|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Resource Type | Short Description | Child Resource Types | Parent Resource Types | Clause |
| *timeSeries* | Stores and Shares Time Series Data instances among entities. | *timeSeriesInstance, subscription, semanticDescriptor* | *AE, AEAnnc, remoteCSE, remoteCESAnnc, CSEBase* | 9.6.36 |
| *timeSeriesInstance* | Represents a Time Series Data instance in the *<timeSeries>* resource | *None specified* | *timeSeries, timeSeriesAnnc* | 9.6.37 |

### 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.



Figure 9.6.36-1: Structure of <timeSeries> resource

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

| Child Resources of *<timeSeries>* | Child Resource Type | Multiplicity | Description | *<timeSeriesAnnc>* Child Resource Types |
| --- | --- | --- | --- | --- |
| *semanticDescriptor* | *<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>* |

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. If no *accessControlPolicyIDs* are provided at the time of creation, the *accessControlPolicyIDs* of the parent resource is linked to this attribute | 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 |
| *creator* | 1 | RO | The AE-ID or CSE-ID of the entity which created the resource. | NA |
| *maxNrOfInstances* | 0..1 | RW | Maximum number of direct child *<timeSeriesInstance>* resources in the <*timeSeries*> resource. | OA |
| *maxByteSize* | 0..1 | RW | Maximum size in bytes of data that is allocated for the *<timeSeriesInstance>* resource for all direct child*<timeSeriesInstance>* resources. | OA |
| *maxInstanceAge* | 0..1 | RW | Maximum age of a direct child *<timeSeriesInstance>* resource in the <*timeSeries*> *resource*. The value is expressed in seconds. | OA |
| *currentNrOfnstances* | 1 | RO | Current number of direct child *<timeSeriesInstance>* resource in the <*timeSeries*> resource. It is limited by the *maxNrOfInstances*. | OA |
| *currentByteSize* | 1 | RO | Current size in bytes of data stored in all direct child *<timeSeriesInstance>* resources of a <*timeSeries*> resource. It is limited by the *maxByteSize*. | OA |
| *periodicInterval* | 0..1 | WO | If the Time Sereis Data is periodic, this attribute shall contain the expected amount of time between two instances of Time Series Data. | OA |
| *missingDataDetect* | 0..1 | WO | Indicates whether the Receiver shall detect the missing Time Series Data if it is periodic. | NA |
| *ontologyRef* | 0..1 | RW | A reference (URI) of the ontology used to represent the information that is stored in the child *<timeSeriesInstance>* resources of the present *<timeSeriesData>* resource (see note). | OA |
| *missingDataMaxNr* | 0..1 | RW | Maximum number of entries in the *missingDataList* if the *periodicInterval* is set and the *missingDataDetect* is TRUE. | OA |
| *missingDataList* | 0..1(L) | RO | The list of the *dataGenerationTime* valuerepresenting the missing Time Series Data in descending order by time if the *periodicInterva*l is set and the *missingDataDetect* is TRUE. | OA |
| *missingDataCurrentNr* | 0..1 | RO | Current number of the missing Time Series Data in the *missingDataList*. | OA |
| *missingDataDetectTimer* | 0..1 | RW | The *missingDataDetectTimer* shall be set if the *periodicInterva*l is set and the *missingDataDetect* is TRUE.  The expecting Time Series Data shall be considered to be lost when the amount of time equal to *missingDataDetectTimer* has passed. | OA |
| NOTE: The access to this URI is out of scope of oneM2M. | | | | |

### 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 common attributes from its parent *<timeSeries>*resource, e.g. *accessControlPolicyIDs, labels.*



**Figure 9.6.37-1: Structure of <timeSeriesInstance> resource**

The < *timeSeriesInstance*> resource shall contain the attributes specified in table 9.6.37-1.

**Table 9.6.37-1: 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 |
| *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. | OA |
| *dataGenerationTime* | 1 | WO | This attribute contains the time when the data was generated by the AE/CSE. | OA |
| *content* | 1 | WO | This attribute contains the data generated by the AE/CSE. | OA |
| *sequenceNr* | 0..1 | WO | This attribute contains the data sequence number generated by the AE/CSE | OA |

### Resource Type <timeSeries>

Table 7.4.6.1‑2: Universal/Common Attributes of <timeSeries> resource

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

Table 7.4.6.1‑3: Resource Specific Attributes of <timeSeries> resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute Name | Request Optionality | | Data Type | Default Value and Constraints |
| Create | Update |
| *creator* | NP | NP | m2m:ID | No default |
| *maxNrOfInstances* | O | O | xs:nonNegativeInteger | No default |
| *maxByteSize* | O | O | xs:nonNegativeInteger | No default |
| *maxInstanceAge* | O | O | xs:nonNegativeInteger | No default |
| *currentNrOfInstances* | NP | NP | xs:nonNegativeInteger | No default  (This is generated by the hosting CSE and limited by the maxNrOfInstances) |
| *currentByteSize* | NP | NP | xs:nonNegativeInteger | No default  (This is generated by the hosting CSE and limited by the maxByteSize) |
| periodicInterval | O | NP | xs:nonNegativeInteger | No default |
| *missingDataDetect* | O | NP | xs:boolean | No default |
| *ontologyRef* | O | O | xs:anyURI | No default |
| *missingDataMaxNr* | O | O | xs:nonNegativeInteger | No default |
| *missingDataList* | NP | NP | list of m2m:timestamp | No default |
| *missingDataCurrentNr* | NP | NP | xs:nonNegativeInteger | No default |
| *missingDataDetectTimer* | O | O | xs:nonNegativeInteger | No default |

**Table 7.4.6.1‑4: Child resources of <container> resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Child Resource Type** | Child Resource Name | **Multiplicity** | **Ref. to in Resource Type Definition** |
| <timeSeriesInstance> | [variable] | 0..n |  |
| <subscription> | [variable] | 0..n |  |
| <semanticDescriptor> | [variable] | 0..n |  |

### Resource Type <timeSeriesInstance>

Table 7.4.7.1‑2: Universal/Common Attributes of <timeSeriesInstance> resource

|  |  |
| --- | --- |
| Attribute Name | Request Optionality |
| Create |
| @resourceName | O |
| resourceType | NP |
| resourceID | NP |
| parentID | NP |
| creationTime | NP |
| lastModifiedTime | NP |
| stateTag | NP |
| labels | O |

Table 7.4.7.1‑3: Resource Specific Attributes of <contentInstance> resource

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Request Optionality | Data Type | Default Value and Constraints |
| Create |
| *dataGenerationTime* | M | m2m:timeStamp | No default |
| *content* | M | xs:anySimpleType | No default (Transfer encoding may be applied, and indicated applied encoding as part of the *contentInfo* attribute) |
| *sequenceNr* | O | xs:nonNegativeInteger | No default |