --- | --- | --- | --- | --- |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO |  See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |
| *description* | 0..1 | RW | Text description of the ontology | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 20 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 21 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.53 Resource Type *semanticMashupJobProfile*

The <*semanticMashupJobProfile*> resource represents a Semantic Mashup Job Profile (SMJP). A SMJP describes the profile and necessary information required for a specific mashup service such as input parameters, member resources, mashup function, and output parameters. Based on the profile described in the SMJP, Originators (e.g. AEs) can create corresponding semantic mashup instances where semantic mashup results will be generated and stored.

The <*semanticMashupJobProfile*> resource shall contain the child resources specified in Table 9.6.53-1.

Table 9.6.53-1: Child resources of <*semanticMashupJobProfile*> resource

| Child Resources of *<semanticMashupJobProfile>* | Child Resource Type | Multiplicity | Description | *<semanticMashupJobProfileAnnc> Child Resource Types* |
| --- | --- | --- | --- | --- |
| *<variable>* | *<semanticMashupInstance>* | 0..n | Represents semantic mashup instances which have been created based on this <*semanticMashupJobProfile*> resource. This child resource is optional as related<*semanticMashupJobProfile*> and <*semanticMashupInstance*> may be stored separately within the resource tree or on different CSEs. See clause 9.6.54. | *<semanticMashupInstance>, <semanticMashupInstanceAnnc>* |
| *<variable>* | *<semanticDescriptor>* | 0..1 | Describes general semantic information about this <*semanticMashupJobProfile*> resource. See clause 9.6.30. | *<semanticDescriptor>, <semanticDescriptorAnnc>* |
| *<variable>* | *<subscription>* | 0..n | Represents subscriptions on this resource. See clause 9.6.8. | *<subscription>* |

The <*semanticMashupJobProfile*> resource shall contain the attributes specified in Table 9.6.53-2.

Table 9.6.53-2: Attributes of <*semanticMashupJobProfile*> resource

| Attributes of <*semanticMashupJobProfile*> | Multiplicity | RW/RO/WO | Description | *<semanticMashupJobProfileAnnc> Attributes* |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 21 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 22 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.54 Resource Type *semanticMashupInstance*

<*semanticMashupInstance*> models and represents a Semantic Mashup Instance (SMI) resource. A CSE/AE as a Mashup Requestor can request to create <*semanticMashupInstance*> resources at another oneM2M CSE which implements the semantic mashup function. Each created <*semanticMashupInstance*> resource corresponds to a semantic mashup job profile (i.e. a <*semanticMashupJobProfile*> resource); in other words, how the <*semanticMashupInstance*> resource should execute the mashup operation to calculate the mashup result is specified in the corresponding <*semanticMashupJobProfile*> resource. Note that the <*semanticMashupInstance*> and its corresponding <*semanticMashupJobProfile*> resources may be placed at the same CSE or at different CSEs, and the *smjpID* attribute of the <*semanticMashupInstance*> allows locating the corresponding <*semanticMashupJobProfile*> resource. If the <*semanticMashupInstance*> resource has a <*semanticMashupResult*> as its child resource, the Mashup Requestor may use it to retrieve the mashup result.

… …

The *<semanticMashupInstance>* resource shall contain the attributes specified in Table 9.6.54-2.

Table 9.6.54-2: Attribute of <*semanticMashupInstanc*e> resource

| Attributes of <*semanticMashupInstance*> | Multiplicity | RW/RO/WO | Description | *<semanticMashupInstanceAnnc> Attributes* |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 22 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 23 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.56 Resource Type *semanticMashupResult*

*<semanticMashupResult>* resource stores the mashup result. It is the child resource of a *<semanticMashupInstance>* resource. A *<semanticMashupResult>* resource shall be automatically generated by a Hosting CSE when it executes a semantic mashup operation on a *<semanticMashupInstance>* resource.

The *<semanticMashupResult>* resource shall contain the child resources specified in Table 9.6.56-1 and the attributes specified in Table 9.6.56-2.

Table 9.6.56-1: Child resources of *<semanticMashupResult>* resource

| Child Resources of *<semanticMashupResult>* | Child Resource Type | Multiplicity | Description | *<semanticMashupResultAnnc> Child Resource Types* |
| --- | --- | --- | --- | --- |
| *<variable>* | *<semanticDescriptor>* | 0..1 | Describes general semantic information for this *<semanticMashupResult>* resource. | *<semanticDescriptor>, <semanticDescriptorAnnc>* |
| *<variable>* | *<subscription>* | 0..n | Stands for any subscription on this *<semanticMashupResult>* resource.  | *<subscription>* |

Table 9.6.56-2: Attribute of *<semanticMashupResult>* resource

| Attributes of *<semanticMashupResult>* | Multiplicity | RW/RO/WO | Description | *<semanticMashupInstanceAnnc> Attributes* |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 23 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 24 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.57 Resource Type *multimediaSession*

A *<multimediaSession>* resource shall represent information about a multimedia session involving two AEs. This resource is created by the session originator as the child of the <*AE*> resource which represents a session target. The creation, update or deletion of the <*multimediaSession*> resource triggers the AEs to manage (e.g. establish, tear-down) the multimedia session. The multimedia session described in the <*multimediaSession*> resource is managed by the two AEs using non-oneM2M protocols.

NOTE: Additional features (e.g. manage QoS settings for a session in an underlying network) involving Mcn reference point will be considered in future releases.

… …

The *<multimediaSession>* resource shall contain the attributes specified in table 9.6.57-2.

**Table 9.6.57-2: Attributes of <*multimediaSession*> resource**

| Attributes of *<multimediaSession>* | Multiplicity | RW/RO/WO | Description | *<multimediaSessionAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | MA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | MA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |
| *creationTime* | 1 | RW | See clause 9.6.1.3.  | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3.  | NA |
| *labels* | 0..1 (L) | RO | See clause 9.6.1.3 where this common attribute is described. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *sessionOriginatorID* | 1 | WO | The AE-ID of the multimedia session originator | OA |
| *acceptedSessionDescriptions* | 1(L) | RW | This is the final accepted and agreed upon session description(s) based on the received response from the target of the multimedia session. When this attribute is set by the session target, the session originator establishes a session with a non-oneM2M protocol. The session description is compliant to the Session Description Protocol [17]. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 24 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 25 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.58 Resource Type *crossResourceSubscription*

The <*crossResourceSubscription*> resource represents a cross-resource subscription over a set of target resources which could be existing *<subscription>* and/or other subscribable oneM2M resources. The Hosting CSE shall generate a cross-resource notifications only when expected changes occur on a designated number of target resources concurrently within a time window. The <*crossResourceSubscription*> resource shall specify the involved target resources in order to generate cross-resource notification.

The <*crossResourceSubscription*> resource shall contain the child resources specified in Table 9.6.58-1.

Table 9.6.58-1: Child resources of <*crossResourceSubscription*> resource

| Child Resources of <*crossResourceSubscription*> | Child Resource Type | Multiplicity | Description |
| --- | --- | --- | --- |
| *notificationSchedule* | *<schedule>* | 0..1 | See clause 9.6.9. |
| *[variable]* | *<notificationTargetMgmtPolicyRef>* | 0..n | See clause 9.6.31. |
| *nstr* | *<notificationTargetSelfReference>* | 1 | See clause 9.6.34. |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 |

The <*crossResourceSubscription*> resource shall contain the attributes specified in Table 9.6.58-2.

Table 9.6.58-2: Attributes of <*crossResourceSubscription*> resource

| Attributes of <*crossResourceSubscription*> | Multiplicity | RW/RO/WO | Description |
| --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. |
| *resourceID* | 1 | RO | See clause 9.6.1.3. |
| *resourceName* | 1 | WO | See clause 9.6.1.3. |
| *parentID* | 1 | RO | See clause 9.6.1.3. |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *creationTime* | 1 | RO | See clause 9.6.1.3. |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 25 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 26 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.61 Resource Type *action*

The <*action*> resource enables the system to specify which actions or operations to be performed on system resources (e.g. devices or services) based on monitored events. The events may include state changes of subject resources, requests from applications, etc. Once the event occurs, and if specified <dependency> conditions are met, the Hosting CSE sends a primitive defined by <action> resource attributes.

These child resources and attributes provide information about:

* The subject resource, which is the resource monitored to determine if a primary event occurs. Action is to be triggered if the primary event is the change of the state of the subject resource .
* The object resource, which is the resource which is the target of the triggered action
* The input resource, which is a resource which may provide input parameters for the action. Alternatively, an input value may be provided.
* Conditions to be monitored in order to determine if the primary event occurs
* Dependencies to be evaluated in order to determine if the action is to be conditionally performed.
* Parameters providing priorities of the action and priorities of the dependencies.

… …

The *<action>* resource shall contain the attributes specified in table 9.6.61-2.

Table 9.6.61-2: Attributes of *<action>* resource

| Attributes of *<action>* | Multiplicity | RW/RO/WO | Description | *<actionAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *stateTag* | 1 | RO | See clause 9.6.1.3. | OA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 26 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 27 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.62 Resource Type *dependency*

The <*dependency*> resource represents conditions that determines if the action or operation specified in the parent <action> resource is triggered. One or more <*dependency*> resources may exist to provide complex events for triggering. The <*dependency*> resources provide conditions that always need to be checked before the action or operation is triggered. The difference between the *evalCriteria*  specified by an *<action>* resource and the one specified by a <*dependency*> resource is that the former applies to the subject resource and triggers an evaluation, while the latter applies to other resources which provide conditions used in evaluation.

The *<dependency>* resource shall contain the attributes specified in table 9.6.62-2.

Table 9.6.62-2: Attributes of *<dependency>* resource

| Attributes of *<action>* | Multiplicity | RW/RO/WO | Description | *<actionAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. If no *accessControlPolicyIDs* value is configured, the *accessControlPolicyIDs* of the parent resource shall be applied for privilege checking. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *stateTag* | 1 | RO | See clause 9.6.1.3. | OA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 27 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 28 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.63 Resource Type *e2eQosSession*

The <*e2eQosSession*> resource defines end-to-end (E2E) QoS session requirements for the exchange of oneM2M request and response primitives between oneM2M entities. This resource consists of a set of QoS parameters and an applicable set of oneM2M entities that exchange oneM2M requests and responses with one another and function as the session endpoints. A Hosting CSE uses the information configured within this resource to configure and manage E2E QoS between these session endpoints. For example, the Hosting CSE can manage the establishment and tear-down of QoS session(s) in underlying network(s) that interconnect oneM2M entities with one another, A Hosting CSE can also use this information to manage the scheduling and store-and-forwarding of requests and responses that it performs at the oneM2M service layer. When establishing a QoS session in an underlying network, a Hosting CSE can configure the QoS parameters based on the requirements defined by the <*e2eQosSession*> resource. For cases where the oneM2M entities are separated by multiple hops, each hop may require the establishment and configuration of a separate underlying network QoS session. For this case, a Hosting CSE can coordinate with its registrar and registree CSEs to assist it with the configuration of a QoS session in each respective underlying network involved in a multi-hop E2E QoS session such that the E2E QoS requirements defined within the <*e2eQosSession*> can be satisfied across the multiple hops.

… …

The *<e2eQosSession>* resource contains the attributes specified in table 9.6.63-2.

Table 9.6.63-2: Attributes of *<e2eQosSession>* resource

| Attributes of *<e2eQosSession>* | Multiplicity | RW/RO/WO | Description |
| --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3 |
| *resourceID* | 1 | RO | See clause 9.6.1.3 |
| *resourceName* | 1 | WO | See clause 9.6.1.3 |
| *parentID* | 1 | RO | See clause 9.6.1.3 |
| *creationTime* | 1 | RO | See clause 9.6.1.3  |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3 |
| *expirationTime* | 1 | RW | See clause 9.6.1.3 |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3 |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *owner* | 0..1 | RW | See clause 9.6.1.3. |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *announceTo* | 0..1(L) | RW | See clause 9.6.1.3 |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. |
| *sessionEndpoints* | 1 | WO | Indicates the oneM2M endpoints within one oneM2M E2E QoS session. The end points include AE-IDs or CSE-IDs. If an AE-ID is used and the AE is not a Registree of the <*e2eQosSession*> Hosting CSE, then the AE-ID will be formatted as a SP-Relative-AE-ID or Absolute-AE-ID to allow the <*e2eQosSession*> Hosting CSE to extract the CSE-ID of the CSE that hosts the destination endpoint <AE> resource.   |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 28 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 29 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.64 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.

The <*nwMonitoringReq*> resource contains the child resources specified in Table 9.6.64-1.

Table 9.6.64-1: Child resources of *<nwMonitoringReq>* resource

| **Child Resources of <*nwMonitoringReq*>** | Child Resource Type | Multiplicity | Description | ***<nwMonitoringReq*> Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8. | <*subscription*> |

The <*nwMonitoringReq*> resource contains the attributes specified in table 9.6.64-2.

Table 9.6.64‑2: Attributes of *<nwMonitoringReq>* Resource

| Attributes of *<nwMonitoringReq>* | Multiplicity | RW/RO/WO | Description |
| --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3 |
| *resourceID* | 1 | RO | See clause 9.6.1.3 |
| *resourceName* | 1 | WO | See clause 9.6.1.3 |
| *parentID* | 1 | RO | See clause 9.6.1.3 |
| *creationTime* | 1 | RO | See clause 9.6.1.3  |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3 |
| *expirationTime* | 1 | RW | See clause 9.6.1.3 |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3 |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *owner* | 0..1 | RW | See clause 9.6.1.3. |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. |
| *announceTo* | 0..1(L) | RW | See clause 9.6.1.3 |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. |
| *monitorEnable* | 1 | RW | Indicates the type of network monitoring request.* disable
* enable congestion status in an area
* enable number of devices in an area
* enable both number of devices and congestion status in an area.
 |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 29 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 30 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

###  9.6.65 Resource Type *semanticRuleRepository*

A *<semanticRuleRepository>* resource is a child resource of the *<CSEBase>* resource. The *<semanticRuleRepository>* resource may have one or multiple <*reasoningRules*> child resources to represent different sets of reasoning rules in the oneM2M system. A reasoning initiator can create <*reasoningJobInstance*> child resources of a *<semanticRuleRepository>* resource to initiate desired reasoning operations.

The *<semanticRuleRepository>* resource shall contain the child resources specified in Table 9.6.65-1 and the attributes specified in Table 9.6.65-2.

**Table 9.6.65-1: Child resources of <*semanticRuleRepository*> resource**

| **Child Resources of *<semanticRuleRepository>*** | **Child Resource Type** | **Multiplicity** | **Description** | **<*ruleRepositoryAnnc*> Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<reasoningRules>* | 0..n | <*reasoningRules*> resource for describing a set of reasoning rules. | *<reasoningRulesAnnc>* |
| *[variable]* | *<subscription>* | 0..n | See [i.3], clause 9.6.8. | *<subscription>* |
| *[variable]* | *<reasoningJobInstance>* | 0..n | <*reasoningJobInstance*> resource for describing a specific reasoning job instance. | <*reasoningJobInstanceAnnc*> |

**Table 9.6.65-2: Attributes *of <semanticRuleRepository> resource***

| **Attribute Name****<*semanticRuleRepository*>** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*ruleRepositoryAnnc*> Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 30 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 31 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.66 Resource Type *reasoningRules*

A <*reasoningRules*> resource can be used to store a set of related reasoning rules (e.g. for supporting a particular application). A *<reasoningRules>* resource is a child resource of the *<semanticRuleRepository>* resource. By performing the CRUD operations on the <*reasoningRules*> resources, various reasoning rules (e.g., user-defined reasoning rules based on business logic) can be created, discovered, retrieved, updated and deleted inside the oneM2M system.

The *<reasoningRules>* resource shall contain the child resources specified in Table 9.6.66-1 and the attributes specified in Table 9.6.66-2.

**Table 9.6.66-1: Child resources of *<reasoningRules>* resource**

| **Child Resources of <*reasoningRules*>** | **Child Resource Type** | **Multiplicity** | **Description** | **<*reasoningRulesAnnc*> Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See [1], clause 9.6.8 | *<subscription>* |

**Table 9.6.66-2: Attributes of *<reasoningRules>* resource**

| **Attribute Name****<*reasoningRules*>** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*reasoningRulesAnnc*> Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |
| *ontologyRef* | 1(L) | WO | A reference (URIs) of the ontologies used to represent the reasoning rules that are stored in the content attribute.  | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 31 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 32 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.67 Resource Type *reasoningJobInstance*

A <*reasoningJobInstance*> resource represents a specific reasoning job instance for enabling the two types of reasoning operations (One type is a one-time reasoning operation and the other type is a continuous reasoning operation). A reasoning initiator such as an AE or a CSE may initiate a desired reasoning operation by creating a <*reasoningJobInstance*> resource as a child resource of a *<semanticRuleRepository>* resource.

The *<reasoningJobInstance>* resource shall contain the child resources specified in Table 9.6.67-1 and the attributes specified in Table 9.6.67-2.

**Table 9.6.67-1: Child resources of *<reasoningJobInstance>* resource**

| **Child Resources of <*reasoningJobInstance*>** | **Child Resource Type** | **Multiplicity** | **Description** | **<*reasoningJobInstance*> Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *<subscription>* |

**Table 9.6.67-2: Attributes of *<reasoningJobInstance>* resource**

| **Attribute Name** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*reasoningJobInstance*> Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |
| *reasoningType* | 1 | WO | The type of the reasoning job represented by this resource.The supported values of this attribute include:* “one-time”
* “continuous”
 | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 32 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 33 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.69 Resource Type *timeSyncBeacon*

A *<timeSyncBeacon>* resource is created by an entity requesting time synchronization services from the Hosting CSE. As a result, the Hosting CSE provides time synchronization services in the form of beacon notifications. The beacon notifications include time-synchronization information (e.g. current time of the Hosting CSE).

When receiving a beacon notification, the receiver can extract the Hosting CSE’s current time, compare it against its own current time and compute an offset. This offset can then be used to synchronize the current time of the receiver to the current time of the Hosting CSE.

The *<timeSyncBeacon>* resource shall contain the child resources specified in table 9.6.69-1.

Table 9.6.69-1: Child resources of *<timeSyncBeacon>* resource

| Child Resources of *<timeSyncBeacon>* | Child Resource Type | Multiplicity | Description | *<timeSyncBeaconAnnc>* Child Resource Types |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *None* |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 | *<transaction>* |

The *<timeSyncBeacon>* resource shall contain the attributes specified in table 9.6.69-2.

Table 9.6.69-2: Attributes of *<timeSyncBeacon>* resource

| Attributes of *<timeSyncBeacon>* | Multiplicity | RW/RO/WO | Description | *<timeSyncBeaconAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 33 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 34 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.70 Resource Type *ontologyMapping*

The *<ontologyMapping>* resource is used for the mapping between two different ontologies. It contains necessary input parameters, such as the Resource-IDs of the source and target ontologies and the mapping method description (which includes the parameters of mapping policy and mapping algorithm), to perform ontology mapping. It may also contain the output ontology mapping results.

The *<ontologyMapping>* resource shall contain the child resources specified in table 9.6.70-1.

**Table** **9.6.70-1: Child resources of *<ontologyMapping>* resource**

| Child Resources of  *<ontologyMapping>* | Child Resource Type | Multiplicity | Description | *<ontologyMappingAnnc>* Child Resource Types |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8. | *<subscription>* |

The *<ontologyMapping>* resource shall contain the attributes specified in table 9.6.70-2.

**Table 9.6.70-2: Attributes of *<ontologyMapping>* resource**

| **Attribute Name** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*ontologyMappingAnnc*> Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |
| *sourceOntology* | 1 | RW | Contains the *resourceID* of the source ontology to be mapped. | OA |
| *targetOntology* | 1 | RW | Contains the *resourceID* of the target ontology to be mapped. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 34 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 35 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.71 Resource Type *ontologyMappingAlgorithmRepository*

The *<ontologyMappingAlgorithmRepository>* resource is used for storing a collection of ontology mapping algorithms which are represented as <*ontologyMappingAlgorithm*> resources, which are referenced from the <*ontologyMapping*> resource.

The  *<ontologyMappingAlgorithmRepository>* resource shall contain the child resources specified in table 9.6.71-1.

**Table 9.6.71-1: Child resources of *<ontologyMappingAlgorithmRepository>* resource**

| Child Resources of  *<ontologyMapping>* | Child Resource Type | Multiplicity | Description | *<ontologyMappingAlgorithmRepositoryAnnc>*Child Resource Types |
| --- | --- | --- | --- | --- |
| *[variable]* | *<ontologyMappingAlgorithm>* | 0..n | Each *<ontologyMappingAlgorithm>* represents an ontology mapping algorithm. | *<ontologyMappingAlgorithmAnnc>* |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 where the type of this resource is described. | *<subscription>* |

The  *<ontologyMappingAlgorithmRepository>* resource shall contain the attributes specified in table 9.6.71-2.

**Table 9.6.71-2: Attributes of *<ontologyMappingAlgorithmRepository>* resource**

| **Attribute Name** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*ontologyMappingAlgorithmAnnc*>Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *creator* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *owner* | 0..1 | RW | See clause 9.6.1.3. | NA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 35 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 36 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.72 Resource Type *ontologyMappingAlgorithm*

The *<ontologyMappingAlgorithm>* resource is used for representing an executable ontology mapping algorithm.

The *<ontologyMappingAlgorithm>* resource shall not contain any child resource. It shall contain the attributes specified in table 9.6.72-1.

**Table 9.6.72-1: Attributes of *<ontologyMappingAlgorithm>* resource**

| **Attribute Name** | **Multiplicity** | **RW/RO/WO** | **Description** | **<*ontologyMappingAlgorithmAnnc*>Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 36 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 37 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.73 Resource Type *primitiveProfile*

The *<primitiveProfile>* resource is a message template that defines request or response message parameters and/or resource attributes that are applied (i.e. added, removed or modified) by a Hosting CSE to requests and responses that it receives or generates. For example, a *<primitiveProfile>* resource may be used to reduce the size of requests and responses flowing back-and-forth between an Originator and a Hosting CSE.

Each <*primitiveProfile*> resource can be applied to different messages that originate from specified AEs and CSEs that target specified resources, and that perform specified operations on these targeted resources. When a CSE receives a request, it will first identify any applicable <*primitiveProfile*> resources based on the ***Primitive Profile Identifier*** specified in the request and use the information contained within the <*primitiveProfile*> resource to process the request as well as to generate an appropriate response.

… …

Table 9.6.73-2: Atributes of <*primitiveProfile*> resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attributes of *<primitiveProfile>*** | **Multiplicity** | **RW/****RO/****WO** | **Description** | ***<primitiveProfileAnnc>* Attributes** |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 0..1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 37 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 38 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.74 Resource Type *state*

A process consists of a sequence of states. Each state in a process is defined by a <*state*> resource. A <*state*> resource includes status information maintained for the state and actions performed by the Hosting CSE when a process is in the state. A <*state*> resource also defines criteria used by a Hosting CSE for transitioning to the next <*state*> resource in a process.

The <*state*> resource shall contain the child resources specified in table 9.6.74-1.

Table 9.6.74-1: Child resources of <*state*> resource

| **Child Resources of *<state>*** | **Child Resource Type** | **Multiplicity** | **Description** | ***<stateAnnc>* Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *<subscription>* |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 | *<transaction>* |
| *[variable]* | *<action>* | 0..1 | See clause 9.6.61 | *<action>* |

The <*state*> resource shall contain the attributes specified in table 9.6.74-2.

**Table 9.6.74-2: Attributes of *<state>* resource**

| **Attributes of *<state>*** | **Multiplicity** | **RW/****RO/****WO** | **Description** | ***<stateAnnc>* Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 38 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 39 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.75 Resource Type *processManagement*

A <*processManagement*> resource defines a process that a Hosting CSE manages on behalf of an AE and that consists of a sequence of states. Each state in a process is represented using a <*state*> resource defined in clause 9.6.74.

The <*processManagement*> resource shall contain the child resources specified in table 9.6.75-1.

Table 9.6.75-1: Child resources of <*processManagement*> resource

| **Child Resources of *<processManagement>*** | **Child Resource Type** | **Multiplicity** | **Description** | ***<processManagementAnnc>* Child Resource Types** |
| --- | --- | --- | --- | --- |
| *[variable]* | *<state>* | 0..n | This resource describes the details of a particular state of a process. | *<state>* |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *<subscription>* |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 | *<transaction>* |

The <*processManagement*> resource shall contain the attributes specified in table 9.6.75-2.

**Table 9.6.75-2: Attributes of *<processManagement>* resource**

| **Attributes of *<processManagement>*** | **Multiplicity** | **RW/****RO/****WO** | **Description** | ***<processManagementAnnc>* Attributes** |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3.  | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3.  | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 39 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*