

TM Forum Specification

ResourceCatalog Management

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Direct inquiries to the TM Forum office:

4 Century Drive, Suite 100
Parsippany, NJ 07054, USA
Tel No. +1 973 944 5100
Fax No. +1 973 988 7196

TM Forum Web Page: www.tmforum.org

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Introduction

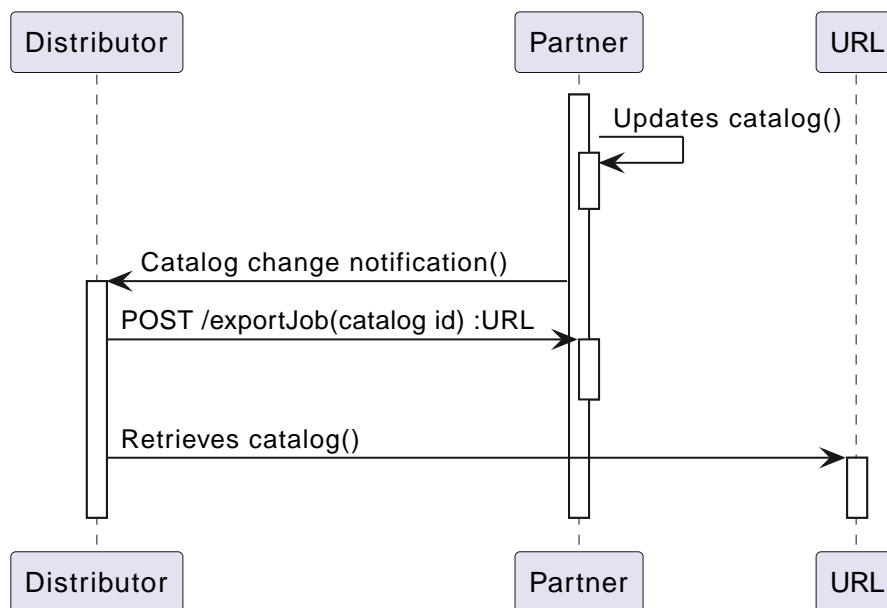
The following document is the user guide of the REST API for Resource Catalog Management. It includes the model definition as well as all available operations.

The Resource Catalog Management API allows the management of the entire lifecycle of the Resource Catalog elements and the consultation of resource catalog elements during several processes such as ordering process.

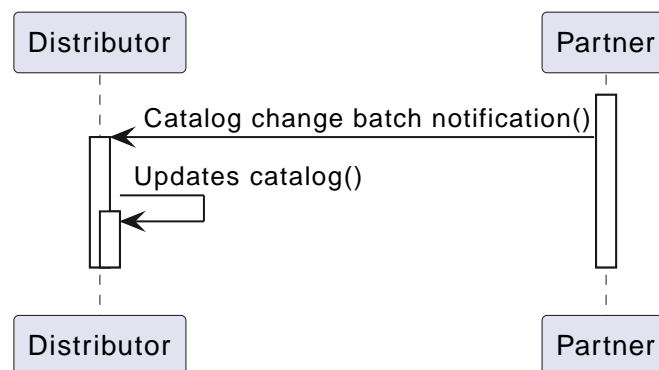
Lifecycle Management Use Cases

The Resource Catalog Management API allows the management of the entire lifecycle of the resource catalog elements. The followings are use case examples of Resource Catalog Management. Please refer to Frameworkx guidebook GB978 for more information.

UC1: A partner updates his catalog. He notifies his distributor the catalog change. The distributor requests a catalog export. Then, he retrieves the catalog at the provided URL.



UC2: A partner updates his catalog. He notifies all catalog changes in detail to his distributor. This one updates his catalog copy.



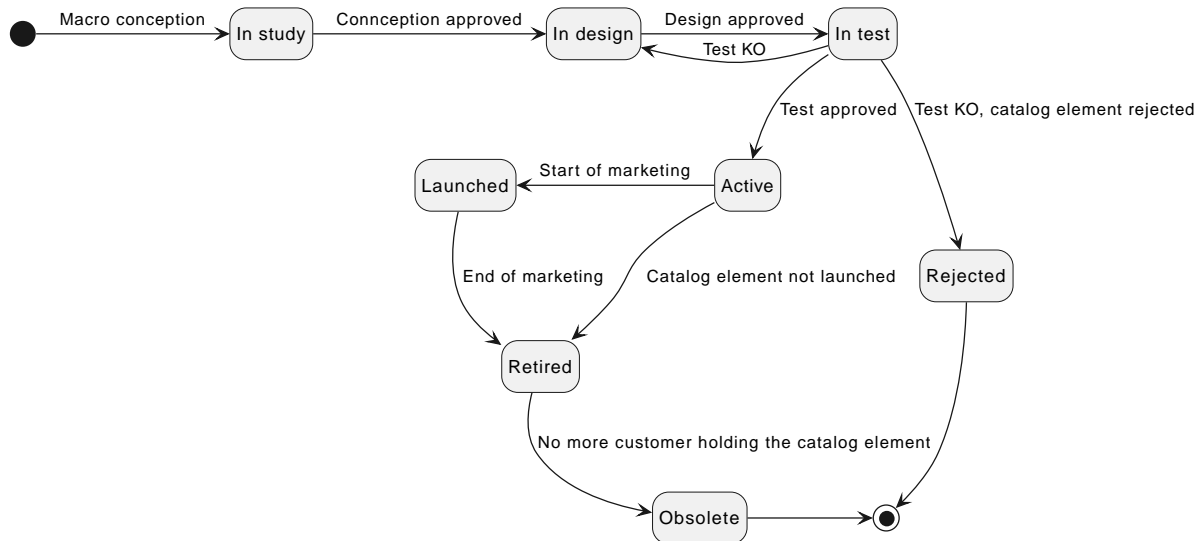
UC3: A catalog administrator wants to retrieve effective duration of a resource candidate based on resource candidate identifier or other search criteria (GET /resourceCandidate/{ID}).

UC4: A catalog administrator wants to retrieve all resource candidates in resource catalog (GET /resourceCandidate).

UC5: A catalog administrator wants to update the lifecycle status (from Launched to retired for example) of a resource candidate (PATCH /resourceCandidate/{ID}).

Lifecycle Management

Resource Lifecycle Management is responsible for managing the entire lifecycle of the resource catalog element and its underlying components. This include all the processes required to design, build, deploy, maintain and ultimately retire the catalog element.



- When the macro conception of a catalog element is started the first status is **"In study"**.
- When the conception of the catalog element is accepted, its status is changed to **"In design"**.
- If the design is approved its status is changed to **"In test"**.
- Then either the test is OK and then its status is changed to **"Active"** or the test is KO and its status is changed to **"Rejected"**. The **"Rejected"** status is a final status.
- When a catalog element is in a **"Active"** status it means, it has been validated and tested, but it is still not available for customers.
- When the beginning of marketing is reached, its status is changed to **"Launched"**. At this moment, customers can buy it.
- If the catalog element is not launched, its status is changed to **"Retired"**.
- The same status is achieved when a catalog element reaches the end of marketing.
- The **"Retired"** status means it cannot be sold to any new customers, but previous customers can still have it.
- When no more customer holds the catalog element, its status is changed to **"Obsolete"** meaning it can be removed from the catalog.

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 a `PhysicalResourceSpecification` and `LogicalResourceSpecification` inheriting properties from the base `ResourceSpecification` entity.

Generic support of polymorphism and pattern extensions is described in the TMF API Guidelines, Part 2 (TMF630).

The `@type` attribute provides a way to represent the actual class type of an entity. For example, within a list of `ResourceSpecification` instances some may be instances of `PhysicalResourceSpecification` where other could be instances of `LogicalResourceSpecification`. The `@type` gives this information. All resources and sub-resources of this API have a `@type` attributes that must be provided.

The `@referredType` can be used within reference entities (like for instance an `ResourceSpecificationRef` 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 `PhysicalResourceSpecificationRef` or `LogicalResourceSpecificationRef`, 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.

Characteristics and Features

The catalog model allows a specification to be described by characteristics and/or by features. Both approaches are valid, and they can be combined in the same specification.

Characteristics

A characteristic is a name-value pair defining an aspect of the instantiated entity. The corresponding characteristic specification includes metadata such as:

- The name of the characteristic
- The value (data) type of the characteristic (could be simple or complex)
- Whether or not the value can be set at instantiation
- Whether or not the value must be supplied at instantiation, and the cardinality (how many values are allowed)
- List or range of allowed values

For example, a virtual firewall can run on multiple operating systems. This could be implemented as a characteristic describing the operating system hosting the firewall.

- The name of the characteristic could be Host Operating System
- The value type would be string
- It is a configurable characteristic
- The value must be supplied
- The valid values could be RH Linux, Ubuntu, Oracle Linux

In the characteristic approach, the onus is on the consumer of the inventory API to set characteristic values explicitly according to the metadata provided by the corresponding catalog API.

Features

A feature is an intent-based way of specifying the capabilities of the instantiated entity. The feature is defined by a feature specification that typically includes characteristics and related definitions, but at instantiation time the feature is simply selected (by default or explicitly by the consumer of the inventory API) and the behavior is applied implicitly.

For example, a virtual firewall may be able to operate based on layer 4 (stateful firewall) or layer 7 (application) of the OSI networking model. A feature would be defined for each of these capabilities. At instantiation time, the consumer would select (say) the layer 7 feature and thus the instantiated firewall would operate at layer 7.

Characteristic-Based or Schema-Based

The Open API Catalog models, Resource Catalog included, present two complementary methods for

defining how entities can be instantiated:

- Characteristic-based
- Schema-based

These approaches will be compared using an example of a Virtual Storage resource, which has a characteristic Maximum Storage.

Characteristic-Based

In this approach, the characteristics of the entity are specified dynamically, using the `CharacteristicSpecification` to define the behavior of the characteristic. A JSON fragment might appear as follows:

```
{
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",
  "@type": "ResourceSpecification",
  "resourceSpecCharacteristic": [
    {
      "name": "Maximum Allowed Storage",
      "description":
        "The storage limit in the virtual storage medium, ",
      "valueType": "integer",
      "configurable": true,
      "minCardinality": 1,
      "maxCardinality": 1,
      "isUnique": true,
      "@type": "CharacteristicSpecification",
      "characteristicValueSpecification": [
        {
          "value": 1024000,
          "@type": "IntegerCharacteristicValueSpecification"
        },
        {
          "value": 2048000,
          "@type": "IntegerCharacteristicValueSpecification"
        }
      ]
    }
  ]
}
```

This fragment shows that the characteristic is named Maximum Allowed Storage, and has valid values 1G and 2G, one of which must be chosen when instantiating a particular storage.

Schema-Based

In this approach, the characteristics of the entity are specified in a strongly-typed schema, and the specification points to the schema. A JSON fragment might appear as follows:

```
{
  "name": "Virtual Storage Medium",
```

```

"description":
  "This resource specification defines the virtual storage medium",
"@type": "ResourceSpecification",
"targetResourceSchema": {
  "@type": "VirtualStorage",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
}
}

```

And the referred schema file might appear as follows:

```

{
  "$schema": "http://json-schema.org/draft-07/schema#",
  "$id": "VirtualStorage.schema.json",
  "title": "VirtualStorage",
  "definitions": {
    "VirtualStorage ": {
      "$id": "# VirtualStorage ",
      "description":
        "This resource specification defines the virtual storage medium.",
      "type": "object",
      "properties": {
        "Maximum Allowed Storage": {
          "type": "integer",
          "description": "The storage limit in the virtual storage medium",
          "enum": [1024000, 2048000]
        }
      },
      "required": ["Maximum Allowed Storage"],
      "allOf": [
        {
          "$ref":
            "LogicalResourceSpecification.schema.json#/components/schemas/LogicalResourceSpecifi
cation"
        }
      ]
    }
  }
}

```

This fragment shows that Virtual Storage has a strongly-typed attribute named Maximum Allowed Storage, with valid values 1G and 2G, one of which must be chosen when instantiating a particular storage.

Note: in this paradigm the metadata describing the attribute is limited by the semantics of json schema. Additional metadata, that is part of the Characteristic Specification model, is not represented in the schema file.

RESOURCE MODEL

Managed Entity and Task Resource Models

ImportJob resource

Resource model

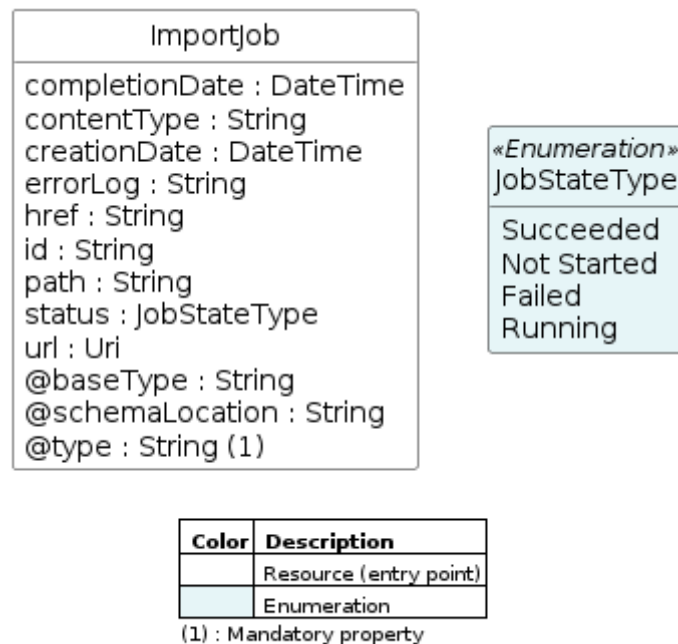


Figure 1 - ImportJob

Field descriptions

ImportJob fields

| | |
|----------------|---|
| completionDate | A DateTime. Date at which the job was completed. |
| contentType | A String. Indicates the format of the imported data. |
| creationDate | A DateTime. Date at which the job was created. |
| errorLog | A String. Path to file or stream where errors encountered during the job processing can be written. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| path | A String. URL of the root resource where the content of the file specified by the import job must be applied. |
| status | A JobStateType. Valid values for the state of a batch job (e.g. catalog import). |

| | |
|-----------------|---|
| url | A Uri. URL of the file containing the data to be imported. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

Json representation sample(s)

We provide below a JSON representation as example of the 'ImportJob' resource object.

```
{
  "id": "2341",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/importJob/2341",
  "contentType": "application/json",
  "creationDate": "2018-08-27T00:00:00.000Z",
  "completionDate": "2018-08-27T00:05:00.000Z",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
  "status": "Succeeded",
  "url": "https://my-platform/daily/job/NHCFD6",
  "errorLog": "http://my-platform/logging/errors.log",
  "@type": "ImportJob"
}
```

ExportJob resource

Resource model

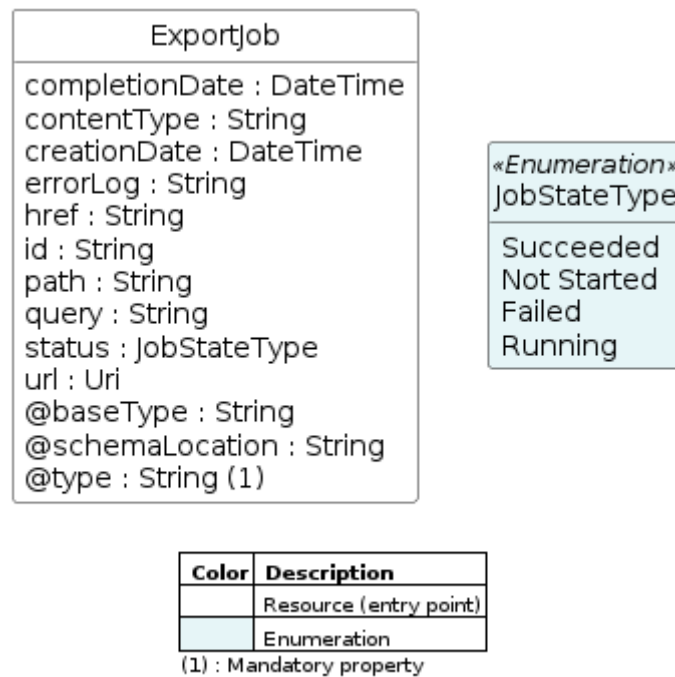


Figure 2 - ExportJob

Field descriptions

ExportJob fields

| | |
|-----------------|--|
| completionDate | A DateTime. Data at which the job was completed. |
| contentType | A String. The format of the exported data. |
| creationDate | A DateTime. Date at which the job was created. |
| errorLog | A String. Path to file or stream where errors encountered during the job processing can be written. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| 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 JobStateType. Valid values for the state of a batch job (e.g. catalog import). |
| url | A Uri. URL of the file containing the data to be exported. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |
|-------|--|

Json representation sample(s)

We provide below a JSON representation as example of the 'ExportJob' resource object.

```
{
  "id": "5435",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/exportJob/5435",
  "contentType": "application/json",
  "creationDate": "2018-08-27T00:00:00.000Z",
  "path": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/3830",
  "query": "category.id=7757",
  "status": "Running",
  "url": "https://my-platform/daily/job/EHCFD6",
  "errorLog": "http://my-platform/logging/errors.log",
  "@type": "ExportJob"
}
```

ResourceCatalog resource

Resource model

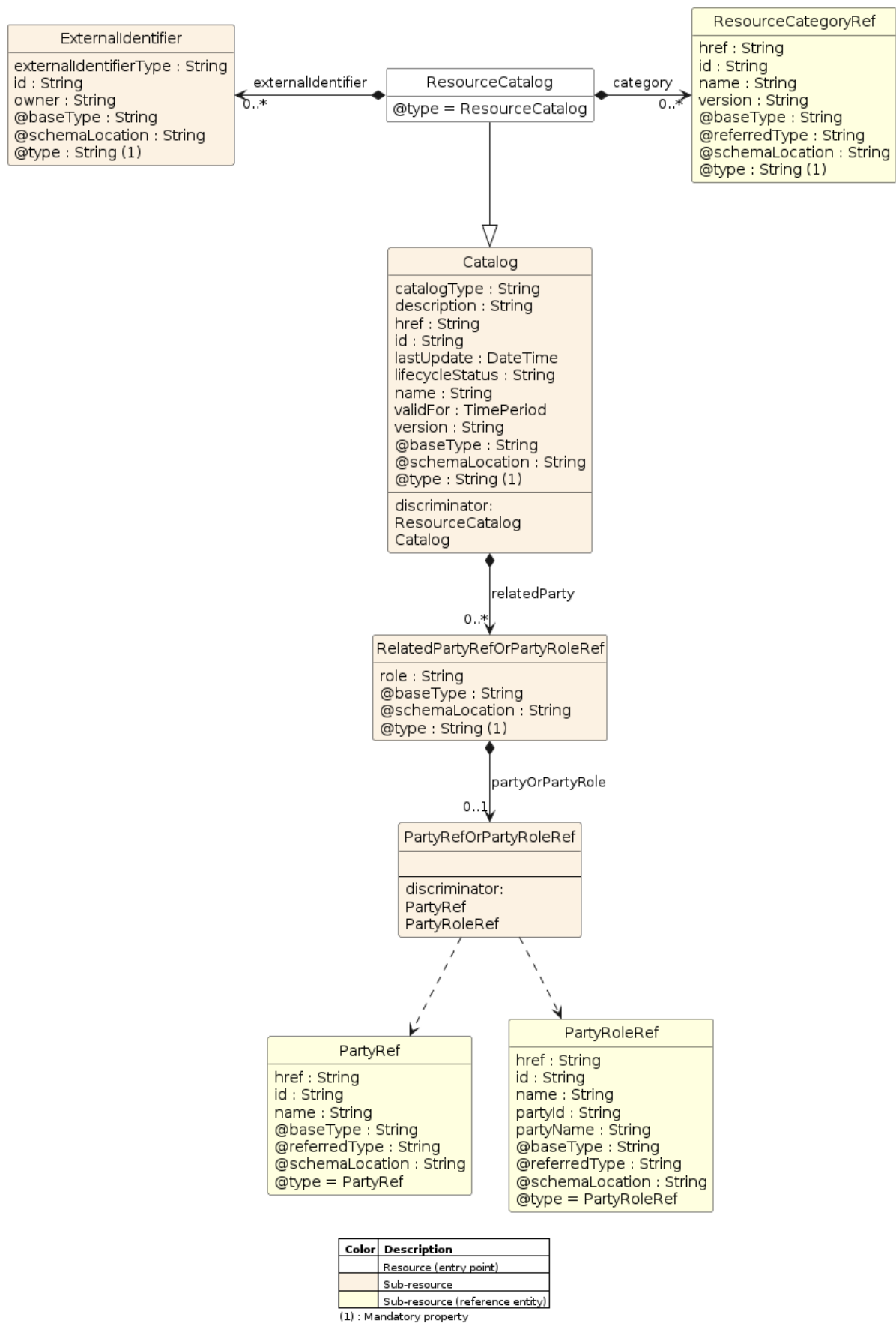


Figure 3 - ResourceCatalog

Field descriptions**ResourceCatalog fields**

| | |
|--------------------|--|
| catalogType | A String. Type of this Catalog, like Product, Service, Resource etc. |
| category | A ResourceCategoryRef. List of root categories contained in this catalog. |
| description | A String. Description of this catalog. |
| externalIdentifier | An ExternalIdentifier. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| lastUpdate | A 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 RelatedPartyRefOrPartyRoleRef. List of parties involved in this catalog. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Catalog version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

Catalog sub-resource fields

| | |
|-----------------|--|
| catalogType | A String. Type of this Catalog, like Product, Service, Resource etc. |
| description | A String. Description of this catalog. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| lastUpdate | A 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 RelatedPartyRefOrPartyRoleRef. List of parties involved in this catalog. |

| | |
|-----------------|--|
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Catalog version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

PartyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRoleRef sub-resource fields

| | |
|------|--------------------------------|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |

| | |
|-----------------|---|
| name | A String. Name of the referred entity. |
| partyId | A String. The identifier of the engaged party that is linked to the PartyRole object. |
| partyName | A String. The name of the engaged party that is linked to the PartyRole object. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

RelatedPartyRefOrPartyRoleRef sub-resource fields

| | |
|------------------|--|
| partyOrPartyRole | A PartyRefOrPartyRoleRef. |
| role | A String. Role played by the related party or party role in the context of the specific entity it is linked to. Such as 'initiator', 'customer', 'salesAgent', 'user'. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceCategoryRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Category version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

Json representation sample(s)

We provide below a JSON representation as example of the 'ResourceCatalog' resource object.

```
{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud management",
  "@type": "ResourceCatalog",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",
        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "4569",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/4569",
      "version": "1.0",
      "name": "Secure Home",
      "@type": "ResourceCategoryRef"
    }
  ]
}
```

ResourceCategory resource

Resource model

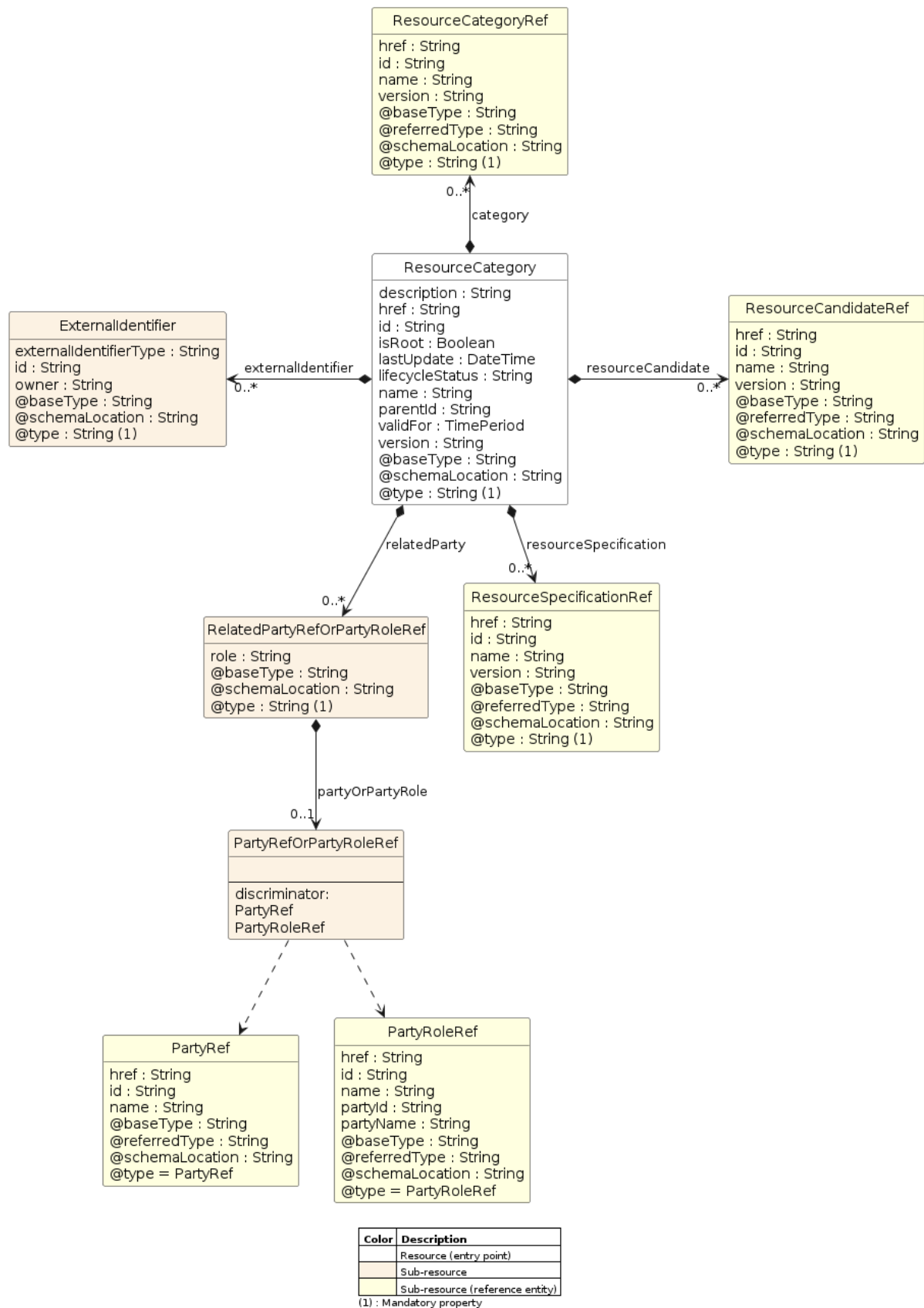


Figure 4 - ResourceCategory

Field descriptions

ResourceCategory fields

| | |
|-----------------------|---|
| category | A ResourceCategoryRef. The category resource is used to group product offerings, service and resource candidates in logical containers. Categories can contain other (sub-)categories and/or product offerings. |
| description | A String. Description of the category. |
| externalIdentifier | An ExternalIdentifier. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| isRoot | A Boolean. If true, this Boolean indicates that the category is a root of categories. |
| lastUpdate | A DateTime. Date and time of the last update. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status. |
| name | A String. The name of the Category. |
| parentId | A String. Unique identifier of the parent category. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. List of parties involved in this category. |
| resourceCandidate | A ResourceCandidateRef. List of resource candidates accessible via this category. |
| resourceSpecification | A ResourceSpecificationRef. List of resource specifications accessible via this category. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Category version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

PartyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRoleRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| partyId | A String. The identifier of the engaged party that is linked to the PartyRole object. |
| partyName | A String. The name of the engaged party that is linked to the PartyRole object. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

RelatedPartyRefOrPartyRoleRef sub-resource fields

| | |
|------------------|---------------------------|
| partyOrPartyRole | A PartyRefOrPartyRoleRef. |
|------------------|---------------------------|

| | |
|-----------------|--|
| role | A String. Role played by the related party or party role in the context of the specific entity it is linked to. Such as 'initiator', 'customer', 'salesAgent', 'user'. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceCandidateRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. The version of resource candidate. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ResourceCategoryRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Category version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ResourceSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

Json representation sample(s)

We provide below a JSON representation as example of the 'ResourceCategory' resource object.

```
{
  "id": "8121",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that
are implemented in the network",
  "@type": "ResourceCategory",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2020-08-23T00:00:22.920Z",
    "endDateTime": "2022-08-23T00:00:22.919Z"
  },
  "lifecycleStatus": "Active",
  "lastUpdate": "2021-03-24T00:00:22.920Z",
  "isRoot": true,
  "relatedParty": [
    {
      "role": "Employee",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "4434",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/employee/4434",

        "name": "Jimmy Doe",
        "@referredType": "Employee",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "5982",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5982",
      "version": "3.2",
```

```

        "name": "IoT",
        "@type": "ResourceCategoryRef"
      },
    ],
    "resourceCandidate": [
      {
        "id": "5298",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/5298",
        "version": "1.0",
        "name": "Elastic Storage",
        "@type": "ResourceCandidateRef"
      },
      {
        "id": "7479",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
        "version": "3.2",
        "name": "Virtual Storage Medium",
        "@type": "ResourceCandidateRef"
      }
    ],
    "resourceSpecification": [
      {
        "id": "42",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
        "version": "3.0",
        "name": "Virtual Storage Medium",
        "@type": "ResourceSpecificationRef",
        "@referredType": "ResourceSpecification"
      }
    ]
  ]
}

```

ResourceCandidate resource

Resource model

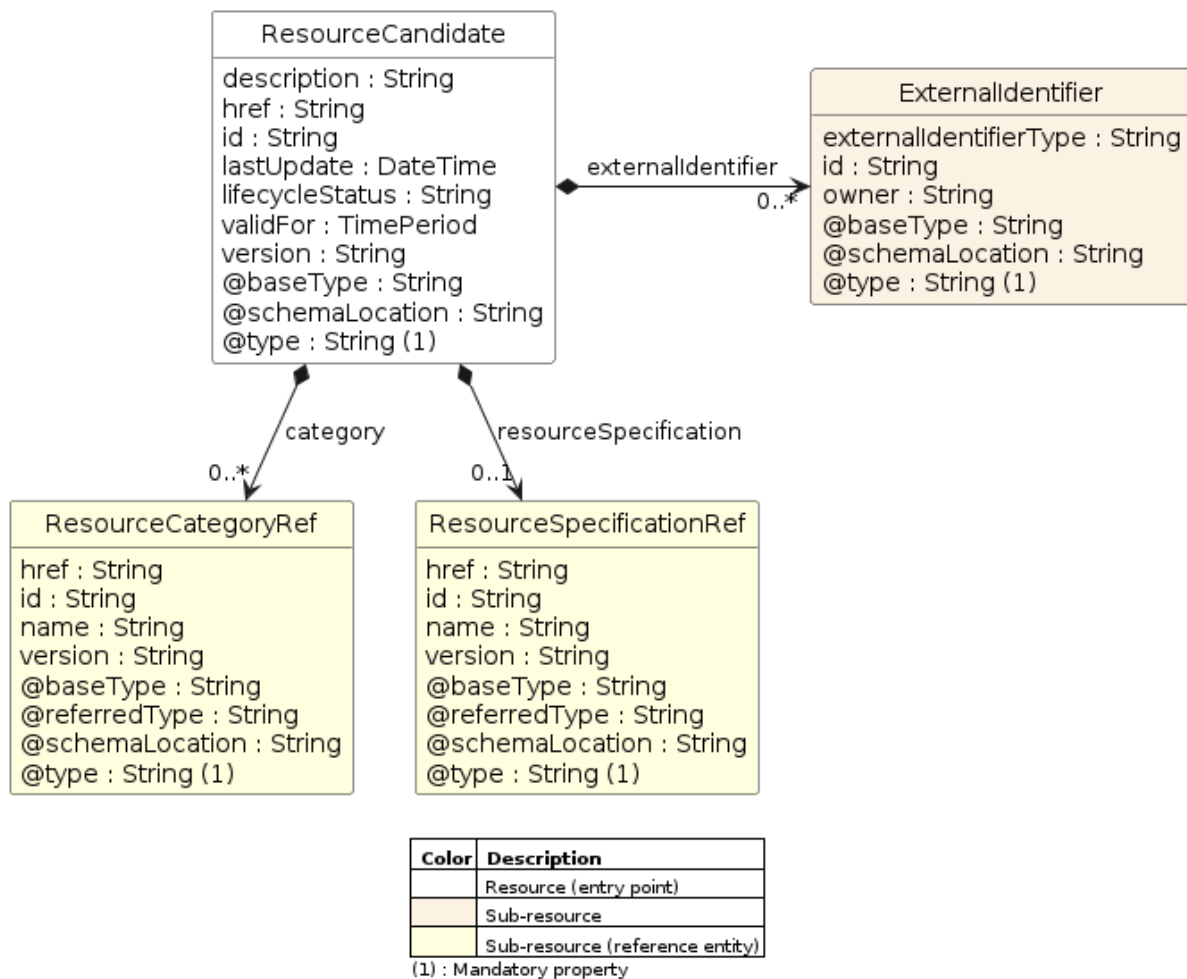


Figure 5 - ResourceCandidate

Field descriptions

ResourceCandidate fields

| | |
|-----------------------|--|
| category | A ResourceCategoryRef. The categories in which this candidate is exposed. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource candidate. |
| resourceSpecification | A ResourceSpecificationRef. |

| | |
|-----------------|--|
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. The version of resource candidate. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceCategoryRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Category version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ResourceSpecificationRef sub-resource fields

| | |
|------|--------------------------------|
| href | A String. Hyperlink reference. |
|------|--------------------------------|

| | |
|-----------------|---|
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

Json representation sample(s)

We provide below a JSON representation as example of the 'ResourceCandidate' resource object.

```
{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium specification available in the cloud catalog",
  "@type": "ResourceCandidate",
  "version": "3.2",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lastUpdate": "2022-03-24T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "category": [
    {
      "id": "5355",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/5355",
      "version": "1.1",
      "name": "Cloud Resources",
      "@type": "ResourceCategoryRef"
    }
  ],
  "resourceSpecification": {
    "id": "42",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
    "version": "3.0",
    "name": "Virtual Storage Medium",
    "@type": "ResourceSpecificationRef",
    "@referredType": "ResourceSpecification"
  }
}
```

ResourceSpecification resource

Resource model

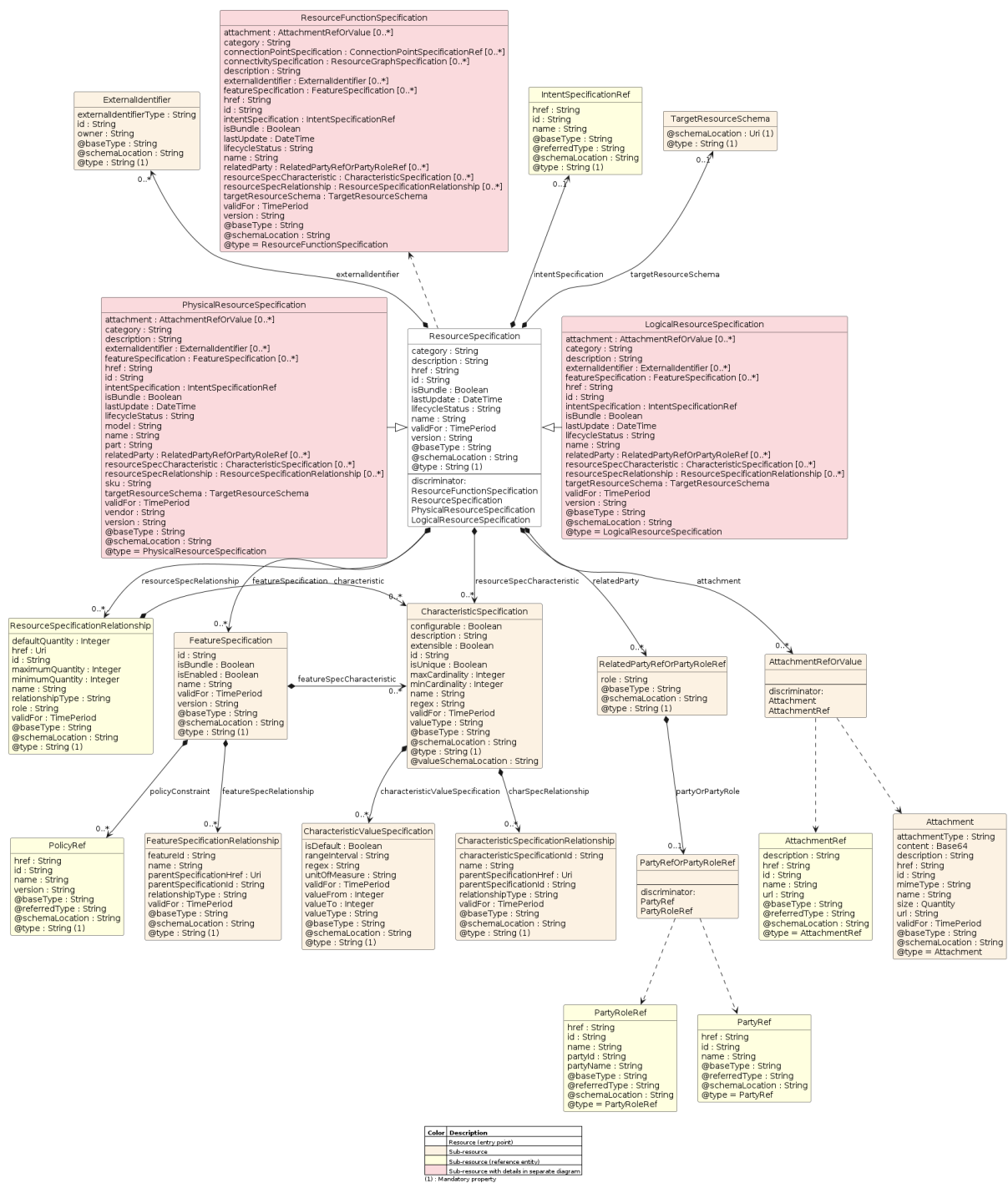


Figure 6 - ResourceSpecification

Field descriptions

ResourceSpecification fields

| | |
|----------------------------|---|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| name | A String. Name given to this REST resource. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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 sub-resource fields

| | |
|-----------------|--|
| attachmentType | A String. A business characterization of the purpose of the attachment, for example logo, instructionManual, contractCopy. |
| content | A Base64. The actual contents of the attachment object, if embedded, encoded as base64. |
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| contentType | A String. A technical characterization of the attachment content format using IETF Mime Types. |
| name | A String. The name of the attachment. |
| size | A Quantity. An amount in a given unit. |
| url | A String. Uniform Resource Locator, is a web page address (a subset of URI). |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

AttachmentRef sub-resource fields

| | |
|-----------------|---|
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| url | A String. Link to the attachment media/content. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

CharacteristicSpecification sub-resource fields

| | |
|----------------------------------|--|
| charSpecRelationship | A CharacteristicSpecificationRelationship. An aggregation, migration, substitution, dependency or exclusivity relationship between/among Specification Characteristics. |
| characteristicValueSpecification | A 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. |
| 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. Specifies if the value of this characteristic is unique across all entities instantiated from the specification that uses this characteristic. For example, consider a ProductSpecification for a set-top box, with a CharacteristicSpecification cardID. Each set-top box must have a different value for cardID, so this isUnique attribute would be set to true for the characteristic. |
| 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. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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 | A String. 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. |
| @valueSchemaLocation | A String. This (optional) field provides a link to the schema describing the value type. |

CharacteristicSpecificationRelationship sub-resource fields

| | |
|-------------------------------|---|
| characteristicSpecificationId | A String. Unique identifier of the characteristic within the specification. |
| name | A String. Name of the target characteristic within the specification. |
| parentSpecificationHref | A 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 TimePeriod. A period of time, either as a deadline (endTime only) a startTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

CharacteristicValueSpecification sub-resource fields

| | |
|---------------|--|
| 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 TimePeriod. A period of time, either as a deadline (endTime only) a startTime only, or both. |
| 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. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ConnectionPointSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Connection point specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ConnectionSpecification sub-resource fields

| | |
|-----------------------|---|
| associationType | A String. Association type. |
| endpointSpecification | An EndpointSpecificationRef. Specifications for resource graph vertices connected by this edge. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Descriptive name for graph edge specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

EndpointSpecificationRef sub-resource fields

| | |
|------------------------------|---|
| connectionPointSpecification | A ConnectionPointSpecificationRef. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| isRoot | A Boolean. Directionality: true when endpoint is a source, false when a sink. If true for all endpoints connectivity is bidirectional. Default is true. |
| name | A String. Name of the referred entity. |
| role | A String. Role of the Resource Function. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecification sub-resource fields

| | |
|---------------------------|---|
| featureSpecCharacteristic | A CharacteristicSpecification. This is a list of characteristics for a particular feature. |
| featureSpecRelationship | A FeatureSpecificationRelationship. A dependency, exclusivity or aggregation relationship between/among feature specifications. |
| id | A String. Feature identifier. |
| isBundle | A Boolean. A flag indicating if this is a feature group (true) or not (false). |

| | |
|------------------|--|
| isEnabled | A Boolean. A flag indicating if the feature is enabled (true) or not (false). |
| name | A String. This is the name for the feature. |
| policyConstraint | A PolicyRef. Reference to manage a list of feature specification policy constraints. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Version of the feature specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecificationRelationship sub-resource fields

| | |
|-------------------------|--|
| featureId | A String. Unique identifier of the target feature specification. |
| name | A String. This is the name of the target feature specification. |
| parentSpecificationHref | A Uri. Hyperlink reference to the parent specification containing the target feature. |
| parentSpecificationId | A String. Unique identifier of the parent specification containing the target feature. |
| relationshipType | A String. This is the type of the feature specification relationship. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

IntentSpecificationRef sub-resource fields

| | |
|-----------|--|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |

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

PartyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRoleRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| partyId | A String. The identifier of the engaged party that is linked to the PartyRole object. |
| partyName | A String. The name of the engaged party that is linked to the PartyRole object. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PhysicalResourceSpecification sub-resource fields

| | |
|----------------------------|---|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| model | A String. This is a string that represents a manufacturer-allocated number used to identify the general type and/or category of the hardware item. This, in combination with the Part and the Vendor, identify different types of hardware items. The SerialNumber can then be used to differentiate between different instances of the same type of hardware item. This is an optional attribute. |
| name | A String. Name given to this REST resource. |
| part | A String. This is a string that defines a manufacturer-allocated part number assigned by the organization that manufactures the hardware item. This, in combination with the Model and the Vendor, identify different types of hardware items. The SerialNumber can then be used to differentiate between different instances of the same type of hardware item. This is a REQUIRED attribute. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |

| | |
|----------------------|---|
| sku | A String. This is a string that defines the manufacturer-allocated Stock Keeping Unit (SKU) number of the hardware item. This is an optional attribute. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| vendor | A String. This is a string that defines the name of the manufacturer. This, in combination with the Model and the Part, identify different types of hardware items. The SerialNumber can then be used to differentiate between different instances of the same type of hardware item. This is a REQUIRED attribute for a physical resource. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

PolicyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

RelatedPartyRefOrPartyRoleRef sub-resource fields

| | |
|------------------|--|
| partyOrPartyRole | A PartyRefOrPartyRoleRef. |
| role | A String. Role played by the related party or party role in the context of the specific entity it is linked to. Such as 'initiator', 'customer', 'salesAgent', 'user'. |
| @baseType | A String. When sub-classing, this defines the super-class. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

ResourceFunctionSpecification sub-resource fields

| | |
|------------------------------|---|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| connectionPointSpecification | A ConnectionPointSpecificationRef. External connection point specifications. These are the service access points (SAP) where inputs and outputs of the function are available. |
| connectivitySpecification | A ResourceGraphSpecification. Internal connectivity potential specifications. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| name | A String. Name given to this REST resource. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |

| | |
|--------------------------|---|
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceGraphSpecification sub-resource fields

| | |
|--------------------------------|---|
| connectionSpecification | A ConnectionSpecification. Resource graph edge specifications. |
| description | A String. Description of the resource graph specification. |
| graphSpecificationRelationship | A ResourceGraphSpecificationRelationship. Relationships to other resource graph specifications. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Descriptive name for the resource graph specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceGraphSpecificationRef sub-resource fields

| | |
|---------------|--|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

ResourceGraphSpecificationRelationship sub-resource fields

| | |
|------------------|--|
| relationshipType | A String. Semantic of the relationship. |
| resourceGraph | A ResourceGraphSpecificationRef. Resource graph specification reference. |

ResourceSpecificationRelationship sub-resource fields

| | |
|------------------|--|
| characteristic | A CharacteristicSpecification. A characteristic that refines the relationship. For example, consider the relationship between a slot and a card. For a half-height card it is important to know the position at which the card is inserted, so a characteristic Position might be defined on the relationship to allow capturing of this in the inventory. |
| defaultQuantity | An Integer. The default number of the related resource that should be instantiated, for example a rack would typically have 4 cards, although it could support more. |
| href | A Uri. Reference of the target ResourceSpecification. |
| id | A String. Unique identifier of target ResourceSpecification. |
| maximumQuantity | An Integer. The maximum number of the related resource that should be instantiated, for example a rack supports a maximum of 16 cards. |
| minimumQuantity | An Integer. The minimum number of the related resource that should be instantiated, for example a rack must have at least 1 card. |
| name | A String. The name given to the target resource specification instance. |
| relationshipType | A String. Type of relationship such as migration, substitution, dependency, exclusivity. |
| role | A String. The association role for this resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

TargetResourceSchema sub-resource fields

| | |
|-----------------|---|
| @schemaLocation | A Uri. This field provides a link to the schema describing the target resource. |
| @type | A String. Class type of the target resource. |

Json representation sample(s)

We provide below a JSON representation as example of the 'ResourceSpecification' resource object.

```
{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/ResourceSpecification.schema.json",
  "version": "3.2",
  "validFor": {
    "startDateTime": "2020-08-12T00:00:00.000Z",
    "endDateTime": "2022-03-07T00:00:00.000Z"
  },
  "lastUpdate": "2021-08-12T00:00:00.000Z",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecCharacteristic": [
    {
      "name": "Maximum Allowed Storage",
      "description": "The storage limit in the virtual storage medium, ",
      "valueType": "integer",
      "configurable": true,
      "minCardinality": 1,

```

```

        "maxCardinality": 1,
        "isUnique": true,
        "@type": "CharacteristicSpecification",
        "characteristicValueSpecification": [
            {
                "value": 1024000,
                "@type": "IntegerCharacteristicValueSpecification"
            },
            {
                "value": 2048000,
                "@type": "IntegerCharacteristicValueSpecification"
            }
        ]
    },
    ],
    "resourceSpecRelationship": [
        {
            "id": "556788",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
            "name": "Underlying Physical Disk",
            "relationshipType": "dependency",
            "@type": "ResourceSpecificationRelationship"
        }
    ],
    "targetResourceSchema": {
        "@type": "VirtualStorage",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
    }
}

```

LogicalResourceSpecification resource

This is a derived class of ResourceSpecification, and is used to define the invariant characteristics and behavior (attributes, methods, constraints, and relationships) of a LogicalResource.

Resource model

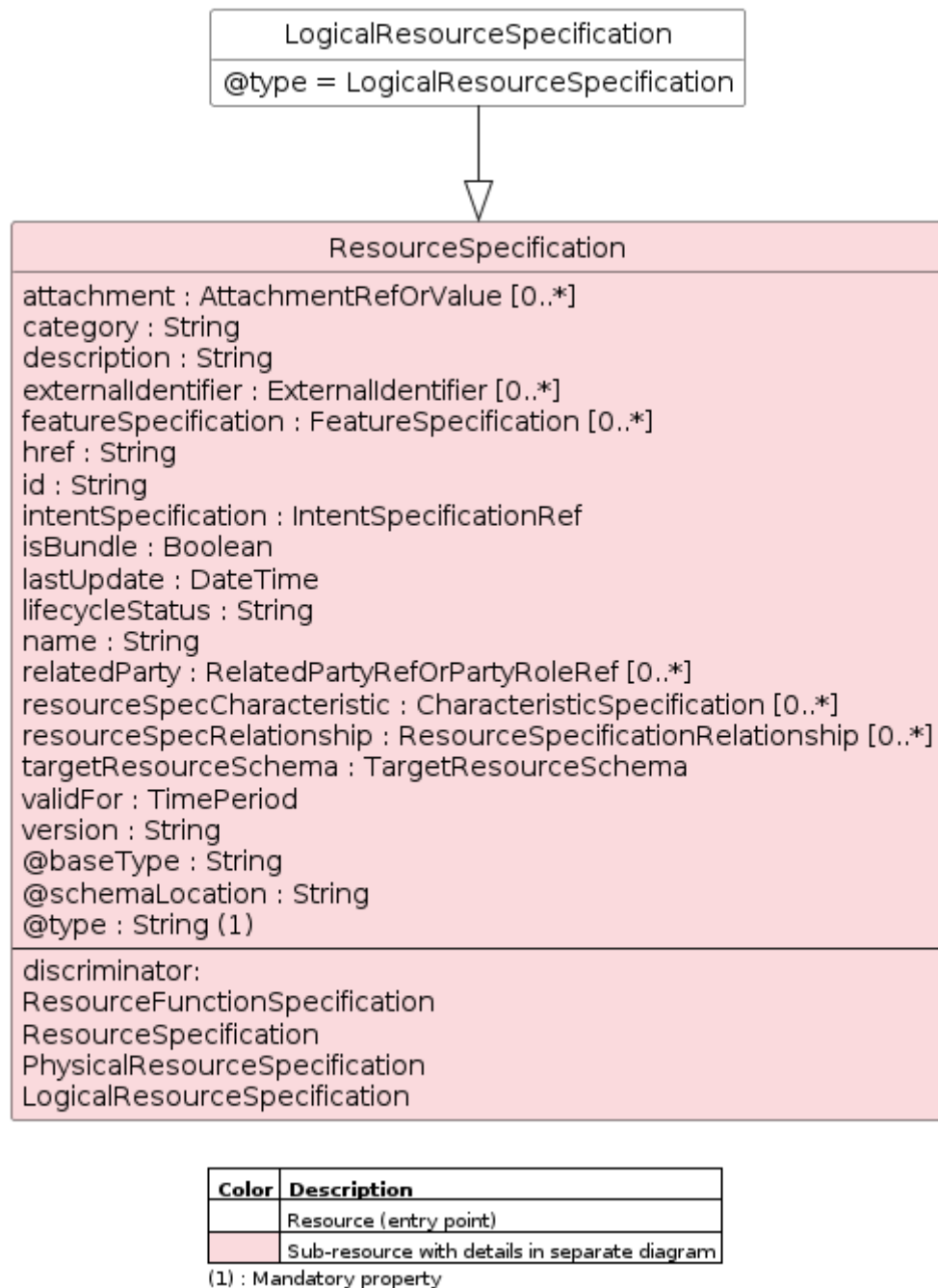


Figure 7 - LogicalResourceSpecification

Field descriptions

Attachment sub-resource fields

| | |
|----------------|--|
| attachmentType | A String. A business characterization of the purpose of the attachment, for example logo, instructionManual, contractCopy. |
| content | A Base64. The actual contents of the attachment object, if embedded, encoded as base64. |
| description | A String. A narrative text describing the content of the attachment. |

| | |
|-----------------|--|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| mimeType | A String. A technical characterization of the attachment content format using IETF Mime Types. |
| name | A String. The name of the attachment. |
| size | A Quantity. An amount in a given unit. |
| url | A String. Uniform Resource Locator, is a web page address (a subset of URI). |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

AttachmentRef sub-resource fields

| | |
|-----------------|---|
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| url | A String. Link to the attachment media/content. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

CharacteristicSpecification sub-resource fields

| | |
|----------------------|---|
| charSpecRelationship | A CharacteristicSpecificationRelationship. An aggregation, migration, substitution, dependency or exclusivity relationship between/among Specification Characteristics. |
|----------------------|---|

| | |
|----------------------------------|--|
| characteristicValueSpecification | A 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. |
| 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. Specifies if the value of this characteristic is unique across all entities instantiated from the specification that uses this characteristic. For example, consider a ProductSpecification for a set-top box, with a CharacteristicSpecification cardID. Each set-top box must have a different value for cardID, so this isUnique attribute would be set to true for the characteristic. |
| 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. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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 | A String. 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. |
| @valueSchemaLocation | A String. This (optional) field provides a link to the schema describing the value type. |

CharacteristicSpecificationRelationship sub-resource fields

| | |
|-------------------------------|--|
| characteristicSpecificationId | A String. Unique identifier of the characteristic within the specification. |
| name | A String. Name of the target characteristic within the specification. |
| parentSpecificationHref | A 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 TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

CharacteristicValueSpecification sub-resource fields

| | |
|---------------|--|
| 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 TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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. |
| @baseType | A String. When sub-classing, this defines the super-class. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecification sub-resource fields

| | |
|---------------------------|---|
| featureSpecCharacteristic | A CharacteristicSpecification. This is a list of characteristics for a particular feature. |
| featureSpecRelationship | A FeatureSpecificationRelationship. A dependency, exclusivity or aggregation relationship between/among feature specifications. |
| id | A String. Feature identifier. |
| isBundle | A Boolean. A flag indicating if this is a feature group (true) or not (false). |
| isEnabled | A Boolean. A flag indicating if the feature is enabled (true) or not (false). |
| name | A String. This is the name for the feature. |
| policyConstraint | A PolicyRef. Reference to manage a list of feature specification policy constraints. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Version of the feature specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecificationRelationship sub-resource fields

| | |
|-------------------------|--|
| featureId | A String. Unique identifier of the target feature specification. |
| name | A String. This is the name of the target feature specification. |
| parentSpecificationHref | A Uri. Hyperlink reference to the parent specification containing the target feature. |
| parentSpecificationId | A String. Unique identifier of the parent specification containing the target feature. |
| relationshipType | A String. This is the type of the feature specification relationship. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

IntentSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRef sub-resource fields

| | |
|---------------|--|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

PartyRoleRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| partyId | A String. The identifier of the engaged party that is linked to the PartyRole object. |
| partyName | A String. The name of the engaged party that is linked to the PartyRole object. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PolicyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

RelatedPartyRefOrPartyRoleRef sub-resource fields

| | |
|------------------|---------------------------|
| partyOrPartyRole | A PartyRefOrPartyRoleRef. |
|------------------|---------------------------|

| | |
|-----------------|--|
| role | A String. Role played by the related party or party role in the context of the specific entity it is linked to. Such as 'initiator', 'customer', 'salesAgent', 'user'. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceSpecification sub-resource fields

| | |
|----------------------------|---|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| name | A String. Name given to this REST resource. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |

| | |
|----------------------|--|
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceSpecificationRelationship sub-resource fields

| | |
|------------------|--|
| characteristic | A CharacteristicSpecification. A characteristic that refines the relationship. For example, consider the relationship between a slot and a card. For a half-height card it is important to know the position at which the card is inserted, so a characteristic Position might be defined on the relationship to allow capturing of this in the inventory. |
| defaultQuantity | An Integer. The default number of the related resource that should be instantiated, for example a rack would typically have 4 cards, although it could support more. |
| href | A Uri. Reference of the target ResourceSpecification. |
| id | A String. Unique identifier of target ResourceSpecification. |
| maximumQuantity | An Integer. The maximum number of the related resource that should be instantiated, for example a rack supports a maximum of 16 cards. |
| minimumQuantity | An Integer. The minimum number of the related resource that should be instantiated, for example a rack must have at least 1 card. |
| name | A String. The name given to the target resource specification instance. |
| relationshipType | A String. Type of relationship such as migration, substitution, dependency, exclusivity. |
| role | A String. The association role for this resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

TargetResourceSchema sub-resource fields

| | |
|-----------------|---|
| @schemaLocation | A Uri. This field provides a link to the schema describing the target resource. |
| @type | A String. Class type of the target resource. |

Json representation sample(s)

We provide below a JSON representation as example of the 'LogicalResourceSpecification' resource object.

```
{
  "isBundle": false,
  "lifecycleStatus": "Active",
  "validFor": {
    "startTime": "2017-08-12T00:00:00.000Z",
    "endTime": "2018-03-07T00:00:00.000Z"
  },
  "@type": "ResourceSpecification",
  "description": "This resource specification defines the virtual storage medium",
  "relatedParty": [{
    "partyOrPartyRole": {
      "@referredType": "Supplier",
      "@type": "PartyRoleRef",
      "name": "Gustave Flaubert",
      "id": "5858",
      "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858"
    },
    "role": "Supplier",
    "@type": "RelatedPartyRefOrPartyRoleRef"
  }],
  "version": "3.2",
  "resourceSpecCharacteristic": [{
    "minCardinality": 1,
    "@type": "CharacteristicSpecification",
    "valueType": "integer",
    "characteristicValueSpecification": [
      {
        "@type": "IntegerCharacteristicValueSpecification",
        "value": 1024000
      },
      {
        "@type": "IntegerCharacteristicValueSpecification",
        "value": 2048000
      }
    ]
  }],
  "name": "Maximum Allowed Storage",
  "isUnique": true,
  "description": "The storage limit in the virtual storage medium, ",
  "configurable": true,
  "maxCardinality": 1
},
{
  "resourceSpecRelationship": [{
    "relationshipType": "dependency",
    "@type": "ResourceSpecificationRelationship",
    "name": "Underlying Physical Disk",
    "id": "556788",
    "href": "https://mycsp.com:8080/tmf-
```



```
api/resourceCatalog/v5/resourceSpecification/556788"
  },
  "attachment": [{
    "@type": "Attachment",
    "name": "Configuration Instructions",
    "id": "25552",
    "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
    "mimeType": "application/pdf",
    "url": "https://mycsp.com:7070/docloader?docnum=9567457677"
  }],
  "lastUpdate": "2017-08-09T00:00:00.000Z",
  "name": "Virtual Storage Medium",
  "targetResourceSchema": {
    "@type": "VirtualStorage",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/v5/VirtualStorage.schema.json"
  },
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
  "category": "Cloud resource"
}
```

ResourceFunctionSpecification resource

Resource model

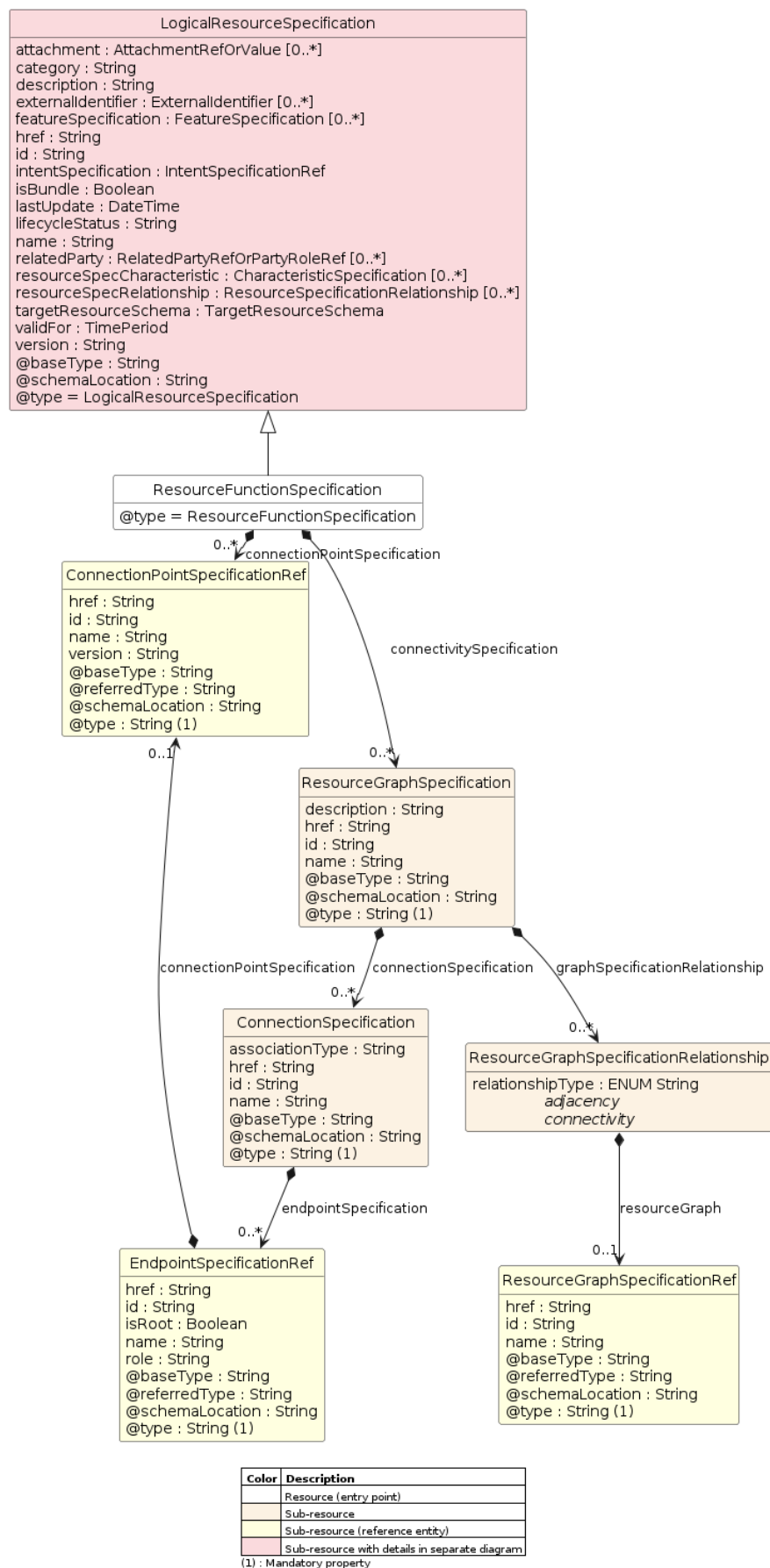


Figure 8 - ResourceFunctionSpecification

Field descriptions

ResourceFunctionSpecification fields

| | |
|------------------------------|---|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| connectionPointSpecification | A ConnectionPointSpecificationRef. External connection point specifications. These are the service access points (SAP) where inputs and outputs of the function are available. |
| connectivitySpecification | A ResourceGraphSpecification. Internal connectivity potential specifications. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| name | A String. Name given to this REST resource. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |

| | |
|-----------------|--|
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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 sub-resource fields

| | |
|-----------------|--|
| attachmentType | A String. A business characterization of the purpose of the attachment, for example logo, instructionManual, contractCopy. |
| content | A Base64. The actual contents of the attachment object, if embedded, encoded as base64. |
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| contentType | A String. A technical characterization of the attachment content format using IETF Mime Types. |
| name | A String. The name of the attachment. |
| size | A Quantity. An amount in a given unit. |
| url | A String. Uniform Resource Locator, is a web page address (a subset of URI). |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

AttachmentRef sub-resource fields

| | |
|-------------|--|
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |

| | |
|-----------------|---|
| url | A String. Link to the attachment media/content. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

CharacteristicSpecification sub-resource fields

| | |
|----------------------------------|--|
| charSpecRelationship | A CharacteristicSpecificationRelationship. An aggregation, migration, substitution, dependency or exclusivity relationship between/among Specification Characteristics. |
| characteristicValueSpecification | A 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. |
| 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. Specifies if the value of this characteristic is unique across all entities instantiated from the specification that uses this characteristic. For example, consider a ProductSpecification for a set-top box, with a CharacteristicSpecification cardID. Each set-top box must have a different value for cardID, so this isUnique attribute would be set to true for the characteristic. |
| 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. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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 | A String. 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. |
| @valueSchemaLocation | A String. This (optional) field provides a link to the schema describing the value type. |

CharacteristicSpecificationRelationship sub-resource fields

| | |
|-------------------------------|--|
| characteristicSpecificationId | A String. Unique identifier of the characteristic within the specification. |
| name | A String. Name of the target characteristic within the specification. |
| parentSpecificationHref | A 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 TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

CharacteristicValueSpecification sub-resource fields

| | |
|---------------|--|
| 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 TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ConnectionPointSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. Connection point specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ConnectionSpecification sub-resource fields

| | |
|-----------------------|---|
| associationType | A String. Association type. |
| endpointSpecification | An EndpointSpecificationRef. Specifications for resource graph vertices connected by this edge. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |

| | |
|-----------------|---|
| name | A String. Descriptive name for graph edge specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

EndpointSpecificationRef sub-resource fields

| | |
|------------------------------|---|
| connectionPointSpecification | A ConnectionPointSpecificationRef. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| isRoot | A Boolean. Directionality: true when endpoint is a source, false when a sink. If true for all endpoints connectivity is bidirectional. Default is true. |
| name | A String. Name of the referred entity. |
| role | A String. Role of the Resource Function. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecification sub-resource fields

| | |
|---------------------------|---|
| featureSpecCharacteristic | A CharacteristicSpecification. This is a list of characteristics for a particular feature. |
| featureSpecRelationship | A FeatureSpecificationRelationship. A dependency, exclusivity or aggregation relationship between/among feature specifications. |
| id | A String. Feature identifier. |
| isBundle | A Boolean. A flag indicating if this is a feature group (true) or not (false). |
| isEnabled | A Boolean. A flag indicating if the feature is enabled (true) or not (false). |
| name | A String. This is the name for the feature. |
| policyConstraint | A PolicyRef. Reference to manage a list of feature specification policy constraints. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Version of the feature specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecificationRelationship sub-resource fields

| | |
|-------------------------|--|
| featureId | A String. Unique identifier of the target feature specification. |
| name | A String. This is the name of the target feature specification. |
| parentSpecificationHref | A Uri. Hyperlink reference to the parent specification containing the target feature. |
| parentSpecificationId | A String. Unique identifier of the parent specification containing the target feature. |
| relationshipType | A String. This is the type of the feature specification relationship. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

IntentSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRoleRef sub-resource fields

| | |
|---------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| partyId | A String. The identifier of the engaged party that is linked to the PartyRole object. |
| partyName | A String. The name of the engaged party that is linked to the PartyRole object. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

PolicyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

RelatedPartyRefOrPartyRoleRef sub-resource fields

| | |
|------------------|--|
| partyOrPartyRole | A PartyRefOrPartyRoleRef. |
| role | A String. Role played by the related party or party role in the context of the specific entity it is linked to. Such as 'initiator', 'customer', 'salesAgent', 'user'. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceGraphSpecification sub-resource fields

| | |
|--------------------------------|---|
| connectionSpecification | A ConnectionSpecification. Resource graph edge specifications. |
| description | A String. Description of the resource graph specification. |
| graphSpecificationRelationship | A ResourceGraphSpecificationRelationship. Relationships to other resource graph specifications. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |

| | |
|-----------------|---|
| name | A String. Descriptive name for the resource graph specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceGraphSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

ResourceGraphSpecificationRelationship sub-resource fields

| | |
|------------------|--|
| relationshipType | A String. Semantic of the relationship. |
| resourceGraph | A ResourceGraphSpecificationRef. Resource graph specification reference. |

ResourceSpecification sub-resource fields

| | |
|----------------------|--|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |

| | |
|----------------------------|---|
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| name | A String. Name given to this REST resource. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceSpecificationRelationship sub-resource fields

| | |
|-----------------|--|
| characteristic | A CharacteristicSpecification. A characteristic that refines the relationship. For example, consider the relationship between a slot and a card. For a half-height card it is important to know the position at which the card is inserted, so a characteristic Position might be defined on the relationship to allow capturing of this in the inventory. |
| defaultQuantity | An Integer. The default number of the related resource that should be instantiated, for example a rack would typically have 4 cards, although it could support more. |
| href | A Uri. Reference of the target ResourceSpecification. |
| id | A String. Unique identifier of target ResourceSpecification. |

| | |
|------------------|--|
| maximumQuantity | An Integer. The maximum number of the related resource that should be instantiated, for example a rack supports a maximum of 16 cards. |
| minimumQuantity | An Integer. The minimum number of the related resource that should be instantiated, for example a rack must have at least 1 card. |
| name | A String. The name given to the target resource specification instance. |
| relationshipType | A String. Type of relationship such as migration, substitution, dependency, exclusivity. |
| role | A String. The association role for this resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

TargetResourceSchema sub-resource fields

| | |
|-----------------|---|
| @schemaLocation | A Uri. This field provides a link to the schema describing the target resource. |
| @type | A String. Class type of the target resource. |

Json representation sample(s)

We provide below a JSON representation as example of the 'ResourceFunctionSpecification' resource object.

```
{
  "id": "5fc91de8-88be-4c7c-8b3c-e08ccc53b889",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/5fc91de8-88be-4c7c-8b3c-e08ccc53b889",
  "name": "Medium to Large Enterprise Firewall - Model 134985.3",
  "description": "This is a type of firewall to be used for our medium to large
enterprise customers",
  "@type": "ResourceFunctionSpecification",
  "validFor": {
    "startDateTime": "2019-08-01T00:00:00.000Z",
    "endDateTime": "2019-08-31T23:59:59.999Z"
  },
  "lastUpdate": "2019-08-03T12:34:17.645Z",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "category": "Security",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",

```

```

      "partyOrPartyRole": {
        "id": "77b93cf8-54b1-49f6-82cd-4913d93101ef",
        "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/organization/77b93cf8-54b1-49f6-82cd-4913d93101ef",
        "name": "Firewall Express",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    },
    ],
    "resourceSpecCharacteristic": [
      {
        "name": "operatingSystem",
        "description": "Operating System",
        "valueType": "string",
        "configurable": true,
        "validFor": {
          "startDateTime": "2019-08-01T00:00:00.000Z",
          "endDateTime": "2019-12-31T23:59:59.999Z"
        },
        "@type": "CharacteristicSpecification",
        "minCardinality": 1,
        "maxCardinality": 1,
        "isUnique": true,
        "extensible": false,
        "characteristicValueSpecification": [
          {
            "isDefault": true,
            "value": "Android Pie",
            "@type": "StringCharacteristicValueSpecification",
            "validFor": {
              "startDateTime": "2019-08-01T00:00:00.000Z",
              "endDateTime": "2020-08-31T23:59:59.999Z"
            }
          },
          {
            "isDefault": false,
            "value": "Windows 10",
            "@type": "StringCharacteristicValueSpecification",
            "validFor": {
              "startDateTime": "2015-07-29T00:00:00.000Z",
              "endDateTime": "2025-10-25T23:59:59.999Z"
            }
          }
        ],
        "isDefault": false,
        "value": "macOS 10.14.6",
        "@type": "StringCharacteristicValueSpecification",
        "validFor": {
          "startDateTime": "2019-06-23T00:00:00.000Z",
          "endDateTime": "2021-12-31T23:59:59.999Z"
        }
      }
    ],
    {
      "name": "maxTraffic",
      "description": "Max Traffic size in GBs/sec",
      "valueType": "integer",
      "configurable": false,
      "extensible": true,
      "@type": "CharacteristicSpecification",

```

```

    "validFor": {
      "startDateTime": "2018-11-17T00:00:00.000Z",
      "endDateTime": "2019-12-31T23:59:59.999Z"
    },
    "characteristicValueSpecification": [
      {
        "value": 25,
        "@type": "IntegerCharacteristicValueSpecification"
      }
    ]
  },
  {
    "name": "keywords",
    "description": "Keywords",
    "valueType": "string",
    "configurable": false,
    "extensible": true,
    "@type": "CharacteristicSpecification",
    "validFor": {
      "startDateTime": "2016-03-15T00:00:00.000Z",
      "endDateTime": "2019-12-31T23:59:59.999Z"
    },
    "characteristicValueSpecification": [
      {
        "value": "Firewall",
        "@type": "StringCharacteristicValueSpecification"
      },
      {
        "value": "Large Enterprise",
        "@type": "StringCharacteristicValueSpecification"
      },
      {
        "value": "Medium Enterprise",
        "@type": "StringCharacteristicValueSpecification"
      }
    ]
  },
  {
    "name": "language",
    "description": "Language supported in the RF package and user interface
(if any)",
    "valueType": "string",
    "configurable": true,
    "minCardinality": 0,
    "maxCardinality": 3,
    "extensible": true,
    "@type": "CharacteristicSpecification",
    "validFor": {
      "startDateTime": "2016-03-15T00:00:00.000Z",
      "endDateTime": "2019-12-31T23:59:59.999Z"
    },
    "characteristicValueSpecification": [
      {
        "value": "en",
        "@type": "StringCharacteristicValueSpecification"
      },
      {
        "value": "es",
        "@type": "StringCharacteristicValueSpecification"
      },
      {
        "value": "fr",
        "@type": "StringCharacteristicValueSpecification"
      }
    ]
  }
}

```



```

    }
  }
},
"featureSpecification": [
  {
    "id": "h776f845f-z20a-468f-v44m-9e07fe3bd281",
    "name": "L2&L3",
    "@type": "FeatureSpecification",
    "validFor": {
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      "endDateTime": "2019-12-31T23:59:59.999Z"
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  },
  {
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    "name": "OSI-L4",
    "@type": "FeatureSpecification",
    "validFor": {
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      "endDateTime": "2019-12-31T23:59:59.999Z"
    }
  },
  {
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    "name": "OSI-L7",
    "@type": "FeatureSpecification",
    "validFor": {
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      "endDateTime": "2019-12-31T23:59:59.999Z"
    }
  },
  {
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    "name": "tarpit",
    "@type": "FeatureSpecification",
    "validFor": {
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      "endDateTime": "2019-12-31T23:59:59.999Z"
    }
  },
  {
    "id": "l22m455f-671a-499d-a95j-8h46fe3bc88c",
    "name": "log",
    "@type": "FeatureSpecification",
    "validFor": {
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      "endDateTime": "2019-12-31T23:59:59.999Z"
    },
    "featureSpecCharacteristic": [
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        "description": "Log Size in MB",
        "valueType": "integer",
        "configurable": true,
        "@type": "CharacteristicSpecification",
        "validFor": {
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          "endDateTime": "2019-12-31T23:59:59.999Z"
        },
        "minCardinality": 0,
        "maxCardinality": 1,
        "isUnique": true,

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        "extensible": false,
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            "value": 2000,
            "@type": "IntegerCharacteristicValueSpecification",
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              "endDateTime": "2019-12-31T23:59:59.999Z"
            }
          },
          {
            "isDefault": false,
            "value": 4000,
            "@type": "IntegerCharacteristicValueSpecification",
            "validFor": {
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              "endDateTime": "2019-12-31T23:59:59.999Z"
            }
          }
        ]
      },
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        "id": "db723e27-58d3-4120-b564-af199cb32bd3",
        "name": "IPAddressing",
        "isBundle": true,
        "@type": "FeatureSpecification",
        "validFor": {
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          "endDateTime": "2019-12-31T23:59:59.999Z"
        },
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            "@referredType": "PolicyConstraint",
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            "href": "https://mycsp.com:8080/tmf-api/policy/v5/policyConstraint/bbccbc46-9b94-41aa-8ea8-5c33306d3c62",
            "name": "ReliesOnIPv4OrIPv6"
          }
        ],
        "featureSpecRelationship": [
          {
            "relationshipType": "requires",
            "featureId": "43883a81-58ef-45af-ace4-993298ae8361",
            "parentSpecificationId": "755232457686",
            "parentSpecificationHref": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/755232457686",
            "name": "IPv4Addressing",
            "@type": "FeatureSpecificationRelationship",
            "validFor": {
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              "endDateTime": "2019-12-31T23:59:59.999Z"
            }
          },
          {
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            "featureId": "b85f845f-011a-468f-a90e-9e07fe3bc90a",
            "parentSpecificationId": "755232457686",
            "parentSpecificationHref": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/755232457686",

```

```

        "name": "IPv6Addressing",
        "@type": "FeatureSpecificationRelationship",
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            "endDateTime": "2019-12-31T23:59:59.999Z"
        }
    },
    {
        "id": "43883a81-58ef-45af-ace4-993298ae8361",
        "name": "IPv4Addressing",
        "@type": "FeatureSpecification",
        "validFor": {
            "startDateTime": "2017-05-24T00:00:00.000Z",
            "endDateTime": "2019-12-31T23:59:59.999Z"
        }
    },
    {
        "id": "b85f845f-011a-468f-a90e-9e07fe3bc90a",
        "name": "IPv6Addressing",
        "@type": "FeatureSpecification",
        "validFor": {
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            "endDateTime": "2019-12-31T23:59:59.999Z"
        },
        "isEnabled": false
    }
],
"resourceSpecRelationship": [
    {
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        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/a19e5f96-3df4-4e34-95f7-30e66c42acd2",
        "name": "SWI.1",
        "relationshipType": "contains",
        "@type": "ResourceSpecificationRelationship"
    },
    {
        "id": "aa013f8c-5f08-47ff-a2cb-f297359277c2",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/aa013f8c-5f08-47ff-a2cb-f297359277c2",
        "name": "SWI.2",
        "relationshipType": "contains",
        "@type": "ResourceSpecificationRelationship"
    },
    {
        "id": "3a3b5bc7-039e-45b0-ada1-75560ec54108",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/3a3b5bc7-039e-45b0-ada1-75560ec54108",
        "name": "SWI.3",
        "relationshipType": "contains",
        "@type": "ResourceSpecificationRelationship"
    },
    {
        "id": "4fbe07a3-42bb-45cd-b92c-d8d48f17dbc8",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/4fbe07a3-42bb-45cd-b92c-d8d48f17dbc8",
        "name": "SWI.4",
        "relationshipType": "contains",
        "@type": "ResourceSpecificationRelationship"
    }
]

```

```

      "id": "4a5c5d7c-0758-4896-aaaa-2f2a2241c4b5",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/4a5c5d7c-0758-4896-aaaa-2f2a2241c4b5",
      "name": "SWI.5",
      "relationshipType": "contains",
      "@type": "ResourceSpecificationRelationship"
    }
  ],
  "connectionPointSpecification": [
    {
      "id": "feeb7495-4dc5-4e0f-bf64-5973faac050c",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/feeb7495-4dc5-4e0f-bf64-5973faac050c",
      "@type": "ConnectionPointSpecificationRef",
      "@referredType": "ConnectionPointSpecification",
      "name": "CP1.1"
    },
    {
      "id": "ca331dcc-2c52-4346-bf6e-5d4170felb83",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/ca331dcc-2c52-4346-bf6e-5d4170felb83",
      "@type": "ConnectionPointSpecificationRef",
      "@referredType": "ResourceFunctionSpecification",
      "name": "CP3.2"
    },
    {
      "id": "3e35575c-897e-4dad-952d-3fcf87af698f",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/3e35575c-897e-4dad-952d-3fcf87af698f",
      "@type": "ConnectionPointSpecificationRef",
      "@referredType": "ResourceFunctionSpecification",
      "name": "CP5.2"
    },
    {
      "id": "9b2069ec-3bf7-43d2-afd8-1fa5711f905e",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/9b2069ec-3bf7-43d2-afd8-1fa5711f905e",
      "@type": "ConnectionPointSpecificationRef",
      "@referredType": "ResourceFunctionSpecification",
      "name": "CP1.4"
    }
  ],
  "connectivitySpecification": [
    {
      "id": "2171b1da-0c68-412a-b986-18791d132ddd",
      "name": "Internal Connectivity Potential Graph",
      "@type": "ResourceGraphSpecification",
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          "@type": "ConnectionSpecification",
          "associationType": "pointtoPoint",
          "endpointSpecification": [
            {
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        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/8c237137-46b1-4eac-9b20-0f2b35f5ffb2",
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        "name": "CP1.2"
    },
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api/resourceCatalog/v5/resourceSpecification/aa013f8c-5f08-47ff-a2cb-
f297359277c232",
        "@type": "EndpointSpecificationRef",
        "@referredType": "ResourceFunctionSpecification",
        "name": "SWI.2",
        "isRoot": false,
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            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/c8937fec-1923-4bdc-99d1-4a168f14d445",
            "@type": "ConnectionPointSpecificationRef",
            "@referredType": "ResourceFunctionSpecification",
            "name": "CP2.1"
        }
    }
],
{
    "name": "AdjacencyPair2",
    "@type": "ConnectionSpecification",
    "associationType": "pointtoPoint",
    "endpointSpecification": [
        {
            "id": "aa013f8c-5f08-47ff-a2cb-f297359277c2",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/aa013f8c-5f08-47ff-a2cb-f297359277c2",
            "@type": "EndpointSpecificationRef",
            "@referredType": "ResourceFunctionSpecification",
            "name": "SWI.2",
            "isRoot": true,
            "connectionPointSpecification": {
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                "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/acbdf06a-1f2e-4815-8db5-4220bc87ade2",
                "@type": "ConnectionPointSpecificationRef",
                "@referredType": "ResourceFunctionSpecification",
                "name": "CP2.2"
            }
        },
        {
            "id": "3a3b5bc7-039e-45b0-ad1-75560ec54108",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/3a3b5bc7-039e-45b0-ad1-75560ec54108",
            "@type": "EndpointSpecificationRef",
            "@referredType": "ResourceFunctionSpecification",
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            "isRoot": false,
            "connectionPointSpecification": {
                "id": "0564e364-dd52-461b-a9f6-718e342e2217",
                "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/0564e364-dd52-461b-a9f6-718e342e2217",
                "@type": "ConnectionPointSpecificationRef",
                "@referredType": "ResourceFunctionSpecification",

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```

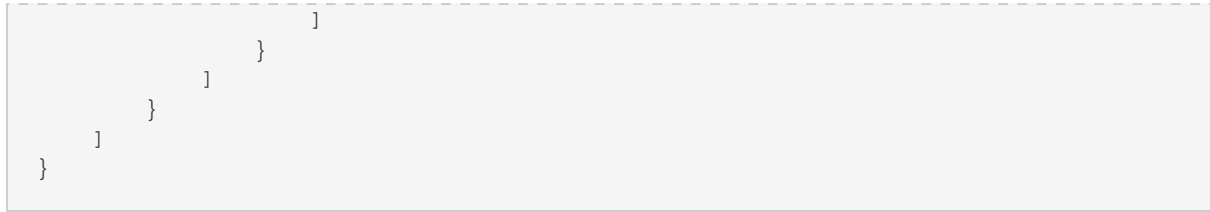
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      }
    }
  ],
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    "associationType": "pointtoPoint",
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      {
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        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/3a3b5bc7-039e-45b0-adal-75560ec54108",
        "@type": "EndpointSpecificationRef",
        "@referredType": "ResourceFunctionSpecification",
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        "isRoot": true,
        "connectionPointSpecification": {
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api/resourceCatalog/v5/resourceSpecification/14ae7a86-8d6e-407e-adf0-f99505e48b67",
          "@type": "ConnectionPointSpecificationRef",
          "@referredType": "ResourceFunctionSpecification",
          "name": "CP3.3"
        }
      },
      {
        "id": "4fbe07a3-42bb-45cd-b92c-d8d48f17dbc8",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/4fbe07a3-42bb-45cd-b92c-d8d48f17dbc8",
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        "@referredType": "ResourceFunctionSpecification",
        "name": "SWI.4",
        "isRoot": false,
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api/resourceCatalog/v5/resourceSpecification/98b5906c-bbd0-4bb9-8551-1eaac552a4a3",
          "@type": "ConnectionPointSpecificationRef",
          "@referredType": "ResourceFunctionSpecification",
          "name": "CP4.1"
        }
      }
    ]
  },
  {
    "name": "AdjacencyPair4",
    "@type": "ConnectionSpecification",
    "associationType": "pointtoPoint",
    "endpointSpecification": [
      {
        "id": "4fbe07a3-42bb-45cd-b92c-d8d48f17dbc8",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/4fbe07a3-42bb-45cd-b92c-d8d48f17dbc8",
        "@type": "EndpointSpecificationRef",
        "@referredType": "ResourceFunctionSpecification",
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        "isRoot": true,
        "connectionPointSpecification": {
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          "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/415a8aa1-5d8b-4a7b-a886-cfb248fba864",

```

```

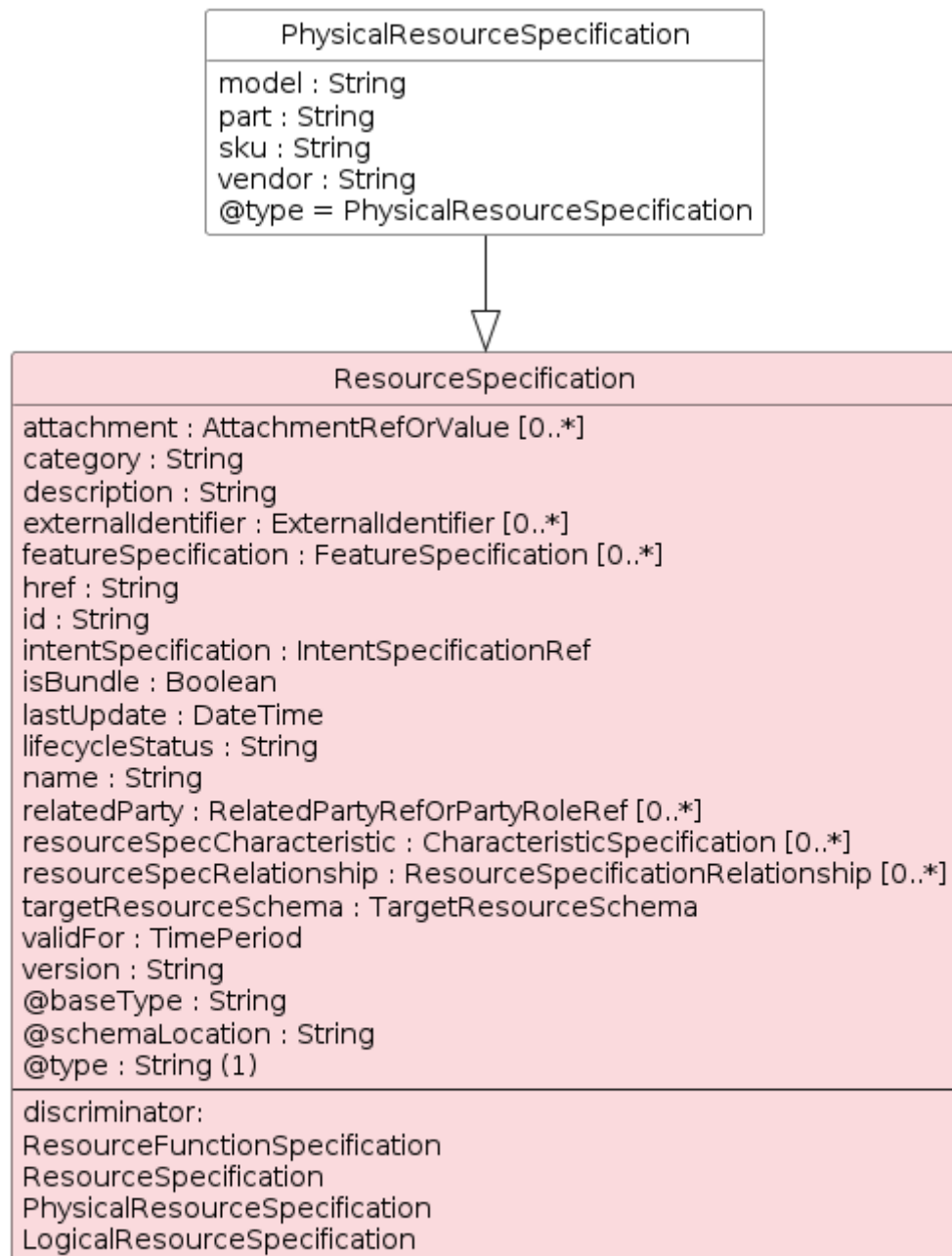
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        "href": "https://mycsp.com:8080/tmf-
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        "@type": "EndpointSpecificationRef",
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        "isRoot": false,
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api/resourceCatalog/v5/resourceSpecification/29bf728a-08c1-4bb9-84b0-5ad63468b1fb",
            "@type": "ConnectionPointSpecificationRef",
            "@referredType": "ResourceFunctionSpecification",
            "name": "CP5.1"
        }
    }
],
{
    "name": "AdjacencyPair5",
    "@type": "ConnectionSpecification",
    "associationType": "pointtoPoint",
    "endpointSpecification": [
        {
            "id": "4a5c5d7c-0758-4896-alaa-2f2a2241c4b5",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/4a5c5d7c-0758-4896-alaa-2f2a2241c4b5",
            "@type": "EndpointSpecificationRef",
            "@referredType": "ResourceFunctionSpecification",
            "name": "SWI.5",
            "isRoot": true,
            "connectionPointSpecification": {
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                "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/e26d911c-3e61-409c-bcca-c7500e12b5a6",
                "@type": "ConnectionPointSpecificationRef",
                "@referredType": "ResourceFunctionSpecification",
                "name": "CP5.3"
            }
        },
        {
            "id": "a19e5f96-3df4-4e34-95f7-30e66c42acd2",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/a19e5f96-3df4-4e34-95f7-30e66c42acd2",
            "@type": "EndpointSpecificationRef",
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            "isRoot": false,
            "connectionPointSpecification": {
                "id": "62606a50-3cce-4225-b862-3b9ac72ef8ca",
                "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/62606a50-3cce-4225-b862-3b9ac72ef8ca",
                "@type": "ConnectionPointSpecificationRef",
                "@referredType": "ResourceFunctionSpecification",
                "name": "CP1.3"
            }
        }
    ]
}

```



PhysicalResourceSpecification resource

Resource model



| Color | Description |
|-------|---|
| | Resource (entry point) |
| | Sub-resource with details in separate diagram |

(1) : Mandatory property

Figure 9 - PhysicalResourceSpecification

Field descriptions

PhysicalResourceSpecification fields

| | |
|------------|--|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
|------------|--|

| | |
|----------------------------|---|
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| model | A String. This is a string that represents a manufacturer-allocated number used to identify the general type and/or category of the hardware item. This, in combination with the Part and the Vendor, identify different types of hardware items. The SerialNumber can then be used to differentiate between different instances of the same type of hardware item. This is an optional attribute. |
| name | A String. Name given to this REST resource. |
| part | A String. This is a string that defines a manufacturer-allocated part number assigned by the organization that manufactures the hardware item. This, in combination with the Model and the Vendor, identify different types of hardware items. The SerialNumber can then be used to differentiate between different instances of the same type of hardware item. This is a REQUIRED attribute. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |

| | |
|----------------------|---|
| sku | A String. This is a string that defines the manufacturer-allocated Stock Keeping Unit (SKU) number of the hardware item. This is an optional attribute. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| vendor | A String. This is a string that defines the name of the manufacturer. This, in combination with the Model and the Part, identify different types of hardware items. The SerialNumber can then be used to differentiate between different instances of the same type of hardware item. This is a REQUIRED attribute for a physical resource. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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 sub-resource fields

| | |
|-----------------|--|
| attachmentType | A String. A business characterization of the purpose of the attachment, for example logo, instructionManual, contractCopy. |
| content | A Base64. The actual contents of the attachment object, if embedded, encoded as base64. |
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| contentType | A String. A technical characterization of the attachment content format using IETF Mime Types. |
| name | A String. The name of the attachment. |
| size | A Quantity. An amount in a given unit. |
| url | A String. Uniform Resource Locator, is a web page address (a subset of URI). |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |
|-------|--|

AttachmentRef sub-resource fields

| | |
|-----------------|---|
| description | A String. A narrative text describing the content of the attachment. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| url | A String. Link to the attachment media/content. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

CharacteristicSpecification sub-resource fields

| | |
|----------------------------------|--|
| charSpecRelationship | A CharacteristicSpecificationRelationship. An aggregation, migration, substitution, dependency or exclusivity relationship between/among Specification Characteristics. |
| characteristicValueSpecification | A 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. |
| 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. Specifies if the value of this characteristic is unique across all entities instantiated from the specification that uses this characteristic. For example, consider a ProductSpecification for a set-top box, with a CharacteristicSpecification cardID. Each set-top box must have a different value for cardID, so this isUnique attribute would be set to true for the characteristic. |
| 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. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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 | A String. 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. |
| @valueSchemaLocation | A String. This (optional) field provides a link to the schema describing the value type. |

CharacteristicSpecificationRelationship sub-resource fields

| | |
|-------------------------------|--|
| characteristicSpecificationId | A String. Unique identifier of the characteristic within the specification. |
| name | A String. Name of the target characteristic within the specification. |
| parentSpecificationHref | A 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 TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |

| | |
|-----------------|---|
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

CharacteristicValueSpecification sub-resource fields

| | |
|-----------------|--|
| 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 TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| 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. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ExternalIdentifier sub-resource fields

| | |
|------------------------|---|
| externalIdentifierType | A String. Type of the identification, typically would be the type of the entity within the external system. |
| id | A String. Identification of the entity within the external system. |
| owner | A String. Name of the external system that owns the entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |
|-------|--|

FeatureSpecification sub-resource fields

| | |
|---------------------------|---|
| featureSpecCharacteristic | A CharacteristicSpecification. This is a list of characteristics for a particular feature. |
| featureSpecRelationship | A FeatureSpecificationRelationship. A dependency, exclusivity or aggregation relationship between/among feature specifications. |
| id | A String. Feature identifier. |
| isBundle | A Boolean. A flag indicating if this is a feature group (true) or not (false). |
| isEnabled | A Boolean. A flag indicating if the feature is enabled (true) or not (false). |
| name | A String. This is the name for the feature. |
| policyConstraint | A PolicyRef. Reference to manage a list of feature specification policy constraints. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Version of the feature specification. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

FeatureSpecificationRelationship sub-resource fields

| | |
|-------------------------|--|
| featureId | A String. Unique identifier of the target feature specification. |
| name | A String. This is the name of the target feature specification. |
| parentSpecificationHref | A Uri. Hyperlink reference to the parent specification containing the target feature. |
| parentSpecificationId | A String. Unique identifier of the parent specification containing the target feature. |
| relationshipType | A String. This is the type of the feature specification relationship. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |

| | |
|-----------------|---|
| @schemaLocation | A String. 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. |

IntentSpecificationRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PartyRoleRef sub-resource fields

| | |
|---------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| partyId | A String. The identifier of the engaged party that is linked to the PartyRole object. |

| | |
|-----------------|---|
| partyName | A String. The name of the engaged party that is linked to the PartyRole object. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

PolicyRef sub-resource fields

| | |
|-----------------|---|
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| name | A String. Name of the referred entity. |
| version | A String. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @referredType | A String. The actual type of the target instance when needed for disambiguation. |
| @schemaLocation | A String. 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. |

RelatedPartyRefOrPartyRoleRef sub-resource fields

| | |
|------------------|--|
| partyOrPartyRole | A PartyRefOrPartyRoleRef. |
| role | A String. Role played by the related party or party role in the context of the specific entity it is linked to. Such as 'initiator', 'customer', 'salesAgent', 'user'. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceSpecification sub-resource fields

| | |
|------------|--|
| attachment | An AttachmentRefOrValue. Complements the description of an element (for instance a resource) through video, pictures ... |
|------------|--|

| | |
|----------------------------|---|
| category | A String. Category of the target resource like NetworkConnectivity, PhysicalLinks, Generic, L2Network and so on. |
| description | A String. Description of this REST resource. |
| externalIdentifier | An ExternalIdentifier. |
| featureSpecification | A FeatureSpecification. A list of Features for this specification. |
| href | A String. Hyperlink reference. |
| id | A String. Unique identifier. |
| intentSpecification | An IntentSpecificationRef. |
| isBundle | A Boolean. A flag indicates that if this resource specification is a bundled specification (true) or single (false). |
| lastUpdate | A DateTime. Date and time of the last update of this REST resource. |
| lifecycleStatus | A String. Used to indicate the current lifecycle status of the resource specification. |
| name | A String. Name given to this REST resource. |
| relatedParty | A RelatedPartyRefOrPartyRoleRef. A related party defines party or party role linked to a specific entity. |
| resourceSpecCharacteristic | A CharacteristicSpecification. A characteristic quality or distinctive feature of a ResourceSpecification. The characteristic can be take on a discrete value, such as color, can take on a range of values, (for example, sensitivity of 100-240 mV), or can be derived from a formula (for example, usage time (hrs) = 30 - talk time *3). Certain characteristics, such as color, may be configured during the ordering or some other process. |
| resourceSpecRelationship | A ResourceSpecificationRelationship. A migration, substitution, dependency or exclusivity relationship between/among resource specifications. |
| targetResourceSchema | A TargetResourceSchema. The reference object to the schema and type of target resource which is described by resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| version | A String. Resource Specification version. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

ResourceSpecificationRelationship sub-resource fields

| | |
|------------------|--|
| characteristic | A CharacteristicSpecification. A characteristic that refines the relationship. For example, consider the relationship between a slot and a card. For a half-height card it is important to know the position at which the card is inserted, so a characteristic Position might be defined on the relationship to allow capturing of this in the inventory. |
| defaultQuantity | An Integer. The default number of the related resource that should be instantiated, for example a rack would typically have 4 cards, although it could support more. |
| href | A Uri. Reference of the target ResourceSpecification. |
| id | A String. Unique identifier of target ResourceSpecification. |
| maximumQuantity | An Integer. The maximum number of the related resource that should be instantiated, for example a rack supports a maximum of 16 cards. |
| minimumQuantity | An Integer. The minimum number of the related resource that should be instantiated, for example a rack must have at least 1 card. |
| name | A String. The name given to the target resource specification instance. |
| relationshipType | A String. Type of relationship such as migration, substitution, dependency, exclusivity. |
| role | A String. The association role for this resource specification. |
| validFor | A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both. |
| @baseType | A String. When sub-classing, this defines the super-class. |
| @schemaLocation | A String. 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. |

TargetResourceSchema sub-resource fields

| | |
|-----------------|---|
| @schemaLocation | A Uri. This field provides a link to the schema describing the target resource. |
| @type | A String. Class type of the target resource. |

Json representation sample(s)

We provide below a JSON representation as example of the 'PhysicalResourceSpecification' resource object.

```
{
  "id": "43",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/43",
  "name": "Nokia 7750 SR-s Service Router",
```

```

    "description": "This resource specification defines an IP router provided by
    Nokia",
    "@type": "PhysicalResourceSpecification",
    "@baseType": "ResourceSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
    api/schema/Resource/PhysicalResourceSpecification.schema.json",
    "version": "3.2",
    "validFor": {
      "startDateTime": "2017-08-12T00:00:00.000Z",
      "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "isBundle": false,
    "category": "Router resource",
    "attachment": [
      {
        "id": "25553",
        "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25553",
        "name": "Data Sheet",
        "mimeType": "application/pdf",
        "url": "https://onestore.nokia.com/asset/205421",
        "@type": "Attachment"
      }
    ],
    "relatedParty": [
      {
        "role": "Supplier",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
          "id": "5855",
          "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5855",

          "name": "Nokia Networks",
          "@referredType": "Supplier",
          "@type": "PartyRoleRef"
        }
      }
    ],
    "resourceSpecCharacteristic": [
      {
        "name": "Power Supply Option",
        "description": "The type of power supply that can be chosen",
        "valueType": "string",
        "configurable": true,
        "minCardinality": 1,
        "maxCardinality": 1,
        "isUnique": true,
        "@type": "CharacteristicSpecification",
        "characteristicValueSpecification": [
          {
            "value": "AC/HVDC",
            "@type": "StringCharacteristicValueSpecification"
          },
          {
            "value": "LVDC",
            "@type": "StringCharacteristicValueSpecification"
          }
        ]
      }
    ],
    "resourceSpecRelationship": [
      {

```

```

        "id": "556234",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556234",
        "name": "SR OS Operating System",
        "relationshipType": "dependency",
        "@type": "ResourceSpecificationRelationship"
    },
    ],
    "featureSpecification": [
        {
            "id": "122m455f-671a-499d-a95j-8h46fe3bc88c",
            "name": "log",
            "@type": "FeatureSpecification",
            "validFor": {
                "startDateTime": "2015-11-21T00:00:00.000Z",
                "endDateTime": "2019-12-31T23:59:59.999Z"
            },
            "featureSpecCharacteristic": [
                {
                    "name": "logSize",
                    "description": "Log Size in MB",
                    "valueType": "integer",
                    "configurable": true,
                    "validFor": {
                        "startDateTime": "2015-11-22T00:00:00.000Z",
                        "endDateTime": "2019-12-31T23:59:59.999Z"
                    },
                    "@type": "CharacteristicSpecification",
                    "minCardinality": 0,
                    "maxCardinality": 1,
                    "isUnique": true,
                    "extensible": false,
                    "characteristicValueSpecification": [
                        {
                            "isDefault": true,
                            "value": 2000,
                            "@type": "IntegerCharacteristicValueSpecification",
                            "validFor": {
                                "startDateTime": "2015-11-22T00:00:00.000Z",
                                "endDateTime": "2019-12-31T23:59:59.999Z"
                            }
                        },
                        {
                            "isDefault": false,
                            "value": 4000,
                            "@type": "IntegerCharacteristicValueSpecification",
                            "validFor": {
                                "startDateTime": "2015-11-22T00:00:00.000Z",
                                "endDateTime": "2019-12-31T23:59:59.999Z"
                            }
                        }
                    ]
                }
            ]
        }
    ],
    ],
    {
        "id": "db723e27-58d3-4120-b564-af199cb32bd3",
        "name": "IPAddressing",
        "isBundle": true,
        "@type": "FeatureSpecification",
        "validFor": {
            "startDateTime": "2017-05-24T00:00:00.000Z",
            "endDateTime": "2019-12-31T23:59:59.999Z"
        }
    }

```

```

    },
    "policyConstraint": [
      {
        "id": "34",
        "version": "1.0",
        "href": "https://mycsp.com:8080/tmf-
api/policy/v5/policyConstraint/34",
        "name": "ReliesOnIPv4OrIPv6",
        "@type": "PolicyConstraintRef",
        "@referredType": "PolicyConstraint"
      }
    ],
    "featureSpecRelationship": [
      {
        "relationshipType": "requires",
        "featureId": "43883a81-58ef-45af-ace4-993298ae8361",
        "parentSpecificationId": "755232457686",
        "parentSpecificationHref": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/755232457686",
        "name": "IPv4Addressing",
        "@type": "FeatureSpecificationRelationship",
        "validFor": {
          "startDateTime": "2017-05-24T00:00:00.000Z",
          "endDateTime": "2019-12-31T23:59:59.999Z"
        }
      },
      {
        "relationshipType": "requires",
        "featureId": "b85f845f-011a-468f-a90e-9e07fe3bc90a",
        "parentSpecificationId": "755232457686",
        "parentSpecificationHref": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/755232457686",
        "name": "IPv6Addressing",
        "@type": "FeatureSpecificationRelationship",
        "validFor": {
          "startDateTime": "2017-05-24T00:00:00.000Z",
          "endDateTime": "2019-12-31T23:59:59.999Z"
        }
      }
    ]
  },
  "targetResourceSchema": {
    "@type": "NokiaRouter",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/NokiaRouter.schema.json"
  },
  "model": "7750 SR",
  "part": "2s",
  "sku": "3HE09264AA",
  "vendor": "Nokia Networks"
}

```

Notification Resource Models

22 notifications are defined for this API.

Notifications related to ImportJob:

- Import Job Create Event
- Import Job Delete Event
- Import Job State Change Event

Notifications related to ExportJob:

- Export Job Create Event
- Export Job Delete Event
- Export Job State Change Event

Notifications related to ResourceCatalog:

- Resource Catalog Attribute Value Change Event
- Resource Catalog Delete Event
- Resource Catalog Status Change Event
- Resource Catalog Create Event

Notifications related to ResourceCategory:

- Resource Category Create Event
- Resource Category Delete Event
- Resource Category Attribute Value Change Event
- Resource Category Status Change Event

Notifications related to ResourceCandidate:

- Resource Candidate Delete Event
- Resource Candidate Create Event
- Resource Candidate Attribute Value Change Event
- Resource Candidate Status Change Event

Notifications related to ResourceSpecification:

- Resource Specification Status Change Event
- Resource Specification Attribute Value Change Event
- Resource Specification Delete Event
- Resource Specification Create Event

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).

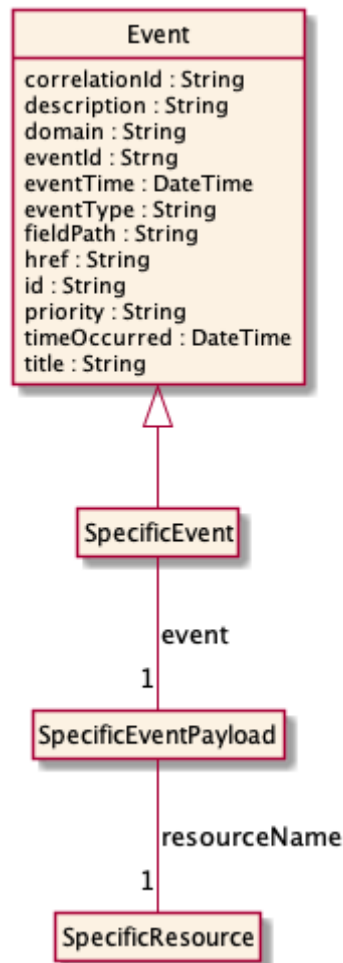


Figure 10 Notification Pattern

Import Job Create Event

Message example for ImportJobCreateEvent event

Content-Type: application/json

```

{
  "correlationId": "7dd133ee-6c9a",
  "description": "ExportJobCreateEvent illustration",
  "domain": "Commercial",
  "eventId": "4876-8fbb-4d44dc98fd57",
  "eventTime": "2022-08-25T12:19:03.452Z",
  "eventType": "ExportJobCreateEvent",
  "priority": "4",
  "timeOccurred": "2022-08-25T12:18:59.969Z",
  "title": "ExportJobCreateEvent",
  "event": {
    "importJob": {
      "id": "5439",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/5439",
      "contentType": "application/json",

```



```

        "creationDate": "2018-08-27T00:00:00.000Z",
        "path": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/3830",
        "query": "category.id=7757",
        "status": "Running",
        "url": "https://my-platform/daily/job/EHCFD6",
        "errorLog": "http://my-platform/logging/errors.log",
        "@type": "ImportJob"
    },
    "reportingSystem": {
        "id": "335",
        "name": "APP-179",
        "@type": "ReportingResource",
        "@referredType": "LogicalResource"
    },
    "source": {
        "id": "853",
        "name": "APP-30",
        "@type": "ReportingResource",
        "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ImportJobCreateEvent"
}

```

Import Job Delete Event

Message example for ImportJobDeleteEvent event

```

Content-Type: application/json

{
    "correlationId": "8a0f2551-8e5d",
    "description": "ImportJobDeleteEvent illustration",
    "domain": "Commercial",
    "eventId": "415c-be02-41dee60b5bda",
    "eventTime": "2022-08-25T12:19:03.462Z",
    "eventType": "ImportJobDeleteEvent",
    "priority": "3",
    "timeOccurred": "2022-08-25T12:19:03.157Z",
    "title": "ImportJobDeleteEvent",
    "event": {
        "importJob": {
            "id": "5435",
            "@type": "ImportJob"
        }
    },
    "reportingSystem": {
        "id": "335",
        "name": "APP-179",
        "@type": "ReportingResource",
        "@referredType": "LogicalResource"
    },
    "source": {
        "id": "853",
        "name": "APP-30",
        "@type": "ReportingResource",
        "@referredType": "LogicalResource"
    }
}

```

```

    },
    "@baseType": "Event",
    "@type": "ImportJobDeleteEvent"
  }

```

Import Job State Change Event

Message example for ImportJobStateChangeEvent event

```

Content-Type: application/json

{
  "correlationId": "8a0f2551-8e5d",
  "description": "ImportJobStateChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ImportJobStateChangeEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ImportJobStateChangeEvent",
  "event": {
    "importJob": {
      "status": "Succeeded",
      "url": "https://my-platform/daily/job/EHCFD6",
      "errorLog": "http://my-platform/logging/errors.log",
      "@type": "ImportJob"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ImportJobStateChangeEvent"
}

```

Export Job Create Event

Message example for ExportJobCreateEvent event

```

Content-Type: application/json

{
  "correlationId": "7dd133ee-6c9a",
  "description": "ExportJobCreateEvent illustration",
  "domain": "Commercial",
  "eventId": "4876-8fbb-4d44dc98fd57",

```

```

"eventTime": "2022-08-25T12:19:03.452Z",
"eventType": "ExportJobCreateEvent",
"priority": "4",
"timeOccurred": "2022-08-25T12:18:59.969Z",
"title": "ExportJobCreateEvent",
"event": {
  "importJob": {
    "id": "5439",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/5439",
    "contentType": "application/json",
    "creationDate": "2018-08-27T00:00:00.000Z",
    "path": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/3830",
    "query": "category.id=7757",
    "status": "Running",
    "url": "https://my-platform/daily/job/EHCFD6",
    "errorLog": "http://my-platform/logging/errors.log",
    "@type": "ImportJob"
  }
},
"reportingSystem": {
  "id": "335",
  "name": "APP-179",
  "@type": "ReportingResource",
  "@referredType": "LogicalResource"
},
"source": {
  "id": "853",
  "name": "APP-30",
  "@type": "ReportingResource",
  "@referredType": "LogicalResource"
},
"@baseType": "Event",
"@type": "ImportJobCreateEvent"
}

```

Export Job Delete Event

Message example for ExportJobDeleteEvent event

```

Content-Type: application/json

{
  "correlationId": "8a0f2551-8e5d",
  "description": "ImportJobDeleteEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ImportJobDeleteEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ImportJobDeleteEvent",
  "event": {
    "importJob": {
      "id": "5435",
      "@type": "ImportJob"
    }
  },
  "reportingSystem": {

```

```

        "id": "335",
        "name": "APP-179",
        "@type": "ReportingResource",
        "@referredType": "LogicalResource"
    },
    "source": {
        "id": "853",
        "name": "APP-30",
        "@type": "ReportingResource",
        "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ImportJobDeleteEvent"
}

```

Export Job State Change Event

Message example for ExportJobStateChangeEvent event

```

Content-Type: application/json

{
  "correlationId": "8a0f2551-8e5d",
  "description": "ExportJobStateChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ExportJobStateChangeEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ExportJobStateChangeEvent",
  "event": {
    "exportJob": {
      "status": "Succeeded",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/exportJob/5435",
      "id": "5435",
      "@type": "ExportJob"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ExportJobStateChangeEvent"
}

```

Resource Catalog Attribute Value Change Event

Message example for ResourceCatalogAttributeValueChangeEvent event

```
Content-Type: application/json

{
  "correlationId": "e76a7eed-8d38",
  "description": "ResourceCatalogAttributeValueChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "4de3-bca3-816b64d9cb29",
  "eventTime": "2022-08-25T12:19:03.381Z",
  "eventType": "ResourceCatalogAttributeValueChangeEvent",
  "priority": "1",
  "timeOccurred": "2022-08-25T12:18:57.706Z",
  "title": "ResourceCatalogAttributeValueChangeEvent",
  "event": {
    "resourceCatalog": {
      "id": "5574",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
      "description": "This resource catalog points to entities in the business area of cloud management",
      "@type": "ResourceCatalog"
    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {
      "id": "853",
      "name": "APP-30",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ResourceCatalogAttributeValueChangeEvent"
  }
}
```

Resource Catalog Delete Event

Message example for ResourceCatalogDeleteEvent event

```
Content-Type: application/json

{
  "correlationId": "81467a0f-5401",
  "description": "ResourceCatalogDeleteEvent illustration",
  "domain": "Commercial",
  "eventId": "4882-98a5-de479c8028d0",
  "eventTime": "2022-08-25T12:19:03.392Z",
  "eventType": "ResourceCatalogDeleteEvent",
  "priority": "4",
  "timeOccurred": "2022-08-25T12:19:02.018Z",
  "title": "ResourceCatalogDeleteEvent",
}
```

```

    "event": {
      "resourceCatalog": {
        "id": "5574",
        "@type": "ResourceCatalog"
      }
    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {
      "id": "853",
      "name": "APP-30",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ResourceCatalogDeleteEvent"
  }
}

```

Resource Catalog Status Change Event

Message example for ResourceCatalogStatusChangeEvent event

```

Content-Type: application/json

{
  "correlationId": "8a0f2551-8e5d",
  "description": "ResourceCatalogStatusChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ResourceCatalogStatusChangeEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ResourceCatalogStatusChangeEvent",
  "event": {
    "resourceCatalog": {
      "id": "5574",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
      "lifecycleStatus": "In design",
      "@type": "ResourceCatalog"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
}

```

```

    "@baseType": "Event",
    "@type": "ResourceCatalogStatusChangeEvent"
  }

```

Resource Catalog Create Event

Message example for ResourceCatalogCreateEvent event

```

Content-Type: application/json

{
  "correlationId": "7dd133ee-6c9a",
  "description": "ResourceCatalogCreateEvent illustration",
  "domain": "Commercial",
  "eventId": "4876-8fbb-4d44dc98fd57",
  "eventTime": "2017-08-27T00:00:00.000Z",
  "eventType": "ResourceCatalogCreateEvent",
  "priority": "4",
  "timeOccurred": "2017-08-27T00:00:00.000Z",
  "title": "ResourceCatalogCreateEvent",
  "event": {
    "resourceCatalog": {
      "id": "5574",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/5574",
      "name": "Cloud Resource Catalog",
      "description": "This resource catalog points to entities in the area of
cloud management",
      "lastUpdate": "2017-08-27T00:00:00.000Z",
      "lifecycleStatus": "In study",
      "@type": "ResourceCatalog"
    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {
      "id": "853",
      "name": "APP-30",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ResourceCatalogCreateEvent"
  }
}

```

Resource Category Create Event

Message example for ResourceCategoryCreateEvent event

```

Content-Type: application/json

{

```

```

"correlationId": "7dd133ee-6c9a",
"description": "ResourceCategoryCreateEvent illustration",
"domain": "Commercial",
"eventId": "4876-8fbb-4d44dc98fd57",
"eventTime": "2022-08-25T12:19:03.452Z",
"eventType": "ResourceCategoryCreateEvent",
"priority": "4",
"timeOccurred": "2022-08-25T12:18:59.969Z",
"title": "ResourceCategoryCreateEvent",
"event": {
  "resourceCategory": {
    "id": "8121",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
    "name": "Network Logical Resources",
    "description": "This resource category groups together logical resources
that are implemented in the network",
    "@type": "ResourceCategory",
    "version": "1.0",
    "validFor": {
      "startDateTime": "2017-08-11T00:00:00.000Z",
      "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lifecycleStatus": "In study",
    "lastUpdate": "2017-08-09T00:00:00.000Z"
  }
},
"reportingSystem": {
  "id": "335",
  "name": "APP-179",
  "@type": "ReportingResource",
  "@referredType": "LogicalResource"
},
"source": {
  "id": "853",
  "name": "APP-30",
  "@type": "ReportingResource",
  "@referredType": "LogicalResource"
},
"@baseType": "Event",
"@type": "ResourceCategoryCreateEvent"
}

```

Resource Category Delete Event

Message example for ResourceCategoryDeleteEvent event

```

Content-Type: application/json

{
  "correlationId": "81467a0f-5401",
  "description": "ResourceCategoryDeleteEvent illustration",
  "domain": "Commercial",
  "eventId": "4882-98a5-de479c8028d0",
  "eventTime": "2022-08-25T12:19:03.392Z",
  "eventType": "ResourceCategoryDeleteEvent",
  "priority": "4",
  "timeOccurred": "2022-08-25T12:19:02.018Z",
  "title": "ResourceCategoryDeleteEvent",

```



```

    "event": {
      "resourceCategory": {
        "id": "8121",
        "@type": "ResourceCategory"
      }
    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {
      "id": "853",
      "name": "APP-30",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ResourceCategoryDeleteEvent"
  }

```

Resource Category Attribute Value Change Event

Message example for ResourceCategoryAttributeValueChangeEvent event

```

Content-Type: application/json

{
  "correlationId": "e76a7eed-8d38",
  "description": "ResourceCategoryAttributeValueChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "4de3-bca3-816b64d9cb29",
  "eventTime": "2022-08-25T12:19:03.381Z",
  "eventType": "ResourceCategoryAttributeValueChangeEvent",
  "priority": "1",
  "timeOccurred": "2022-08-25T12:18:57.706Z",
  "title": "ResourceCategoryAttributeValueChangeEvent",
  "event": {
    "resourceCategory": {
      "id": "8121",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
      "@type": "ResourceCategory",
      "version": "1.1",
      "validFor": {
        "startDateTime": "2018-03-07T00:00:00.000Z",
        "endDateTime": "2019-03-07T00:00:00.000Z"
      }
    }
  },
  "@baseType": "Event",
  "@type": "ResourceCategoryAttributeValueChangeEvent"
}

```

Resource Category Status Change Event

Message example for ResourceCategoryStatusChangeEvent event

```
Content-Type: application/json

{
  "correlationId": "8a0f2551-8e5d",
  "description": "ResourceCategoryStatusChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ResourceCategoryStatusChangeEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ResourceCategoryStatusChangeEvent",
  "event": {
    "resourceCategory": {
      "id": "8121",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
      "@type": "ResourceCategory",
      "lifecycleStatus": "In design"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ResourceCategoryStatusChangeEvent"
}
```

Resource Candidate Delete Event

Message example for ResourceCandidateDeleteEvent event

```
Content-Type: application/json

{
  "correlationId": "81467a0f-5401",
  "description": "ResourceCandidateDeleteEvent illustration",
  "domain": "Commercial",
  "eventId": "4882-98a5-de479c8028d0",
  "eventTime": "2022-08-25T12:19:03.392Z",
  "eventType": "ResourceCandidateDeleteEvent",
  "priority": "4",
  "timeOccurred": "2022-08-25T12:19:02.018Z",
  "title": "ResourceCandidateDeleteEvent",
  "event": {
```

```

    "resourceCandidate": {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
      "@type": "ResourceCandidate"
    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {
      "id": "853",
      "name": "APP-30",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ResourceCandidateDeleteEvent"
  }
}

```

Resource Candidate Create Event

Message example for ResourceCandidateCreateEvent event

```

Content-Type: application/json

{
  "correlationId": "7dd133ee-6c9a",
  "description": "ResourceCandidateCreateEvent illustration",
  "domain": "Commercial",
  "eventId": "4876-8fbb-4d44dc98fd57",
  "eventTime": "2017-08-09T00:00:00.000Z",
  "eventType": "ResourceCandidateCreateEvent",
  "priority": "4",
  "timeOccurred": "2017-08-09T00:00:00.000Z",
  "title": "ResourceCandidateCreateEvent",
  "event": {
    "resourceCandidate": {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
      "name": "Virtual Storage Medium",
      "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
      "lastUpdate": "2017-08-09T00:00:00.000Z",
      "lifecycleStatus": "Active",
      "@type": "ResourceCandidate"
    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {

```

```

    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ResourceCandidateCreateEvent"
}

```

Resource Candidate Attribute Value Change Event

Message example for ResourceCandidateAttributeValueChangeEvent event

Content-Type: application/json

```

{
  "correlationId": "e76a7eed-8d38",
  "description": "ResourceCandidateAttributeValueChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "4de3-bca3-816b64d9cb29",
  "eventTime": "2017-09-09T00:00:00.000Z",
  "eventType": "ResourceCandidateAttributeValueChangeEvent",
  "priority": "1",
  "timeOccurred": "2017-09-09T00:00:00.000Z",
  "title": "ResourceCandidateAttributeValueChangeEvent",
  "event": {
    "resourceCandidate": {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",
      "name": "Virtual Storage Medium Sized",
      "lastUpdate": "2017-09-09T00:00:00.000Z",
      "@type": "ResourceCandidate"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ResourceCandidateAttributeValueChangeEvent"
}

```

Resource Candidate Status Change Event

Message example for ResourceCandidateStatusChangeEvent event

Content-Type: application/json

```
{
  "correlationId": "8a0f2551-8e5d",
  "description": "ResourceCandidateStatusChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ResourceCandidateStatusChangeEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ResourceCandidateStatusChangeEvent",
  "event": {
    "resourceCandidate": {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",
      "lifecycleStatus": "Active",
      "@type": "ResourceCandidate"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ResourceCandidateStatusChangeEvent"
}
```

Resource Specification Status Change Event

Message example for ResourceSpecificationStatusChangeEvent event

```
Content-Type: application/json

{
  "correlationId": "8a0f2551-8e5d",
  "description": "ResourceSpecificationStatusChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "415c-be02-41dee60b5bda",
  "eventTime": "2022-08-25T12:19:03.462Z",
  "eventType": "ResourceSpecificationStatusChangeEvent",
  "priority": "3",
  "timeOccurred": "2022-08-25T12:19:03.157Z",
  "title": "ResourceSpecificationStatusChangeEvent",
  "event": {
    "resourceSpecification": {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
      "@type": "ResourceSpecification",
      "lifecycleStatus": "Active"
    }
  }
}
```

```

    },
    "reportingSystem": {
      "id": "335",
      "name": "APP-179",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "source": {
      "id": "853",
      "name": "APP-30",
      "@type": "ReportingResource",
      "@referredType": "LogicalResource"
    },
    "@baseType": "Event",
    "@type": "ResourceSpecificationStatusChangeEvent"
  }
}

```

Resource Specification Attribute Value Change Event

Message example for ResourceSpecificationAttributeValueChangeEvent event

Content-Type: application/json

```

{
  "correlationId": "e76a7eed-8d38",
  "description": "ResourceSpecificationAttributeValueChangeEvent illustration",
  "domain": "Commercial",
  "eventId": "4de3-bca3-816b64d9cb29",
  "eventTime": "2022-08-25T12:19:03.381Z",
  "eventType": "ResourceSpecificationAttributeValueChangeEvent",
  "priority": "1",
  "timeOccurred": "2022-08-25T12:18:57.706Z",
  "title": "ResourceSpecificationAttributeValueChangeEvent",
  "event": {
    "resourceSpecification": {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
      "@type": "ResourceSpecification",
      "resourceSpecCharacteristic": [
        {
          "isUnique": false,
          "@type": "CharacteristicSpecification"
        }
      ]
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  }
}

```

```

    },
    "@baseType": "Event",
    "@type": "ResourceSpecificationAttributeValueChangeEvent"
  }

```

Resource Specification Delete Event

Message example for ResourceSpecificationDeleteEvent event

```

Content-Type: application/json

{
  "correlationId": "81467a0f-5401",
  "description": "ResourceSpecificationDeleteEvent illustration",
  "domain": "Commercial",
  "eventId": "4882-98a5-de479c8028d0",
  "eventTime": "2022-08-25T12:19:03.392Z",
  "eventType": "ResourceSpecificationDeleteEvent",
  "priority": "4",
  "timeOccurred": "2022-08-25T12:19:02.018Z",
  "title": "ResourceSpecificationDeleteEvent",
  "event": {
    "resourceSpecification": {
      "id": "42",
      "@type": "ResourceSpecification"
    }
  },
  "reportingSystem": {
    "id": "335",
    "name": "APP-179",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "source": {
    "id": "853",
    "name": "APP-30",
    "@type": "ReportingResource",
    "@referredType": "LogicalResource"
  },
  "@baseType": "Event",
  "@type": "ResourceSpecificationDeleteEvent"
}

```

Resource Specification Create Event

Message example for ResourceSpecificationCreateEvent event

```

Content-Type: application/json

{
  "correlationId": "7dd133ee-6c9a",
  "description": "ResourceSpecificationCreateEvent illustration",
  "domain": "Commercial",
  "eventId": "4876-8fbb-4d44dc98fd57",
  "eventTime": "2022-08-25T12:19:03.452Z",
  "eventType": "ResourceSpecificationCreateEvent",

```

```

    "priority": "4",
    "timeOccurred": "2022-08-25T12:18:59.969Z",
    "title": "ResourceSpecificationCreateEvent",
    "event": {
      "resourceSpecification": {
        "id": "42",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
        "name": "Virtual Storage Medium",
        "description": "This resource specification defines the virtual storage
medium",
        "@type": "ResourceSpecification",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
        "version": "1.0",
        "validFor": {
          "startDateTime": "2017-08-12T00:00:00.000Z",
          "endDateTime": "2018-03-07T00:00:00.000Z"
        },
        "lastUpdate": "2017-08-09T00:00:00.000Z",
        "lifecycleStatus": "Tentative",
        "isBundle": false,
        "category": "Cloud resource",
        "attachment": [
          {
            "id": "25552",
            "href": "https://mycsp.com:8080/tmf-
api/document/v5/attachment/25552",
            "name": "Configuration Instructions",
            "mimeType": "application/pdf",
            "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
            "@type": "Attachment"
          }
        ],
        "relatedParty": [
          {
            "role": "Supplier",
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "partyOrPartyRole": {
              "id": "5858",
              "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/supplier/5858",
              "name": "Gustave Flaubert",
              "@referredType": "Supplier",
              "@type": "PartyRoleRef"
            }
          }
        ],
        "resourceSpecCharacteristic": [
          {
            "name": "Maximum Allowed Storage",
            "description": "The storage limit in the virtual storage medium,
",
            "valueType": "integer",
            "configurable": true,
            "minCardinality": 1,
            "maxCardinality": 1,
            "isUnique": true,
            "@type": "CharacteristicSpecification",
            "characteristicValueSpecification": [
              {
                "value": 1024000,
                "@type": "IntegerCharacteristicValueSpecification"
              }
            ]
          }
        ]
      }
    }
  }
}

```



```

    },
    {
      "value": 2048000,
      "@type": "IntegerCharacteristicValueSpecification"
    }
  ]
},
"resourceSpecRelationship": [
  {
    "id": "556788",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
    "name": "Underlying Physical Disk",
    "relationshipType": "dependency",
    "@type": "ResourceSpecificationRelationship"
  }
]
},
"reportingSystem": {
  "id": "335",
  "name": "APP-179",
  "@type": "ReportingResource",
  "@referredType": "LogicalResource"
},
"source": {
  "id": "853",
  "name": "APP-30",
  "@type": "ReportingResource",
  "@referredType": "LogicalResource"
},
"@baseType": "Event",
"@type": "ResourceSpecificationCreateEvent"
}

```

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.

Notifications are also described in a subsequent section.

Operations on ImportJob

List or find ImportJob objects

GET /importJob?fields=...

Description

This operation list ImportJob 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.

Request

```
GET /importJob?creationDate=2023-06-17
Content-Type: application/json
```

Response

```
200

[
  {
    "id": "7497",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/importJob/7497",
    "contentType": "application/json",
    "creationDate": "2023-06-17T00:00:00.000Z",
    "completionDate": "2023-06-17T00:05:00.000Z",
    "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
    "status": "Succeeded",
    "url": "https://my-platform/daily/job/NHCFD6",
    "errorLog": "http://my-platform/logging/errors.log",
    "@type": "ImportJob"
  },
  {
    "id": "7498",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/importJob/7498",
    "contentType": "application/json",
    "creationDate": "2023-06-17T00:00:00.000Z",
    "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
    "status": "Running",
    "url": "https://my-platform/daily/job/NHCFD6",
    "errorLog": "http://my-platform/logging/errors.log",
    "@type": "ImportJob"
  }
]
```

Retrieves a ImportJob by ID

GET /importJob/{id}?fields=...

Description

This operation retrieves an ImportJob entity. 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 a specific import job.

Request

```
GET /importJob/7497
Content-Type: application/json
```

Response

```
200
```

```
{
  "id": "7497",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/importJob/7497",
  "contentType": "application/json",
  "creationDate": "2023-06-17T00:00:00.000Z",
  "completionDate": "2023-06-17T00:05:00.000Z",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
  "status": "Succeeded",
  "url": "https://my-platform/daily/job/NHCFD6",
  "errorLog": "http://my-platform/logging/errors.log",
  "@type": "ImportJob"
}
```

Creates a ImportJob

POST /importJob?fields=...

Description

This operation creates an ImportJob entity.

Mandatory Attributes

| Mandatory Attributes | Rule |
|----------------------|------|
| url | |
| @type | |

Usage samples

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

Request

```
POST /importJob
Content-Type: application/json

{
  "contentType": "application/json",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
  "url": "https://my-platform/daily/job/NHCFD6",
  "@type": "ImportJob"
}
```

Response

```
201

{
  "id": "7497",
```

```
{
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/importJob/7497",
  "contentType": "application/json",
  "creationDate": "2023-06-17T00:00:00.000Z",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
  "status": "Running",
  "url": "https://my-platform/daily/job/NHCFD6",
  "errorLog": "http://my-platform/logging/errors.log",
  "@type": "ImportJob"
}
```

Deletes a ImportJob

DELETE /importJob/{id}

Description

This operation deletes an ImportJob entity.

Usage samples

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

Request

```
DELETE /importJob/7497
Content-Type: application/json
```

Response

204

Operations on ExportJob

List or find ExportJob objects

GET /exportJob?fields=...

Description

This operation list ExportJob 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.

Request

```
GET /exportJob?creationDate=2023-06-17
Content-Type: application/json
```

Response

```
200

[
  {
    "id": "1866",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/exportJob/1866",
    "contentType": "application/json",
    "creationDate": "2023-06-17T00:00:00.000Z",
    "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/Catalog/3830",
    "query": "category.id=7757",
    "status": "Running",
    "url": "https://my-platform/daily/job/EHCFD6",
    "errorLog": "http://my-platform/logging/errors.log",
    "@type": "ExportJob"
  },
  {
    "id": "5431",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/exportJob/5431",
    "contentType": "application/json",
    "creationDate": "2023-06-17T00:00:00.000Z",
    "completionDate": "2023-06-17T00:05:00.000Z",
    "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
    "query": "category.id=7753",
    "status": "Succeeded",
    "url": "https://my-platform/daily/job/EHCFD6",
    "errorLog": "http://my-platform/logging/errors.log",
    "@type": "ExportJob"
  }
]
```

Retrieves a ExportJob by ID

GET /exportJob/{id}?fields=...

Description

This operation retrieves an ExportJob entity. 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 a specific export job.

Request

```
GET /exportJob/1866
Content-Type: application/json
```

Response

```
200

{
  "id": "1866",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/exportJob/71866",
  "contentType": "application/json",
  "creationDate": "2023-06-17T00:00:00.000Z",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
  "query": "category.id=7757",
  "status": "Running",
  "url": "https://my-platform/daily/job/EHCFD6",
  "errorLog": "http://my-platform/logging/errors.log",
  "@type": "ImportJob"
}
```

Creates a ExportJob

POST /exportJob?fields=...

Description

This operation creates an ExportJob entity.

Mandatory Attributes

| Mandatory Attributes | Rule |
|----------------------|------|
| url | |
| @type | |

Usage samples

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

Request

```
POST /exportJob
Content-Type: application/json

{
  "contentType": "application/json",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/3830",
  "query": "category.id=7757",
  "url": "https://my-platform/daily/job/EHCFD6",
```

```
"errorLog": "http://my-platform/logging/errors.log",
"@type": "ExportJob"
}
```

Response

```
201

{
  "id": "1866",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/exportJob/1866",
  "contentType": "application/json",
  "creationDate": "2023-06-17T00:00:00.000Z",
  "path": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/Catalog/3830",
  "query": "category.id=7757",
  "status": "Running",
  "url": "https://my-platform/daily/job/EHCFD6",
  "errorLog": "http://my-platform/logging/errors.log",
  "@type": "ExportJob"
}
```

Deletes a ExportJob

DELETE /exportJob/{id}

Description

This operation deletes an ExportJob entity.

Usage samples

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

Request

```
DELETE /exportJob/1866
Content-Type: application/json
```

Response

```
204
```

Operations on ResourceCatalog

Retrieves a ResourceCatalog by ID

GET /resourceCatalog/{id}?fields=...

Description

This operation retrieves a ResourceCatalog entity. 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 a specific catalog.

Request

```
GET /resourceCatalog/5574
Content-Type: application/json
```

Response

```
200

{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud management",
  "@type": "ResourceCatalog",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2022-08-10T00:00:00.000Z",
    "endDateTime": "2023-03-07T00:00:00.000Z"
  },
  "lastUpdate": "2021-08-09T00:00:00.000Z",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",
        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "8121",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
      "version": "1.0",
      "name": "Secure Home",
      "@type": "ResourceCategoryRef"
    }
  ]
}
```

```
}
```

List or find ResourceCatalog objects

GET /resourceCatalog?fields=...

Description

This operation list ResourceCatalog 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 catalogs.

Request

```
GET /resourceCatalog?category.id=8121
Content-Type: application/json
```

Response

```
200

[
  {
    "id": "5574",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/5574",
    "name": "Cloud Resource Catalog",
    "description": "This resource catalog points to entities in the area of
cloud management",
    "@type": "ResourceCatalog",
    "version": "1.0",
    "validFor": {
      "startDateTime": "2022-08-10T00:00:00.000Z",
      "endDateTime": "2023-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2021-08-09T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "relatedParty": [
      {
        "role": "Supplier",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
          "id": "5858",
          "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/supplier/5858",
          "name": "Gustave Flaubert",
          "@referredType": "Supplier",
          "@type": "PartyRoleRef"
        }
      }
    ]
  },
]
```

```

    "category": [
      {
        "id": "8121",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
        "version": "1.0",
        "name": "Secure Home",
        "@type": "ResourceCategoryRef"
      }
    ],
    {
      "id": "5578",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/5578",
      "name": "Router Catalog",
      "description": "This resource catalog points to entities in the area of
routers",
      "@type": "ResourceCatalog",
      "version": "1.0",
      "validFor": {
        "startDateTime": "2020-08-10T00:00:00.000Z",
        "endDateTime": "2023-03-07T00:00:00.000Z"
      },
      "lastUpdate": "2021-09-01T00:00:00.000Z",
      "lifecycleStatus": "Active",
      "relatedParty": [
        {
          "role": "Supplier",
          "@type": "RelatedPartyRefOrPartyRoleRef",
          "partyOrPartyRole": {
            "id": "5855",
            "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/supplier/5855",
            "name": "Nokia Networks",
            "@referredType": "Supplier",
            "@type": "PartyRoleRef"
          }
        }
      ],
      "category": [
        {
          "id": "8121",
          "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
          "version": "1.0",
          "name": "Routers",
          "@type": "ResourceCategoryRef"
        }
      ]
    }
  ]
}

```

Creates a ResourceCatalog

POST /resourceCatalog?fields=...

Description

This operation creates a ResourceCatalog entity.

Mandatory Attributes

| Mandatory Attributes | Rule |
|----------------------|------|
| name | |
| @type | |

Usage samples

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

Request

```
POST /resourceCatalog
Content-Type: application/json

{
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud management",
  "@type": "ResourceCatalog"
}
```

Response

```
201

{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud management",
  "lastUpdate": "2021-08-27T00:00:00.000Z",
  "lifecycleStatus": "Tentative",
  "@type": "ResourceCatalog"
}
```

Updates partially a ResourceCatalog

PATCH /resourceCatalog/{id}?fields=...

Description

This operation allows partial updates of a ResourceCatalog 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

| Non Patchable Attributes | Rule |
|--------------------------|------------------------------|
| href | |
| id | |
| @baseType | @baseType is immutable |
| @schemaLocation | @schemaLocation is immutable |
| @type | @type is immutable |

| Patchable Attributes | Rule |
|----------------------|------|
| catalogType | |
| category | |
| description | |
| externalIdentifier | |
| lastUpdate | |
| lifecycleStatus | |
| name | |
| relatedParty | |
| validFor | |
| version | |

Usage samples

Here is an example of a request for patching a ResourceCatalog.

Request

```

PATCH /resourceCatalog/5574
Content-Type: application/merge-patch+json

{
  "@type": "ResourceCatalog",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "6001",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/6001",
        "name": "John Doe",

```

```

        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
    }
}
]
}

```

Response

```

200

{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud management",
  "@type": "ResourceCatalog",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "6001",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/6001",
        "name": "John Doe",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "4569",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/4569",
      "version": "1.0",
      "name": "Secure Home",
      "@type": "ResourceCategoryRef"
    }
  ]
}

```

Here is an example of a request for patching a ResourceCatalog.

Request

```
PATCH /resourceCatalog/5574
```

```

Content-Type: application/json

{
  "@type": "ResourceCatalog",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "6001",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/6001",

        "name": "John Doe",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ]
}

```

Response

```

200

{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud
management",
  "@type": "ResourceCatalog",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "6001",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/6001",

        "name": "John Doe",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "4569",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/4569",
      "version": "1.0",
      "name": "Secure Home",

```

```

        "@type": "ResourceCategoryRef"
      }
    ]
  }

```

Here is an example of a request for patching a ResourceCatalog.

Request

```

PATCH /resourceCatalog/5574
Content-Type: application/json-patch+json

[
  {
    "op": "replace",
    "path": "/relatedParty",
    "relatedParty": [
      {
        "role": "Supplier",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
          "id": "6001",
          "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/supplier/6001",
          "name": "John Doe",
          "@referredType": "Supplier",
          "@type": "PartyRoleRef"
        }
      }
    ]
  }
]

```

Response

```

200

{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud
management",
  "@type": "ResourceCatalog",
  "version": "2.0",
  "validFor": {
    "startTime": "2022-03-25T00:00:00.000Z",
    "endTime": "2023-09-25T00:00:00.000Z"
  },
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {

```



```

        "id": "6001",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/6001",
        "name": "John Doe",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    ],
    "category": [
      {
        "id": "4569",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/4569",
        "version": "1.0",
        "name": "Secure Home"
      }
    ]
  }
}

```

Here is an example of a request for patching a ResourceCatalog.

Request

```

PATCH /resourceCatalog/{id}
Content-Type: application/json-patch-query+json

[
  {
    "op": "replace",
    "path": "/relatedParty/role?partyOrPartyRole.name='Gustave Flaubert'",
    "value": "Owner"
  }
]

```

Response

```

200

{
  "id": "5574",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCatalog/5574",
  "name": "Cloud Resource Catalog",
  "description": "This resource catalog points to entities in the area of cloud management",
  "@type": "ResourceCatalog",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "relatedParty": [
    {
      "role": "Owner",
      "@type": "RelatedPartyRefOrPartyRoleRef",

```

```
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Owner",
        "@type": "PartyRoleRef"
      }
    ],
    "category": [
      {
        "id": "4569",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/4569",
        "version": "1.0",
        "name": "Secure Home",
        "@type": "ResourceCategoryRef"
      }
    ]
  }
}
```

Deletes a ResourceCatalog

DELETE /resourceCatalog/{id}

Description

This operation deletes a ResourceCatalog entity.

Usage samples

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

Request

```
DELETE /resourceCatalog/5574
Content-Type: application/json
```

Response

204

Operations on ResourceCategory

List or find ResourceCategory objects

GET /resourceCategory?fields=...

Description

This operation list ResourceCategory 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 all the root categories.

Request

```
GET /resourceCategory?isRoot=true
Content-Type: application/json
```

Response

```
200

[
  {
    "id": "8121",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
    "name": "Network Logical Resources",
    "description": "This resource category groups together logical resources that are implemented in the network",
    "@type": "ResourceCategory",
    "version": "1.0",
    "validFor": {
      "startTime": "2017-08-11T00:00:00.000Z",
      "endTime": "2018-03-07T00:00:00.000Z"
    },
    "lifecycleStatus": "Active",
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "isRoot": true,
    "category": [
      {
        "id": "5982",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/5982",
        "version": "3.2",
        "name": "IoT",
        "@type": "ResourceCategoryRef"
      }
    ],
    "resourceCandidate": [
      {
        "id": "5298",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/5298",
        "version": "1.0",
        "name": "Elastic Storage",
        "@type": "ResourceCandidateRef"
      },
      {
        "id": "7479",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",

```

```

        "version": "3.2",
        "name": "Virtual Storage Medium",
        "@type": "ResourceCandidateRef"
    },
    ],
    "resourceSpecification": [
        {
            "id": "42",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
            "version": "3.0",
            "name": "Virtual Storage Medium",
            "@type": "ResourceSpecificationRef",
            "@referredType": "ResourceSpecification"
        }
    ],
    "relatedParty": [
        {
            "role": "Employee",
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "partyOrPartyRole": {
                "id": "4434",
                "href": "https://mycsp.com:8080/tmf-
api/partytRole/v5/employee/4434",
                "name": "Jimmy Doe",
                "@referredType": "Employee",
                "@type": "PartyRoleRef"
            }
        }
    ]
},
{
    "id": "8123",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
    "name": "Network Physical Resources",
    "description": "This resource category groups together physical resources
that are implemented in the network",
    "@type": "ResourceCategory",
    "version": "1.0",
    "validFor": {
        "startDateTime": "2017-08-11T00:00:00.000Z",
        "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lifecycleStatus": "Active",
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "isRoot": true,
    "category": [
        {
            "id": "5588",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5588",
            "version": "3.2",
            "name": "Router",
            "@type": "ResourceCategoryRef"
        }
    ],
    "resourceCandidate": [
        {
            "id": "3421",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/3421",
            "version": "1.0",

```

```

        "name": "Nokia Router",
        "@type": "ResourceCandidateRef"
      },
      {
        "id": "2431",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/2431",
        "version": "3.2",
        "name": "Ericsson Router",
        "@type": "ResourceCandidateRef"
      }
    ],
    "relatedParty": [
      {
        "role": "Employee",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
          "id": "4434",
          "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/employee/4434",
          "name": "Jimmy Doe",
          "@referredType": "Employee",
          "@type": "PartyRoleRef"
        }
      }
    ]
  }
]

```

Retrieves a ResourceCategory by ID

GET /resourceCategory/{id}?fields=...

Description

This operation retrieves a ResourceCategory entity. 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 a specific category.

Request

```

GET /resourceCategory/8121
Content-Type: application/json

```

Response

```

200

{
  "id": "8121",

```

```

    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
    "name": "Network Logical Resources",
    "description": "This resource category groups together logical resources that
are implemented in the network",
    "@type": "ResourceCategory",
    "version": "1.0",
    "validFor": {
      "startDateTime": "2017-08-11T00:00:00.000Z",
      "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lifecycleStatus": "Active",
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "isRoot": true,
    "category": [
      {
        "id": "5982",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5982",
        "version": "3.2",
        "name": "IoT",
        "@type": "ResourceCategoryRef"
      }
    ],
    "resourceCandidate": [
      {
        "id": "5298",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/5298",
        "version": "1.0",
        "name": "Elastic Storage",
        "@type": "ResourceCandidateRef"
      },
      {
        "id": "7479",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
        "version": "3.2",
        "name": "Virtual Storage Medium",
        "@type": "ResourceCandidateRef"
      }
    ],
    "resourceSpecification": [
      {
        "id": "42",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
        "version": "3.0",
        "name": "Virtual Storage Medium",
        "@type": "ResourceSpecificationRef",
        "@referredType": "ResourceSpecification"
      }
    ],
    "relatedParty": [
      {
        "role": "Employee",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
          "id": "4434",
          "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/employee/4434",
          "name": "Jimmy Doe",
          "@referredType": "Employee",

```

```

    "@type": "PartyRoleRef"
  }
}
]
}

```

Creates a ResourceCategory

POST /resourceCategory?fields=...

Description

This operation creates a ResourceCategory entity.

Mandatory Attributes

| Mandatory Attributes | Rule |
|----------------------|------|
| name | |
| @type | |

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 /resourceCategory
Content-Type: application/json

{
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that
are implemented in the network",
  "@type": "ResourceCategory"
}

```

Response

```

201

{
  "id": "8121",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that
are implemented in the network",
  "@type": "ResourceCategory",
  "version": "1.0",
  "validFor": {

```

```

    "startDateTime": "2017-08-11T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "lifecycleStatus": "Tentative",
  "lastUpdate": "2017-08-09T00:00:00.000Z"
}

```

Updates partially a ResourceCategory

PATCH /resourceCategory/{id}?fields=...

Description

This operation allows partial updates of a ResourceCategory 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

| Non Patchable Attributes | Rule |
|--------------------------|------------------------------|
| href | |
| id | |
| @baseType | @baseType is immutable |
| @schemaLocation | @schemaLocation is immutable |
| @type | @type is immutable |

| Patchable Attributes | Rule |
|----------------------|------|
| category | |
| description | |
| externalIdentifier | |
| isRoot | |
| lastUpdate | |
| lifecycleStatus | |
| name | |
| parentId | |
| relatedParty | |
| resourceCandidate | |

| Patchable Attributes | Rule |
|-----------------------|------|
| resourceSpecification | |
| validFor | |
| version | |

Usage samples

Here is an example of a request for patching a ResourceCategory.

Request

```
PATCH /resourceCategory/8121
Content-Type: application/merge-patch+json

{
  "@type": "ResourceCategory",
  "version": "2.0",
  "validFor": {
    "startTime": "2022-08-23T00:00:22.920Z",
    "endTime": "2023-03-25T00:00:22.920Z"
  }
}
```

Response

```
200

{
  "id": "8121",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that are implemented in the network",
  "@type": "ResourceCategory",
  "version": "2.0",
  "validFor": {
    "startTime": "2022-08-23T00:00:22.920Z",
    "endTime": "2023-03-25T00:00:22.920Z"
  },
  "lifecycleStatus": "Active",
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "isRoot": true,
  "relatedParty": [
    {
      "role": "Employee",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "4434",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/employee/4434",
        "name": "Jimmy Doe",
        "@referredType": "Employee",
        "@type": "PartyRoleRef"
      }
    }
  ]
}
```

```

    }
  },
  "category": [
    {
      "id": "5982",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5982",
      "version": "3.2",
      "name": "IoT",
      "@type": "ResourceCategoryRef"
    }
  ],
  "resourceCandidate": [
    {
      "id": "5298",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/5298",
      "version": "1.0",
      "name": "Elastic Storage",
      "@type": "ResourceCandidateRef"
    },
    {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
      "version": "3.2",
      "name": "Virtual Storage Medium",
      "@type": "ResourceCandidateRef"
    }
  ],
  "resourceSpecification": [
    {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
      "version": "3.0",
      "name": "Virtual Storage Medium",
      "@type": "ResourceSpecificationRef",
      "@referredType": "ResourceSpecification"
    }
  ]
}

```

Here is an example of a request for patching a ResourceCategory.

Request

```

PATCH /resourceCategory/8121
Content-Type: application/json

{
  "@type": "ResourceCategory",
  "version": "2.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  }
}

```

Response

```

200

{
  "id": "8121",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that are implemented in the network",
  "@type": "ResourceCategory",
  "version": "2.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lifecycleStatus": "Active",
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "isRoot": true,
  "relatedParty": [
    {
      "role": "Employee",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "4434",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/employee/4434",
        "name": "Jimmy Doe",
        "@referredType": "Employee",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "5982",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/5982",
      "version": "3.2",
      "name": "IoT",
      "@type": "ResourceCategoryRef"
    }
  ],
  "resourceCandidate": [
    {
      "id": "5298",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/5298",
      "version": "1.0",
      "name": "Elastic Storage",
      "@type": "ResourceCandidateRef"
    },
    {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",
      "version": "3.2",
      "name": "Virtual Storage Medium",
      "@type": "ResourceCandidateRef"
    }
  ]
}

```

```

    ],
    "resourceSpecification": [
      {
        "id": "42",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
        "version": "3.0",
        "name": "Virtual Storage Medium",
        "@type": "ResourceSpecificationRef",
        "@referredType": "ResourceSpecification"
      }
    ]
  }
}

```

Here is an example of a request for patching a ResourceCategory.

Request

```

PATCH /resourceCategory/8121
Content-Type: application/json-patch+json

[
  {
    "op": "replace",
    "path": "/version",
    "value": "2.0"
  },
  {
    "op": "replace",
    "path": "/validFor/startTime",
    "value": "2022-08-23T00:00:22.920Z"
  },
  {
    "op": "replace",
    "path": "/validFor/endTime",
    "value": "2023-11-25T00:00:22.920Z"
  }
]

```

Response

```

200

{
  "id": "8121",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/8121",
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that
are implemented in the network",
  "@type": "ResourceCategory",
  "version": "2.0",
  "validFor": {
    "startTime": "2022-08-23T00:00:22.920Z",
    "endTime": "2023-11-25T00:00:22.920Z"
  }
}

```

```

    },
    "lifecycleStatus": "Active",
    "lastUpdate": "2023-06-22T00:00:22.920Z",
    "isRoot": true,
    "relatedParty": [
      {
        "role": "Employee",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
          "id": "4434",
          "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/employee/4434",

          "name": "Jimmy Doe",
          "@referredType": "Employee",
          "@type": "PartyRoleRef"
        }
      }
    ],
    "category": [
      {
        "id": "5982",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5982",
        "version": "3.2",
        "name": "IoT",
        "@type": "ResourceCategoryRef"
      }
    ],
    "resourceCandidate": [
      {
        "id": "5298",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/5298",
        "version": "1.0",
        "name": "Elastic Storage",
        "@type": "ResourceCandidateRef"
      },
      {
        "id": "7479",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
        "version": "3.2",
        "name": "Virtual Storage Medium",
        "@type": "ResourceCandidateRef"
      }
    ],
    "resourceSpecification": [
      {
        "id": "42",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
        "version": "3.0",
        "name": "Virtual Storage Medium",
        "@type": "ResourceSpecificationRef",
        "@referredType": "ResourceSpecification"
      }
    ]
  }
}

```

Here is an example of a request for patching a ResourceCategory.

Request

```
PATCH /resourceCategory/{id}
Content-Type: application/json-patch-query+json

[
  {
    "op": "replace",
    "path": "/lifecycleStatus?version='1.0'",
    "value": "Retired"
  }
]
```

Response

```
200

{
  "id": "8121",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/8121",
  "name": "Network Logical Resources",
  "description": "This resource category groups together logical resources that are implemented in the network",
  "@type": "ResourceCategory",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lifecycleStatus": "Retired",
  "lastUpdate": "2023-03-24T00:00:22.920Z",
  "isRoot": true,
  "relatedParty": [
    {
      "role": "Employee",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "4434",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/employee/4434",
        "name": "Jimmy Doe",
        "@referredType": "Employee",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "category": [
    {
      "id": "5982",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/5982",
      "version": "3.2",
      "name": "IoT",
      "@type": "ResourceCategoryRef"
    }
  ],
  "resourceCandidate": [
    {

```

```
      "id": "5298",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/5298",
      "version": "1.0",
      "name": "Elastic Storage",
      "@type": "ResourceCandidateRef"
    },
    {
      "id": "7479",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
      "version": "3.2",
      "name": "Virtual Storage Medium",
      "@type": "ResourceCandidateRef"
    }
  ],
  "resourceSpecification": [
    {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
      "version": "3.0",
      "name": "Virtual Storage Medium",
      "@type": "ResourceSpecificationRef",
      "@referredType": "ResourceSpecification"
    }
  ]
}
```

Deletes a ResourceCategory

DELETE /resourceCategory/{id}

Description

This operation deletes a ResourceCategory entity.

Usage samples

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

Request

```
DELETE /resourceCategory/8121
Content-Type: application/json
```

Response

204

Operations on ResourceCandidate

List or find ResourceCandidate objects

GET /resourceCandidate?fields=...

Description

This operation list ResourceCandidate 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 candidates.

Request

```
GET /resourceCandidate?version=2.1
Content-Type: application/json
```

Response

```
200

[
  {
    "id": "7479",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
    "name": "Virtual Storage Medium",
    "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
    "@type": "ResourceCandidate",
    "version": "2.1",
    "validFor": {
      "startTime": "2017-08-12T00:00:00.000Z",
      "endTime": "2018-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "category": [
      {
        "id": "5355",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5355",
        "version": "1.1",
        "name": "Cloud Resources",
        "@type": "ResourceCategoryRef"
      }
    ],
    "resourceSpecification": {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
```



```

        "version": "3.0",
        "name": "Virtual Storage Medium",
        "@type": "ResourceSpecificationRef",
        "@referredType": "ResourceSpecification"
    }
},
{
    "id": "7991",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7991",
    "name": "Router",
    "description": "This resource candidate makes the Nokia Router available in
the hardware catalog",
    "@type": "ResourceCandidate",
    "version": "2.1",
    "validFor": {
        "startDateTime": "2017-08-12T00:00:00.000Z",
        "endDateTime": "2019-12-31T00:00:00.000Z"
    },
    "lastUpdate": "2018-08-09T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "category": [
        {
            "id": "53116",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/53116",
            "version": "1.1",
            "name": "Routers",
            "@type": "ResourceCategoryRef"
        }
    ],
    "resourceSpecification": {
        "id": "32",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/32",
        "version": "3.0",
        "name": "NokiaRouter",
        "@type": "ResourceSpecificationRef",
        "@referredType": "PhysicalResourceSpecification"
    }
}
]

```

Retrieves a ResourceCandidate by ID

GET /resourceCandidate/{id}?fields=...

Description

This operation retrieves a ResourceCandidate entity. 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 a specific candidate.

Request

```
GET /resourceCandidate/7479
Content-Type: application/json
```

Response

```
200

{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
  "@type": "ResourceCandidate",
  "version": "2.1",
  "validFor": {
    "startDateTime": "2017-08-12T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "lastUpdate": "2017-08-09T00:00:00.000Z",
  "lifecycleStatus": "Active",
  "category": [
    {
      "id": "5355",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5355",
      "version": "1.1",
      "name": "Cloud Resources",
      "@type": "ResourceCategoryRef"
    }
  ],
  "resourceSpecification": {
    "id": "42",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
    "version": "3.0",
    "name": "Virtual Storage Medium",
    "@type": "ResourceSpecificationRef",
    "@referredType": "ResourceSpecification"
  }
}
```

Creates a ResourceCandidate

POST /resourceCandidate?fields=...

Description

This operation creates a ResourceCandidate entity.

Mandatory Attributes

| Mandatory Attributes | Rule |
|----------------------|------|
| @type | |

Usage samples

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

Request

```
POST /resourceCandidate
Content-Type: application/json

{
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
  "version": "2.1",
  "@type": "ResourceCandidate"
}
```

Response

```
201

{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
  "lastUpdate": "2017-08-09T00:00:00.000Z",
  "lifecycleStatus": "Active",
  "version": "2.1",
  "@type": "ResourceCandidate"
}
```

Updates partially a ResourceCandidate

PATCH /resourceCandidate/{id}?fields=...

Description

This operation allows partial updates of a ResourceCandidate 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

| Non Patchable Attributes | Rule |
|--------------------------|------------------------------|
| href | |
| id | |
| @baseType | @baseType is immutable |
| @schemaLocation | @schemaLocation is immutable |
| @type | @type is immutable |

| Patchable Attributes | Rule |
|-----------------------|------|
| category | |
| description | |
| externalIdentifier | |
| lastUpdate | |
| lifecycleStatus | |
| resourceSpecification | |
| validFor | |
| version | |

Usage samples

Here is an example of a request for patching a ResourceCandidate.

Request

```

PATCH /resourceCandidate/7479
Content-Type: application/merge-patch+json

{
  "@type": "ResourceCandidate",
  "version": "3.3",
  "lifecycleStatus": "Launched"
}
```

Response

```

200

{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium specification available in the cloud catalog",
}
```

```

    "@type": "ResourceCandidate",
    "version": "3.3",
    "validFor": {
      "startDateTime": "2022-08-23T00:00:22.920Z",
      "endDateTime": "2023-03-25T00:00:22.920Z"
    },
    "lastUpdate": "2023-06-22T00:00:22.920Z",
    "lifecycleStatus": "Launched",
    "category": [
      {
        "id": "5355",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5355",
        "version": "1.1",
        "name": "Cloud Resources",
        "@type": "ResourceCategoryRef"
      }
    ],
    "resourceSpecification": {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
      "version": "3.0",
      "name": "Virtual Storage Medium",
      "@type": "ResourceSpecificationRef",
      "@referredType": "ResourceSpecification"
    }
  }
}

```

Here is an example of a request for patching a ResourceCandidate.

Request

```

PATCH /resourceCandidate/7479
Content-Type: application/json

{
  "@type": "ResourceCandidate",
  "version": "3.3",
  "lifecycleStatus": "Launched"
}

```

Response

```

200

{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
  "@type": "ResourceCandidate",
  "version": "3.3",
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",

```

```

        "endTime": "2023-03-25T00:00:22.920Z"
      },
      "lastUpdate": "2023-06-22T00:00:22.920Z",
      "lifecycleStatus": "Launched",
      "category": [
        {
          "id": "5355",
          "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCategory/5355",
          "version": "1.1",
          "name": "Cloud Resources",
          "@type": "ResourceCategoryRef"
        }
      ],
      "resourceSpecification": {
        "id": "42",
        "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
        "version": "3.0",
        "name": "Virtual Storage Medium",
        "@type": "ResourceSpecificationRef",
        "@referredType": "ResourceSpecification"
      }
    }
  }
}

```

Here is an example of a request for patching a ResourceCandidate.

Request

```

PATCH /resourceCandidate/7479
Content-Type: application/json-patch+json

[
  {
    "op": "replace",
    "path": "/version",
    "value": "3.3"
  },
  {
    "op": "replace",
    "path": "/lifecycleStatus",
    "value": "Launched"
  }
]

```

Response

```

200

{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium specification available in the cloud catalog",
  "@type": "ResourceCandidate",

```

```

    "version": "3.3",
    "validFor": {
      "startDateTime": "2022-08-23T00:00:22.920Z",
      "endDateTime": "2023-03-25T00:00:22.920Z"
    },
    "lastUpdate": "2023-06-22T00:00:22.920Z",
    "lifecycleStatus": "Launched",
    "category": [
      {
        "id": "5355",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5355",
        "version": "1.1",
        "name": "Cloud Resources",
        "@type": "ResourceCategoryRef"
      }
    ],
    "resourceSpecification": {
      "id": "42",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
      "version": "3.0",
      "name": "Virtual Storage Medium",
      "@type": "ResourceSpecificationRef",
      "@referredType": "ResourceSpecification"
    }
  }
}

```

Here is an example of a request for patching a ResourceCandidate.

Request

```

PATCH /resourceCandidate/{id}
Content-Type: application/json-patch-query+json

[
  {
    "op": "replace",
    "path": "/version?lifecycleStatus='Active'",
    "value": "3.3"
  }
]

```

Response

```

200

{
  "id": "7479",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCandidate/7479",
  "name": "Virtual Storage Medium",
  "description": "This resource candidate makes the virtual storage medium
specification available in the cloud catalog",
  "@type": "ResourceCandidate",
  "version": "3.3",

```

```
{
  "validFor": {
    "startDateTime": "2022-08-23T00:00:22.920Z",
    "endDateTime": "2023-03-25T00:00:22.920Z"
  },
  "lastUpdate": "2023-06-22T00:00:22.920Z",
  "lifecycleStatus": "Active",
  "category": [
    {
      "id": "5355",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceCategory/5355",
      "version": "1.1",
      "name": "Cloud Resources",
      "@type": "ResourceCategoryRef"
    }
  ],
  "resourceSpecification": {
    "id": "42",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
    "version": "3.0",
    "name": "Virtual Storage Medium",
    "@type": "ResourceSpecificationRef",
    "@referredType": "ResourceSpecification"
  }
}
```

Deletes a ResourceCandidate

DELETE /resourceCandidate/{id}

Description

This operation deletes a ResourceCandidate entity.

Usage samples

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

Request

```
DELETE /resourceCandidate/7479
Content-Type: application/json
```

Response

204

Operations on ResourceSpecification

List or find ResourceSpecification objects

GET /resourceSpecification?fields=...

Description

This operation list ResourceSpecification 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 resource specifications.

Request

```
GET /resourceSpecification
Content-Type: application/json
```

Response

```
200

[
  {
    "id": "42",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
    "name": "Virtual Storage Medium",
    "description": "This resource specification defines the virtual storage
medium",
    "@type": "ResourceSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
    "version": "3.2",
    "validFor": {
      "startDateTime": "2017-08-12T00:00:00.000Z",
      "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "isBundle": false,
    "category": "Cloud resource",
    "attachment": [
      {
        "id": "25552",
        "href": "https://mycsp.com:8080/tmf-
api/document/v5/attachment/25552",
        "name": "Configuration Instructions",
        "mimeType": "application/pdf",
        "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
        "@type": "Attachment"
      }
    ],
    "relatedParty": [
      {
```

```

        "role": "Supplier",
        "@type": "RelatedPartyRefOrPartyRoleRef",
        "partyOrPartyRole": {
            "id": "5858",
            "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/supplier/5858",
            "name": "Gustave Flaubert",
            "@referredType": "Supplier",
            "@type": "PartyRoleRef"
        }
    },
    "resourceSpecCharacteristic": [
        {
            "name": "Maximum Allowed Storage",
            "description": "The storage limit in the virtual storage medium, ",
            "valueType": "integer",
            "configurable": true,
            "minCardinality": 1,
            "maxCardinality": 1,
            "isUnique": true,
            "@type": "CharacteristicSpecification",
            "characteristicValueSpecification": [
                {
                    "value": 1024000,
                    "@type": "IntegerCharacteristicValueSpecification"
                },
                {
                    "value": 2048000,
                    "@type": "IntegerCharacteristicValueSpecification"
                }
            ]
        }
    ],
    "resourceSpecRelationship": [
        {
            "id": "556788",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
            "name": "Underlying Physical Disk",
            "relationshipType": "dependency",
            "@type": "ResourceSpecificationRelationship"
        }
    ],
    "targetResourceSchema": {
        "@type": "VirtualStorage",
        "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
    }
},
{
    "id": "43",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/43",
    "name": "Nokia 7750 SR-s Service Router",
    "description": "This resource specification defines an IP router provided by
Nokia",
    "@type": "PhysicalResourceSpecification",
    "@baseType": "ResourceSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/PhysicalResourceSpecification.schema.json",
    "version": "3.2",
    "validFor": {

```

```

        "startDateTime": "2017-08-12T00:00:00.000Z",
        "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "isBundle": false,
    "category": "Router resource",
    "attachment": [
        {
            "id": "25553",
            "href": "https://mycsp.com:8080/tmf-
api/document/v5/attachment/25553",
            "name": "Data Sheet",
            "mimeType": "application/pdf",
            "url": "https://onestore.nokia.com/asset/205421",
            "@type": "Attachment"
        }
    ],
    "relatedParty": [
        {
            "role": "Supplier",
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "partyOrPartyRole": {
                "id": "5855",
                "href": "https://mycsp.com:8080/tmf-
api/partyRole/v5/supplier/5855",
                "name": "Nokia Networks",
                "@referredType": "Supplier",
                "@type": "PartyRoleRef"
            }
        }
    ],
    "resourceSpecCharacteristic": [
        {
            "name": "Power Supply Option",
            "description": "The type of power supply that can be chosen",
            "valueType": "string",
            "configurable": true,
            "minCardinality": 1,
            "maxCardinality": 1,
            "isUnique": true,
            "@type": "CharacteristicSpecification",
            "characteristicValueSpecification": [
                {
                    "value": "AC/HVDC",
                    "@type": "StringCharacteristicValueSpecification"
                },
                {
                    "value": "LVDC",
                    "@type": "StringCharacteristicValueSpecification"
                }
            ]
        }
    ],
    "resourceSpecRelationship": [
        {
            "id": "556234",
            "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556234",
            "name": "SR OS Operating System",
            "relationshipType": "dependency",
            "@type": "ResourceSpecificationRelationship"
        }
    ]
}

```

```

    ],
    "targetResourceSchema": {
      "@type": "NokiaRouter",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/NokiaRouter.schema.json"
    },
    "model": "7750 SR",
    "part": "2s",
    "sku": "3HE09264AA",
    "vendor": "Nokia Networks"
  }
]

```

Retrieves a ResourceSpecification by ID

GET /resourceSpecification/{id}?fields=...

Description

This operation retrieves a ResourceSpecification entity. 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 a specific specification.

Request

```

GET /resourceSpecification/42
Content-Type: application/json

```

Response

```

200

{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
  "version": "3.2",
  "validFor": {
    "startDateTime": "2017-08-12T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "lastUpdate": "2017-08-09T00:00:00.000Z",
  "lifecycleStatus": "Active",
  "isBundle": false,

```

```

"category": "Cloud resource",
"attachment": [
  {
    "id": "25552",
    "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
    "name": "Configuration Instructions",
    "mimeType": "application/pdf",
    "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
    "@type": "Attachment"
  }
],
"relatedParty": [
  {
    "role": "Supplier",
    "@type": "RelatedPartyRefOrPartyRoleRef",
    "partyOrPartyRole": {
      "id": "5858",
      "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

      "name": "Gustave Flaubert",
      "@referredType": "Supplier",
      "@type": "PartyRoleRef"
    }
  }
],
"resourceSpecCharacteristic": [
  {
    "name": "Maximum Allowed Storage",
    "description": "The storage limit in the virtual storage medium, ",
    "valueType": "integer",
    "configurable": true,
    "minCardinality": 1,
    "maxCardinality": 1,
    "isUnique": true,
    "@type": "CharacteristicSpecification",
    "characteristicValueSpecification": [
      {
        "value": 1024000,
        "@type": "IntegerCharacteristicValueSpecification"
      },
      {
        "value": 2048000,
        "@type": "IntegerCharacteristicValueSpecification"
      }
    ]
  }
],
"resourceSpecRelationship": [
  {
    "id": "556788",
    "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/556788",
    "name": "Underlying Physical Disk",
    "relationshipType": "dependency",
    "@type": "ResourceSpecificationRelationship"
  }
],
"targetResourceSchema": {
  "@type": "VirtualStorage",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/VirtualStorage.schema.json"
}

```

}

Creates a ResourceSpecification

POST /resourceSpecification?fields=...

Description

This operation creates a ResourceSpecification entity.

Mandatory Attributes

| Mandatory Attributes | Rule |
|----------------------|------|
| name | |
| @type | |

Usage samples

Here's an example of a request for creating a specification. This example shows a characteristic-based implementation.

Request

```

POST /resourceSpecification
Content-Type: application/json

{
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/ResourceSpecification.schema.json",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2017-08-12T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",

```

```

      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    },
    "resourceSpecCharacteristic": [
      {
        "name": "Maximum Allowed Storage",
        "description": "The storage limit in the virtual storage medium, ",
        "valueType": "integer",
        "configurable": true,
        "minCardinality": 1,
        "maxCardinality": 1,
        "isUnique": true,
        "@type": "CharacteristicSpecification",
        "characteristicValueSpecification": [
          {
            "value": 1024000,
            "@type": "IntegerCharacteristicValueSpecification"
          },
          {
            "value": 2048000,
            "@type": "IntegerCharacteristicValueSpecification"
          }
        ]
      }
    ],
    "resourceSpecRelationship": [
      {
        "id": "556788",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
        "name": "Underlying Physical Disk",
        "relationshipType": "dependency",
        "@type": "ResourceSpecificationRelationship"
      }
    ]
  }
}

```

Response

```

201

{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
  "version": "1.0",
  "validFor": {

```

```

        "startDateTime": "2017-08-12T00:00:00.000Z",
        "endDateTime": "2018-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "lifecycleStatus": "Tentative",
    "isBundle": false,
    "category": "Cloud resource",
    "attachment": [
        {
            "id": "25552",
            "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
            "name": "Configuration Instructions",
            "mimeType": "application/pdf",
            "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
            "@type": "Attachment"
        }
    ],
    "relatedParty": [
        {
            "role": "Supplier",
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "partyOrPartyRole": {
                "id": "5858",
                "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

                "name": "Gustave Flaubert",
                "@referredType": "Supplier",
                "@type": "PartyRoleRef"
            }
        }
    ],
    "resourceSpecCharacteristic": [
        {
            "name": "Maximum Allowed Storage",
            "description": "The storage limit in the virtual storage medium, ",
            "valueType": "integer",
            "configurable": true,
            "minCardinality": 1,
            "maxCardinality": 1,
            "isUnique": true,
            "@type": "CharacteristicSpecification",
            "characteristicValueSpecification": [
                {
                    "value": 1024000,
                    "@type": "IntegerCharacteristicValueSpecification"
                },
                {
                    "value": 2048000,
                    "@type": "IntegerCharacteristicValueSpecification"
                }
            ]
        }
    ],
    "resourceSpecRelationship": [
        {
            "id": "556788",
            "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/556788",
            "name": "Underlying Physical Disk",
            "relationshipType": "dependency",
            "@type": "ResourceSpecificationRelationship"
        }
    ]
}

```


}

Here's an example of a request for creating a specification. This example shows a schema-based implementation.

Request

```
POST /resourceSpecification
Content-Type: application/json

{
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/ResourceSpecification.schema.json",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2017-08-12T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecRelationship": [
    {
      "id": "556788",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/556788",
      "name": "Underlying Physical Disk",
      "relationshipType": "dependency",
      "@type": "ResourceSpecificationRelationship"
    }
  ],
  "targetResourceSchema": {
```

```

    "@type": "VirtualStorage",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
  }
}

```

Response

```

201

{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2017-08-12T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "lastUpdate": "2017-08-09T00:00:00.000Z",
  "lifecycleStatus": "Tentative",
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecRelationship": [
    {
      "id": "556788",
      "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
      "name": "Underlying Physical Disk",
      "relationshipType": "dependency",

```

```

        "@type": "ResourceSpecificationRelationship"
      }
    ],
    "targetResourceSchema": {
      "@type": "VirtualStorage",
      "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/VirtualStorage.schema.json"
    }
  }
}

```

Here's an example of a request for creating a specification. This example shows a schema-based implementation.

Request

```

POST /resourceSpecification
Content-Type: application/json

{
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/ResourceSpecification.schema.json",
  "version": "1.0",
  "validFor": {
    "startDateTime": "2017-08-12T00:00:00.000Z",
    "endDateTime": "2018-03-07T00:00:00.000Z"
  },
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecRelationship": [
    {
      "id": "556788",

```

```

        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
        "name": "Underlying Physical Disk",
        "relationshipType": "dependency",
        "@type": "ResourceSpecificationRelationship"
    }
},
"targetResourceSchema": {
    "@type": "VirtualStorage",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
},
"intentSpecification": {
    "@type": "IntentSpecificationRef",
    "id": "EventLiveBroadcast_IntentSpec",
    "href": "https://mycsp.com:8080/tmf-
api/intent/v5/intentSpecification/EventLiveBroadcast_IntentSpec",
    "name": "EventLiveBroadcastIntentSpec",
    "@referredType": "IntentSpecification"
}
}

```

Response

```

201

{
    "id": "42",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
    "name": "Virtual Storage Medium",
    "description": "This resource specification defines the virtual storage medium",

    "@type": "ResourceSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
    "version": "1.0",
    "validFor": {
        "startTime": "2017-08-12T00:00:00.000Z",
        "endTime": "2018-03-07T00:00:00.000Z"
    },
    "lastUpdate": "2017-08-09T00:00:00.000Z",
    "lifecycleStatus": "Tentative",
    "isBundle": false,
    "category": "Cloud resource",
    "attachment": [
        {
            "id": "25552",
            "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
            "name": "Configuration Instructions",
            "mimeType": "application/pdf",
            "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
            "@type": "Attachment"
        }
    ],
    "relatedParty": [
        {
            "role": "Supplier",
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "partyOrPartyRole": {

```

```

        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
    }
},
"resourceSpecRelationship": [
    {
        "id": "556788",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
        "name": "Underlying Physical Disk",
        "relationshipType": "dependency",
        "@type": "ResourceSpecificationRelationship"
    }
],
"targetResourceSchema": {
    "@type": "VirtualStorage",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
},
"intentSpecification": {
    "@type": "IntentSpecificationRef",
    "id": "EventLiveBroadcast_IntentSpec",
    "href": "https://mycsp.com:8080/tmf-
api/intent/v5/IntentSpecification/EventLiveBroadcast_IntentSpec",
    "name": "EventLiveBroadcastIntentSpec",
    "@referredType": "IntentSpecification"
}
}

```

Updates partially a ResourceSpecification

PATCH /resourceSpecification/{id}?fields=...

Description

This operation allows partial updates of a ResourceSpecification 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

| Non Patchable Attributes | Rule |
|--------------------------|------------------------|
| href | |
| id | |
| @baseType | @baseType is immutable |

| Non Patchable Attributes | Rule |
|--------------------------|------------------------------|
| @schemaLocation | @schemaLocation is immutable |
| @type | @type is immutable |

| Patchable Attributes | Rule |
|----------------------------|------|
| attachment | |
| category | |
| description | |
| externalIdentifier | |
| featureSpecification | |
| intentSpecification | |
| isBundle | |
| lastUpdate | |
| lifecycleStatus | |
| name | |
| relatedParty | |
| resourceSpecCharacteristic | |
| resourceSpecRelationship | |
| targetResourceSchema | |
| validFor | |
| version | |

Usage samples

Here is an example of a request for patching a ResourceSpecification.

Request

```
PATCH /resourceSpecification/{id}
Content-Type: application/merge-patch+json

{
  "@type": "ResourceSpecification",
  "version": "4.0",
  "validFor": {
    "startDateTime": "2022-03-23T00:00:00.000Z",
    "endDateTime": "2023-09-25T00:00:00.000Z"
  }
}
```

Response

```

200

{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/ResourceSpecification.schema.json",
  "version": "4.0",
  "validFor": {
    "startDateTime": "2022-03-23T00:00:00.000Z",
    "endDateTime": "2023-09-25T00:00:00.000Z"
  },
  "lastUpdate": "2019-03-20T00:00:00.000Z",
  "lifecycleStatus": "Active",
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecCharacteristic": [
    {
      "name": "Maximum Allowed Storage",
      "description": "The storage limit in the virtual storage medium, ",
      "valueType": "integer",
      "configurable": true,
      "minCardinality": 1,
      "maxCardinality": 1,
      "isUnique": true,
      "@type": "CharacteristicSpecification",
      "resourceSpecCharacteristicValue": [
        {
          "value": 1024000,
          "@type": "IntegerCharacteristicValueSpecification"
        }
      ]
    }
  ]
}

```

```

        },
        {
            "value": 2048000,
            "@type": "IntegerCharacteristicValueSpecification"
        }
    ]
},
"resourceSpecRelationship": [
    {
        "id": "556788",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
        "name": "Underlying Physical Disk",
        "relationshipType": "dependency",
        "@type": "ResourceSpecificationRelationship"
    }
],
"targetResourceSchema": {
    "@type": "VirtualStorage",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
}
}

```

Here is an example of a request for patching a ResourceSpecification.

Request

```

PATCH /resourceSpecification/{id}
Content-Type: application/json

{
    "@type": "ResourceSpecification",
    "version": "4.0",
    "validFor": {
        "startDateTime": "2022-03-23T00:00:00.000Z",
        "endDateTime": "2023-09-25T00:00:00.000Z"
    }
}

```

Response

```

200

{
    "id": "42",
    "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
    "name": "Virtual Storage Medium",
    "description": "This resource specification defines the virtual storage medium",

    "@type": "ResourceSpecification",
    "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
    "version": "4.0",
    "validFor": {

```



```

        "startDateTime": "2022-03-23T00:00:00.000Z",
        "endDateTime": "2023-09-25T00:00:00.000Z"
    },
    "lastUpdate": "2019-03-20T00:00:00.000Z",
    "lifecycleStatus": "Active",
    "isBundle": false,
    "category": "Cloud resource",
    "attachment": [
        {
            "id": "25552",
            "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
            "name": "Configuration Instructions",
            "mimeType": "application/pdf",
            "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
            "@type": "Attachment"
        }
    ],
    "relatedParty": [
        {
            "role": "Supplier",
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "partyOrPartyRole": {
                "id": "5858",
                "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

                "name": "Gustave Flaubert",
                "@referredType": "Supplier",
                "@type": "PartyRoleRef"
            }
        }
    ],
    "resourceSpecCharacteristic": [
        {
            "name": "Maximum Allowed Storage",
            "description": "The storage limit in the virtual storage medium, ",
            "valueType": "integer",
            "configurable": true,
            "minCardinality": 1,
            "maxCardinality": 1,
            "isUnique": true,
            "@type": "CharacteristicSpecification",
            "resourceSpecCharacteristicValue": [
                {
                    "value": 1024000,
                    "@type": "IntegerCharacteristicValueSpecification"
                },
                {
                    "value": 2048000,
                    "@type": "IntegerCharacteristicValueSpecification"
                }
            ]
        }
    ],
    "resourceSpecRelationship": [
        {
            "id": "556788",
            "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/556788",
            "name": "Underlying Physical Disk",
            "relationshipType": "dependency",
            "@type": "ResourceSpecificationRelationship"
        }
    ],

```

```

    "targetResourceSchema": {
      "@type": "VirtualStorage",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
    }
  }

```

Here is an example of a request for patching a ResourceSpecification.

Request

```

PATCH /resourceSpecification/{id}
Content-Type: application/json-patch+json

[
  {
    "op": "replace",
    "/path": "lifecycleStatus",
    "value": "Retired"
  },
  {
    "op": "replace",
    "/path": "isBundle",
    "value": "true"
  }
]

```

Response

```

200

{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/ResourceSpecification.schema.json",
  "version": "4.0",
  "validFor": {
    "startDateTime": "2019-03-23T00:00:00.000Z",
    "endDateTime": "2020-09-25T00:00:00.000Z"
  },
  "lastUpdate": "2020-03-20T00:00:00.000Z",
  "lifecycleStatus": "Retired",
  "isBundle": true,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ]
}

```

```

    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecCharacteristic": [
    {
      "name": "Maximum Allowed Storage",
      "description": "The storage limit in the virtual storage medium, ",
      "valueType": "integer",
      "configurable": true,
      "minCardinality": 1,
      "maxCardinality": 1,
      "isUnique": true,
      "@type": "CharacteristicSpecification",
      "resourceSpecCharacteristicValue": [
        {
          "value": 1024000,
          "@type": "IntegerCharacteristicValueSpecification"
        },
        {
          "value": 2048000,
          "@type": "IntegerCharacteristicValueSpecification"
        }
      ]
    }
  ],
  "resourceSpecRelationship": [
    {
      "id": "556788",
      "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/556788",
      "name": "Underlying Physical Disk",
      "relationshipType": "dependency",
      "@type": "ResourceSpecificationRelationship"
    }
  ],
  "targetResourceSchema": {
    "@type": "VirtualStorage",
    "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/VirtualStorage.schema.json"
  }
}

```

Here is an example of a request for patching a ResourceSpecification.

Request

```
PATCH /resourceSpecification/{id}
```

```
Content-Type: application/json-patch-query+json

[
  {
    "op": "replace",
    "path": "/lifecycleStatus?lifecycleStatus='Active'",
    "value": "Retired"
  }
]
```

Response

```
200

{
  "id": "42",
  "href": "https://mycsp.com:8080/tmf-api/resourceCatalog/v5/resourceSpecification/42",
  "name": "Virtual Storage Medium",
  "description": "This resource specification defines the virtual storage medium",

  "@type": "ResourceSpecification",
  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Resource/ResourceSpecification.schema.json",
  "version": "4.0",
  "validFor": {
    "startDateTime": "2019-03-23T00:00:00.000Z",
    "endDateTime": "2020-09-25T00:00:00.000Z"
  },
  "lastUpdate": "2019-03-20T00:00:00.000Z",
  "lifecycleStatus": "Retired",
  "isBundle": false,
  "category": "Cloud resource",
  "attachment": [
    {
      "id": "25552",
      "href": "https://mycsp.com:8080/tmf-api/document/v5/attachment/25552",
      "name": "Configuration Instructions",
      "mimeType": "application/pdf",
      "url": "https://mycsp.com:7070/docloader?docnum=9567457677",
      "@type": "Attachment"
    }
  ],
  "relatedParty": [
    {
      "role": "Supplier",
      "@type": "RelatedPartyRefOrPartyRoleRef",
      "partyOrPartyRole": {
        "id": "5858",
        "href": "https://mycsp.com:8080/tmf-api/partyRole/v5/supplier/5858",

        "name": "Gustave Flaubert",
        "@referredType": "Supplier",
        "@type": "PartyRoleRef"
      }
    }
  ],
  "resourceSpecCharacteristic": [
    {
      "name": "Maximum Allowed Storage",
      "description": "The storage limit in the virtual storage medium, ",

```

```

        "valueType": "integer",
        "configurable": true,
        "minCardinality": 1,
        "maxCardinality": 1,
        "isUnique": true,
        "@type": "CharacteristicSpecification",
        "resourceSpecCharacteristicValue": [
          {
            "value": 1024000,
            "@type": "IntegerCharacteristicValueSpecification"
          },
          {
            "value": 2048000,
            "@type": "IntegerCharacteristicValueSpecification"
          }
        ]
      },
    ],
    "resourceSpecRelationship": [
      {
        "id": "556788",
        "href": "https://mycsp.com:8080/tmf-
api/resourceCatalog/v5/resourceSpecification/556788",
        "name": "Underlying Physical Disk",
        "relationshipType": "dependency",
        "@type": "ResourceSpecificationRelationship"
      }
    ],
    "targetResourceSchema": {
      "@type": "VirtualStorage",
      "@schemaLocation": "https://mycsp.com:8080/tmf-
api/schema/Resource/VirtualStorage.schema.json"
    }
  }
}

```

Deletes a ResourceSpecification

DELETE /resourceSpecification/{id}

Description

This operation deletes a ResourceSpecification entity.

Usage samples

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

Request

```

DELETE /resourceSpecification/42
Content-Type: application/json

```

Response

204

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.

Request

```
POST /api/hub

Accept: application/json

{
  "callback": "http://in.listener.com"
}
```

Response

```
201

Content-Type: application/json

Location: /api/hub/42

{
  "id": "42",
  "callback": "http://in.listener.com",
  "query": ""
}
```

```
}
```

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.

Request

```
DELETE /api/hub/42  
  
Accept: application/json
```

Response

```
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.

Request

```
POST /client/listener

Accept: application/json

{
  "event": {
    EVENT BODY
  },
  "eventType": "EVENT_TYPE"
}
```

Response

```
201
```

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

Acknowledgements

Release History

| Release Number | Date | Release led by: | Description |
|----------------|-------------|--|---|
| 2.0.2 | 04-Dec-2017 | Adrienne Walcott | Updated to reflect TM Forum Approved Status |
| 4.0.0 | 03-Apr-2020 | Jonathan Goldberg Amdocs Jonathan.Goldberg@amdocs.com | Schemafication project |
| 4.0.1 | 25-May-2020 | Adrienne Walcott | Updated to reflect TM Forum Approved Status |
| 4.1.0 | 04-Nov-2020 | Jonathan Goldberg Amdocs Jonathan.Goldberg@amdocs.com | Updated examples |
| 5.0.0 | xx-Xxx-2023 | | |

Contributors to Document

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|------------------|------------------|
| Alexander Klörig | Deutsche Telekom |
| Lutz Bettge | Deutsche Telekom |