

# TM Forum Specification

## Entity Catalog Management API User Guide

**TMF662**

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N/A

## Introduction

The catalog management API allows the management of the entire lifecycle of the catalog elements, the consultation of catalog elements during several processes such as ordering process, campaign management, sales management.

Entity Catalog is primarily intended to address those specifications which may not be addressed by any of Product, Service or Resource catalogs.



## SAMPLE USE CASES

### Entity Catalog Management Use Cases

The entity catalog management API allows the lookup of the catalog elements to support relevant business processes such as:

UC1: A wholesale SP organization wants to define a catalog of Price Condition specifications, so that the marketing department can assign Price Conditions to new product offerings in a consistent manner.

UC2: A fieldforce organization requires a catalog of Job Plan specifications, which they may use to define and allocate Job Plans to their internal and external subcontractors when they undertake infrastructure tasks.

UC3: A Catalog designer in charge of specifying the TOSCA Node Templates and the TOSCA Relationship Templates that will be available to build topology templates for the services in the SP organization. He requires defining a catalog of TOSCA Node Templates and TOSCA Relationship Templates.

More details about entity catalog management use cases can be found in the Information Framework catalog guidebook GB922 and the Catalog guidebook GB978.

## Support of polymorphism and extension patterns

Support of polymorphic collections and types and schema based extension is provided by means of a list of generic meta-attributes that we describe below. Polymorphism in collections occurs when entities inherit from base entities, for instance JobPlan and TOSCANodeSpecification inheriting properties from the abstract EntitySpecification entity.

Generic support of polymorphism and pattern extensions is described in the TMF API Design Guidelines v4.0 (TMF630) document.

The @type attribute provides a way to represent the actual class type of an entity. For example, within a list of EntitySpecification instances some may be instances of TOSCANodeSpecification where other could be instances of JobPlan. The @type gives this information. All resources and sub-resources of this API have a @type attributes that can be provided when this is useful.

The @referredType can be used within reference entities (like for instance an EntitySpecificationRef object) to explicitly denote the actual entity type of the referred class. Notice that in reference entities the @type, when used, denotes the class type of the reference itself, such as EntitySpecificationRef, and not the class type of the referred object.

The @schemaLocation property can be used in resources to allow specifying user-defined properties of an Entity or to specify the expected *characteristics* of an entity.

The @baseType attribute gives a way to provide explicitly the base of class of a given resource that has been extended.

## RESOURCE MODEL

### Managed Entity and Task Resource Models

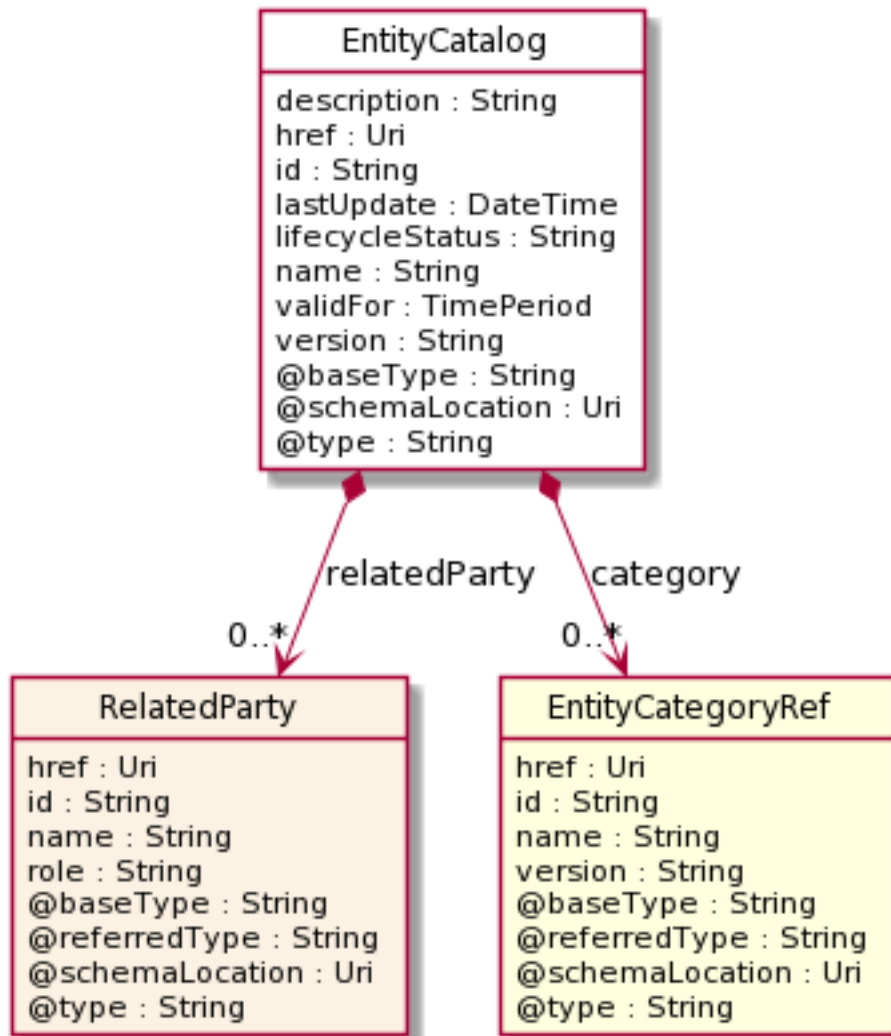
#### Entity Catalog resource

The root entity for entity catalog management. An entity catalog can be defined as a collection of entity catalog items and arranging them in a particular manner based on the need.

In comparison to Product, Service and Resource catalogs, the entity catalog is intended for the purpose of providing any TMF data model entity to consumers via a catalog, with its specification and policy providing governance over its content. Even Entity catalog may have an overlap with Product, Service or Resource catalog, it does not replace them. It is primarily intended to address those entities which may not be addressed by any of Product, Service or Resource catalog.

An entity catalog comprises of a list of RootEntities made available through EntityCatalogItems. This API addresses only RootEntity extended items as EntitySpecification. An entity catalog typically includes name, description and time period that it is valid for.

#### Resource model



**Field descriptions**

EntityCatalog fields

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
category	A list of entity category references (EntityCategoryRef [*]). The categories used

	in this catalog.
description	A string. Description of this catalog.
lastUpdate	A date time (DateTime). Date and time of the last update.
lifecycleStatus	A string. Used to indicate the current lifecycle status.
name	A string. Name of the catalog.
relatedParty	A list of related parties (RelatedParty [*]). The parties who are involved or have an interest in this catalog.
validFor	A time period. The period for which the catalog is valid.
version	A string. Catalog version.

#### RelatedParty sub-resource

Related Entity reference. A related party defines party or party role linked to a specific entity.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
role	A string. Role played by the related party.

#### EntityCategoryRef relationship

Reference to Entity Category object. The (entity) category resource is used to group entity catalog items in logical containers. Categories can contain other categories.

Resource IDs for categories are strings and are defined by the catalog application.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
---------------	--

name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. Category version.

### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalog' resource object

```
{
  "id": "6421",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalog/6421",
  "name": "Home Security Catalog",
  "description": "This catalog describes home security entities that address both wholesale/retailer business segment.",
  "version": "2.0",
  "validFor": {
    "startDateTime": "2020-11-24T00:00",
    "endDateTime": "2023-12-05T00:00"
  },
  "lastUpdate": "2020-11-24T00:00",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733",
      "id": "6733",
      "name": "Home Security Ltd",
      "role": "vendor",
      "@referredType": "Supplier",
      "@type": "RelatedParty",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/EngagedParty/RelatedParty.schema.json",
      "@baseType": ""
    }
  ],
  "category": [
    {
      "id": "6073",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6073",
      "version": "1.0",
      "name": "SmartHome Security",
      "@referredType": "EntityCategory",

```

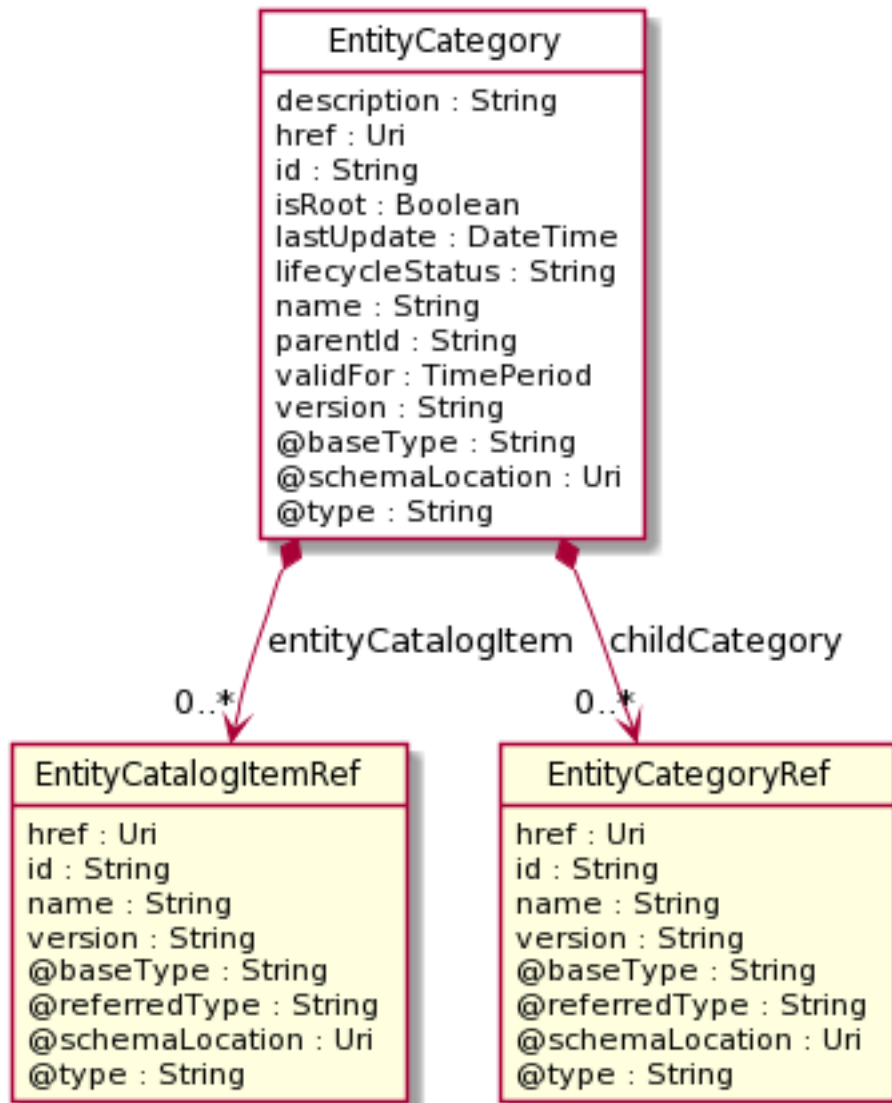
```
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  },
  {
    "id": "6079",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6079",
    "version": "1.0",
    "name": "Sensors",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"@type": "EntityCatalog",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json",
"@baseType": "Catalog"
}
```

## Entity Category resource

The (entity) category resource is used to group entity catalog items in logical containers. Categories can contain other categories.

Resource IDs for categories are strings and are defined by the catalog application.

### Resource model



**Field descriptions**

EntityCategory fields

- href                      An uri (Uri). Hyperlink reference.
- id                         A string. unique identifier.
- @baseType                A string. When sub-classing, this defines the super-class.
- @schemaLocation        An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
- @type                     A string. When sub-classing, this defines the sub-class Extensible name.



childCategory	A list of entity category references (EntityCategoryRef [*]). The child category(ies) if any, contained in this category.
description	A string. Description of the category.
entityCatalogItem	A list of entity catalog item references (EntityCatalogItemRef [*]). The catalog items referred to by this category.
isRoot	A boolean. If true, this Boolean indicates that the category is a root of categories.
lastUpdate	A date time (DateTime). Date and time of the last update.
lifecycleStatus	A string. Used to indicate the current lifecycle status.
name	A string. Name of the category.
parentId	A string. Unique identifier of the parent category.
validFor	A time period. The period for which the category is valid.
version	A string. Category version.

#### EntityCatalogItemRef relationship

reference to EntityCatalogItem object.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. EntityCatalogItem version.

EntityCategoryRef relationship

Reference to Entity Category object. The (entity) category resource is used to group entity catalog items in logical containers. Categories can contain other categories.

Resource IDs for categories are strings and are defined by the catalog application.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. Category version.

**Json representation sample**

Provided below is the json representation of an example of an 'EntityCategory' resource object

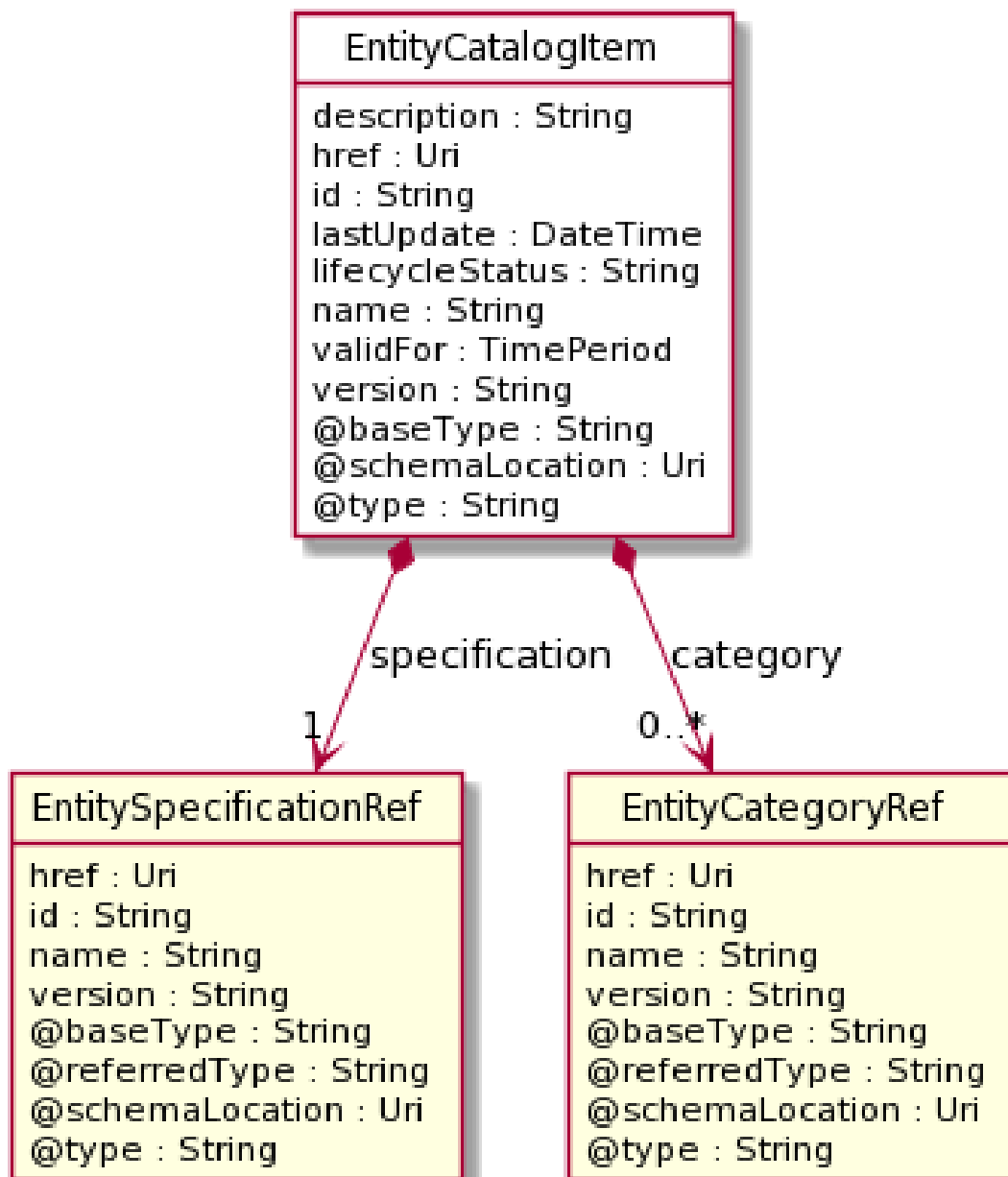
```
{
  "id": "2027",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2027",
  "name": "Tosca Node Types",
  "description": "A category to hold all available Tosca Node Types",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-08-25T00:00",
    "endDateTime": "2023-11-24T00:00"
  },
  "lifecycleStatus": "Active",
  "lastUpdate": "2020-08-25T00:00",
  "isRoot": true,
  "parentId": "",
  "entityCatalogItem": [],
  "childCategory": [],
  "@type": "EntityCategory",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",
  "@baseType": "Category"
}
```

### Entity Catalog Item resource

An EntityCatalogItem is an entity that allows any ProductOffering, ServiceCandidate, ResourceCandidate, or even any object inheriting from RootEntity, to be available to a catalog. The CatalogSpecification and Policy of the catalog governs the content of the EntityCatalogItem. This API addresses only EntitySpecification items extended from RootEntity as EntityCatalogItem.

The EntityCatalogItem resource (JSON format) represents a set of characteristics that define the values given by the EntityCatalogItem.

#### Resource model



**Field descriptions**EntityCatalogItem fields

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
category	A list of entity category references (EntityCategoryRef [*]). Reference to Entity Category object. The (entity) category resource is used to group entity catalog items in logical containers. Categories can contain other categories. Resource IDs for categories are strings and are defined by the catalog application.
description	A string. Description of this REST resource.
lastUpdate	A date time (DateTime). Date and time of the last update of this REST resource.
lifecycleStatus	A string. Used to indicate the current lifecycle status of this catalog item.
name	A string. Name given to this REST resource.
specification	An entity specification reference (EntitySpecificationRef). The specification implied by this candidate.
validFor	A time period. The period for which this REST resource is valid.
version	A string. EntityCatalogItem version.

EntityCategoryRef relationship

Reference to Entity Category object. The (entity) category resource is used to group entity catalog items in logical containers. Categories can contain other categories.

Resource IDs for categories are strings and are defined by the catalog application.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. Category version.

### EntitySpecificationRef relationship

reference to an EntitySpecification object.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. EntitySpecification version.

### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogItem' resource object

```
{
  "id": "6007",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007",
  "name": "ProjectTemplate",
  "description": "This object Offers provision of a project template",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-11-06T00:00",
    "endDateTime": "2023-09-10T00:00"
  },
  "lastUpdate": "2020-11-06T00:00",
}
```

```

"lifecycleStatus": "Active",
"category": [
  {
    "id": "6043",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6043",
    "version": "1.0",
    "name": "Template",
    "@referredType": "Template",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"specification": {
  "id": "6823",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6823",
  "version": "1.0",
  "name": "Task-focused project Specification",
  "@referredType": "EntitySpecificationRef",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",
  "@baseType": "",
  "@type": "EntitySpecificationRef"
},
"@type": "EntityCatalogItem",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json",
"@baseType": ""
}

```

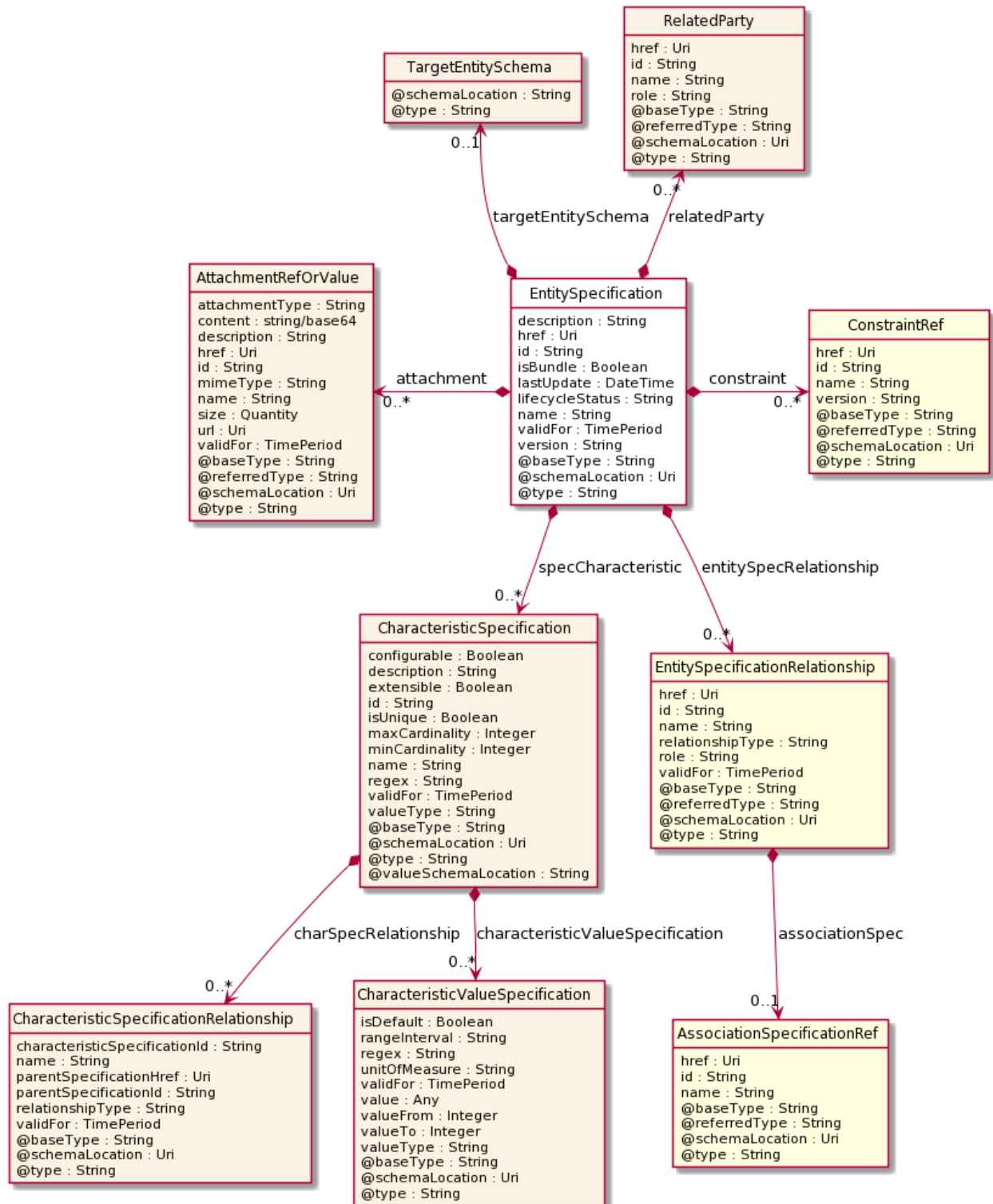
## Entity Specification resource

EntitySpecification is a class that offers characteristics to describe a type of entity. Entities are generic constructs that may be used to describe bespoke business entities that are not effectively covered by the existing SID model.

Functionally, the entity specification acts as a template by which entities may be instantiated and described. By sharing the same specification, these entities would therefore share the same set of characteristics.

Note: The 'configurable' attribute on the specCharacteristics determines if an entity instantiated from the entity specification can override the value of the attribute. When set to false, the entity instance may not define a value that differs from the value in the specification.

Resource model



**Field descriptions**EntitySpecification fields

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
attachment	A list of attachment ref or values (AttachmentRefOrValue [*]). Attachments that may be of relevance to this specification, such as picture, document, media.
constraint	A list of constraint references (ConstraintRef [*]). This is a list of constraint references applied to this specification.
description	A string. Description of the specification.
entitySpecRelationship	A list of entity specification relationships (EntitySpecificationRelationship [*]). Relationship to another specification.
isBundle	A boolean. isBundle determines whether specification represents a single specification (false), or a bundle of specifications (true).
lastUpdate	A date time (DateTime). Date and time of the last update of the specification.
lifecycleStatus	A string. Used to indicate the current lifecycle status of this catalog item.
name	A string. Name given to the specification.
relatedParty	A list of related parties (RelatedParty [*]). Parties who manage or otherwise have an interest in this specification.
specCharacteristic	A list of characteristic specifications (CharacteristicSpecification [*]). List of characteristics that the entity can take.
targetEntitySchema	A target entity schema (TargetEntitySchema). Pointer to a schema that defines the target entity.
validFor	A time period. The period for which this REST resource is valid.
version	A string. specification version.



AttachmentRefOrValue sub-resource

An attachment by value or by reference. An attachment complements the description of an element, for example through a document, a video, a picture.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
description	A string. A narrative text describing the content of the attachment.
href	An uri (Uri). URI for this Attachment.
id	A string. Unique identifier for this particular attachment.
url	An uri (Uri). Uniform Resource Locator, is a web page address (a subset of URI).
name	A string. The name of the attachment.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
attachmentType	A string. Attachment type such as video, picture.
content	A base 6 4 (Base64). The actual contents of the attachment object, if embedded, encoded as base64.
contentType	A string. Attachment mime type such as extension file for video, picture and document.
size	A quantity (Quantity). The size of the attachment.
validFor	A time period. The period of time for which the attachment is valid.

CharacteristicSpecification sub-resource

This class defines a characteristic specification.

@valueSchemaLocation	A string. This (optional) field provides a link to the schema describing the value type.
configurable	A boolean. If true, the Boolean indicates that the target Characteristic is configurable.
description	A string. A narrative that explains the CharacteristicSpecification.

extensible	A boolean. An indicator that specifies that the values for the characteristic can be extended by adding new values when instantiating a characteristic for a resource.
id	A string. Unique ID for the characteristic.
isUnique	A boolean. An indicator that specifies if a value is unique for the specification. Possible values are; "unique while value is in effect" and "unique whether value is in effect or not".
maxCardinality	An integer. The maximum number of instances a CharacteristicValue can take on. For example, zero to five phone numbers in a group calling plan, where five is the value for the maxCardinality.
minCardinality	An integer. The minimum number of instances a CharacteristicValue can take on. For example, zero to five phone numbers in a group calling plan, where zero is the value for the minCardinality.
name	A string. A word, term, or phrase by which this characteristic specification is known and distinguished from other characteristic specifications.
regex	A string. A rule or principle represented in regular expression used to derive the value of a characteristic value.
valueType	A string. A kind of value that the characteristic can take on, such as numeric, text and so forth.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
charSpecRelationship	A list of characteristic specification relationships (CharacteristicSpecificationRelationship [*]). An aggregation, migration, substitution, dependency or exclusivity relationship between/among Specification Characteristics.
characteristicValueSpecification	A list of characteristic value specifications (CharacteristicValueSpecification [*]). A CharacteristicValueSpecification object is used to define a set of attributes, each of which can be assigned to a corresponding set of attributes in a CharacteristicSpecification object. The values of the

attributes in the `CharacteristicValueSpecification` object describe the values of the attributes that a corresponding `Characteristic` object can take on.

`validFor` A time period. The period of time for which a characteristic is applicable.

#### *CharacteristicSpecificationRelationship* sub-resource

An aggregation, migration, substitution, dependency or exclusivity relationship between/among `Characteristic` specifications. The specification characteristic is embedded within the specification whose ID and href are in this entity, and identified by its ID.

`@baseType` A string. When sub-classing, this defines the super-class.

`@schemaLocation` An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.

`@type` A string. When sub-classing, this defines the sub-class Extensible name.

`characteristicSpecificationId` A string. Unique identifier of the characteristic within the specification.

`name` A string. Name of the target characteristic within the specification.

`parentSpecificationHref` An uri (Uri). Hyperlink reference to the parent specification containing the target characteristic.

`parentSpecificationId` A string. Unique identifier of the parent specification containing the target characteristic.

`relationshipType` A string. Type of relationship such as aggregation, migration, substitution, dependency, exclusivity.

`validFor` A time period. The period for which the object is valid.

#### *CharacteristicValueSpecification* sub-resource

specification of a value (number or text or an object) that can be assigned to a `Characteristic`.

`@baseType` A string. When sub-classing, this defines the super-class.

`@schemaLocation` An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.

`@type` A string. When sub-classing, this defines the sub-class Extensible name.

`isDefault` A boolean. If true, the Boolean Indicates if the value is the default value for a

	characteristic.
rangeInterval	A string. An indicator that specifies the inclusion or exclusion of the valueFrom and valueTo attributes. If applicable, possible values are "open", "closed", "closedBottom" and "closedTop".
regex	A string. A regular expression constraint for given value.
unitOfMeasure	A string. A length, surface, volume, dry measure, liquid measure, money, weight, time, and the like. In general, a determinate quantity or magnitude of the kind designated, taken as a standard of comparison for others of the same kind, in assigning to them numerical values, as 1 foot, 1 yard, 1 mile, 1 square foot.
validFor	A time period. The period of time for which a value is applicable.
value	An any (Any). A discrete value that the characteristic can take on, or the actual value of the characteristic.
valueFrom	An integer. The low range value that a characteristic can take on.
valueTo	An integer. The upper range value that a characteristic can take on.
valueType	A string. A kind of value that the characteristic value can take on, such as numeric, text and so forth.

#### EntitySpecificationRelationship sub-resource

A migration, substitution, dependency or exclusivity relationship between/among entity specifications.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
associationSpec	An association specification reference (AssociationSpecificationRef). A

	specification for an association used by this relationship.
relationshipType	A string. Type of relationship such as migration, substitution, dependency, exclusivity.
role	A string. The association role for this entity specification.
validFor	A time period. The period for which the entitySpecRelationship is valid.

Quantity sub-resource

An amount in a given unit.

amount	A float. Numeric value in a given unit.
units	A string. Unit.

RelatedParty sub-resource

Related Entity reference. A related party defines party or party role linked to a specific entity.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
role	A string. Role played by the related party.

TargetEntitySchema sub-resource

The reference object to the schema and type of target entity which is described by a specification.

@schemaLocation	A string. This field provides a link to the schema describing the target entity.
@type	A string. Class type of the target entity.

AssociationSpecificationRef relationship

reference to an AssociationSpecification object.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.

### ConstraintRef relationship

Constraint reference. The Constraint resource represents a policy/rule applied to an entity or entity spec.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. constraint version.

### **Json representation sample**

Provided below is the json representation of an example of an 'EntitySpecification' resource object

```
{
  "id": "6599",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6599",
  "name": "TOSCA Node Template",
  "description": "This entity specification represents a Tosca Node template that describes the (software) components that are used to compose cloud applications",
  "version": "1.0",
  "validFor": {
```

```

    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2023-12-31T11:59:59"
  },
  "lastUpdate": "2020-12-05T00:00",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "attachment": [
    {
      "description": "This attachment gives a description of the this entity specification with examples",
      "href": "https://mycsp.com:8080/tmf-api/documentManagement/v4/attachment/6991",
      "id": "6991",
      "url": "https://mycsp.com:7070/docloader?docnum=3534536",
      "@attachmentType": "Document",
      "content": "",
      "mimeType": ".pdf",
      "validFor": {
        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2021-03-25T00:00"
      },
      "size": {
        "amount": 1741,
        "units": "KB"
      },
      "name": "TOSCA Node Template",
      "@type": "Attachment",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Attachment.schema.json"
    }
  ],
  "specCharacteristic": [
    {
      "name": "Platform",
      "id": "4441",
      "description": "This characteristic describes the platform of the node",
      "valueType": "string",
      "configurable": true,
      "validFor": {
        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2023-12-31T11:59:59"
      },
      "@valueSchemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/StringCharacteristic.schema.json",
      "minCardinality": 0,
      "maxCardinality": 1,
      "isUnique": true,
      "regex": "",
      "extensible": false,
      "characteristicValueSpecification": [
        {
          "valueType": "string",
          "isDefault": true,
          "value": "Windows",
          "validFor": {

```

```

        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2023-12-31T11:59:59"
    },
    "regex": "",
    "valueFrom": "",
    "valueTo": "",
    "unitOfMeasure": "",
    "rangeInterval": "open",
    "@type": "CharacteristicValueSpecification",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
    }
],
"charSpecRelationship": [],
"@type": "SpecCharacteristic",
"@baseType": "",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
}
],
"relatedParty": [
{
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",
    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
}
],
"targetEntitySchema": {
    "@type": "ManagedEntity",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
{
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3779",
    "id": "3779",
    "name": "Node Filter",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
}
],
"entitySpecRelationship": [
{
    "relationshipType": "Includes",

```



```

"role": "nodeType",
"id": "8039",
"href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
"name": "Node Type Capability Definition",
"validFor": {
  "startDateTime": "2020-12-05T00:00",
  "endDateTime": "2023-12-31T11:59:59"
},
"associationSpec": {},
"@referredType": "CapabilitySpecification",
"@type": "EntitySpecRelationship",
"@baseType": "",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
},
{
  "relationshipType": "Includes",
  "role": "nodeType",
  "id": "8053",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8053",
  "name": "Node Type Requirement Definition",
  "validFor": {
    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2023-12-31T11:59:59"
  },
  "associationSpec": {},
  "@referredType": "RequirementSpecification",
  "@type": "EntitySpecRelationship",
  "@baseType": "",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
},
{
  "relationshipType": "Includes",
  "role": "nodeType",
  "id": "8059",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8059",
  "name": "Node Type Interface Definition",
  "validFor": {
    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2023-12-31T11:59:59"
  },
  "associationSpec": {},
  "@referredType": "InterfaceSpecification",
  "@type": "EntitySpecRelationship",
  "@baseType": "",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
},
{
  "relationshipType": "Includes",
  "role": "nodeType",
  "id": "8069",

```

```

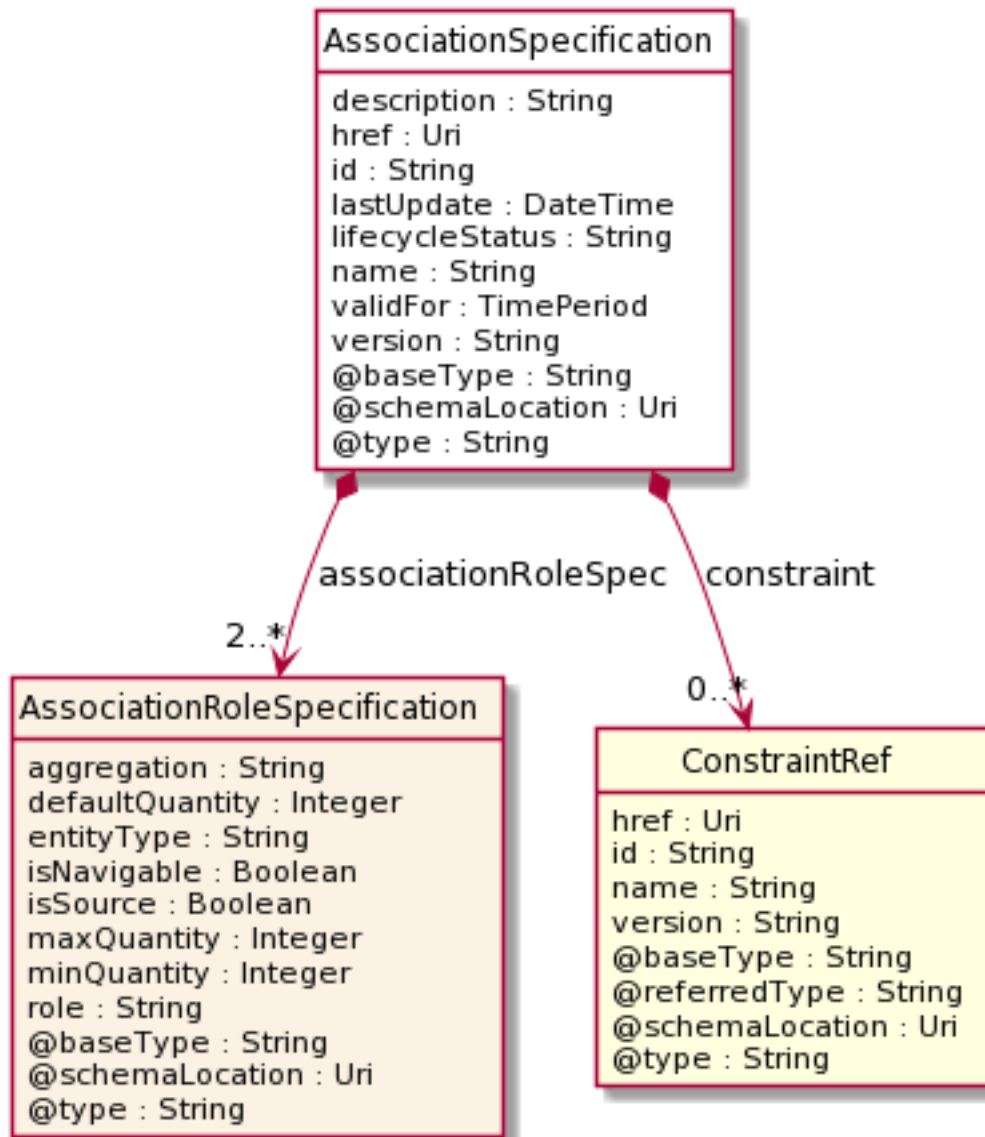
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8069",
    "name": "Node Type Artifact Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "ArtifactSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  }
},
"@type": "ToscaNodeTemplate",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/ToscaNodeTemplate.schema.json",
"@baseType": "EntitySpecification"
}

```

### Association Specification resource

AssociationSpecification is an association class that describes a type of relationship between two entities. This is a generic construct that may be used to describe relationship types and roles. The role and type of each entity in the relationship is given by an association role specification. Two role specifications are embedded in the association specification.

#### Resource model



**Field descriptions**

AssociationSpecification fields

- href                      An uri (Uri). Hyperlink reference.
- id                         A string. unique identifier.
- @baseType                A string. When sub-classing, this defines the super-class.
- @schemaLocation        An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
- @type                     A string. When sub-classing, this defines the sub-class Extensible name.

associationRoleSpec	An association role specification (AssociationRoleSpecification). Role specifications for this association.
constraint	A list of constraint references (ConstraintRef [*]). Constraints relating to this association.
description	A string. Description of the specification.
lastUpdate	A date time (DateTime). The last modified date of this specification.
lifecycleStatus	A string. Indicates the current lifecycle status.
name	A string. Name given to this association specification.
validFor	A time period. The period for which this specification is valid.
version	A string. Version of this association.

#### AssociationRoleSpecification sub-resource

This embedded object represents the role and type of each entity involved in a relationship.

@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
aggregation	A string. A flag indicates that if this role is an aggregation or a simple relationship.
defaultQuantity	An integer. Default quantity of the association role.
entityType	A string. The target (root) entity type associated with this role.
isNavigable	A boolean. A flag indicating if access from the other end of association is allowed or not.
isSource	A boolean. A flag indicating if the participant involved in a uni-directional relationship is the source or not. This flag is true If the association is bi-directional.
maxQuantity	An integer. Maximum allowed quantity of the association role.
minQuantity	An integer. Minimum allowed quantity of the association role.
role	A string. The association role of this relationship participant.

ConstraintRef relationship

Constraint reference. The Constraint resource represents a policy/rule applied to an entity or entity spec.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
version	A string. constraint version.

**Json representation sample**

Provided below is the json representation of an example of an 'AssociationSpecification' resource object

```
{
  "id": "7717",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7717",
  "name": "HostedOn",
  "description": "An uni-directional association from TOSCA NodeDbmsSpec A to Tosca NodeComputeSpec Z indicating an instance of A hosted on an instance of B",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-05T00:00-04:00",
    "endDateTime": "2023-12-31T11:59:59-04:00"
  },
  "lastUpdate": "2020-12-05T00:00-04:00",
  "lifecycleStatus": "Active",
  "constraint": [
    {
      "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",
      "id": "3989",
      "name": "EligibilityConstraint",
      "version": "1.0",
      "@referredType": "Constraint",
      "@type": "ConstraintRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
    }
  ]
}
```

```

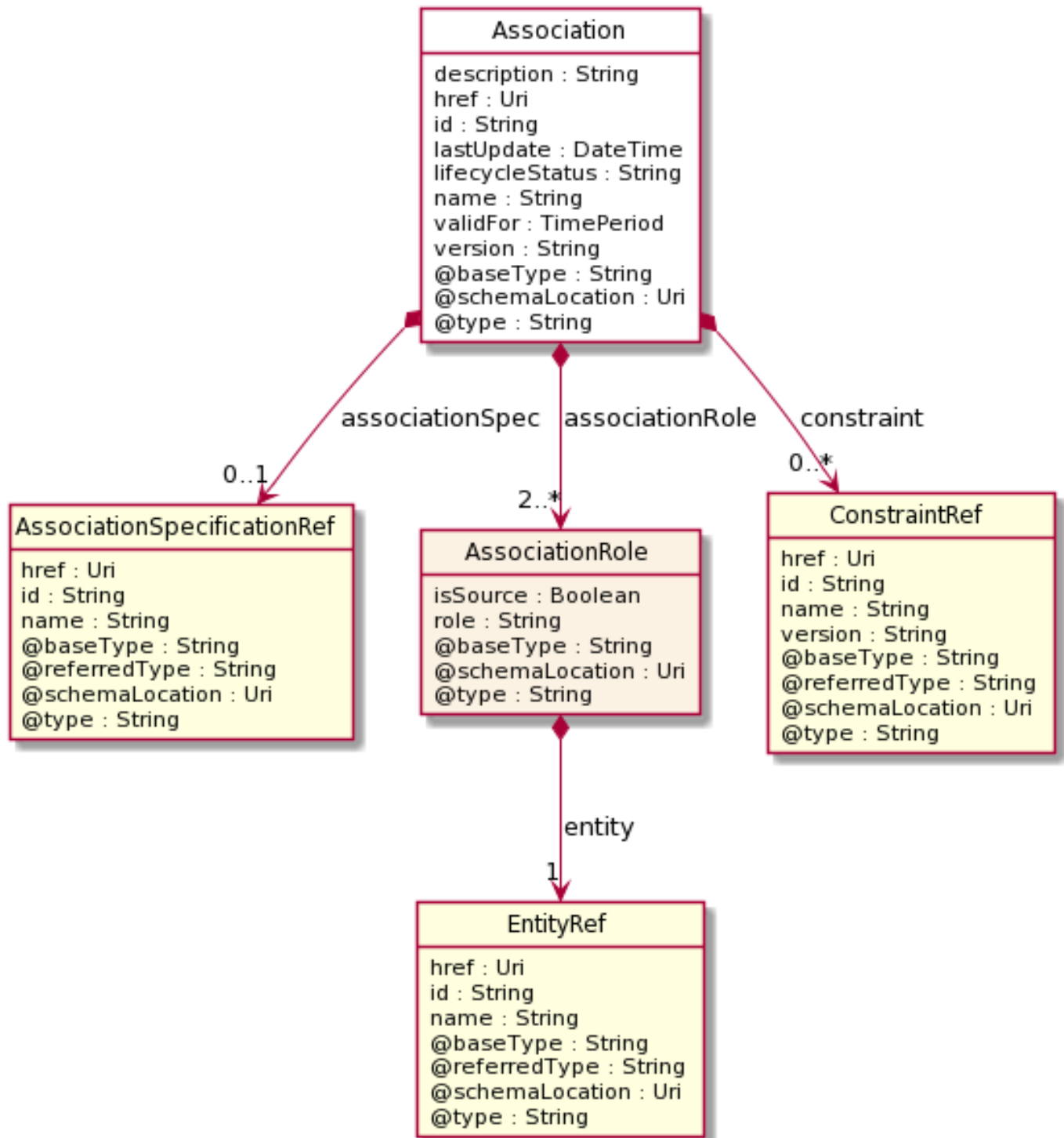
"associationRoleSpec": [
  {
    "entityType": "NodeDbmsSpec",
    "isNavigable": true,
    "isSource": true,
    "maxQuantity": 1,
    "minQuantity": 1,
    "role": "a_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  },
  {
    "entityType": "NodeComputeSpec",
    "isNavigable": true,
    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "z_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json",
"@baseType": ""
}

```

## Association resource

Association is the class that describes a relationship between two or more entities or entity specifications based on a given association specification. The role of each endpoint in the relationship is given by an association role. The type of endpoints in the relationship should match the ones as defined in the corresponding association role specification. A relationship between entity specifications may be governed by conditions and rules which are addressed by constraint references in this resource. Constraints for a relationship may include new rules and conditions in addition to those defined for the corresponding association specification.

## Resource model



**Field descriptions**Association fields

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
associationRole	An association role (AssociationRole). The end point roles of this association.
associationSpec	An association specification reference (AssociationSpecificationRef). The specification of this association.
constraint	A list of constraint references (ConstraintRef [*]). Any constraints in this association.
description	A string. Description of the association.
lastUpdate	A date time (DateTime). The last modified date of this association object.
lifecycleStatus	A string. Indicates the current lifecycle status.
name	A string. Name given to this association.
validFor	A time period. The period for which this association is valid.
version	A string. Version of this REST resource.

AssociationRole sub-resource

This embedded object represents the role and type of each entity involved in a relationship.

@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
entity	An entity reference (EntityRef). The entity being referred to.
isSource	A boolean. A flag indicating if the participant involved in a relationship is the



source or not. If this flag is true for both roles in an association, the association is bi-directional (both end points are navigable).

role A string. The association role of this relationship participant as defined in the associationRoleSpecification.

#### AssociationSpecificationRef relationship

reference to an AssociationSpecification object.

@referredType A string. The actual type of the target instance when needed for disambiguation.

name A string. Name of the related entity.

href An uri (Uri). Hyperlink reference.

id A string. unique identifier.

@baseType A string. When sub-classing, this defines the super-class.

@schemaLocation An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.

@type A string. When sub-classing, this defines the sub-class Extensible name.

#### ConstraintRef relationship

Constraint reference. The Constraint resource represents a policy/rule applied to an entity or entity spec.

@referredType A string. The actual type of the target instance when needed for disambiguation.

name A string. Name of the related entity.

href An uri (Uri). Hyperlink reference.

id A string. unique identifier.

@baseType A string. When sub-classing, this defines the super-class.

@schemaLocation An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.

@type A string. When sub-classing, this defines the sub-class Extensible name.

version A string. constraint version.

#### EntityRef relationship

Entity reference schema to be use for all entityRef class.

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
@referredType	A string. The actual type of the target instance when needed for disambiguation.
name	A string. Name of the related entity.

### Json representation sample

Provided below is the json representation of an example of an 'Association' resource object

```
{
  "id": "7757",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/association/7757",
  "name": "ReliesOn",
  "description": "An Uni-directional ReliesOn association from Electrical Fire Protection Specification to Mechanical Fire Protection Specification",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-25T00:00Z",
    "endDateTime": "2023-12-31T11:59:59Z"
  },
  "lastUpdate": "2020-12-25T00:00Z",
  "lifecycleStatus": "Active",
  "associationSpec": {
    "id": "7727",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",
    "name": "ReliesOn",
    "@referredType": "AssociationSpecification",
    "@type": "AssociationSpecificationRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationSpecificationRef.schema.json"
  },
  "constraint": [
    {
      "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3947",
      "id": "3947",
      "name": "protectionDependencyRule",
      "version": "1.0",
    }
  ]
}
```

```

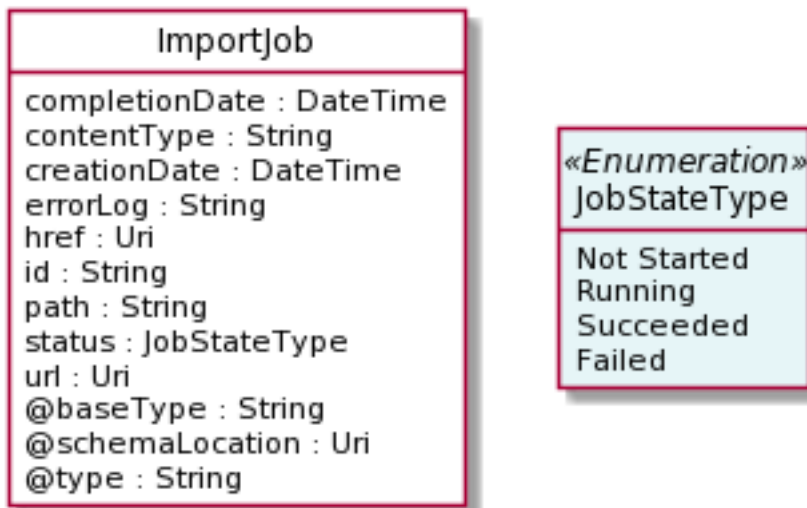
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"associationRole": [
  {
    "isSource": true,
    "role": "a_ReliesOn",
    "@type": "AssociationRole",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
    "@baseType": "",
    "entity": {
      "id": "8089",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8089",
      "name": "Fire Protection Electrical",
      "@type": "EntityRef",
      "@baseType": "",
      "referredType": "FireProtectionSpecification",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  },
  {
    "isSource": false,
    "role": "z_ReliesOn",
    "@type": "AssociationRole",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
    "@baseType": "",
    "entity": {
      "id": "8087",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8087",
      "name": "Fire Protection Mechanical",
      "@type": "EntityRef",
      "@baseType": "",
      "referredType": "FireProtectionSpecification",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  }
],
"@type": "Association",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json",
"@baseType": ""
}

```

### Import Job resource

Represents a task used to import resources from a file.

**Resource model**



**Field descriptions**

ImportJob fields

href	An uri (Uri). Reference of the import job.
id	A string. Identifier of the import job.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
completionDate	A date time (DateTime). Date at which the job was completed.
contentType	A string. Indicates the format of the imported data.
createDate	A date time (DateTime). Date at which the job was created.
errorLog	A string. Reason for failure if status is failed.
href	An uri (Uri). Reference of the import job.
id	A string. Identifier of the import job.
path	A string. URL of the root resource where the content of the file specified by the import job must be applied.

**status** A job state type (*JobStateType*). Status of the import job (not started, running, succeeded, failed).

**url** An uri (Uri). URL of the file containing the data to be imported.

**Json representation sample**

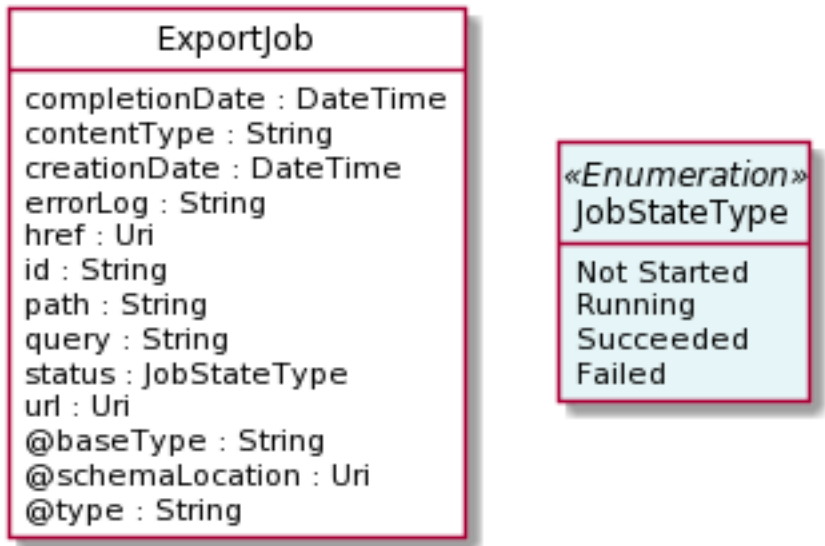
Provided below is the json representation of an example of a, 'ImportJob' resource object

```
{
  "completionDate": "2020-09-23T00:03",
  "contentType": "application/json",
  "creationDate": "2020-09-23T00:00",
  "errorLog": "http://my-platform/daily/logging/ImportJobErrors.log",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/importJob/2011",
  "id": "2011",
  "path": "entityCatalogManagement/",
  "status": "completed",
  "url": "ftp://ftp.mycsp.com/entityCatalogManagement/ImportJob.json"
}
```

**Export Job resource**

Represents a task used to export resources to a file.

**Resource model**



**Field descriptions**

ExportJob fields

**href** An uri (Uri). Reference of the export job.

id	A string. Identifier of the export job.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
completionDate	A date time (DateTime). Data at which the job was completed.
contentType	A string. The format of the exported data.
creationDate	A date time (DateTime). Date at which the job was created.
errorLog	A string. Reason for failure.
href	An uri (Uri). Reference of the export job.
id	A string. Identifier of the export job.
path	A string. URL of the root resource acting as the source for streaming content to the file specified by the export job.
query	A string. Used to scope the exported data.
status	A job state type (JobStateType). Status of the export job (not started, running, succeeded, failed).
url	An uri (Uri). URL of the file containing the data to be exported.

### Json representation sample

We provide below the json representation of an example of an 'ExportJob' resource object

```
{
  "completionDate": "2020-08-25T00:05",
  "contentType": "application/json",
  "creationDate": "2020-08-25T00:00",
  "errorLog": "http://my-platform/daily/logging/exportJobErrors.log",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/exportJob/2003",
  "id": "2003",
  "path": "entityCatalogManagement/",
  "query": "@type=JobSpecification",
  "status": "completed",
  "url": "ftp://ftp.mycsp.com/entityCatalogManagement/exportJob.json"
}
```

## Notification Resource Models

25 notifications are defined for this API.

Notifications related to EntityCatalog:

- EntityCatalogCreateEvent
- EntityCatalogAttributeValueChangeEvent
- EntityCatalogStateChangeEvent
- EntityCatalogDeleteEvent
- EntityCatalogBatchEvent

Notifications related to EntityCategory:

- EntityCategoryCreateEvent
- EntityCategoryAttributeValueChangeEvent
- EntityCategoryStateChangeEvent
- EntityCategoryDeleteEvent

Notifications related to EntityCatalogItem:

- EntityCatalogItemCreateEvent
- EntityCatalogItemAttributeValueChangeEvent
- EntityCatalogItemStateChangeEvent
- EntityCatalogItemDeleteEvent

Notifications related to EntitySpecification:

- EntitySpecificationCreateEvent
- EntitySpecificationAttributeValueChangeEvent
- EntitySpecificationStateChangeEvent
- EntitySpecificationDeleteEvent

Notifications related to AssociationSpecification:

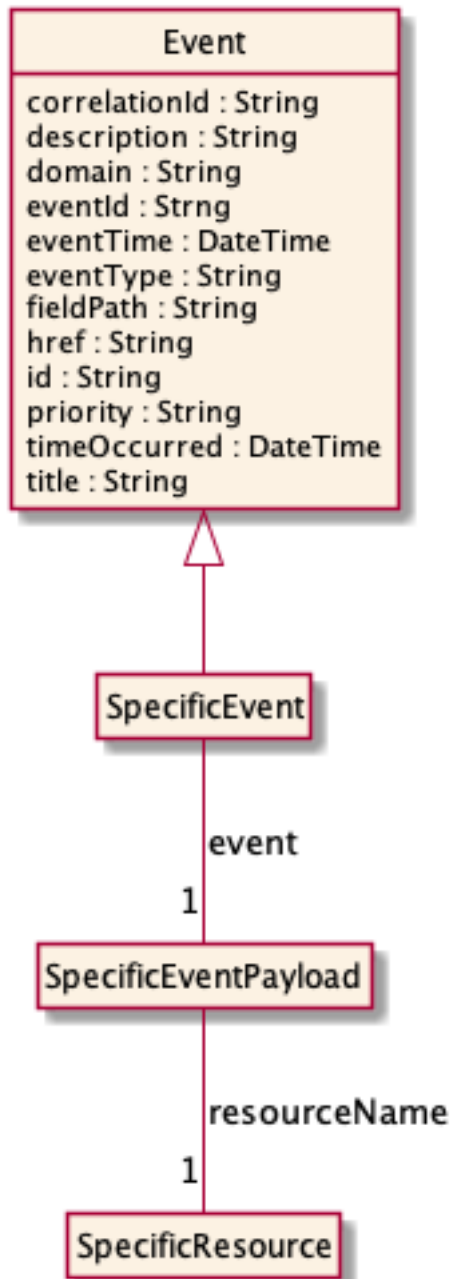
- AssociationSpecificationCreateEvent
- AssociationSpecificationAttributeValueChangeEvent
- AssociationSpecificationStateChangeEvent
- AssociationSpecificationDeleteEvent

Notifications related to Association:

- AssociationCreateEvent
- AssociationAttributeValueChangeEvent
- AssociationStateChangeEvent
- AssociationDeleteEvent

The notification structure for all notifications in this API follow the pattern depicted by the figure below. A notification event resource (depicted by "SpecificEvent" placeholder) is a sub class of a generic Event structure containing at least an id of the event occurrence (eventId), an event timestamp (eventTime), and the name of the resource (eventType).

This notification structure owns an event payload structure ("SpecificEventPayload" placeholder) linked to the resource concerned by the notification using the resource name as access field ("resourceName" placeholder).





## Entity Catalog Create Event

Notification EntityCatalogCreateEvent case for resource EntityCatalog

### Json representation sample

We provide below the json representation of an example of an 'EntityCatalogCreateEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogCreateEvent",
  "event": {
    "entityCatalog" :
      {-- SEE EntityCatalog RESOURCE SAMPLE --}
  }
}
```

## Entity Catalog Attribute Value Change Event

Notification EntityCatalogAttributeValueChangeEvent case for resource EntityCatalog

### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogAttributeValueChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogAttributeValueChangeEvent",
  "event": {
    "entityCatalog" :
      {-- SEE EntityCatalog RESOURCE SAMPLE --}
  }
}
```

## Entity Catalog State Change Event

Notification EntityCatalogStateChangeEvent case for resource EntityCatalog

### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogStateChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogStateChangeEvent",
  "event": {
    "entityCatalog" :
      {-- SEE EntityCatalog RESOURCE SAMPLE --}
  }
}
```

### Entity Catalog Delete Event

Notification EntityCatalogDeleteEvent case for resource EntityCatalog

#### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogDeleteEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogDeleteEvent",
  "event": {
    "entityCatalog" :
      {-- SEE EntityCatalog RESOURCE SAMPLE --}
  }
}
```

### Entity Catalog Batch Event

Notification EntityCatalogBatchEvent case for resource EntityCatalog

#### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogBatchEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogBatchEvent",
  "event": {
```

```

"entityCatalog" :
  {-- SEE EntityCatalog RESOURCE SAMPLE --}
}
}

```

## Entity Category Create Event

Notification EntityCategoryCreateEvent case for resource EntityCategory

### Json representation sample

Provided below is the json representation of an example of an 'EntityCategoryCreateEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCategoryCreateEvent",
  "event": {
    "entityCategory" :
      {-- SEE EntityCategory RESOURCE SAMPLE --}
  }
}

```

## Entity Category Attribute Value Change Event

Notification EntityCategoryAttributeValueChangeEvent case for resource EntityCategory

### Json representation sample

Provided below is the json representation of an example of an 'EntityCategoryAttributeValueChangeEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCategoryAttributeValueChangeEvent",
  "event": {
    "entityCategory" :
      {-- SEE EntityCategory RESOURCE SAMPLE --}
  }
}

```

## Entity Category State Change Event

Notification EntityCategoryStateChangeEvent case for resource EntityCategory

### Json representation sample

Provided below is the json representation of an example of an 'EntityCategoryStateChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCategoryStateChangeEvent",
  "event": {
    "entityCategory" :
      {-- SEE EntityCategory RESOURCE SAMPLE --}
  }
}
```

### Entity Category Delete Event

Notification EntityCategoryDeleteEvent case for resource EntityCategory

#### Json representation sample

Provided below is the json representation of an example of an 'EntityCategoryDeleteEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCategoryDeleteEvent",
  "event": {
    "entityCategory" :
      {-- SEE EntityCategory RESOURCE SAMPLE --}
  }
}
```

### Entity Catalog Item Create Event

Notification EntityCatalogItemCreateEvent case for resource EntityCatalogItem

#### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogItemCreateEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogItemCreateEvent",
  "event": {
```

```

    "entityCatalogItem" :
      {-- SEE EntityCatalogItem RESOURCE SAMPLE --}
    }
  }

```

## Entity Catalog Item Attribute Value Change Event

Notification EntityCatalogItemAttributeValueChangeEvent case for resource EntityCatalogItem

### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogItemAttributeValueChangeEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogItemAttributeValueChangeEvent",
  "event": {
    "entityCatalogItem" :
      {-- SEE EntityCatalogItem RESOURCE SAMPLE --}
    }
  }
}

```

## Entity Catalog Item State Change Event

Notification EntityCatalogItemStateChangeEvent case for resource EntityCatalogItem

### Json representation sample

Provided below is the json representation of an example of an 'EntityCatalogItemStateChangeEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogItemStateChangeEvent",
  "event": {
    "entityCatalogItem" :
      {-- SEE EntityCatalogItem RESOURCE SAMPLE --}
    }
  }
}

```

## Entity Catalog Item Delete Event

Notification EntityCatalogItemDeleteEvent case for resource EntityCatalogItem

**Json representation sample**

Provided below is the json representation of an example of an 'EntityCatalogItemDeleteEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntityCatalogItemDeleteEvent",
  "event": {
    "entityCatalogItem" :
      {-- SEE EntityCatalogItem RESOURCE SAMPLE --}
  }
}
```

**Entity Specification Create Event**

Notification EntitySpecificationCreateEvent case for resource EntitySpecification

**Json representation sample**

Provided below is the json representation of an example of an 'EntitySpecificationCreateEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntitySpecificationCreateEvent",
  "event": {
    "entitySpecification" :
      {-- SEE EntitySpecification RESOURCE SAMPLE --}
  }
}
```

**Entity Specification Attribute Value Change Event**

Notification EntitySpecificationAttributeValueChangeEvent case for resource EntitySpecification

**Json representation sample**

Provided below is the json representation of an example of an 'EntitySpecificationAttributeValueChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntitySpecificationAttributeValueChangeEvent",
  "event": {
```

```

"entitySpecification" :
  {-- SEE EntitySpecification RESOURCE SAMPLE --}
}
}

```

## Entity Specification State Change Event

Notification EntitySpecificationStateChangeEvent case for resource EntitySpecification

### Json representation sample

Provides below is the json representation of an example of an 'EntitySpecificationStateChangeEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntitySpecificationStateChangeEvent",
  "event": {
    "entitySpecification" :
      {-- SEE EntitySpecification RESOURCE SAMPLE --}
  }
}

```

## Entity Specification Delete Event

Notification EntitySpecificationDeleteEvent case for resource EntitySpecification

### Json representation sample

Provides below is the json representation of an example of an 'EntitySpecificationDeleteEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"EntitySpecificationDeleteEvent",
  "event": {
    "entitySpecification" :
      {-- SEE EntitySpecification RESOURCE SAMPLE --}
  }
}

```

## Association Specification Create Event

Notification AssociationSpecificationCreateEvent case for resource AssociationSpecification

**Json representation sample**

Provides below is the json representation of an example of an 'AssociationSpecificationCreateEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationSpecificationCreateEvent",
  "event": {
    "associationSpecification" :
      {-- SEE AssociationSpecification RESOURCE SAMPLE --}
  }
}
```

**Association Specification Attribute Value Change Event**

Notification AssociationSpecificationAttributeValueChangeEvent case for resource AssociationSpecification

**Json representation sample**

Provides below is the json representation of an example of an 'AssociationSpecificationAttributeValueChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationSpecificationAttributeValueChangeEvent",
  "event": {
    "associationSpecification" :
      {-- SEE AssociationSpecification RESOURCE SAMPLE --}
  }
}
```

**Association Specification State Change Event**

Notification AssociationSpecificationStateChangeEvent case for resource AssociationSpecification

**Json representation sample**

Provides below is the json representation of an example of an 'AssociationSpecificationStateChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationSpecificationStateChangeEvent",
```



```

"event": {
  "associationSpecification" :
    {-- SEE AssociationSpecification RESOURCE SAMPLE --}
}
}

```

### Association Specification Delete Event

Notification AssociationSpecificationDeleteEvent case for resource AssociationSpecification

#### Json representation sample

Provides below is the json representation of an example of an 'AssociationSpecificationDeleteEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationSpecificationDeleteEvent",
  "event": {
    "associationSpecification" :
      {-- SEE AssociationSpecification RESOURCE SAMPLE --}
  }
}

```

### Association Create Event

Notification AssociationCreateEvent case for resource Association

#### Json representation sample

Provides below is the json representation of an example of an 'AssociationCreateEvent' notification event object

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationCreateEvent",
  "event": {
    "association" :
      {-- SEE Association RESOURCE SAMPLE --}
  }
}

```

### Association Attribute Value Change Event

Notification AssociationAttributeValueChangeEvent case for resource Association

### Json representation sample

Provides below is the json representation of an example of an 'AssociationAttributeValueChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationAttributeValueChangeEvent",
  "event": {
    "association" :
      {-- SEE Association RESOURCE SAMPLE --}
  }
}
```

### Association State Change Event

Notification AssociationStateChangeEvent case for resource Association

#### Json representation sample

Provides below is the json representation of an example of an 'AssociationStateChangeEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationStateChangeEvent",
  "event": {
    "association" :
      {-- SEE Association RESOURCE SAMPLE --}
  }
}
```

### Association Delete Event

Notification AssociationDeleteEvent case for resource Association

#### Json representation sample

Provides below is the json representation of an example of an 'AssociationDeleteEvent' notification event object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AssociationDeleteEvent",
  "event": {
```

```
"association" :  
  {-- SEE Association RESOURCE SAMPLE --}  
}  
}
```

## API OPERATIONS

Remember the following Uniform Contract:

Operation on Entities	Uniform API Operation	Description
Query Entities	GET Resource	GET must be used to retrieve a representation of a resource.
Create Entity	POST Resource	POST must be used to create a new resource
Partial Update of an Entity	PATCH Resource	PATCH must be used to partially update a resource
Remove an Entity	DELETE Resource	DELETE must be used to remove a resource
Execute an Action on an Entity	POST on TASK Resource	POST must be used to execute Task Resources
Other Request Methods	POST on TASK Resource	GET and POST must not be used to tunnel other request methods.

Filtering and attribute selection rules are described in the TMF REST Design Guidelines (TMF630).

Notifications are also described in a subsequent section.

## Operations on Entity Catalog

### List entity catalogs

**GET** /entityCatalog?fields=...&{filtering}

#### Description

This operation list entity catalog entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

#### Usage Samples

Here's an example of a request for retrieving multiple entity catalogs.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entityCatalog?lifecycleStatus=Active Accept: application/json
<b>Response</b>
200  [ { "id": "6421", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalog/6421", "name": "Home Security Catalog", "description": "This catalog describes home security entities that address both wholesale/retailer business segment.", "version": "2.0", "validFor": { "startDateTime": "2020-11-24T00:00", "endDateTime": "2023-12-05T00:00" }, "lastUpdate": "2020-11-24T00:00", "lifecycleStatus": "Active", "relatedParty": [ { "href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733", "id": "6733",

```

    "name": "Home Security Ltd",
    "role": "vendor",
    "@referredType": "Supplier",
    "@type": "RelatedParty",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json",
    "@baseType": ""
  }
],
"category": [
  {
    "id": "6073",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6073",
    "version": "1.0",
    "name": "SmartHome Security",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  },
  {
    "id": "6079",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6079",
    "version": "1.0",
    "name": "Sensors",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"@type": "EntityCatalog",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json",
"@baseType": "Catalog"
},
{
  "id": "6521",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalog/6521",
  "name": "Certified IOT Device Catalog",
  "description": "This catalog describes certified IOT device entities that address both wholesale/retailer
business segment.",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2023-12-05T00:00"
  },
  "lastUpdate": "2020-12-05T00:00",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {

```

```
"href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733",
"id": "6733",
"name": "ABC IOT Vendor",
"role": "vendor",
"@referredType": "Supplier",
"@type": "RelatedParty",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json",
"@baseType": ""
}
],
"category": [
{
"id": "6073",
"href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6073",
"version": "1.0",
"name": "Gateway",
"@referredType": "EntityCategory",
"@type": "EntityCategoryRef",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
"@baseType": ""
},
{
"id": "6079",
"href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6079",
"version": "1.0",
"name": "Telemetry",
"@referredType": "EntityCategory",
"@type": "EntityCategoryRef",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
"@baseType": ""
}
],
"@type": "EntityCatalog",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json",
"@baseType": "Catalog"
}
]
```

## Retrieve entity catalog

**GET** /entityCatalog/{id}?fields=...&{filtering}

### Description

This operation retrieves an entity catalog entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

### Usage Samples

Here's an example of a request for retrieving a specific catalog.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entityCatalog/6421 Accept: application/json
<b>Response</b>
200  { "id": "6421", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalog/6421", "name": "Home Security Catalog", "description": "This catalog describes home security entities that address both wholesale/retailer business segment.", "version": "1.0", "validFor": { "startDateTime": "2020-08-25T00:00", "endDateTime": "2023-12-05T00:00" }, "lastUpdate": "2020-08-25T00:00", "lifecycleStatus": "Provisional", "relatedParty": [ { "href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733", "id": "6733", "name": "Home Security Ltd", "role": "vendor", "@referredType": "Supplier", "@type": "RelatedParty", "@schemaLocation": "https://mycsp.com:8080/tmf-



```

api/schema/EngagedParty/RelatedParty.schema.json",
  "@baseType": ""
}
],
"category": [
  {
    "id": "6073",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6073",
    "version": "1.0",
    "name": "SmartHome Security",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  },
  {
    "id": "6079",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6079",
    "version": "1.0",
    "name": "Sensors",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"@type": "EntityCatalog",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json",
"@baseType": "Catalog"
}

```

## Create entity catalog

### POST /entityCatalog

#### Description

This operation creates an entity catalog entity.

#### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a EntityCatalog, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
name	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
category	
description	
lastUpdate	
lifecycleStatus	
relatedParty	
validFor	
version	

## Usage Samples

Here's an example of a request for creating a specific catalog.

Request
POST /tmf-api/entityCatalogManagement/v4/entityCatalog Content-Type: application/json  <pre>{   "name": "Home Security Catalog",   "description": "This catalog describes home security entities that address both wholesale/retailer business segment.",   "version": "1.0",   "validFor": {     "startDateTime": "2020-08-25T00:00",     "endDateTime": "2023-12-05T00:00"   },   "lifecycleStatus": "Provisional",   "relatedParty": [     {       "href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733",       "id": "6733",       "name": "Home Security Ltd",       "role": "vendor",       "@referredType": "Supplier",       "@type": "RelatedParty",       "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/EngagedParty/RelatedParty.schema.json"     }   ],   "@type": "EntityCatalog", }</pre>

```

"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json ",
"@baseType": "Catalog"
}

```

## Response

201

```

{
  "id": "6421",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalog/6421",
  "name": "Home Security Catalog",
  "description": "This catalog describes home security entities that address both wholesale/retailer business segment.",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-08-25T00:00",
    "endDateTime": "2023-12-05T00:00"
  },
  "lastUpdate": "2020-08-25T00:00",
  "lifecycleStatus": "Provisional",
  "relatedParty": [
    {
      "href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733",
      "id": "6733",
      "name": "Home Security Ltd",
      "role": "vendor",
      "@referredType": "Supplier",
      "@type": "RelatedParty",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/EngagedParty/RelatedParty.schema.json",
      "@baseType": ""
    }
  ],
  "category": [],
  "@type": "EntityCatalog",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json",
  "@baseType": "Catalog"
}

```

## Patch entity catalog

### PATCH /entityCatalog/{id}

#### Description

This operation allows partial updates of an entity catalog entity. Support of json/merge (<https://tools.ietf.org/html/rfc7386>) is mandatory, support of json/patch (<http://tools.ietf.org/html/rfc5789>) is optional.

Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

#### Patchable and Non Patchable Attributes

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

Patchable Attributes	Rule
category	
description	
lifecycleStatus	
name	
relatedParty	
validFor	
version	

Non Patchable Attributes	Rule
id	
href	
lastUpdate	
@type	
@schemaLocation	
@baseType	

#### Usage Samples

Here's an example of a request for patching a catalog. In this example, a new version is set, together with validity period and other modifications.

Request
PATCH /tmf-api/entityCatalogManagement/v4/entityCatalog/6421

Content-Type: application/merge-patch+json

```
{
  "version": "2.0",
  "validFor": {
    "startDateTime": "2020-11-24T00:00",
    "endDateTime": "2023-12-05T00:00"
  },
  "lifecycleStatus": "Active",
  "category": [
    {
      "id": "6073",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6073",
      "version": "1.0",
      "name": "SmartHome Security",
      "@referredType": "EntityCategory",
      "@type": "EntityCategoryRef",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json"
    },
    {
      "id": "6079",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6079",
      "version": "1.0",
      "name": "Sensors",
      "@referredType": "EntityCategory",
      "@type": "EntityCategoryRef",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json"
    }
  ]
}
```

## Response

200

```
{
  "id": "6421",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalog/6421",
  "name": "Home Security Catalog",
  "description": "This catalog describes home security entities that address both wholesale/retailer business
segment.",
  "version": "2.0",
  "validFor": {
    "startDateTime": "2020-11-24T00:00",
    "endDateTime": "2023-12-05T00:00"
  },
  "lastUpdate": "2020-11-24T00:00",
  "lifecycleStatus": "Active",
}
```

```

"relatedParty": [
  {
    "href": "https://host:port/tmf-api/partyRoleManagement/v4/partyRole/6733",
    "id": "6733",
    "name": "Home Security Ltd",
    "role": "vendor",
    "@referredType": "Supplier",
    "@type": "RelatedParty",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json",
    "@baseType": ""
  }
],
"category": [
  {
    "id": "6073",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6073",
    "version": "1.0",
    "name": "SmartHome Security",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  },
  {
    "id": "6079",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6079",
    "version": "1.0",
    "name": "Sensors",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"@type": "EntityCatalog",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalog.schema.json",
"@baseType": "Catalog"
}

```

## Delete entity catalog

**DELETE** /entityCatalog/{id}

**Description**

This operation deletes an entity catalog entity.

**Usage Samples**

Here's an example of a request for deleting a catalog.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/entityCatalog/6421
<b>Response</b>
204

**Operations on Entity Category****List entity categories**

**GET** /entityCategory?fields=...&{filtering}

**Description**

This operation list entity category entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

**Usage Samples**

Here's an example of a request for retrieving multiple entity categories.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entityCategory Accept: application/json

**Response**

200

```
[
  {
    "id": "2027",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2027",
    "name": "Tosca Node Types",
    "description": "A category to hold all available Tosca Node Types",
    "version": "2.0",
    "validFor": {
      "startDateTime": "2020-11-06T00:00",
      "endDateTime": "2025-11-24T00:00"
    },
    "lifecycleStatus": "Active",
    "lastUpdate": "2020-11-06T00:00",
    "isRoot": true,
    "parentId": "",
    "entityCatalogItem": [],
    "childCategory": [
      {
        "id": "2029",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2029",
        "name": "SoftwareComponent",
        "version": "1.0",
        "@referredType": "EntityCategory",
        "@type": "EntityCategoryRef",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
        "@baseType": ""
      }
    ],
    "@type": "EntityCategory",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",
    "@baseType": "Category"
  },
  {
    "id": "2029",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2029",
    "name": "SoftwareComponent",
    "description": "A category to hold all available Software Components",
    "version": "1.0",
    "validFor": {
      "startDateTime": "2020-11-06T00:00",
      "endDateTime": "2025-11-24T00:00"
    },
    "lifecycleStatus": "Active",
    "lastUpdate": "2020-11-06T00:00",
    "isRoot": false,
```



```

"parentId": "2027",
"entityCatalogItem": [
  {
    "id": "2039",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/2039",
    "name": "Database",
    "version": "1.0",
    "@referredType": "EntityCatalogItem",
    "@type": "EntityCatalogItemRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCatalogItemRef.schema.json",
    "@baseType": ""
  }
],
"childCategory": [],
"@type": "EntityCategory",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",
"@baseType": "Category"
}
]

```

## Retrieve entity category

**GET** /entityCategory/{id}?fields=...&{filtering}

### Description

This operation retrieves an entity category entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

### Usage Samples

Here's an example of a request for retrieving a specific category.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entityCategory/2027 Accept: application/json
<b>Response</b>
200

```

{
  "id": "2027",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2027",
  "name": "Tosca Node Types",
  "description": "A category to hold all available Tosca Node Types",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-08-25T00:00",
    "endDateTime": "2023-11-24T00:00"
  },
  "lifecycleStatus": "Active",
  "lastUpdate": "2020-08-25T00:00",
  "isRoot": true,
  "parentId": "",
  "entityCatalogItem": [],
  "childCategory": [],
  "@type": "EntityCategory",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",
  "@baseType": "Category"
}

```

## Create entity category

### POST /entityCategory

#### Description

This operation creates an entity category entity.

#### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a EntityCategory, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
name	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
childCategory	
description	
entityCatalogItem	
isRoot	

Non Mandatory Attributes	Rule
lastUpdate	
lifecycleStatus	
parentId	
validFor	
version	

## Usage Samples

Here's an example of a request for creating a specific category. In this example the request only passes mandatory attributes.

Request
POST /tmf-api/entityCatalogManagement/v4/entityCategory Content-Type: application/json  <pre>{   "name": "Tosca Node Types",   "description": "A category to hold all available Tosca Node Types",   "version": "1.0",   "validFor": {     "startDateTime": "2020-08-25T00:00",     "endDateTime": "2023-11-24T00:00"   },   "lifecycleStatus": "Active",   "isRoot": true,   "@type": "EntityCategory",   "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",   "@baseType": "Category" }</pre>
Response
201  <pre>{   "id": "2027",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2027",   "name": "Tosca Node Types",   "description": "A category to hold all available Tosca Node Types",   "version": "1.0",   "validFor": {     "startDateTime": "2020-08-25T00:00",     "endDateTime": "2023-11-24T00:00"   }, }</pre>

```

{lifecycleStatus": "Active",
lastUpdate": "2020-08-25T00:00",
isRoot": true,
parentId": "",
entityCatalogItem": [],
childCategory": [],
"type": "EntityCategory",
"schemalocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",
baseType": "Category"
}

```

## Patch entity category

### PATCH /entityCategory/{id}

#### Description

This operation allows partial updates of an entity category entity. Support of json/merge (<https://tools.ietf.org/html/rfc7386>) is mandatory, support of json/patch (<http://tools.ietf.org/html/rfc5789>) is optional.

Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

#### Patchable and Non Patchable Attributes

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

Patchable Attributes	Rule
childCategory	
description	
entityCatalogItem	
isRoot	
lifecycleStatus	
name	
parentId	
validFor	
version	

Non Patchable Attributes	Rule
id	
href	
lastUpdate	

Non Patchable Attributes	Rule
@type	
@schemaLocation	
@baseType	

## Usage Samples

Here's an example of a request for patching a category. In this example, a new version is set, together with validity period.

Request
PATCH /tmf-api/entityCatalogManagement/v4/entityCategory/2027 Content-Type: application/merge-patch+json  <pre>{   "version": "2.0",   "validFor": {     "startDateTime": "2020-11-06T00:00",     "endDateTime": "2025-11-24T00:00"   },   "childCategory": [     {       "id": "2029",       "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2029",       "name": "SoftwareComponent",       "version": "1.0",       "@referredType": "EntityCategory",       "@type": "EntityCategoryRef",       "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategoryRef.schema.json",       "@baseType": "Category"     }   ] }</pre>
Response
200  <pre>{   "id": "2027",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2027",   "name": "Tosca Node Types",   "description": "A category to hold all available Tosca Node Types",   "version": "2.0",   "validFor": {</pre>

```

    "startDateTime": "2020-11-06T00:00",
    "endDateTime": "2025-11-24T00:00"
  },
  "lifecycleStatus": "Active",
  "lastUpdate": "2020-11-06T00:00",
  "isRoot": true,
  "parentId": "",
  "entityCatalogItem": [],
  "childCategory": [
    {
      "id": "2029",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/2029",
      "name": "SoftwareComponent",
      "version": "1.0",
      "@referredType": "EntityCategory",
      "@type": "EntityCategoryRef",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
      "@baseType": ""
    }
  ],
  "@type": "EntityCategory",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategory.schema.json",
  "@baseType": "Category"
}

```

## Delete entity category

**DELETE** /entityCategory/{id}

### Description

This operation deletes an entity category entity.

### Usage Samples

Here's an example of a request for deleting a category.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/entityCategory/2027
<b>Response</b>
204

## Operations on Entity Catalog Item

### List entity catalog items

**GET** /entityCatalogItem?fields=...&{filtering}

#### Description

This operation list entity catalog item entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

#### Usage Samples

Here's an example of a request for retrieving multiple entity offers.

<b>Request</b>
<pre>GET /tmf-api/entityCatalogManagement/v4/entityCatalogItem?version=1.0 Accept: application/json</pre>
<b>Response</b>
<pre>200  [   {     "id": "6007",     "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007",     "name": "ProjectTemplate",     "description": "This object Offers provision of a project template",     "version": "1.0",     "validFor": {       "startDateTime": "2020-11-06T00:00",       "endDateTime": "2023-09-10T00:00"     },     "lastUpdate": "2020-11-06T00:00",     "lifecycleStatus": "Active",     "category": [       {         "id": "6043",</pre>

```

    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6043",
    "version": "1.0",
    "name": "Template",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"specification": {
  "id": "6823",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6823",
  "version": "1.0",
  "name": "Task-focused project Specification",
  "@referredType": "EntitySpecificationRef",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",
  "@baseType": "",
  "@type": "EntitySpecificationRef"
},
"@type": "EntityCatalogItem",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json",
"@baseType": ""
},
{
  "id": "6277",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6277",
  "name": "Service Graph",
  "description": "This object Offers provision of a service graph",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-11-24T00:00",
    "endDateTime": "2025-09-10T00:00"
  },
  "lastUpdate": "2020-11-24T00:00",
  "lifecycleStatus": "Active",
  "category": [
    {
      "id": "6053",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6053",
      "version": "1.0",
      "name": "Graph",
      "@referredType": "EntityCategory",
      "@type": "EntityCategoryRef",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
      "@baseType": ""
    }
  ],
  "specification": {
    "id": "6827",

```



```

    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6827",
    "version": "1.0",
    "name": "Service Graph Specification",
    "@referredType": "EntitySpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",
    "@baseType": "",
    "@type": "EntitySpecificationRef"
  },
  "@type": "EntityCatalogItem",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json",
  "@baseType": ""
}
]

```

## Retrieve entity catalog item

**GET** /entityCatalogItem/{id}?fields=...&{filtering}

### Description

This operation retrieves an entity catalog item entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

### Usage Samples

Here's an example of a request for retrieving a specific entity offer.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007 Accept: application/json
<b>Response</b>
200  { "id": "6007", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007", "name": "ProjectTemplate", "description": "This object Offers provision of a project template",

```

"version": "1.0",
"validFor": {
  "startDateTime": "2020-11-06T00:00",
  "endDateTime": "2023-09-10T00:00"
},
"lastUpdate": "2020-11-06T00:00",
"lifecycleStatus": "Active",
"category": [
  {
    "id": "6043",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6043",
    "version": "1.0",
    "name": "Template",
    "@referredType": "EntityCategory",
    "@type": "EntityCategoryRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
    "@baseType": ""
  }
],
"specification": {
  "id": "6823",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6823",
  "version": "1.0",
  "name": "Task-focused project Specification",
  "@referredType": "EntitySpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",
  "@baseType": "",
  "@type": "EntitySpecificationRef"
},
"@type": "EntityCatalogItem",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json",
"@baseType": ""
}

```

## Create entity catalog item

### POST /entityCatalogItem

#### Description

This operation creates an entity catalog item entity.

#### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a EntityCatalogItem, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
name	
specification	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
category	
description	
lastUpdate	
lifecycleStatus	
validFor	
version	

## Usage Samples

Here's an example of a request for creating a specific entity offer. The request includes the entity specification and the category.

Request
POST /tmf-api/entityCatalogManagement/v4/entityCatalogItem Content-Type: application/json  <pre>{   "name": "ProjectTemplate",   "description": "This object Offers provision of a project template",   "version": "1.0",   "validFor": {     "startDateTime": "2020-11-06T00:00",     "endDateTime": "2023-09-10T00:00"   },   "lifecycleStatus": "Active",   "category": [     {       "id": "6043",       "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6043",       "version": "1.0",       "name": "Template",       "@referredType": "EntityCategory",       "@type": "EntityCategoryRef",       "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategoryRef.schema.json"     }   ],   "specification": {</pre>

```

    "id": "6823",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6823",
    "version": "1.0",
    "name": "Task-focused project Specification",
    "@referredType": "EntitySpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",
    "@type": "EntitySpecificationRef"
  },
  "@type": "EntityCatalogItem",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json"
}

```

## Response

201

```

{
  "id": "6007",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007",
  "name": "ProjectTemplate",
  "description": "This object Offers provision of a project template",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-11-06T00:00",
    "endDateTime": "2023-09-10T00:00"
  },
  "lastUpdate": "2020-11-06T00:00",
  "lifecycleStatus": "Active",
  "category": [
    {
      "id": "6043",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6043",
      "version": "1.0",
      "name": "Template",
      "@referredType": "EntityCategory",
      "@type": "EntityCategoryRef",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntityCategoryRef.schema.json",
      "@baseType": ""
    }
  ],
  "specification": {
    "id": "6823",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6823",
    "version": "1.0",
    "name": "Task-focused project Specification",
    "@referredType": "EntitySpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",

```

```

"@baseType": "",
"@type": "EntitySpecificationRef"
},
"@type": "EntityCatalogItem",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json",
"@baseType": ""
}
    
```

### Patch entity catalog item

#### PATCH /entityCatalogItem/{id}

##### Description

This operation allows partial updates of an entity catalog item entity. Support of json/merge (<https://tools.ietf.org/html/rfc7386>) is mandatory, support of json/patch (<http://tools.ietf.org/html/rfc5789>) is optional.

Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

##### Patchable and Non Patchable Attributes

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

Patchable Attributes	Rule
category	
description	
lifecycleStatus	
name	
specification	
validFor	
version	

Non Patchable Attributes	Rule
id	
href	
lastUpdate	
@type	
@schemaLocation	
@baseType	

##### Usage Samples

Here's an example of a request for patching an entity offer. In this example, a new version is set, name and description are modified altogether with validity period.

<b>Request</b>
<pre> PATCH /tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007 Content-Type: application/merge-patch+json  {   "id": "6007",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007",   "name": "Task-Based Project Template",   "description": "This object Offers provision of a Task-Based project template",   "version": "2.0",   "validFor": {     "startDateTime": "2020-12-05T00:00",     "endDateTime": "2023-09-10T00:00"   } } </pre>
<b>Response</b>
<pre> 200  {   "id": "6007",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007",   "name": "Task-Based Project Template",   "description": "This object Offers provision of a Task-Based project template",   "version": "2.0",   "validFor": {     "startDateTime": "2020-12-05T00:00",     "endDateTime": "2023-09-10T00:00"   },   "lastUpdate": "2020-12-05T00:00",   "lifecycleStatus": "Active",   "category": [     {       "id": "6043",       "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entityCategory/6043",       "version": "1.0",       "name": "Template",       "@referredType": "EntityCategory",       "@type": "EntityCategoryRef",       "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCategoryRef.schema.json",       "@baseType": ""     }   ] } </pre>

```

},
"specification": {
  "id": "6823",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6823",
  "version": "1.0",
  "name": "Task-focused project Specification",
  "@referredType": "EntitySpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecificationRef.schema.json",
  "@baseType": "",
  "@type": "EntitySpecificationRef"
},
"@type": "EntityCatalogItem",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityCatalogItem.schema.json",
"@baseType": ""
}

```

### Delete entity catalog item

**DELETE** /entityCatalogItem/{id}

#### Description

This operation deletes an entity catalog item entity.

#### Usage Samples

Here's an example of a request for deleting an entity offer.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/entityCatalogItem/6007
<b>Response</b>
204

## Operations on Entity Specification

### List entity specifications

**GET** /entitySpecification?fields=...&{filtering}

**Description**

This operation list entity specification entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

**Usage Samples**

Here's an example of a request for retrieving multiple entity specifications.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entitySpecification?targetEntitySchema.@type=ManagedEntity Accept: application/json
<b>Response</b>
<pre> 200 [   {     "id": "6599",     "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6599",     "name": "TOSCA Node Template",     "description": "This entity specification represents a Tosca Node template that describes the (software) components that are used to compose cloud applications",     "version": "2.0",     "validFor": {       "startDateTime": "2021-01-01T00:00",       "endDateTime": "2023-12-31T11:59:59"     },     "lastUpdate": "2021-01-01T00:00",     "lifecycleStatus": "Active",     "isBundle": false,     "attachment": [       {         "description": "This attachment gives a description of the this entity specification with examples",         "href": "https://mycsp.com:8080/tmf-api/documentManagement/v4/attachment/6991",         "id": "6991",         "url": "https://mycsp.com:7070/docloader?docnum=3534536",         "@attachmentType": "Document",         "content": "",         "mimeType": ".pdf",         "validFor": { </pre>



```

    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2021-03-25T00:00"
  },
  "size": {
    "amount": 1741,
    "units": "KB"
  },
  "name": "TOSCA Node Template",
  "@type": "Attachment",
  "@baseType": "",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Attachment.schema.json"
}
],
"specCharacteristic": [
  {
    "name": "Platform",
    "id": "4441",
    "description": "This characteristic describes the platform of the node",
    "valueType": "string",
    "configurable": true,
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": "",
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "string",
        "isDefault": true,
        "value": "Windows",
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "regex": "",
        "valueFrom": "",
        "valueTo": "",
        "unitOfMeasure": "",
        "rangeInterval": "open",
        "@type": "CharacteristicValueSpecification",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
      }
    ],
    "charSpecRelationship": [],

```

```

    "@type": "SpecCharacteristic",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
  },
  {
    "name": "copy",
    "id": "4447",
    "description": "The optional (symbolic) name of another node template to copy into (all keynames and
values) and use as a basis for this node template",
    "valueType": "string",
    "configurable": true,
    "validFor": {
      "startDateTime": "2021-01-01T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": "",
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "string",
        "isDefault": true,
        "value": "",
        "validFor": {
          "startDateTime": "2021-01-01T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "regex": "",
        "valueFrom": "",
        "valueTo": "",
        "unitOfMeasure": "",
        "rangeInterval": "open",
        "@type": "CharacteristicValueSpecification",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
      }
    ],
    "charSpecRelationship": [],
    "@type": "SpecCharacteristic",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
  }
],
"relatedParty": [
  {

```

```

    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",
    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
  }
],
"targetEntitySchema": {
  "@type": "ManagedEntity",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3779",
    "id": "3779",
    "name": "Node Filter",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"entitySpecRelationship": [
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8039",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
    "name": "Node Type Capability Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "CapabilitySpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8053",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8053",
    "name": "Node Type Requirement Definition",
    "validFor": {

```

```

        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "RequirementSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
    },
    {
        "relationshipType": "Includes",
        "role": "nodeType",
        "id": "8059",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8059",
        "name": "Node Type Interface Definition",
        "validFor": {
            "startDateTime": "2020-12-05T00:00",
            "endDateTime": "2023-12-31T11:59:59"
        },
        "associationSpec": {},
        "@referredType": "InterfaceSpecification",
        "@type": "EntitySpecRelationship",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
    },
    {
        "relationshipType": "Includes",
        "role": "nodeType",
        "id": "8069",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8069",
        "name": "Node Type Artifact Definition",
        "validFor": {
            "startDateTime": "2020-12-05T00:00",
            "endDateTime": "2023-12-31T11:59:59"
        },
        "associationSpec": {},
        "@referredType": "ArtifactSpecification",
        "@type": "EntitySpecRelationship",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
    }
    ],
    "@type": "ToscaNodeTemplate",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/ToscaNodeTemplate.schema.json",
    "@baseType": "EntitySpecification"
    },
    {
        "id": "8039",

```

```

    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
    "name": "Tosca Capability Definition",
    "description": "This entity specification represents a Tosca Capability Definition that describes a typed set
of data that a node can expose and is used to describe a relevant feature of the component described by the
node.",
    "version": "1.0",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "lastUpdate": "2020-12-05T00:00",
    "lifecycleStatus": "Active",
    "isBundle": false,
    "attachment": [],
    "specCharacteristic": [
      {
        "name": "valid_source_types",
        "id": "4111",
        "description": "This characteristic represents the optional list of one or more names of Node Templates
that the Capability definition supports as valid sources for a successful relationship to be established to it",
        "valueType": "Array",
        "configurable": true,
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringArrayCharacteristic.schema.json",
        "minCardinality": 0,
        "maxCardinality": 7,
        "isUnique": true,
        "regex": "",
        "extensible": true,
        "characteristicValueSpecification": [
          {
            "valueType": "string",
            "isDefault": true,
            "value": "",
            "validFor": {
              "startDateTime": "2020-12-05T00:00",
              "endDateTime": "2023-12-31T11:59:59"
            },
            "regex": "",
            "valueFrom": "",
            "valueTo": "",
            "unitOfMeasure": "",
            "rangeInterval": "open",
            "@type": "CharacteristicValueSpecification",
            "@baseType": "",
            "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
          }
        ]
      }
    ]
  }

```

```

    ],
    "charSpecRelationship": [],
    "@type": "SpecCharacteristic",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
  },
  {
    "name": "occurrences",
    "id": "4211",
    "description": "This characteristic represents the optional minimum and maximum occurrences for the
capability",
    "valueType": "Integer",
    "configurable": false,
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/IntegerCharacteristic.schema.json",
    "minCardinality": 1,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": "",
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "Integer",
        "isDefault": true,
        "value": 1,
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "regex": "[0-8]",
        "valueFrom": "",
        "valueTo": "",
        "unitOfMeasure": "",
        "rangeInterval": "close",
        "@type": "CharacteristicValueSpecification",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
      }
    ],
    "charSpecRelationship": [],
    "@type": "SpecCharacteristic",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
  }
],

```

```

"relatedParty": [
  {
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",
    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
  }
],
"targetEntitySchema": {
  "@type": "ManagedEntity",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3793",
    "id": "3793",
    "name": "Refinement Rule",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"entitySpecRelationship": [],
"@type": "CapabilitySpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CapabilitySpecification.schema.json",
"@baseType": "EntitySpecification"
}
]

```

## Retrieve entity specification

**GET** /entitySpecification/{id}?fields=...&{filtering}

### Description

This operation retrieves an entity specification entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

## Usage Samples

Here's an example of a request for retrieving a specific specification.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/entitySpecification/6599 Accept: application/json
<b>Response</b>
200  <pre>{   "id": "6599",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6599",   "name": "TOSCA Node Template",   "description": "This entity specification represents a Tosca Node template that describes the (software) components that are used to compose cloud applications",   "version": "1.0",   "validFor": {     "startDateTime": "2020-12-05T00:00",     "endDateTime": "2023-12-31T11:59:59"   },   "lastUpdate": "2020-12-05T00:00",   "lifecycleStatus": "Active",   "isBundle": false,   "attachment": [     {       "description": "This attachment gives a description of the this entity specification with examples",       "href": "https://mycsp.com:8080/tmf-api/documentManagement/v4/attachment/6991",       "id": "6991",       "url": "https://mycsp.com:7070/docloader?docnum=3534536",       "@attachmentType": "Document",       "content": "",       "mimeType": ".pdf",       "validFor": {         "startDateTime": "2020-12-05T00:00",         "endDateTime": "2021-03-25T00:00"       },       "size": {         "amount": 1741,         "units": "KB"       },       "name": "TOSCA Node Template",       "@type": "Attachment",     }   ] }</pre>



```

    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Attachment.schema.json"
  }
],
"specCharacteristic": [
  {
    "name": "Platform",
    "id": "4441",
    "description": "This characteristic describes the platform of the node",
    "valueType": "string",
    "configurable": true,
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": "",
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "string",
        "isDefault": true,
        "value": "Windows",
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "regex": "",
        "valueFrom": "",
        "valueTo": "",
        "unitOfMeasure": "",
        "rangeInterval": "open",
        "@type": "CharacteristicValueSpecification",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/CharacteristicValueSpecification.schema.json"
      }
    ],
    "charSpecRelationship": [],
    "@type": "SpecCharacteristic",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/SpecCharacteristic.schema.json"
  }
],
"relatedParty": [
  {
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",

```

```

    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
  }
],
"targetEntitySchema": {
  "@type": "ManagedEntity",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3779",
    "id": "3779",
    "name": "Node Filter",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"entitySpecRelationship": [
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8039",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
    "name": "Node Type Capability Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "CapabilitySpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8053",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8053",
    "name": "Node Type Requirement Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",

```

```

        "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "RequirementSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
    },
    {
        "relationshipType": "Includes",
        "role": "nodeType",
        "id": "8059",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8059",
        "name": "Node Type Interface Definition",
        "validFor": {
            "startDateTime": "2020-12-05T00:00",
            "endDateTime": "2023-12-31T11:59:59"
        },
        "associationSpec": {},
        "@referredType": "InterfaceSpecification",
        "@type": "EntitySpecRelationship",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
    },
    {
        "relationshipType": "Includes",
        "role": "nodeType",
        "id": "8069",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8069",
        "name": "Node Type Artifact Definition",
        "validFor": {
            "startDateTime": "2020-12-05T00:00",
            "endDateTime": "2023-12-31T11:59:59"
        },
        "associationSpec": {},
        "@referredType": "ArtifactSpecification",
        "@type": "EntitySpecRelationship",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
    }
    ],
    "@type": "ToscaNodeTemplate",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/ToscaNodeTemplate.schema.json",
    "@baseType": "EntitySpecification"
}

```

**Create entity specification****POST /entitySpecification****Description**

This operation creates an entity specification entity.

**Mandatory and Non Mandatory Attributes**

The following tables provide the list of mandatory and non mandatory attributes when creating a EntitySpecification, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
name	
@type	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
attachment	
constraint	
description	
entitySpecRelationship	
isBundle	
lastUpdate	
lifecycleStatus	
relatedParty	
specCharacteristic	
targetEntitySchema	
validFor	
version	

**Additional Rules**

The following table provides additional rules indicating mandatory fields in sub-resources or relationships when creating a EntitySpecification resource.

Context	Mandatory Sub-Attributes
entitySpecRelationship	relationshipType

## Usage Samples

Here's an example of a request for creating a specification.

### Request

POST /tmf-api/entityCatalogManagement/v4/entitySpecification  
Content-Type: application/json

```
{
  "name": "TOSCA Node Template",
  "description": "This entity specification represents a Tosca Node template that describes the (software) components that are used to compose cloud applications",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2023-12-31T11:59:59"
  },
  "lastUpdate": "2020-12-05T00:00",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "attachment": [
    {
      "description": "This attachment gives a description of the this entity specification with examples",
      "href": "https://mycsp.com:8080/tmf-api/documentManagement/v4/attachment/6991",
      "id": "6991",
      "url": "https://mycsp.com:7070/docloader?docnum=3534536",
      "@attachmentType": "Document",
      "mimeType": ".pdf",
      "validFor": {
        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2021-03-25T00:00"
      },
      "size": {
        "amount": 1741,
        "units": "KB"
      },
      "name": "TOSCA Node Template",
      "@type": "Attachment",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Attachment.schema.json"
    }
  ],
  "specCharacteristic": [
    {
      "name": "Platform",
      "id": "4441",
      "description": "This characteristic describes the platform of the node",
      "valueType": "string",
      "configurable": true,

```

```

    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "string",
        "isDefault": true,
        "value": "Windows",
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "rangeInterval": "open",
        "@type": "CharacteristicValueSpecification",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
      }
    ],
    "charSpecRelationship": [],
    "@type": "SpecCharacteristic",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
  }
],
"relatedParty": [
  {
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",
    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
  }
],
"targetEntitySchema": {
  "@type": "ManagedEntity",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3779",
    "id": "3779",
    "name": "Node Filter",

```

```

    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"entitySpecRelationship": [
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8039",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
    "name": "Node Type Capability Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "CapabilitySpecification",
    "@type": "EntitySpecRelationship",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8053",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8053",
    "name": "Node Type Requirement Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "RequirementSpecification",
    "@type": "EntitySpecRelationship",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8059",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8059",
    "name": "Node Type Interface Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "InterfaceSpecification",
    "@type": "EntitySpecRelationship",

```

```

    "@schemaLocation": "https://mycsp.com:8080/tmf-
    api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8069",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8069",
    "name": "Node Type Artifact Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "ArtifactSpecification",
    "@type": "EntitySpecRelationship",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
    api/schema/Common/EntitySpecRelationship.schema.json"
  }
],
"@type": "ToscaNodeTemplate",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/ToscaNodeTemplate.schema.json",
"@baseType": "EntitySpecification"
}

```

## Response

201

```

{
  "id": "6599",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6599",
  "name": "TOSCA Node Template",
  "description": "This entity specification represents a Tosca Node template that describes the (software)
  components that are used to compose cloud applications",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-05T00:00",
    "endDateTime": "2023-12-31T11:59:59"
  },
  "lastUpdate": "2020-12-05T00:00",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "attachment": [
    {
      "description": "This attachment gives a description of the this entity specification with examples",
      "href": "https://mycsp.com:8080/tmf-api/documentManagement/v4/attachment/6991",
      "id": "6991",
      "url": "https://mycsp.com:7070/docloader?docnum=3534536",
    }
  ]
}

```



```

    "@attachmentType": "Document",
    "content": "",
    "mimeType": ".pdf",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2021-03-25T00:00"
    },
    "size": {
      "amount": 1741,
      "units": "KB"
    },
    "name": "TOSCA Node Template",
    "@type": "Attachment",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Attachment.schema.json"
  }
],
"specCharacteristic": [
  {
    "name": "Platform",
    "id": "4441",
    "description": "This characteristic describes the platform of the node",
    "valueType": "string",
    "configurable": true,
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": "",
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "string",
        "isDefault": true,
        "value": "Windows",
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "regex": "",
        "valueFrom": "",
        "valueTo": "",
        "unitOfMeasure": "",
        "rangeInterval": "open",
        "@type": "CharacteristicValueSpecification",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-

```

```

api/schema/Common/CharacteristicValueSpecification.schema.json"
    }
  ],
  "charSpecRelationship": [],
  "@type": "SpecCharacteristic",
  "@baseType": "",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
}
],
"relatedParty": [
  {
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",
    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
  }
],
"targetEntitySchema": {
  "@type": "ManagedEntity",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3779",
    "id": "3779",
    "name": "Node Filter",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"entitySpecRelationship": [
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8039",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
    "name": "Node Type Capability Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "CapabilitySpecification",

```

```

    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8053",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8053",
    "name": "Node Type Requirement Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "RequirementSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8059",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8059",
    "name": "Node Type Interface Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "InterfaceSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8069",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8069",
    "name": "Node Type Artifact Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "ArtifactSpecification",
    "@type": "EntitySpecRelationship",

```

```

    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  }
},
"@type": "ToscaNodeTemplate",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/ToscaNodeTemplate.schema.json",
"@baseType": "EntitySpecification"
}

```

## Patch entity specification

### PATCH /entitySpecification/{id}

#### Description

This operation allows partial updates of an entity specification entity. Support of json/merge (<https://tools.ietf.org/html/rfc7386>) is mandatory, support of json/patch (<http://tools.ietf.org/html/rfc5789>) is optional.

Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

#### Patchable and Non Patchable Attributes

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

Patchable Attributes	Rule
attachment	
constraint	
description	
entitySpecRelationship	
isBundle	
lifecycleStatus	
name	
relatedParty	
specCharacteristic	
targetEntitySchema	
validFor	
version	

Non Patchable Attributes	Rule
id	
href	
lastUpdate	
@type	
@schemaLocation	
@baseType	

## Usage Samples

Here's an example of a request for patching a specification. In this example, a new version is set, together with validity period and a new characteristic.

Request
<pre> PATCH /tmf-api/entityCatalogManagement/v4/entitySpecification/6599 Content-Type: application/merge-patch+json  {   "version": "2.0",   "validFor": {     "startDateTime": "2021-01-01T00:00",     "endDateTime": "2023-12-31T11:59:59"   },   "specCharacteristic": [     {       "name": "Platform",       "id": "4441",       "description": "This characteristic describes the platform of the node",       "valueType": "string",       "configurable": true,       "validFor": {         "startDateTime": "2020-12-05T00:00",         "endDateTime": "2023-12-31T11:59:59"       },       "@valueSchemaLocation": "https://mycsp.com:8080/tmf- api/schema/Common/StringCharacteristic.schema.json",       "minCardinality": 0,       "maxCardinality": 1,       "isUnique": true,       "extensible": false,       "characteristicValueSpecification": [         {           "valueType": "string",           "isDefault": true,           "value": "Windows",           "validFor": { </pre>

```

        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2023-12-31T11:59:59"
    },
    "rangeInterval": "open",
    "@type": "CharacteristicValueSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
    }
},
"@type": "SpecCharacteristic",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
},
{
    "name": "copy",
    "id": "4447",
    "description": "The optional (symbolic) name of another node template to copy into (all keynames and
values) and use as a basis for this node template",
    "valueType": "string",
    "configurable": true,
    "validFor": {
        "startDateTime": "2021-01-01T00:00",
        "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "extensible": false,
    "characteristicValueSpecification": [
        {
            "valueType": "string",
            "isDefault": true,
            "value": "",
            "validFor": {
                "startDateTime": "2021-01-01T00:00",
                "endDateTime": "2023-12-31T11:59:59"
            },
            "rangeInterval": "open",
            "@type": "CharacteristicValueSpecification",
            "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
        }
    ],
    "@type": "SpecCharacteristic",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
}
]
}

```

**Response**

200

```

{
  "id": "6599",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/6599",
  "name": "TOSCA Node Template",
  "description": "This entity specification represents a Tosca Node template that describes the (software) components that are used to compose cloud applications",
  "version": "2.0",
  "validFor": {
    "startDateTime": "2021-01-01T00:00",
    "endDateTime": "2023-12-31T11:59:59"
  },
  "lastUpdate": "2021-01-01T00:00",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "attachment": [
    {
      "description": "This attachment gives a description of the this entity specification with examples",
      "href": "https://mycsp.com:8080/tmf-api/documentManagement/v4/attachment/6991",
      "id": "6991",
      "url": "https://mycsp.com:7070/docloader?docnum=3534536",
      "@attachmentType": "Document",
      "content": "",
      "mimeType": ".pdf",
      "validFor": {
        "startDateTime": "2020-12-05T00:00",
        "endDateTime": "2021-03-25T00:00"
      },
      "size": {
        "amount": 1741,
        "units": "KB"
      },
      "name": "TOSCA Node Template",
      "@type": "Attachment",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Attachment.schema.json"
    }
  ],
  "specCharacteristic": [
    {
      "name": "Platform",
      "id": "4441",
      "description": "This characteristic describes the platform of the node",
      "valueType": "string",
      "configurable": true,
      "validFor": {
        "startDateTime": "2020-12-05T00:00",

```

```

      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": "",
    "extensible": false,
    "characteristicValueSpecification": [
      {
        "valueType": "string",
        "isDefault": true,
        "value": "Windows",
        "validFor": {
          "startDateTime": "2020-12-05T00:00",
          "endDateTime": "2023-12-31T11:59:59"
        },
        "regex": "",
        "valueFrom": "",
        "valueTo": "",
        "unitOfMeasure": "",
        "rangeInterval": "open",
        "@type": "CharacteristicValueSpecification",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
      }
    ],
    "charSpecRelationship": [],
    "@type": "SpecCharacteristic",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
  },
  {
    "name": "copy",
    "id": "4447",
    "description": "The optional (symbolic) name of another node template to copy into (all keynames and
values) and use as a basis for this node template",
    "valueType": "string",
    "configurable": true,
    "validFor": {
      "startDateTime": "2021-01-01T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "@valueSchemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/StringCharacteristic.schema.json",
    "minCardinality": 0,
    "maxCardinality": 1,
    "isUnique": true,
    "regex": ""
  }

```



```

"extensible": false,
"characteristicValueSpecification": [
  {
    "valueType": "string",
    "isDefault": true,
    "value": "",
    "validFor": {
      "startDateTime": "2021-01-01T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "regex": "",
    "valueFrom": "",
    "valueTo": "",
    "unitOfMeasure": "",
    "rangeInterval": "open",
    "@type": "CharacteristicValueSpecification",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/CharacteristicValueSpecification.schema.json"
  }
],
"charSpecRelationship": [],
"@type": "SpecCharacteristic",
"@baseType": "",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/SpecCharacteristic.schema.json"
},
"relatedParty": [
  {
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/individual/3001",
    "id": "3001",
    "name": "charles aznavour",
    "role": "Creator",
    "@referredType": "PartyRole",
    "@type": "RelatedParty",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/EngagedParty/RelatedParty.schema.json"
  }
],
"targetEntitySchema": {
  "@type": "ManagedEntity",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ManagedEntity.schema.json"
},
"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3779",
    "id": "3779",
    "name": "Node Filter",
    "version": "1.0",
    "@referredType": "Constraint",

```

```

    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"entitySpecRelationship": [
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8039",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8039",
    "name": "Node Type Capability Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "CapabilitySpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8053",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8053",
    "name": "Node Type Requirement Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "RequirementSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8059",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8059",
    "name": "Node Type Interface Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "InterfaceSpecification",

```

```

    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  },
  {
    "relationshipType": "Includes",
    "role": "nodeType",
    "id": "8069",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8069",
    "name": "Node Type Artifact Definition",
    "validFor": {
      "startDateTime": "2020-12-05T00:00",
      "endDateTime": "2023-12-31T11:59:59"
    },
    "associationSpec": {},
    "@referredType": "ArtifactSpecification",
    "@type": "EntitySpecRelationship",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/EntitySpecRelationship.schema.json"
  }
],
"@type": "ToscaNodeTemplate",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/ToscaNodeTemplate.schema.json",
"@baseType": "EntitySpecification"
}

```

## Delete entity specification

**DELETE** /entitySpecification/{id}

### Description

This operation deletes an entity specification entity.

### Usage Samples

Here's an example of a request for deleting a specification.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/entitySpecification/6599
<b>Response</b>

204

## Operations on Association Specification

### List association specifications

**GET** /associationSpecification?fields=...&{filtering}

#### Description

This operation list association specification entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

#### Usage Samples

Here's an example of a request for retrieving multiple association specifications.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/associationSpecification?lifecycleStatus=Active Accept: application/json
<b>Response</b>
200  [ { "id": "7717", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7717", "name": "HostedOn", "description": "An uni-directional association from TOSCA NodeDbmsSpec A to Tosca NodeComputeSpec Z indicating an instance of A hosted on an instance of B", "version": "2.0", "validFor": { "startDateTime": "2021-01-01T00:00-04:00", "endDateTime": "2023-12-31T11:59:59-04:00" }, "lastUpdate": "2021-01-01T00:00-04:00", "lifecycleStatus": "Active", }, ]

```

"constraint": [
  {
    "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",
    "id": "3989",
    "name": "EligibilityConstraint",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"associationRoleSpec": [
  {
    "entityType": "NodeDbmsSpec",
    "isNavigable": true,
    "isSource": true,
    "maxQuantity": 1,
    "minQuantity": 1,
    "role": "hostee",
    "defaultQuantity": 1,
    "aggregation": "None"
  },
  {
    "entityType": "NodeComputeSpec",
    "isNavigable": true,
    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "hoster",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json",
"@baseType": ""
},
{
  "id": "7727",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",
  "name": "ReliesOn",
  "description": "An uni-directional association from EntitySpecification A to EntitySpecification B indicating
an instance of A relies on an instance of B",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-25T00:00Z",
    "endDateTime": "2024-12-25T11:59:59Z"
  },
  "lastUpdate": "2020-12-25T00:00Z",
  "lifecycleStatus": "Active",

```

```

"constraint": [],
"associationRoleSpec": [
  {
    "entityType": "ElecFireProtectionSpec",
    "isNavigable": true,
    "isSource": true,
    "maxQuantity": 1,
    "minQuantity": 1,
    "role": "a_ReliesOn",
    "defaultQuantity": 1,
    "aggregation": "None"
  },
  {
    "entityType": "MechFireProtectionSpec",
    "isNavigable": true,
    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "z_ReliesOn",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json",
"@baseType": ""
}
]

```

## Retrieve association specification

### GET

**/associationSpecification/{id}?fields=...&{filtering}**

### Description

This operation retrieves an association specification entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

## Usage Samples

Here's an example of a request for retrieving a specific association specification.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/associationSpecification/7717 Accept: application/json
<b>Response</b>
200  <pre>{   "id": "7717",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7717",   "name": "HostedOn",   "description": "An uni-directional association from TOSCA NodeDbmsSpec A to Tosca NodeComputeSpec Z indicating an instance of A hosted on an instance of B",   "version": "1.0",   "validFor": {     "startDateTime": "2020-12-05T00:00-04:00",     "endDateTime": "2023-12-31T11:59:59-04:00"   },   "lastUpdate": "2020-12-05T00:00-04:00",   "lifecycleStatus": "Active",   "constraint": [     {       "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",       "id": "3989",       "name": "EligibilityConstraint",       "version": "1.0",       "@referredType": "Constraint",       "@type": "ConstraintRef",       "@baseType": "",       "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"     }   ],   "associationRoleSpec": [     {       "entityType": "NodeDbmsSpec",       "isNavigable": true,       "isSource": true,       "maxQuantity": 1,       "minQuantity": 1,       "role": "a_host", </pre>

```

    "defaultQuantity": 1,
    "aggregation": "None"
  },
  {
    "entityType": "NodeComputeSpec",
    "isNavigable": true,
    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "z_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json",
"@baseType": ""
}

```

## Create association specification

### POST /associationSpecification

#### Description

This operation creates an association specification entity.

#### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a AssociationSpecification, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
name	
associationRoleSpec	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
constraint	
description	
lastUpdate	



Non Mandatory Attributes	Rule
lifecycleStatus	
validFor	
version	

## Usage Samples

Here's an example of a request for creating an association specification.

Request
<pre> POST /tmf-api/entityCatalogManagement/v4/associationSpecification Content-Type: application/json  {   "name": "ReliesOn",   "description": "An uni-directional association from TOSCA NodeDbmsSpec A to Tosca NodeComputeSpec Z   indicating an instance of A hosted on an instance of B",   "version": "1.0",   "validFor": {     "startDateTime": "2020-12-05T00:00-04:00",     "endDateTime": "2023-12-31T11:59:59-04:00"   },   "lifecycleStatus": "Active",   "constraint": [     {       "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",       "id": "3989",       "name": "EligibilityConstraint",       "version": "1.0",       "@referredType": "Constraint",       "@type": "ConstraintRef",       "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"     }   ],   "associationRoleSpec": [     {       "entityType": "NodeDbmsSpec",       "isNavigable": true,       "isSource": true,       "maxQuantity": 1,       "minQuantity": 1,       "role": "a_host",       "defaultQuantity": 1,       "aggregation": "None"     },     {       "entityType": "NodeComputeSpec",       "isNavigable": true, </pre>

```

    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "z_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json"
}

```

## Response

201

```

{
  "id": "7717",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7717",
  "name": "HostedOn",
  "description": "An uni-directional association from TOSCA NodeDbmsSpec A to Tosca NodeComputeSpec Z
indicating an instance of A hosted on an instance of B",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-05T00:00-04:00",
    "endDateTime": "2023-12-31T11:59:59-04:00"
  },
  "lastUpdate": "2020-12-05T00:00-04:00",
  "lifecycleStatus": "Active",
  "constraint": [
    {
      "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",
      "id": "3989",
      "name": "EligibilityConstraint",
      "version": "1.0",
      "@referredType": "Constraint",
      "@type": "ConstraintRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
    }
  ],
  "associationRoleSpec": [
    {
      "entityType": "NodeDbmsSpec",
      "isNavigable": true,
      "isSource": true,
      "maxQuantity": 1,
      "minQuantity": 1,
      "role": "a_host",

```

```

    "defaultQuantity": 1,
    "aggregation": "None"
  },
  {
    "entityType": "NodeComputeSpec",
    "isNavigable": true,
    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "z_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json",
"@baseType": ""
}

```

## Patch association specification

### PATCH /associationSpecification/{id}

#### Description

This operation allows partial updates of an association specification entity. Support of json/merge (<https://tools.ietf.org/html/rfc7386>) is mandatory, support of json/patch (<http://tools.ietf.org/html/rfc5789>) is optional.

Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

#### Patchable and Non Patchable Attributes

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

Patchable Attributes	Rule
associationRoleSpec	
constraint	
description	
lifecycleStatus	
name	
validFor	
version	

Non Patchable Attributes	Rule
id	
href	
lastUpdate	
@type	
@schemaLocation	
@baseType	

## Usage Samples

Here's an example of a request for patching a AssociationSpecification resource.

Request
PATCH /tmf-api/entityCatalogManagement/v4/associationSpecification/7717 Content-Type: application/merge-patch+json  <pre>{   "name": "new name" }</pre>
Response
200  <pre>{   "id": "7717",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7717",   "name": "new name",   "description": "An uni-directional association from TOSCA NodeDbmsSpec A to Tosca NodeComputeSpec Z indicating an instance of A hosted on an instance of B",   "version": "1.0",   "validFor": {     "startDateTime": "2020-12-05T00:00-04:00",     "endDateTime": "2023-12-31T11:59:59-04:00"   },   "lastUpdate": "2020-12-05T00:00-04:00",   "lifecycleStatus": "Active",   "constraint": [     {       "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",       "id": "3989",       "name": "EligibilityConstraint",       "version": "1.0",     }   ] }</pre>

```

    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"associationRoleSpec": [
  {
    "entityType": "NodeDbmsSpec",
    "isNavigable": true,
    "isSource": true,
    "maxQuantity": 1,
    "minQuantity": 1,
    "role": "a_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  },
  {
    "entityType": "NodeComputeSpec",
    "isNavigable": true,
    "isSource": false,
    "maxQuantity": 1,
    "minQuantity": 0,
    "role": "z_host",
    "defaultQuantity": 1,
    "aggregation": "None"
  }
],
"@type": "AssociationSpecification",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecification.schema.json",
"@baseType": ""
}

```

## Delete association specification

**DELETE** /associationSpecification/{id}

### Description

This operation deletes an association specification entity.

## Usage Samples

Here's an example of a request for deleting an association specification.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/associationSpecification/7717
<b>Response</b>
204

## Operations on Association

### List associations

```
GET /association?fields=...&{filtering}
```

#### Description

This operation list association entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

## Usage Samples

Here's an example of a request for retrieving multiple associations.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/association?lifecycleStatus=Active Accept: application/json
<b>Response</b>

```

200
[
  {
    "id": "7757",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/association/7757",
    "name": "ReliesOn",
    "description": "An Uni-directional ReliesOn association from Electrical Fire Protection Specification to Mechanical Fire Protection Specification",
    "version": "1.0",
    "validFor": {
      "startDateTime": "2020-12-25T00:00Z",
      "endDateTime": "2023-12-31T11:59:59Z"
    },
    "lastUpdate": "2020-12-25T00:00Z",
    "lifecycleStatus": "Active",
    "associationSpec": {
      "id": "7727",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",
      "name": "ReliesOn",
      "@referredType": "AssociationSpecification",
      "@type": "AssociationSpecificationRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationSpecificationRef.schema.json"
    },
    "constraint": [
      {
        "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3947",
        "id": "3947",
        "name": "protectionDependencyRule",
        "version": "1.0",
        "@referredType": "Constraint",
        "@type": "ConstraintRef",
        "@baseType": "",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
      }
    ],
    "associationRole": [
      {
        "isSource": true,
        "role": "a_ReliesOn",
        "@type": "AssociationRole",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
        "@baseType": "",
        "entity": {
          "id": "8089",
          "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8089",
          "name": "Fire Protection Electrical",
          "@type": "EntityRef",
          "@baseType": ""
        }
      }
    ]
  }
]

```

```

    "referredType": "FireProtectionSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
  }
},
{
  "isSource": false,
  "role": "z_ReliesOn",
  "@type": "AssociationRole",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationRole.schema.json",
  "@baseType": "",
  "entity": {
    "id": "8087",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8087",
    "name": "Fire Protection Mechanical",
    "@type": "EntityRef",
    "@baseType": "",
    "referredType": "FireProtectionSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
  }
},
{
  "@type": "Association",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json",
  "@baseType": ""
},
{
  "id": "7759",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/association/7759",
  "name": "HostedOn",
  "description": "A host requirement for a Tosca Database Node",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2021-01-01T00:00Z",
    "endDateTime": "2023-12-31T11:59:59Z"
  },
  "lastUpdate": "2021-01-01T00:00Z",
  "lifecycleStatus": "Active",
  "associationSpec": {
    "id": "7717",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7717",
    "name": "HostedOn",
    "@referredType": "AssociationSpecification",
    "@type": "AssociationSpecificationRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecificationRef.schema.json"
  },
  "constraint": [
    {
      "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3989",
      "id": "3989",

```



```

    "name": "EligibilityConstraint",
    "version": "1.0",
    "@referredType": "Constraint",
    "@type": "ConstraintRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
  }
],
"associationRole": [
  {
    "isSource": true,
    "role": "hostee",
    "@type": "AssociationRole",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationRole.schema.json",
    "@baseType": "",
    "entity": {
      "id": "8009",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8009",
      "name": "mysql",
      "referredType": "NodeDbmsSpec",
      "@type": "EntityRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  },
  {
    "isSource": false,
    "role": "hoster",
    "@type": "AssociationRole",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationRole.schema.json",
    "@baseType": "",
    "entity": {
      "id": "8011",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8011",
      "name": "db_server",
      "referredType": "NodeComputeSpec",
      "@type": "EntityRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  }
],
"@type": "Association",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json",
"@baseType": ""
}
]

```

## Retrieve association

**GET** /association/{id}?fields=...&{filtering}

### Description

This operation retrieves an association entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

### Usage Samples

Here's an example of a request for retrieving a specific association.

<b>Request</b>
<pre>GET /tmf-api/entityCatalogManagement/v4/association/7757 Accept: application/json</pre>
<b>Response</b>
<pre>200 {   "id": "7757",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/association/7757",   "name": "ReliesOn",   "description": "An Uni-directional ReliesOn association from Electrical Fire Protection Specification to Mechanical Fire Protection Specification",   "version": "1.0",   "validFor": {     "startDateTime": "2020-12-25T00:00Z",     "endDateTime": "2023-12-31T11:59:59Z"   },   "lastUpdate": "2020-12-25T00:00Z",   "lifecycleStatus": "Active",   "associationSpec": {     "id": "7727",     "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",     "name": "ReliesOn",     "@referredType": "AssociationSpecification",     "@type": "AssociationSpecificationRef",</pre>

```

"@baseType": "",
"@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Common/AssociationSpecficationRef.schema.json"
},
"constraint": [
{
  "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3947",
  "id": "3947",
  "name": "protectionDependencyRule",
  "version": "1.0",
  "@referredType": "Constraint",
  "@type": "ConstraintRef",
  "@baseType": "",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
}
],
"associationRole": [
{
  "isSource": true,
  "role": "a_ReliesOn",
  "@type": "AssociationRole",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
  "@baseType": "",
  "entity": {
    "id": "8089",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8089",
    "name": "Fire Protection Electrical",
    "@type": "EntityRef",
    "@baseType": "",
    "referredType": "FireProtectionSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
  }
},
{
  "isSource": false,
  "role": "z_ReliesOn",
  "@type": "AssociationRole",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
  "@baseType": "",
  "entity": {
    "id": "8087",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8087",
    "name": "Fire Protection Mechanical",
    "@type": "EntityRef",
    "@baseType": "",
    "referredType": "FireProtectionSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
  }
}
],
"@type": "Association",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json",

```

```
"@baseType": ""
}
```

## Create association

### POST /association

#### Description

This operation creates an association entity.

#### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating an Association, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
name	
associationRole	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
associationSpec	
constraint	
description	
lastUpdate	
lifecycleStatus	
validFor	
version	

#### Usage Samples

Here's an example of a request for creating an association.

Request
POST /tmf-api/entityCatalogManagement/v4/association Content-Type: application/json  <pre>{   "name": "ReliesOn",</pre>

```

    "description": "An Uni-directional ReliesOn association from Electrical Fire Protection Specification to
    Mechanical Fire Protection Specification",
    "version": "1.0",
    "validFor": {
      "startTime": "2020-12-25T00:00Z",
      "endTime": "2023-12-31T11:59:59Z"
    },
    "lifecycleStatus": "Active",
    "associationSpec": {
      "id": "7727",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",
      "name": "ReliesOn",
      "@referredType": "AssociationSpecification",
      "@type": "AssociationSpecificationRef",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
    api/schema/Common/AssociationSpecificationRef.schema.json"
    },
    "constraint": [
      {
        "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3947",
        "id": "3947",
        "name": "protectionDependencyRule",
        "version": "1.0",
        "@referredType": "Constraint",
        "@type": "ConstraintRef",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
      }
    ],
    "associationRole": [
      {
        "isSource": true,
        "role": "a_ReliesOn",
        "@type": "AssociationRole",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
        "entity": {
          "id": "8089",
          "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8089",
          "name": "Fire Protection Electrical",
          "@type": "EntityRef",
          "@baseType": "",
          "referredType": "FireProtectionSpecification",
          "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
        }
      },
      {
        "isSource": false,
        "role": "z_ReliesOn",
        "@type": "AssociationRole",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
        "entity": {
          "id": "8087",
          "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8087",

```

```

      "name": "Fire Protection Mechanical",
      "@type": "EntityRef",
      "referredType": "FireProtectionSpecification",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  ],
  "@type": "Association",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json"
}

```

## Response

201

```

{
  "id": "7757",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/association/7757",
  "name": "ReliesOn",
  "description": "An Uni-directional ReliesOn association from Electrical Fire Protection Specification to Mechanical Fire Protection Specification",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-25T00:00Z",
    "endDateTime": "2023-12-31T11:59:59Z"
  },
  "lastUpdate": "2020-12-25T00:00Z",
  "lifecycleStatus": "Active",
  "associationSpec": {
    "id": "7727",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",
    "name": "ReliesOn",
    "@referredType": "AssociationSpecification",
    "@type": "AssociationSpecificationRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationSpecificationRef.schema.json"
  },
  "constraint": [
    {
      "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3947",
      "id": "3947",
      "name": "protectionDependencyRule",
      "version": "1.0",
      "@referredType": "Constraint",
      "@type": "ConstraintRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
    }
  ],
}

```

```

"associationRole": [
  {
    "isSource": true,
    "role": "a_ReliesOn",
    "@type": "AssociationRole",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
    "@baseType": "",
    "entity": {
      "id": "8089",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8089",
      "name": "Fire Protection Electrical",
      "@type": "EntityRef",
      "@baseType": "",
      "referredType": "FireProtectionSpecification",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  },
  {
    "isSource": false,
    "role": "z_ReliesOn",
    "@type": "AssociationRole",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
    "@baseType": "",
    "entity": {
      "id": "8087",
      "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8087",
      "name": "Fire Protection Mechanical",
      "@type": "EntityRef",
      "@baseType": "",
      "referredType": "FireProtectionSpecification",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
    }
  }
],
"@type": "Association",
"@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json",
"@baseType": ""
}

```

## Patch association

### PATCH /association/{id}

#### Description

This operation allows partial updates of an association entity. Support of json/merge (<https://tools.ietf.org/html/rfc7386>) is mandatory, support of json/patch (<http://tools.ietf.org/html/rfc5789>) is optional.

Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

### Patchable and Non Patchable Attributes

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

Patchable Attributes	Rule
associationRole	
associationSpec	
constraint	
description	
lifecycleStatus	
name	
validFor	
version	

Non Patchable Attributes	Rule
id	
href	
lastUpdate	
@type	
@schemaLocation	
@baseType	

### Usage Samples

Here's an example of a request for patching an Association resource.

<b>Request</b>
PATCH /tmf-api/entityCatalogManagement/v4/association/7757 Content-Type: application/merge-patch+json  { "name": "new name" }
<b>Response</b>
200



```

{
  "id": "7757",
  "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/association/7757",
  "name": "new name",
  "description": "An Uni-directional ReliesOn association from Electrical Fire Protection Specification to Mechanical Fire Protection Specification",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-12-25T00:00Z",
    "endDateTime": "2023-12-31T11:59:59Z"
  },
  "lastUpdate": "2020-12-25T00:00Z",
  "lifecycleStatus": "Active",
  "associationSpec": {
    "id": "7727",
    "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/associationSpecification/7727",
    "name": "ReliesOn",
    "@referredType": "AssociationSpecification",
    "@type": "AssociationSpecificationRef",
    "@baseType": "",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationSpecificationRef.schema.json"
  },
  "constraint": [
    {
      "href": "https://mycsp.com:8080/tmf-api/policyManagement/v4/policy/3947",
      "id": "3947",
      "name": "protectionDependencyRule",
      "version": "1.0",
      "@referredType": "Constraint",
      "@type": "ConstraintRef",
      "@baseType": "",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/ConstraintRef.schema.json"
    }
  ],
  "associationRole": [
    {
      "isSource": true,
      "role": "a_ReliesOn",
      "@type": "AssociationRole",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
      "@baseType": "",
      "entity": {
        "id": "8089",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8089",
        "name": "Fire Protection Electrical",
        "@type": "EntityRef",
        "@baseType": "",
        "referredType": "FireProtectionSpecification",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
      }
    }
  ]
}

```

```

    },
    {
      "isSource": false,
      "role": "z_ReliesOn",
      "@type": "AssociationRole",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/AssociationRole.schema.json",
      "@baseType": "",
      "entity": {
        "id": "8087",
        "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/entitySpecification/8087",
        "name": "Fire Protection Mechanical",
        "@type": "EntityRef",
        "@baseType": "",
        "referredType": "FireProtectionSpecification",
        "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/EntityRef.schema.json"
      }
    }
  ],
  "@type": "Association",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Association.schema.json",
  "@baseType": ""
}

```

## Delete association

**DELETE** /association/{id}

### Description

This operation deletes an association entity.

### Usage Samples

Here's an example of a request for deleting an association.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/association/7757
<b>Response</b>
204

## Operations on Import Job

### List import jobs

**GET** /importJob?fields=...&{filtering}

#### Description

This operation list import job entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

#### Usage Samples

Here's an example of a request for retrieving multiple import jobs.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/importJob?creationDate=2020-10-28 Accept: application/json
<b>Response</b>
200  [ { "completionDate": "2020-10-28T00:03", "contentType": "application/json", "creationDate": "2020-10-28T00:00", "errorLog": "http://my-platform/daily/logging/ImportJobErrors.log", "href": "https://mycsp.com:8080/tmf-api/serviceCatalogManagement/v4/importJob/2011", "id": "2011", "path": "entityCatalogManagement/", "status": "completed", "url": "ftp://ftp.mycsp.com/entityCatalogManagement/ImportJob.json" }, { "completionDate": "", "contentType": "application/json", "creationDate": "2020-10-28T00:06", "errorLog": "http://my-platform/daily/logging/ImportJob2Errors.log", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/importJob/2027",

```

    "id": "2027",
    "path": "entityCatalogManagement/",
    "status": "started",
    "url": "ftp://ftp.mycsp.com/entityCatalogManagement/ImportJob2.json"
  }
]

```

## Retrieve import job

**GET** /importJob/{id}?fields=...&{filtering}

### Description

This operation retrieves an import job entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

### Usage Samples

Here's an example of a request for retrieving a specific import job.

<b>Request</b>
<pre> GET /tmf-api/entityCatalogManagement/v4/importJob/2011 Accept: application/json </pre>
<b>Response</b>
<pre> 200  {   "completionDate": "2020-09-23T00:03",   "contentType": "application/json",   "creationDate": "2020-09-23T00:00",   "errorLog": "http://my-platform/daily/logging/ImportJobErrors.log",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/importJob/2011",   "id": "2011",   "path": "entityCatalogManagement/",   "status": "completed",   "url": "ftp://ftp.mycsp.com/entityCatalogManagement/ImportJob.json" } </pre>

## Create import job

### POST /importJob

#### Description

This operation creates an import job entity.

#### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a ImportJob, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
url	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
completionDate	
contentType	
creationDate	
errorLog	
path	
status	

#### Usage Samples

Here's an example of a request for creating an import job.

Request
POST /tmf-api/entityCatalogManagement/v4/importJob Content-Type: application/json  <pre>{   "contentType": "application/json",   "errorLog": "http://my-platform/daily/logging/ImportJobErrors.log",   "path": "entityCatalogManagement/",   "url": "ftp://ftp.mycsp.com/entityCatalogManagement/ImportJob.json" }</pre>

<b>Response</b>
<pre> 201 {   "completionDate": "2020-09-23T00:03",   "contentType": "application/json",   "creationDate": "2020-09-23T00:00",   "errorLog": "http://my-platform/daily/logging/ImportJobErrors.log",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/importJob/2011",   "id": "2011",   "path": "entityCatalogManagement/",   "status": "completed",   "url": "ftp://ftp.mycsp.com/entityCatalogManagement/ImportJob.json" } </pre>

## Delete import job

**DELETE** /importJob/{id}

### Description

This operation deletes an import job entity.

### Usage Samples

Here's an example of a request for deleting an import job.

<b>Request</b>
DELETE /tmf-api/entityCatalogManagement/v4/importJob/2011
<b>Response</b>
204

## Operations on Export Job

### List export jobs

**GET** /exportJob?fields=...&{filtering}

#### Description

This operation list export job entities.

Attribute selection is enabled for all first level attributes.

Filtering may be available depending on the compliance level supported by an implementation.

#### Usage Samples

Here's an example of a request for retrieving multiple export jobs.

<b>Request</b>
GET /tmf-api/entityCatalogManagement/v4/exportJob?creationDate=2020-08-25 Accept: application/json
<b>Response</b>
200 [ { "completionDate": "2020-08-25T01:07", "contentType": "application/json", "creationDate": "2020-08-25T01:00", "errorLog": "http://my-platform/daily/logging/exportJob2Errors.log", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/exportJob/2017", "id": "2017", "path": "entityCatalogManagement/", "query": "@type=TestSpecification", "status": "completed", "url": "ftp://ftp.mycsp.com/entityCatalogManagement/exportJob2.json" }, { "completionDate": "2020-08-25T00:05", "contentType": "application/json", "creationDate": "2020-08-25T00:00", "errorLog": "http://my-platform/daily/logging/exportJobErrors.log", "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/exportJob/2003", "id": "2003",

```

    "path": "entityCatalogManagement/",
    "query": "@type=JobSpecification",
    "status": "completed",
    "url": "ftp://ftp.mycsp.com/entityCatalogManagement/exportJob.json"
  }
]

```

## Retrieve export job

**GET** /exportJob/{id}?fields=...&{filtering}

### Description

This operation retrieves an export job entity.

Attribute selection is enabled for all first level attributes.

Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

### Usage Samples

Here's an example of a request for retrieving a specific export job.

<b>Request</b>
<pre> GET /tmf-api/entityCatalogManagement/v4/exportJob/2003 Accept: application/json </pre>
<b>Response</b>
<pre> 200  {   "completionDate": "2020-08-25T00:05",   "contentType": "application/json",   "creationDate": "2020-08-25T00:00",   "errorLog": "http://my-platform/daily/logging/exportJobErrors.log",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/exportJob/2003",   "id": "2003",   "path": "entityCatalogManagement/",   "query": "@type=JobSpecification",   "status": "completed",   "url": "ftp://ftp.mycsp.com/entityCatalogManagement/exportJob.json" } </pre>



```
}

```

## Create export job

**POST** /exportJob

### Description

This operation creates an export job entity.

### Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a ExportJob, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

Mandatory Attributes	Rule
url	

Non Mandatory Attributes	Rule
@baseType	
@schemaLocation	
@type	
completionDate	
contentType	
creationDate	
errorLog	
path	
query	
status	

### Usage Samples

Here's an example of a request for creating an export job.

Request
POST /tmf-api/entityCatalogManagement/v4/exportJob Content-Type: application/json  <pre>{   "contentType": "application/json",   "errorLog": "http://my-platform/daily/logging/exportJobErrors.log",   "path": "entityCatalogManagement/" }</pre>

<pre>"query": "@type=JobSpecification", "url": "ftp://ftp.mycsp.com/entityCatalogManagement/exportJob.json" }</pre>
<p><b>Response</b></p>
<pre>201 {   "completionDate": "2020-08-25T00:05",   "contentType": "application/json",   "creationDate": "2020-08-25T00:00",   "errorLog": "http://my-platform/daily/logging/exportJobErrors.log",   "href": "https://mycsp.com:8080/tmf-api/entityCatalogManagement/v4/exportJob/2003",   "id": "2003",   "path": "entityCatalogManagement/",   "query": "@type=JobSpecification",   "status": "completed",   "url": "ftp://ftp.mycsp.com/entityCatalogManagement/exportJob.json" }</pre>

## Delete export job

**DELETE** /exportJob/{id}

### Description

This operation deletes an export job entity.

### Usage Samples

Here's an example of a request for deleting an export job.

<p><b>Request</b></p>
<pre>DELETE /tmf-api/entityCatalogManagement/v4/exportJob/2003</pre>
<p><b>Response</b></p>
<pre>204</pre>

## API NOTIFICATIONS

For every single of operation on the entities use the following templates and provide sample REST notification POST calls.

It is assumed that the Pub/Sub uses the Register and UnRegister mechanisms described in the REST Guidelines reproduced below.

### Register listener

#### POST /hub

##### Description

Sets the communication endpoint address the service instance must use to deliver information about its health state, execution state, failures and metrics. Subsequent POST calls will be rejected by the service if it does not support multiple listeners. In this case DELETE /api/hub/{id} must be called before an endpoint can be created again.

##### Behavior

Returns HTTP/1.1 status code 204 if the request was successful.

Returns HTTP/1.1 status code 409 if request is not successful.

##### Usage Samples

Here's an example of a request for registering a listener.

<b>Request</b>
<pre>POST /api/hub Accept: application/json  {"callback": "http://in.listener.com"}</pre>
<b>Response</b>
<pre>201 Content-Type: application/json Location: /api/hub/42  {"id": "42", "callback": "http://in.listener.com", "query": null}</pre>

## Unregister listener

**DELETE** /hub/{id}

### Description

Clears the communication endpoint address that was set by creating the Hub.

### Behavior

Returns HTTP/1.1 status code 204 if the request was successful.

Returns HTTP/1.1 status code 404 if the resource is not found.

### Usage Samples

Here's an example of a request for un-registering a listener.

<b>Request</b>
DELETE /api/hub/42 Accept: application/json
<b>Response</b>
204

## Publish Event to listener

**POST** /client/listener

### Description

Clears the communication endpoint address that was set by creating the Hub.

Provides to a registered listener the description of the event that was raised. The /client/listener url is the callback url passed when registering the listener.

### Behavior

Returns HTTP/1.1 status code 201 if the service is able to set the configuration.

## Usage Samples

Here's an example of a notification received by the listener. In this example “EVENT TYPE” should be replaced by one of the notification types supported by this API (see Notification resources Models section) and EVENT BODY refers to the data structure of the given notification type.

<b>Request</b>
POST /client/listener Accept: application/json  { "event": { EVENT BODY }, "eventType": "EVENT_TYPE" }
<b>Response</b>
201

For detailed examples on the general TM Forum notification mechanism, see the TMF REST Design Guidelines.

## Role based Access Control

The API will be released to allow all CRUD operations on API REST resources. However, the API operations are in subject to access control and can be limited depends on API user role. After a user presents his credentials for authentication, depending his validity of credentials he is given access to catalog based on his role.

For example, a User gets an error response if the user issues a Get on a catalog entity and he has no permission to access to the catalog or if he tries to modify an area of the catalog but do not have Write Access.

Normally we anticipate that the OAUTH2 or Open ID Connect are used as the authorization APIs and that ACL are established between authorized parties with regards to the content of the Catalog (i.e., GET but also enable of update operations on specific entities).Acknowledgements

## ACKNOWLEDGEMENTS

### Version History

Version Number	Date	Release led by:	Description
1.0.4	27-May-2017	Kamal Maghsoudlou - Ericsson <a href="mailto:kamal.maghsoudlou@ericsson.com">kamal.maghsoudlou@ericsson.com</a>	<ul style="list-style-type: none"> <li>Incorporated comments from internal meetings and JIRA</li> <li>Updated API data model UML, operations and notifications</li> </ul>
1.0.5	20-Nov-2017	Adrienne Walcott, TM Forum	<ul style="list-style-type: none"> <li>Updated to reflect TM Forum Approved Status</li> </ul>
4.0.0	05-Apr-2021	Kamal Maghsoudlou - Ericsson	<ul style="list-style-type: none"> <li>Aligned with TMF630 ver. 4.0</li> <li>Updated Model, Operations and examples</li> </ul>

### Release History

Release Status	Date	Modified by	Description
Release 17.0.0	27-May-2017	Kamal Maghsoudlou - Ericsson <a href="mailto:kamal.maghsoudlou@ericsson.com">kamal.maghsoudlou@ericsson.com</a>	<ul style="list-style-type: none"> <li>Incorporated comments from internal meetings and JIRA</li> </ul> <p>Updated API data model UML, operations and notifications</p>
Release 17.0.1	20-Nov-2017	Adrienne Walcott TM Forum	Updated to reflect TM Forum Approved Status
Pre-production	05-Apr-2021	Kamal Maghsoudlou Ericsson	Updated for API release 21.0

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