Resource Catalog Management API

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NOTICE

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INTRODUCTION

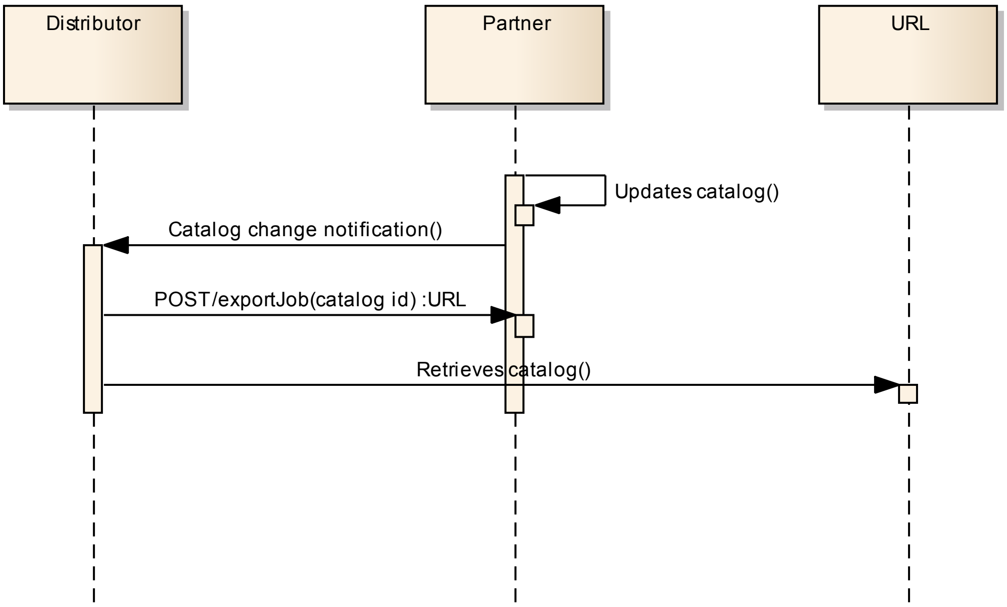
The Resource Catalog Management API REST specification allows the management of the entire lifecycle of the Resource Catalog elements, the consultation of resource catalog elements during several processes such as ordering process, campaign management, sales management.

SAMPLE USE CASES

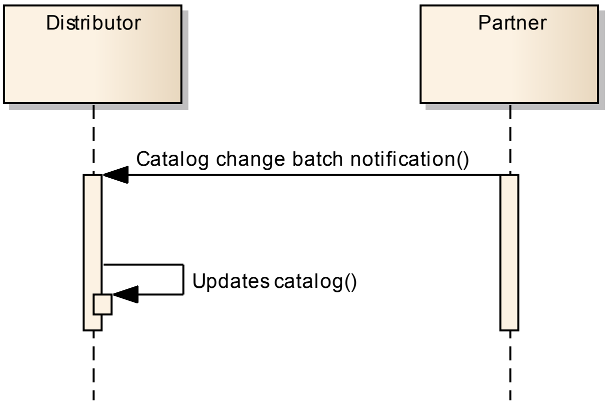
Lifecycle management Use Case

The Resource Catalog Management API REST Specification allows the management of the entire lifecycle of the resource catalog elements.

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.


Distributor
Partner
URL
Updates catalog()
Catalog change notification()
POST/exportJob(catalog id) :URL
Retrieves catalog()

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).

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

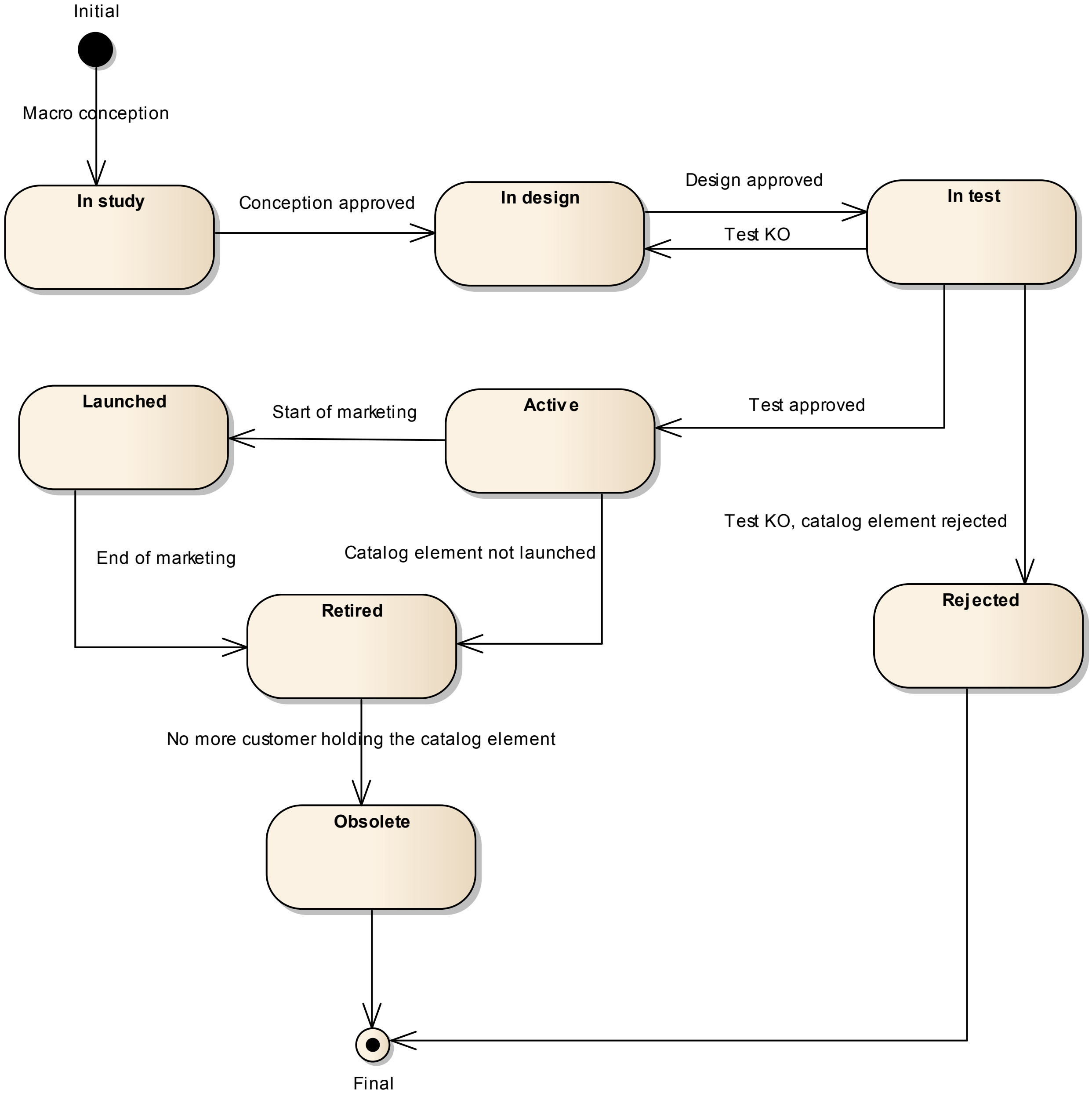
UC5: A catalog administrator wants to update the lifecycle status (from Launched to retired for example) of a resource candidate (PUT or PATCH/resourceCandidate).

RESOURCE MODEL

Managed Entity and Task Resource Models

Resource Lifecycle Management:

Resource Lifecycle Management is responsible for managing the entire lifecycle of the resource catalog element and its underlying components. This include all of 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 of the later 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 can not 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.

RESOURCE CATALOG

The root entity for resource catalog management.

Below is a representation of the Resource Catalog resource in JSON format.

```
{
        "id": "10",
        "href": "http://serverlocation:port/catalogManagement/resourceCatalog/10",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "type": "Resource Catalog",
        "category": [
                {
                        "id": "12",
                        "href": "http://serverlocation:port/catalogManagement/category/12",
                        "name": "Cloud resources"
                }
        ],
        "name": "Cloud Resource Catalog ",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
        "relatedParty": [
                {
                        "role": "Supplier",
                        "id": "1234",
                        "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
                }, {
                        "role": "Reviser",
                        "name": "Roger Collins"
                }
        ]
}
```

Field Descriptions:

ResourceCatalog: is a collection of Resource Specifications (Virtual, Logical or Physical), made available through ResourceCandidates that an organization will provide it to its internal or external consumers.

Field	Description
category	Reference to the resource category
href	Reference of the resource catalog
id	Unique identifier of the catalog
lastUpdate	Date and time of the last update
lifecycleStatus	Used to indicate the current lifecycle status
name	Name of the resource catalog
type	Indicates the catalog is a resource catalog
validFor	The period for which the catalog is valid
version	Catalog version
relatedParty	Defines party or partyRole linked to the resource catalog

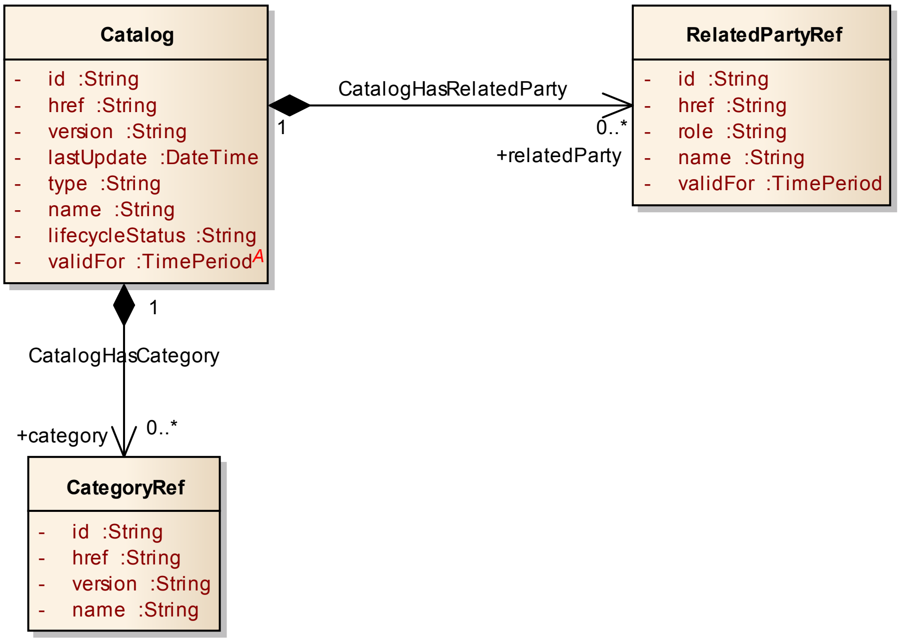
category: is reference to a category of resource candidates in logical containers.

Field	Description
href	Reference of the category. It can include specific version of the category
id	Unique identifier of the category
name	Name of the category

relatedParty: Defines party or partyRole linked to a specific entity.

Field	Description
id	Unique identifier of related party
href	Reference of the relatedParty, could be a party reference or a partyRole reference
name	Name of the related party
role	Role of the related party
validFor	The period for which the related party is linked to the entity

UML model:



CATEGORY

The Category resource is used to group resource candidates in logical containers.

Categories can contain other categories and/or resource candidates.

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

Below is a representation of the Category resource in JSON format.

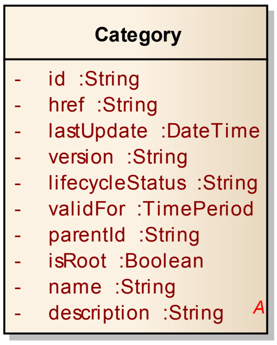
```
{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/category/42",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "version": "2.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "41",
        "isRoot": false,
        "name": "Network Logical Resources",
        "description": "A category to hold all available network logical resources"
}
Or for a root category (e.g. no parent)
{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/category/42",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "version": "2.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "",
        "isRoot": true,
        "name": "Logical Resources",
        "description": "A category to hold all available logical resources"
}
```

Field Descriptions:

Category: is used to group resource candidates in logical containers. Resource categories can contain other categories and/or resource candidates.

Field	Description
description	Description of the category
href	Reference of the catalog
id	Unique identifier of the category
isRoot	If true, this Boolean indicates that the category is a root of categories
lastUpdate	Date and time of the last update
lifecycleStatus	Used to indicate the current lifecycle status
name	Name of the category
parentId	Unique identifier of the parent category
validFor	The period for which the category is valid
version	Category version

UML model:



RESOURCE CANDIDATE

A ResourceCandidate is an entity that makes a ResourceSpecification available to a resource catalog.

Below is a representation of the ResourceCandidate resource in JSON format.

```
{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
        "category": [
                {
                        "id": "12",
                        "href": "http://serverlocation:port/catalogManagement/category/12",
                        "name": "Cloud resources"
                }
        ],
        "resourceSpecification": {
                "id": "13",
                "href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
                "name": "specification 1"
        }
}
```

Field Descriptions:

ResourceCandidate: Is an entity that makes a ResourceSpecification available to a resource catalog. A ResourceCandidate and its associated ResourceSpecification may be published - made visible - in any number of ResourceCatalogs, or in none.

Field	Description
description	A narrative that explains in detail what the resource candidate is
href	Reference of the resource candidate
id	Unique identifier of the resource candidate
lastUpdate	Date and time of the last update
lifecycleStatus	Used to indicate the current lifecycle status
name	Name of the resource candidate
validFor	The period for which the resource candidate is valid
version	Resource candidate version

resourceSpecification: a reference to associated ResourceSpecification.

Field	Description
href	Reference of the resourceSpecification. It can include a specific version of the resourceSpecification.
id	Unique identifier for the requiredResourceSpecification
name	Name of the requiredResourceSpecification

RESOURCE SPECIFICATION

Description:

Resources are physical or non-physical components (or some combination of these) within an enterprise's infrastructure or inventory. They are typically consumed or used by Services (for example a physical port assigned to a service) or contribute to the realization of a Product (for example, a SIM card). They can be drawn from the Application, Computing and Network domains, and include, for example, Network Elements, software, IT systems, content and information, and technology components.

A ResourceSpecification is an abstract base class for representing a generic means for implementing a particular type of Resource. In essence, a ResourceSpecification defines the common attributes and relationships of a set of related Resources, while Resource defines a specific instance that is based on a particular ResourceSpecification.

Below is a representation of the ResourceSpecification resource in JSON format.

```
{
        "id": "22",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/22",
         "name": "iPhone 42",
        "description": "Siri works on this iPhone",
        "version": "1.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
        "isComposite": false,
        "type": "PhysicalResourceSpec",
        "attachment": [
                {
                        "id": "22",
                        "href": "http://serverlocation:port/documentManagment/attachment/22",
                        "type": "Picture",
                        "name": "devicePicture",
                        "url": "http://xxxxx"
                }
        ],
        "relatedParty": [
                {
                        "role": "Supplier",
                        "id": "1234",
                        "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
                }
        ],
        "resourceSpecificationRelationship": [
                {
                        "type": "dependency",
                        "id": "25",
                        "name": "battery",
                        "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/25"
        ],
        "resourceSpecCharacteristic": [
                {
                        "id: "54",
                        "name": "Screen Size",
                        "description": "Screen size",
                        "valueType": "number ",
                        "configurable": false,
                       "minCardinality": 0,
                       "maxCardinality": 1,
                       "extensible": true,
                        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
```

```
            },
            "resourceSpecCharRelationship": [
                {
                    "type": "dependency",
                    "id": "43",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ],
            "resourceSpecCharacteristicValue": [
                {
                    "valueType": "number",
                    "default": true,
                    "value": "4.2",
                    "unitOfMeasure": "inches",
                    "valueFrom": "",
                    "valueTo": "",
                    "rangeInterval": "closed",
                    "regex": "[-+]?[0-9]*\.?[0-9]+",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ]
        }, {
            "id: "55",
            "name": "Colour",
            "description": "Colour",
            "valueType": "string",
            "configurable": true,
           "minCardinality": 0,
           "maxCardinality": 1,
           "extensible": true,
            "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
            },
            "resourceSpecCharacteristicValue": [
                {
                    "valueType": "string",
                    "default": "true",
                    "value": "Black",
                    "unitOfMeasure": "",
                    "valueFrom": "",
                    "valueTo": "",
                    "regex": "[a-zA-Z]{3,12}$",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }, {
                    "valueType": "string",
                    "default": false,
                    "value": "White",
                    "unitOfMeasure": "",
                    "valueFrom": "",
                    "valueTo": "",
                    "rangeInterval": "closed",
                    "regex": "[a-zA-Z]{3,12}$",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ]
        }
    ]
}
```

Field Descriptions:

ResourceSpecification: A ResourceSpecification is an abstract base class for representing a generic means for implementing a particular type of Resource. In essence, a ResourceSpecification defines the common attributes and relationships of a set of related Resources, while Resource defines a specific instance that is based on a particular ResourceSpecification.

Field	Description
description	A narrative that explains in detail what the resource specification is
href	Reference of the resource specification
id	Unique identifier of the resource specification
lastUpdate	Date and time of the last update
lifecycleStatus	Used to indicate the current lifecycle status
name	Name of the resource specification
validFor	The period for which the resource specification is valid
version	Resource specification version
type	Resource specification type
isComposite	A flag indicates if this resource specification is composite or not

resourceSpecCharacteristic: Defines the characteristic features of a ResourceSpecification. Every ResourceSpecification has a variety of important attributes, methods, constraints, and relationships, which distinguish that ResourceSpecification from other ResourceSpecifications.

Field	Description
configurable	If true, the Boolean indicates that the resourceSpecCharacteristic is configurable
description	A narrative that explains in detail what the resourceSpecCharacteristic is
href	Reference of the resourceSpecCharacteristic
id	Unique identifier of the resourceSpecCharacteristic
name	Name of the resourceSpecCharacteristic
valueType	A kind of value that the characteristic can take on, such as numeric, text and so forth
validFor	The period for which the resourceSpecCharacteristic is valid
minCardinality	Minimum cardinality of this characteristic
maxCardinality	Maximum cardinality of this characteristic
extensible	A flag indicates that if this characteristic values can be by adding new values when instantiating a characteristic for an Entity.

resourceSpecCharacteristicValue: Defines the characteristic features of a Resource. Every Resource has a variety of important attributes and relationships, which distinguish that Resource from other Resources.

Field	Description
default	Indicates if the value is the default value for a characteristic
unitOfMeasure	Could be minutes, GB…
validFor	The period of time for which a value is applicable
value	A discrete value that the characteristic can take on
valueFrom	The low range value that a characteristic can take on
valueTo	The upper range value that a characteristic can take on
valueType	A kind of value that the characteristic can take on, such as numeric, text, and so forth
regex	A regular expression constraint for given value
rangeInterval	An indicator that specifies the inclusion or exclusion of the valueFrom and valueTo attributes. if specified, possible values are "open", "closed", "closedBottom" and "closedTop".

attachment: describes a resource through document, video, pictures...

Field	Description
name	name of the attachment
href	Reference of the attachment
id	Unique identifier of the attachment
type	Attachment type such as video, picture
url	Uniform Resource Locator, is a web page address (a subset of URI)

resourceSpecificationRelationship: reference to related resource specification.

Field	Description
name	Given name to the target resource specification
href	Reference of the resourcespecification
id	Unique identifier of the target resource specification
type	Relationship type to target resource specification

relatedParty: Defines party or partyRole linked to a specific entity.

Field	Description
id	Unique identifier of related party
href	Reference of the relatedParty, could be a party reference or a partyRole reference
name	Name of the related party
role	Role of the related party
validFor	The period for which the related party is linked to the entity

UML model:

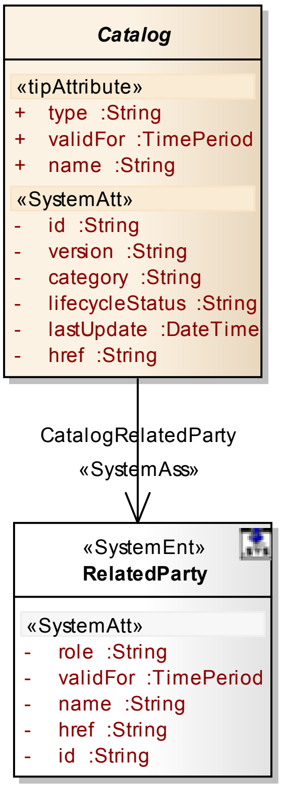


Figure 1 – Catalog resource model

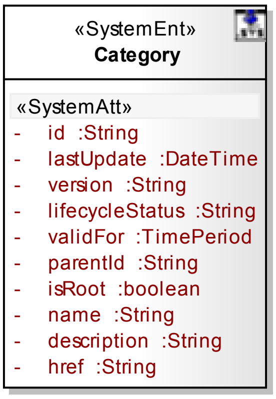


Figure 2 – Category resource model

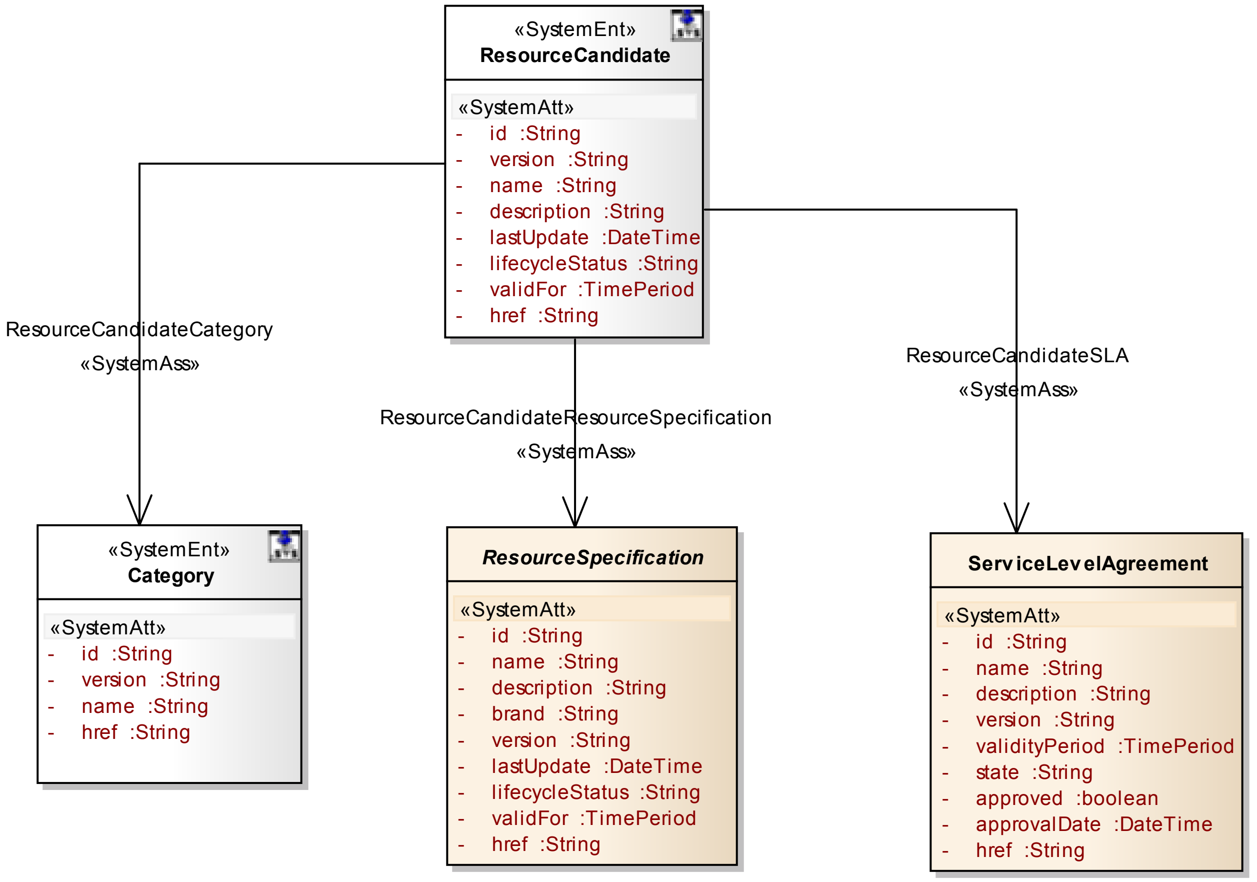


Figure 3 – ResourceCandidate resource model

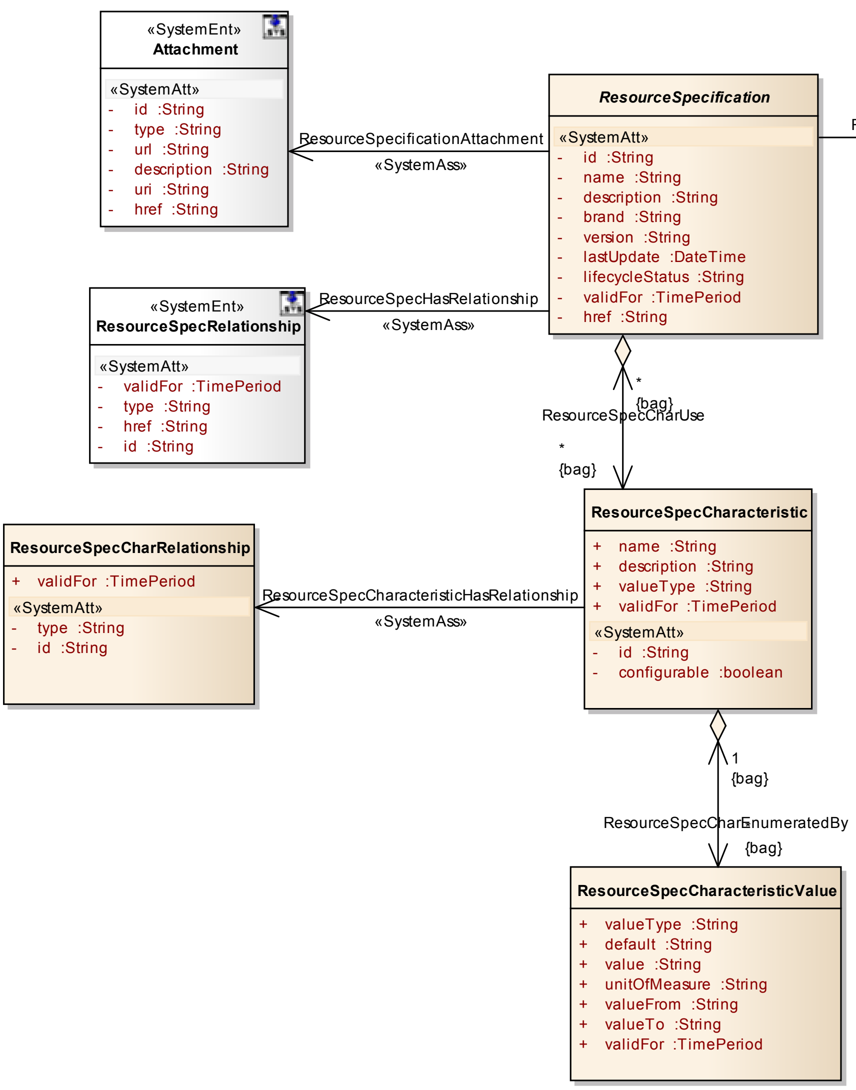


Figure 4 – ResourceSpecification resource model

Notification Resource Models

Catalog change notification: notifies that a catalog has been updated.

```
{
        "event": {
                "id": "01",
                "dateTime": "2016-04-19T16:42:25-30:00",
                "eventType": "Catalog change notification",
                "catalog": [
                        {
```

```
                "id": "10",
                "href": 
"http://serverlocation:port/catalogManagement/resourceCatalog/10",
                "version": "2.0",
                "lastUpdate": "2016-04-19T16:42:23-04:00",
                "type": "Resource Catalog",
                "name": "Cloud Resource Catalog"
            }
        ]
    }
}
```

Catalog change batch notification: notifies in detail all catalog updates.

```
{
    "event": {
        "id": "01",
        "dateTime": "2016-04-19T16:42:25-30:00",
        "eventType": "Catalog change batch notification",
        "catalog": [
            {
                "id": "10",
                "href": 
"http://serverlocation:port/catalogManagement/resourceCatalog/10",
                "version": "2.0",
                "lastUpdate": "2016-04-19T16:42:23-04:00",
                "type": "Resource Catalog",
                "name": "Cloud Resource Catalog",
                "update": [
                    {
                        "op": "add",
                        "path": "/category",
                        "value": {
                            "id": "42",
                "href": "http://serverlocation:port/catalogManagement/category/42",
                            "lastUpdate": "2016-04-19T16:42:23-04:00",
                            "version": "2.0",
                            "lifecycleStatus": "Active",
                            "validFor": {
                                "startDateTime": "2016-04-
19T16:42:23-04:00",
                                "endDateTime": ""
                            },
                            "parentId": "",
                            "isRoot": true,
                            "name": "Cloud rsources",
                            "description": "A category to hold all inside
resources"
                        }
                    }, {
                        "op": "add",
                        "path": "/category",
                        "value": {
                            "id": "421",
                "href":
"http://serverlocation:port/catalogManagement/resourceCatalog/421",
                            "lastUpdate": "2016-04-19T16:42:23-04:00",
                            "version": "2.0",
                            "lifecycleStatus": "Active",
                            "validFor": {
                                "startDateTime": "2016-04-
19T16:42:23-04:00",

                                "endDateTime": ""
                            },
                            "parentId": "42",
                            "isRoot": false,
                            "name": "Wireless sensors",
                            "description": "A category to hold all wireless
sensor resource candidates"
                        }
                    }, {
                        "op": "add",
                        "path": "/resourceSpecification",
                        "value": {
                            "id": "14",
                "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/14",
                            "version": "2.0",
                            "lastUpdate": "2016-04-19T16:42:23-04:00",
                            "name": "Sensor",
                            "description": "A wireless sensor",
                            "lifecycleStatus": "Active",
                            "validFor": {
                                "startDateTime": "2016-04-
19T16:42:23-04:00",
                                "endDateTime": "2016-06-
19T00:00:00-04:00"
                            },
                            "relatedParty": [
                                {
```

```
                                                        "role": "Supplier",
                                                        "id": "1234",
                                                        "href": "http
://serverLocation:port/partyManagement/partyRole/1234"
                                                }
                                        ],
                                        "resourceSpecCharacteristic": [
                                                {
                                                        "id": "34",
                                                        "name": "Colour",
                                                        "description": "Colour",
                                                        "valueType": "string",
                                                        "configurable": true,
                                                        "validFor": {
                                                                "startDateTime":
"2016-04-19T16:42:23-04:00",
                                                                "endDateTime": ""
                                                        },

        "resourceSpecCharacteristicValue": [
                                                                {
                                                                        "valueType":
"string",
                                                                        "default": true,
                                                                        "value":
"Black",

        "unitOfMeasure": "",
                                                                        "valueFrom":
"",
                                                                        "valueTo": "",
                                                                        "validFor": {

        "startDateTime": "2016-04-19T16:42:23-04:00",

        "endDateTime": ""
                                                                        }
                                                                }, {
                                                                        "valueType":
"string",
                                                                        "default":
"false",
                                                                        "value":
"White",

        "unitOfMeasure": "",
                                                                        "valueFrom":
```

```
"",
                                            "valueTo": "",
                                            "validFor": {

    "startDateTime": "2016-04-19T16:42:23-04:00",

    "endDateTime": ""
                                            }
                                        }
                                    ]
                                }
                            ]
                        }
                    }, {
                        "op": "add",
                        "path": "/resourceCandidate",
                        "value": {
                            "id": "4211",
                "href":
"http://serverlocation:port/catalogManagement/resourceCandidate/4211",
                            "version": "2.0",
                            "lastUpdate": "2016-04-19T16:42:23-04:00",
                            "name": "Sensor",
                            "description": "A wireless sensor",
                            "lifecycleStatus": "Active",
                            "validFor": {
                                "startDateTime": "2016-04-
19T16:42:23-04:00",
                                "endDateTime": "2016-06-
19T00:00:00-04:00"
                            },
                            "category": [
                                {
                                    "id": "421",
                                    "href":
"http://serverlocation:port/catalogManagement/category/421",
                                    "name": "Wireless sensors"
                                }
                            ],
                            "resourceSpecification": [
                                {
                                    "id": "14",
                                    "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/14",
                                    "name": "Sensor"
                                }
                            ]
                        }
                    }
                ]
            }
        ]
    }
}
```

API OPERATION TEMPLATES

For every single of operation on the entities use the following templates and provide sample REST requests and responses.

Remember that the following Uniform Contract rules must be used:

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
Complete Update of an Entity	PUT Resource	PUT must be used to completely update a resource identified by its resource URI
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.

GET /catalogManagement/category

This Uniform Contract operation is used to retrieve the representation of a managed entity or a task.

Note that collections can be retrieved via GET /API/<RESOURCE> with no {ID}

Description:

- This operation retrieves Category from a catalog. The category resource is used to group resource candidates in logical containers. Categories can contain other categories and/or resource candidates.
- The resource represents a managed entity or a collection depending on the query pattern.
- The identifier is a string that can consist of numbers, not necessarily alphanumeric.

Behavior:

- Standard behavior and response codes for GET operations
- Filtering is enabled on all attributes, particularly due to the hierarchical nature of resource Category, children of a resource Category are obtained by filtering on the parentId attribute of the resource.
- Attribute selection is not enabled for this simple resource

REQUEST

```
GET /catalogManagement/category/{42}
Accept: application/json
```

RESPONSE

```
200
Content-Type: application/json


{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/category/42",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "version": "2.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "41",
        "isRoot": false,
        "name": "Cloud Resources",
        "description": "A category to hold all available cloud resource candidates"
}
```

GET /catalogManagement/resourceCandidate/{ID}

This Uniform Contract operation is used to retrieve the representation of a managed entity or collection.

Note that collections can be retrieved via GET /API/<RESOURCE> with no {ID}

Description:

- This operation returns resourceCandidates from a catalog. A ResourceCandidate is an entity that makes a ResourceSpecification available to a catalog.
- The resource instance being returned is a ResourceCandidate or an array of ResourceCandidates if the query returns multiple specifications.
- The resource represents a managed entity or a collection.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
    - 200 if no ResourceCandidate found
    - 404 Not found when the supplied ID doesn't match a known ResourceCandidate.
- Filtering is enabled on all ResourceCandidate attributes.
- Attribute selection is enabled.

REQUEST

```
GET /catalogManagement/resourceCandidate/42
Accept: application/json
```

RESPONSE

```
{
    "id": "42",
    "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
    "name": "Virtual Storage Medium",
    "description": "Virtual Storage Medium",
    "version": "2.0",
    "lastUpdate": "2016-04-19T16:42:23-04:00",
    "lifecycleStatus": "Active",
    "validFor": {
        "startDateTime": "2016-04-19T16:42:23-04:00",
        "endDateTime": "2016-06-19T00:00:00-04:00"
    },
    "category": [
        {
            "id": "12",
            "href": "http://serverlocation:port/catalogManagement/category/12",
            "name": "Cloud resources"
        }
    ],
    "resourceSpecification": {
        "id": "13",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
        "name": "specification 1"
    }
}
```

GET /catalogManagement/resourceSpecification/{ID}

This Uniform Contract operation is used to retrieve the representation of a managed entity or collection.

Note that collections can be retrieved via GET /API/<RESOURCE> with no {ID}

Description:

- This operation returns resourceSpecifications from a catalog. This is an abstract base class that is used to define the invariant characteristics and behavior (attributes, methods, constraints, and relationships) of a managed resource.
- The resource instance being returned is a ResourceSpecification or an array of ResourceSpecifications if the query returns multiple specifications.
- The resource represents a managed entity or a collection.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
  - 200 if no ResourceSpecification found
  - 404 Not found when the supplied ID doesn't match a known ResourceSpecification.
- Filtering is enabled on all ResourceSpecification attributes.
- Attribute selection is enabled.

REQUEST

```
GET /catalogManagement/resourceSpecification/{22}
Accept: application/json
```

RESPONSE

```
200

{
        "id": "22",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/22",
        "name": "iPhone 42",
        "description": "Siri works on this iPhone",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
       "isComposite": false,
        "type": "PhysicalResourceSpec",
        "attachment": [
                {
                        "id": "22",
                        "href": "http://serverlocation:port/documentManagment/attachment/22",
                        "type": "Picture",
                        "url": "http://xxxxx"
                }
        ],
        "relatedParty": [
                {
                        "role": "Supplier",
                        "id": "1234",
                        "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
                }
        ],
        "resourceSpecRelationship": [
                {
                        "type": "dependency",
                        "id": "23",
                        "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/23",
        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        }
                }
        ],
        "resourceSpecCharacteristic": [
                {
                        "id": "54",
                        "name": "Screen Size",
                        "description": "Screen size",
                        "valueType": "number",
                        "configurable": false,
                       "minCardinality": 0,
                       "maxCardinality": 1,
                       "extensible": true,
                        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        },
                        "resourceSpecCharRelationship": [
                                {
                                        "type": "dependency",
                                        "id": "43",
                                        "validFor": {
                                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                                "endDateTime": ""
                                        }
                                }
                        ],
                        "resourceSpecCharacteristicValue": [
                                {
                                        "valueType": "number",
                                        "default": true,
                                        "value": "4.2",
                                        "unitOfMeasure": "inches",
                                        "valueFrom": "",
                                        "valueTo": "",
                                        "rangeInterval": "closed",
                                        "regex": "[-+]?[0-9]*\.?[0-9]+",
                                        "validFor": {
                                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                                "endDateTime": ""
```

```
                    }
                }
            ]
        }, {
            "id": "55",
            "name": "Colour",
            "description": "Colour",
            "valueType": "string",
            "configurable": true,
            "minCardinality": 1,
            "maxCardinality": 1,
            "extensible": true,
            "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
            },
            "resourceSpecCharacteristicValue": [
                {
                    "valueType": "string",
                    "default": true,
                    "value": "Black",
                    "unitOfMeasure": "",
                    "valueFrom": "",
                    "valueTo": "",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }, {
                    "valueType": "string",
                    "default": "false",
                    "value": "White",
                    "unitOfMeasure": "",
                    "valueFrom": "",
                    "valueTo": "",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ]
        }
    ]
}
```

GET /catalogManagement/exportJob/{ID}

This Uniform Contract operation is used to retrieve the representation of a managed entity or collection.

Note that collections can be retrieved via GET /API/<RESOURCE> with no {ID}

Description :

- This operation returns the status of an exportJob.
- The resource represents a managed entity or a collection.
- The ID may be a string (or a string containing numbers).

Behavior :

- What status and exception codes are returned.
  - 200 if no ExportJob found
  - 404 Not found when the supplied ID doesn't match a known ExportJob.
- Filtering is enabled on all ExportJob attributes.
- Attribute selection is enabled.

```
GET /catalogManagement/exportJob/10
Accept: application/json
```

RESPONSE

```
{
        "id": "10",
        "status": "Succeeded"

}
```

GET /catalogManagement/importJob/{ID}

This Uniform Contract operation is used to retrieve the representation of a managed entity or collection.

Note that collections can be retrieved via GET /API/<RESOURCE> with no {ID}

Description :

- This operation returns the status of an importJob.
- The resource represents a managed entity or a collection.
- The ID may be a string (or a string containing numbers).

Behavior :

- What status and exception codes are returned.
  - 200 if no ImportJob found
  - 404 Not found when the supplied ID doesn’t match a known ImportJob.
- Filtering is enabled on all ImportJob attributes.
- Attribute selection is enabled.

```
GET /catalogManagement/importJob/25
Accept: application/json
```

RESPONSE

```
{
        "id": "25",
        "status": "Succeeded"

}
```

GET/…depth

This Uniform Contract operation is used to retrieve the representation of a managed entity or collection.

Note that collections can be retrieved via GET /API/<RESOURCE> with no {ID}

Description:

- The depth parameter allows to retrieve the resource at different levels of depth. The resource properties are provided and the related resources are returned according to the depth value.
- The resource represents a managed entity or a collection.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
  - 200 if no resourceCandidate are found
  - 404 Not found when the supplied ID doesn’t match a known ImportJob.
- Filtering is enabled on all resourceCandidate attributes.
- Attribute selection is enabled.
- This operation can return a very large amount of data. The Content-Range header must be used to control the amount of data returned. The header is present in the request and control the minimum and maximum values returned. In the response, the content-Range

header is used to indicate the presence of more elements in the collection and the current position of the elements in the overall collection.

```
GET /catalogManagement/resourceCandidate?depth=3&category.name=Wireless sensors
Range:items=23-24
Accept: application/json
```

RESPONSE

```
200

Content-Range:items 23-24/50

[
        {
                "id": "23",
                "href": "http://serverlocation:port/catalogManagement/resourceCandidate/23",
                "version": "2.0",
                "lastUpdate": "2016-04-19T16:42:23-04:00",
                "name": "Sensor mini",
                "description": "A wireless sensor for small garden",
                "lifecycleStatus": "Active",
                "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": "2016-06-19T00:00:00-04:00"
                },
                "category": [
                        {
                                "id": "14",
                                "href": "http://serverlocation:port/catalogManagement/category/14",
                                "version": "2.0",
                                "name": "Wireless sensors",

                                "lastUpdate": "2016-04-19T16:42:23-04:00",
                                "lifecycleStatus": "Active",
                                "validFor": {
                                    "startDateTime": "2016-04-19T16:42:23-04:00",
                                    "endDateTime": ""
                                 },
                                "parentId": "",
                               "isRoot": true,
                                "description": "A category to hold all wireless sensors"
                        }
                ],
                "resourceSpecification": [
                        {
                                "id": "13",
                                "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/13",
        "version": "2.0",
        "name": "wireless sensor mini",
        "resourceSpecCharacteristic": [
            {
                "id": "34",
                "name": "Colour",
                "description": "Colour",
                "valueType": "string",
                "configurable": true,
                 "minCardinality": 0,
                 "maxCardinality": 1,
                 "extensible": true,
                "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                },
                "resourceSpecCharacteristicValue": [
                    {
                        "valueType": "string",
                        "default": "false",
                        "value": "Black",
                        "unitOfMeasure": "",
                        "valueFrom": "",
                        "valueTo": "",
                        "validFor": {
                            "startDateTime": "2016-04-
19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }, {
                        "valueType": "string",
                        "default": "false",
                        "value": "White",
                        "unitOfMeasure": "",
                        "valueFrom": "",
                        "valueTo": "",
                        "validFor": {
                            "startDateTime": "2016-04-
19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }
                ]
            }
        ]
    }
]
    }, {
"id": "24",
"href": "http://serverlocation:port/catalogManagement/resourceCandidate/24",
"version": "2.0",
"lastUpdate": "2016-04-19T16:42:23-04:00",
"name": "Sensor maxi",
"description": "A wireless sensor for big garden",
"lifecycleStatus": "Active",
"validFor": {
    "startDateTime": "2016-04-19T16:42:23-04:00",
    "endDateTime": "2016-06-19T00:00:00-04:00"
},
"category": [
    {
        "id": "14",
        "href": "http://serverlocation:port/catalogManagement/category/14",
        "version": "2.0",
        "name": "Wireless sensors"
    }
],
"resourceSpecification": [
    {
        "id": "45",
        "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/45",
        "version": "2.0",
        "name": "wireless sensor maxi",
        "resourceSpecCharacteristic": [
            {
                "id": "34",
                "name": "Colour",
                "description": "Colour",
                "valueType": "string",
                "configurable": true,
                 "minCardinality": 0,
                 "maxCardinality": 1,
                 "extensible": true,
                "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                },
                "resourceSpecCharacteristicValue": [
                    {
                        "valueType": "string",
                        "default": "false",
                        "value": "Black",
                        "unitOfMeasure": "",
                        "valueFrom": "",
                        "valueTo": "",
                        "validFor": {
                            "startDateTime": "2016-04-19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }, {
                        "valueType": "string",
                        "default": "false",
                        "value": "White",
                        "unitOfMeasure": "",
                        "valueFrom": "",
                        "valueTo": "",
                        "validFor": {
                            "startDateTime": "2016-04-19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }
                ]
            }
        ]
    }
]
}
]
```

PUT /catalogManagement/category/{ID}

This Uniform Contract operation is used to completely update the representation of a managed entity or a task.

Description:

- This operation completely updates a category.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 200 if the request was successful.
- Any other special return and/or exception codes.

REQUEST
PUT /catalogManagement/category/42

Content-type: application/json

```
{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/category/42",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "version": "2.0",
        "lifecycleStatus": "Launched",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "41",
        "isRoot": false,
        "name": "Cloud Resources",
        "description": "A category to hold all available cloud resource candidates"
}
```

RESPONSE

200
Content-Type: application/json

```
{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/category/42",
        "lastUpdate": "2016-04-25T09:28:10-04:00",
        "version": "2.0",
        "lifecycleStatus": "Launched",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "41",
        "isRoot": false,
        "name": "Cloud Resources",
        "description": "A category to hold all available cloud resource candidates"
}
```

PUT /catalogManagement/resourceCandidate/{ID}

This Uniform Contract operation is used to completely update the representation of a managed entity or a task.

Description:

- This operation completely updates a resource candidate.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 200 if the request was successful.
- Any other special return and/or exception codes.

REQUEST

```
PUT /catalogManagement/resourceCandidate/42
Content-type: application/json

{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "lifecycleStatus": "Launched",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "category": [
                {
                        "id": "12",
                        "href": "http://serverlocation:port/catalogManagement/category/12",
                        "name": "Cloud resources"
                }
        ],
        "resourceSpecification": {
                "id": "13",
                "href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
                "name": "specification 1"
        }
}
```

RESPONSE

```
200
Content-Type: application/json

{
	"id": "42",
	"href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
	"name": "Virtual Storage Medium",
	"description": "Virtual Storage Medium",
	"version": "2.0",
	"lastUpdate": "2016-06-19T16:42:23-04:00",
	"lifecycleStatus": "Launched",
	"validFor": {
		"startDateTime": "2016-04-19T16:42:23-04:00",
		"endDateTime": ""
	},
	"category": [
		{
			"id": "12",
			"href": "http://serverlocation:port/catalogManagement/category/12",
			"name": "Cloud resources"
		}
	],
	"resourceSpecification": {
		"id": "13",
		"href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
		"name": "specification 1"
	}
}
```

PUT /catalogManagement/resourceSpecification/{ID}

This Uniform Contract operation is used to completely update the representation of a managed entity or a task.

Description:

- This operation completely updates a resource specification.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 201 if the request was successful.
- Any other special return and/or exception codes.

REQUEST

```
PUT /catalogManagement/resourceSpecification/22
Content-type: application/json

{
        "id": "22",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/22",
        "name": "iPhone 42",
        "description": "Siri works on this iPhone",
        "brand": "Apple",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "lifecycleStatus": "Launched",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "isComposite": false,
        "type": "PhysicalResourceSpec",
        "attachment": [
                {
                        "id": "22",
                        "href": "http://serverlocation:port/documentManagment/attachment/22",
                        "type": "Picture",
                        "url": "http://xxxxx"
                }
        ],
        "relatedParty": [
                {
                        "role": "Owner",
                        "id": "1234",
                        "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
                }
        ],
        "resourceSpecRelationship": [
                {
                        "type": "dependency",
                        "id": "23",
                        "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/23",
        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        }
                }
        ],
        "resourceSpecCharacteristic": [
                {
                        "id": "54",
                        "name": "Screen Size",
                        "description": "Screen size",
                        "valueType": "number",
                        "configurable": false,
                         "minCardinality": 1,
                       "maxCardinality": 1,
                       "extensible": true,
                        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        },
                        "resourceSpecCharRelationship": [
                                {
                                    "type": "dependency",
                                    "id": "43",
                                    "validFor": {
                                        "startDateTime": "2016-04-19T16:42:23-04:00",
                                        "endDateTime": ""
                                    }
                                }
                        ],
                        "resourceSpecCharacteristicValue": [
                                {
                                    "valueType": "number",
                                    "default": true,
                                    "value": "4.2",
                                    "unitOfMeasure": "inches",
                                    "valueFrom": "",
                                    "valueTo": "",
                                    "rangeInterval": "closed",
                                    "regex": "[-+]?[0-9]*\.?[0-9]+",
                                    "validFor": {
                                        "startDateTime": "2016-04-19T16:42:23-04:00",
                                        "endDateTime": ""
                                    }
                                }
                        ]
                }, {
                        "id": "55",
                        "name": "Colour",
                        "description": "Colour",
                        "valueType": "string",
                        "configurable": true,
                        "minCardinality": 0,
                        "maxCardinality": 1,
                        "extensible": true,
                        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        },
                        "resourceSpecCharacteristicValue": [
                                {
                                    "valueType": "string",
                                    "default": true,
                                    "value": "Black",
                                    "unitOfMeasure": "",
                                    "valueFrom": "",
                                    "valueTo": "",
                                    "validFor": {
                                        "startDateTime": "2016-04-19T16:42:23-04:00",
                                        "endDateTime": ""
                                    }
                                }, {
                                    "valueType": "string",
                                    "default": "false",
                                    "value": "White",
                                    "unitOfMeasure": "",
                                    "valueFrom": "",
                                    "valueTo": "",
                                    "validFor": {
                                        "startDateTime": "2016-04-19T16:42:23-04:00",
                                        "endDateTime": ""
                                    }
                                }
                        ]
                }
        ]
}
```

RESPONSE

200
Content-Type: application/json

```
{
    "id": "22",
    "href": "http://serverlocation:port/catalogManagement/resourceSpecification/22",
    "name": "iPhone 42",
    "description": "Siri works on this iPhone",
    "brand": "Apple",
    "version": "2.0",
    "lastUpdate": "2016-06-19T16:42:23-04:00",
    "lifecycleStatus": "Launched",
    "validFor": {
        "startDateTime": "2016-04-19T16:42:23-04:00",
        "endDateTime": ""
    },
   "isComposite": false,
    "type": "PhysicalResourceSpec",
    "attachment": [
        {
            "id": "22",
            "href": "http://serverlocation:port/documentManagment/attachment/22",
            "type": "image/jpeg",
            "url": "http://xxxxx"
        }
    ],
    "relatedParty": [
        {
            "role": "Owner",
            "id": "1234",
            "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
        }
    ],
    "resourceSpecRelationship": [
        {
            "type": "dependency",
            "id": "23",
            "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/23",
    "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
            }
        }
    ],
    "resourceSpecCharacteristic": [
        {
            "id": "54",
            "name": "Screen Size",
            "description": "Screen size",
            "valueType": "number",
            "configurable": false,
            "minCardinality": 0,
           "maxCardinality": 1,
           "extensible": true,
            "validFor": {
```

```
            "startDateTime": "2016-04-19T16:42:23-04:00",
            "endDateTime": ""
        },
        "resourceSpecCharRelationship": [
            {
                "type": "dependency",
                "id": "43",
                "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                }
            }
        ],
        "resourceSpecCharacteristicValue": [
            {
                "valueType": "number",
                "default": true,
                "value": "4.2",
                "unitOfMeasure": "inches",
                "valueFrom": "",
                "valueTo": "",
                "rangeInterval": "closed",
                "regex": "[-+]?[0-9]*\.?[0-9]+",
                "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                }
            }
        ]
    }, {
        "id": "55",
        "name": "Colour",
        "description": "Colour",
        "valueType": "string",
        "configurable": true,
        "minCardinality": 0,
        "maxCardinality": 1,
        "extensible": true,
        "validFor": {
            "startDateTime": "2016-04-19T16:42:23-04:00",
            "endDateTime": ""
        },
        "resourceSpecCharacteristicValue": [
            {
                "valueType": "string",
                "default": true,
                "value": "Black",
                                        "unitOfMeasure": "",
                                        "valueFrom": "",
                                        "valueTo": "",
                                        "validFor": {
                                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                                "endDateTime": ""
                                        }
                                }, {
                                        "valueType": "string",
                                        "default": false,
                                        "value": "White",
                                        "unitOfMeasure": "",
                                        "valueFrom": "",
                                        "valueTo": "",
                                        "validFor": {
                                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                                "endDateTime": ""
                                        }
                                }
                        ]
                }
        ]
}
```

Example see TMF REST Design Guidelines.

PATCH /catalogManagement/category/{ID}

This Uniform Contract operation is used to partially update the representation of a managed entity or a task.

Description:

- This operation partially updates a category.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 200 if the request was successful.
- Any other special return and/or exception codes.

Specify which attributes are patchable using the following table (to capture RO attributes)

Attribute name	Patchable	Rule
Id	No	
lastUpdate	No	
version	Y	Should be greater than the current one
lifecycleStatus	Y	Status should be valid
startDateTime	Y	
endDateTime	Y	Should be greater than startDateTime
parentId	Y	The parent category should exist
isRoot	Y	To be updated in compliance with the parentId
name	Y	
description	Y	

Further document any rules that must be implemented when patching attributes.

Rule name	Rule/Pre Condition/Side Effects/Post Conditons
Root	When isRoot is patched to false, parentId should

	indicate the parent category. When isRoot is patched to true, parentId should be empty.

REQUEST

```
PATCH /catalogManagement/category/42
Content-type: application/json

{
          "parentId": "",
          "isRoot": true
}
```

RESPONSE

```
200
Content-Type: application/json


{
          "id": "42",
          "href": "http://serverlocation:port/catalogManagement/category/42",
          "lastUpdate": "2016-04-19T16:42:23-04:00",
          "version": "2.0",
          "lifecycleStatus": "Active",
          "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
          },
          "parentId": "",
          "isRoot": true,
          "name": "Cloud Resources",
          "description": "A category to hold all available cloud resources"
}
```

PATCH /catalogManagement/resourceCandidate/{ID}

This Uniform Contract operation is used to partially update the representation of a managed entity or a task.

Description :

- This operation partially updates a resourceCandidate.

- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior :

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 200 if the request was successful.
- Any other special return and/or exception codes.

Specify which attributes are patchable using the following table (to capture RO attributes)

Attribute name	Patchable	Rule
Id	No	
startDateTime	Y	
endDateTime	Y	Should be greater than startDateTime
name	Y	
version	Y	
description	Y	
lastUpdate	N	
lifecycleStatus	Y	Status should be valid
category	Y	It should exist
resourceSpecification	Y	It should exist

Further document any rules that must be implemented when patching attributes.

Rule name	Rule/Pre Condition/Side Effects/Post Conditons

REQUEST

```
PATCH /catalogManagement/resourceCandidate/42
Content-type: application/json

{
        "lifecycleStatus": "Launched",
        "validFor": {
                "startDateTime": "2016-06-20T00:00:01-04:00",
                "endDateTime": ""
        }
}
```

RESPONSE

```
200
Content-Type: application/json

{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "version": "2.0",
        "lastUpdate": "2016-06-20T00:00:01-04:00",
        "lifecycleStatus": "Launched",
        "validFor": {
                "startDateTime": "2016-06-20T00:00:01-04:00",
                "endDateTime": ""
        },
        "category": [
                {
                        "id": "12",
                        "href": "http://serverlocation:port/catalogManagement/category/12",
                        "version": "2.0",
                        "name": "Cloud resources"
                }
        ],
        "resourceSpecification": {
                "id": "13",
                "href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
                "name": "specification 1",
                "version": "1.1"
        }
}
```

PATCH /catalogManagement/resourceSpecification/{ID}

This Uniform Contract operation is used to partially update the representation of a managed entity or a task.

Description:

- This operation partially updates a resourceSpecification.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 200 if the request was successful.
- Any other special return and/or exception codes.

Specify which attributes are patchable using the following table (to capture RO attributes)

Attribute name	Patchable	Rule
Id	No	
lastUpdate	No	
version	Y	Should be greater than the current one
lifecycleStatus	Y	Status should be valid
startDateTime	Y	
endDateTime	Y	Should be greater than

		startDateTime
name	Y	
description	Y	
brand	Y	
relatedParty	Y	It should exist
attachment	Y	It should exist
resourceSpecRelationship	Y	It should exist
resourceSpecCharacteristic	Y	It should exist
resourceSpecCharRelationship	Y	It should exist
resourceSpecCharacteristicValue	Y	

Further document any rules that must be implemented when patching attributes.

Rule name	Rule/Pre Condition/Side Effects/Post Conditons

REQUEST

```
PATCH /catalogManagement/resourceSpecification/22
Content-type: application/json-patch+json

{
        "op": "add",
        "path": "/attachment",
        "value": {
                "id": "44",
                "href": "http://serverlocation:port/documentManagement/attachment/44",
                "type": "Video",
                "url": "http://yyyyy"
        }
}
```

RESPONSE

200
Content-Type: application/json

```
{
        "id": "22",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/22",
        "name": "iPhone 42",
        "description": "Siri works on this iPhone",
        "brand": "Apple",
        "version": "2.0",
        "lastUpdate": "2016-06-19T16:42:23-04:00",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
        "isComposite": false,
        "type": "PhysicalResourceSpec",
        "attachment": [
                {
                        "id": "22",
                        "href": "http://serverlocation:port/documentManagment/attachment/22",
                        "type": "Picture",
                        "url": "http://xxxxx"
                },
                {
                        "id": "44",
                        "href": "http://serverlocation:port/documentManagment/attachment/44",
                        "type": "Video",
                        "url": "http://yyyyy"
                }
        ],
        "relatedParty": [
                {
                        "role": "Owner",
                        "id": "1234",
                        "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
                }
        ],
        "resourceSpecRelationship": [
        {
            "type": "dependency",
            "id": "23",
            "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/23",
    "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
            }
        }
    ],
    "resourceSpecCharacteristic": [
        {
            "id": "54",
            "name": "Screen Size",
            "description": "Screen size",
            "valueType": "number",
            "configurable": false,
            "minCardinality": 0,
           "maxCardinality": 1,
           "extensible": true,
            "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
            },
            "resourceSpecCharRelationship": [
                {
                    "type": "dependency",
                    "id": "43",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ],
            "resourceSpecCharacteristicValue": [
                {
                    "valueType": "number",
                    "default": true,
                    "value": "4.2",
                    "unitOfMeasure": "inches",
                    "valueFrom": "",
                    "valueTo": "",
                    "rangeInterval": "closed",
                    "regex": "[-+]?[0-9]*\.?[0-9]+",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ]
        }, {
            "id": "55",
            "name": "Colour",
            "description": "Colour",
            "valueType": "string",
            "configurable": true,
            "minCardinality": 0,
            "maxCardinality": 1,
            "extensible": true,
            "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
            },
            "resourceSpecCharacteristicValue": [
                {
                    "valueType": "string",
                    "default": true,
                    "value": "Black",
                    "unitOfMeasure": "",
                    "valueFrom": "",
                    "valueTo": "",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }, {
                    "valueType": "string",
                    "default": false,
                    "value": "White",
                    "unitOfMeasure": "",
                    "valueFrom": "",
                    "valueTo": "",
                    "validFor": {
                        "startDateTime": "2016-04-19T16:42:23-04:00",
                        "endDateTime": ""
                    }
                }
            ]
        }
    ]
}
```

Example see TMF REST Design Guidelines.

POST /catalogManagement/category

This Uniform Contract operation is used to create a managed entity or a task.

Description:

- This operation creates a category
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- Standard POST behavior.
- Returns HTTP/1.1 status code 201 if the request was successful.
- Any other special return and/or exception codes.

ID Management:

The response provide the category id.

Specify the attributes required when an entity is created (and their default values if not):

Attribute name	Mandatory	Default	Rule
isRoot	N	true	
name	Y		
parentId	Y		If isRoot is set to “false”, parentId is mandatory

- Further specify any rules on the creation of the entity

Rule name	Rule

REQUEST

```
POST catalogManagement/category
Content-type: application/json


{
        "version": "1.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "41",
        "isRoot": false,
        "name": "Cloud Resources",
        "description": "A category to hold all available cloud resource candidates"
}
```

RESPONSE

```
201
Content-Type: application/json


{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/category/42",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "version": "1.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": ""
        },
        "parentId": "41",
        "isRoot": false,
        "name": "Cloud Resources",
        "description": "A category to hold all available cloud resource candidates"
}
```

POST /catalogManagement/resourceCandidate

This Uniform Contract operation is used to create a managed entity or a task.

Description:

- This operation creates a resourceCandidate.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior :

- Standard POST behavior.
- Returns HTTP/1.1 status code 201 if the request was successful.
- Any other special return and/or exception codes.

ID Management:

The response provides the resourceCandidate id.

Specify the attributes required when an entity is created (and their default values if not):

Attribute name	Mandatory	Default	Rule
name	Y		
resourceSpecification	Y		

- Further specify any rules on the creation of the entity

Rule name	Rule

REQUEST

```
POST catalogManagement/resourceCandidate
Content-type: application/json

{
    "name": "Virtual Storage Medium",
    "description": "Virtual Storage Medium",
    "version": "1.0",
   "lifecycleStatus": "Active",
    "validFor": {
        "startDateTime": "2016-04-19T16:42:23-04:00",
        "endDateTime": "2016-06-19T00:00:00-04:00"
    },
    "category": [
        {
            "id": "12",
            "href": "http://serverlocation:port/catalogManagement/category/12",
            "name": "Cloud resources"
        }
    ],
    "resourceSpecification": {
        "id": "13",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
        "name": "specification 1"
    }
}
```

RESPONSE

```
201
Content-Type: application/json

{
    "id": "42",
    "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
    "name": "Virtual Storage Medium",
    "description": "Virtual Storage Medium",
    "version": "1.0",
    "lastUpdate": "2016-04-19T16:42:23-04:00",
    "lifecycleStatus": "Active",
    "validFor": {
        "startDateTime": "2016-04-19T16:42:23-04:00",
        "endDateTime": "2016-06-19T00:00:00-04:00"
    },
    "category": [
        {
            "id": "12",
            "href": "http://serverlocation:port/catalogManagement/category/12",
            "name": "Cloud resources"
        }
    ],
    "resourceSpecification": {
        "id": "13",
                "href": "http://serverlocation:port/catalogManagement/resourceSpecification/13",
                "name": "specification 1"
        }
}
```

POST /catalogManagement/resourceSpecification

This Uniform Contract operation is used to create a managed entity or a task.

Description:

- This operation creates a resourceSpecification.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- Standard POST behavior.
- Returns HTTP/1.1 status code 201 if the request was successful.
- Any other special return and/or exception codes.

ID Management :

The response provides the resourceSpecification id.

Specify the attributes required when an entity is created (and their default values if not):

Attribute name	Mandatory	Default	Rule
name	Y		
resourceSpecCharacteristic	Y		
resourceSpecCharacteristicValue	Y		

- Further specify any rules on the creation of the entity

Rule name	Rule

REQUEST

```
POST catalogManagement/resourceSpecification
Content-type: application/json

{
        "name": "iPhone 42",
        "description": "Siri works on this iPhone",
        "version": "1.0",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
        "isComposite": false,
        "type": "PhysicalResourceSpec",
        "attachment": [
                {
                        "id": "22",
                        "href": "http://serverlocation:port/documentManagment/attachment/22",
                        "type": "Picture",
                        "url": "http://xxxxx"
                }
        ],
        "relatedParty": [
                {
                        "role": "Supplier",
                        "id": "1234",
                        "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
                }
        ],
        "resourceSpecificationRelationship": [
                {
                        "type": "dependency",
                        "id": "23",
                        "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/23",
        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        }
                }
        ],
        "resourceSpecCharacteristic": [
                {
                        "id: "54",
                        "name": "Screen Size",
                        "description": "Screen size",
                        "valueType": "number",
                        "configurable": false,
                       "minCardinality": 0,
                       "maxCardinality": 1,
                       "extensible": true,
                        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        },
                        "resourceSpecCharRelationship": [
                                {
                                    "type": "dependency",
                                    "id": "43",
                                    "validFor": {
                                        "startDateTime": "2016-04-19T16:42:23-04:00",
                                        "endDateTime": ""
                                    }
                                }
                        ],
                        "resourceSpecCharacteristicValue": [
                                {
                                    "valueType": "number",
                                    "default": true,
                                    "value": "4.2",
                                    "unitOfMeasure": "inches",
                                    "valueFrom": "",
                                    "valueTo": "",
                                    "rangeInterval": "closed",
                                    "regex": "[-+]?[0-9]*\.?[0-9]+",
                                    "validFor": {
                                        "startDateTime": "2016-04-19T16:42:23-04:00",
                                        "endDateTime": ""
                                    }
                                }
                        ]
                }, {
                        "id: "55",
                        "name": "Colour",
                        "description": "Colour",
                        "valueType": "string",
                        "configurable": true,
                       "minCardinality": 0,
                        "maxCardinality": 1,
                        "extensible": true,
                        "validFor": {
                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                "endDateTime": ""
                        },
                        "resourceSpecCharacteristicValue": [
                                {
                                        "valueType": "string",
                                        "default": true,
                                        "value": "Black",
                                        "unitOfMeasure": "",
                                        "valueFrom": "",
                                        "valueTo": "",
                                        "regex": "[a-zA-Z]{3,12}$",
                                        "validFor": {
                                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                                "endDateTime": ""
                                        }
                                }, {
                                        "valueType": "string",
                                        "default": false,
                                        "value": "White",
                                        "unitOfMeasure": "",
                                        "valueFrom": "",
                                        "valueTo": "",
                                        "regex": "[a-zA-Z]{3,12}$",
                                        "validFor": {
                                                "startDateTime": "2016-04-19T16:42:23-04:00",
                                                "endDateTime": ""
                                        }
                                }
                        ]
                }
        ]
}
```

RESPONSE

201
Content-Type: application/json

```
{
        "id": "22",
        "href": "http://serverlocation:port/catalogManagement/resourceSpecification/22",
        "name": "iPhone 42",
        "description": "Siri works on this iPhone",
        "brand": "Apple",
        "version": "1.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "lifecycleStatus": "Active",
        "validFor": {
            "startDateTime": "2016-04-19T16:42:23-04:00",
            "endDateTime": "2016-06-19T00:00:00-04:00"
        },
        "isComposite": false,
        "type": "PhysicalResourceSpec",
        "attachment": [
            {
                "id: "22",
                "href": "http://serverlocation:port/documentManagment/attachment/22",
                "type": "Picture",
                "url": "http://xxxxx"
            }
        ],
        "relatedParty": [
            {
                "role": "Owner",
                "id: "1234",
                "href": "http ://serverLocation:port/partyManagement/partyRole/1234"
            }
        ],
        "resourceSpecRelationship": [
            {
                "type": "dependency",
                "id: "23",
                "href":
"http://serverlocation:port/catalogManagement/resourceSpecification/23",
        "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                }
            }
        ],
        "resourceSpecCharacteristic": [
            {
                "id": "54",
                "name": "Screen Size",
                "description": "Screen size",
                "valueType": "number",
                "configurable": false,
                "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                },
                "resourceSpecCharRelationship": [
                    {
                        "type": "dependency",
                        "id": "43",
                        "validFor": {
                            "startDateTime": "2016-04-19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }
                ],
                "resourceSpecCharacteristicValue": [
                    {
                        "valueType": "number",
                        "default": true,
                        "value": "4.2",
                        "unitOfMeasure": "inches",
                        "valueFrom": "",
                        "valueTo": "",
                        "rangeInterval": "closed",
                        "regex": "[-+]?[0-9]*\.?[0-9]+",
                        "validFor": {
                            "startDateTime": "2016-04-19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }
                ]
            }, {
                "id": "55",
                "name": "Colour",
                "description": "Colour",
                "valueType": "string",
                "configurable": true,
                "validFor": {
                    "startDateTime": "2016-04-19T16:42:23-04:00",
                    "endDateTime": ""
                },
                "resourceSpecCharacteristicValue": [
                    {
                        "valueType": "string",
                        "default": true,
                        "value": "Black",
                        "unitOfMeasure": "",
                        "valueFrom": "",
                        "valueTo": "",
                        "validFor": {
                            "startDateTime": "2016-04-19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }, {
                        "valueType": "string",
                        "default": false,
                        "value": "White",
                        "unitOfMeasure": "",
                        "valueFrom": "",
                        "valueTo": "",
                        "validFor": {
                            "startDateTime": "2016-04-19T16:42:23-04:00",
                            "endDateTime": ""
                        }
                    }
                ]
            }
        ]
    }
```

POST /catalogManagement/catalog/{ID}/importJob

This Uniform Contract operation is used to create a managed entity or a task.

Description:

- This operation manages a task to import a catalog.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- Standard POST behavior.
- Returns HTTP/1.1 status code 201 if the request was successful.
- Any other special return and/or exception codes.

ID Management:

The response provides the job id.

Specify the attributes required for the task (and their default values if not):

Attribute name	Mandatory	Default	Rule
url	Y		

- Further specify any rules for the task

Rule name	Rule

REQUEST

```
POST catalogManagement/catalog/10/importJob
Content-type: application/json

{
        "url": "ftp://ftp.myCatalog.com/resourceCatalog"
}
```

RESPONSE

```
201
Content-Type: application/json

{
        "id": "54",
        "status": "Succeeded",
        "errorLog": ""
}
```

POST /catalogManagement/catalog/{ID}/exportJob

This Uniform Contract operation is used to create a managed entity or a task.

Description:

- This operation manages a task to export a catalog.
- The resource represents a managed entity.
- The ID may be a string (or a string containing numbers).

Behavior:

- Standard POST behavior.
- Returns HTTP/1.1 status code 201 if the request was successful.
- Any other special return and/or exception codes.

ID Management:

The response provides the job id.

Specify the attributes required for the task (and their default values if not):

Attribute name	Mandatory	Default	Rule
Catalog id	Y		

- Further specify any rules for the task

Rule name	Rule

REQUEST

```
POST catalogManagement/catalog/10/exportJob
Content-type: application/json

{
}
```

RESPONSE

```
201
Content-Type: application/json

{
        "id": "54",
        "status": "Succeeded",
        "errorLog": "",
        "url": "ftp://ftp.myCatalog.com/resourceCatalog"
}
```

Example see TMF REST Design Guidelines.

DELETE …/{RESOURCE}/{ID}

No delete operations

This Uniform Contract operation is used to delete a managed entity or a task.

Description:

- Provide an overall description of the Operation
- Describe if the resource represents a managed entity or a task.
- Describe the structure of the identifier.

Behavior:

- What status and exception codes are returned.
- Returns HTTP/1.1 status code 204 if the request was successful.
- Any other special return and/or exception codes.

REQUEST

```
DELETE /catalogManagement/resourceCandidate/42
```

RESPONSE

```
204
```

Example see TMF REST Design Guidelines.

API NOTIFICATION TEMPLATES

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 201 if the request was successful.

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

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":null}
```

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.

REQUEST

```
DELETE /api/hub/{id}
Accept: application/json
```

RESPONSE

```
204
```

PUBLISH {EVENTTYPE} POST /LISTENER

Description:

Provide the Event description

Behavior:

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

REQUEST

```
POST /client/listener
Accept: application/json


{
  "event": {

  EVENT BODY
        },
  "eventType": "eventType"
```

}
RESPONSE
201 Content-Type: application/json

Please see Notification Resource Models or TMF REST Design Guidelines for more examples.

LIFECYCLE MANAGEMENT EXTENSIONS TO CATALOG

In Lifecycle Management there is a requirement to distinguish between entities existing with different life cycle version numbers and accessible via different ACL mechanisms.

For example, the same Resource Candidate may exist in a Catalog but with different version numbers.

It may be possible for an administrator to see all the existing versions or for a partner to see only a subset of all the existing versions.

The entity version number is not dependent on the version number of the API. For example, in PLM the same API (running at a specific version number) may be used to retrieve entities with different PLM version numbers.

In order to distinguish resources representing entities running with different version numbers and accessible though the same API version the following directive can be used /id:(version=x) and the version attribute is added to each entity.

```
{
        "id": "42",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
        "version": "1.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",

…..

}
```

Note that the catlog resources in this case may have the same ID but may be distinguished by the inclusion of the version number in their ID i.e /42:(version=1.0),

/42:(version=2.0).

In the following examples we will assume that two versions of the VirtualStorage Service Candidate exist in the REsource Catalog. The Inactive and Active versions respectively version 1.0 and version 2.0.

QUERY ALL VERSIONED CATALOG RESOURCES

Users with different roles may have access to different versions of the entities in the catalog. For example user A may have access to only the version 1.0 of the entities while user B may have access to version 1.0 and version 2.0.

Admin user of Catalog have access to all the versions of the resources while non admin users have by default access to only the latest version of the entities in the Catalog.

For example the following request on the admin endpoint will return all the versioned resources matching a specific ID.

REQUEST

```
GET api/admin/catalogManagement/resourceCandidate/?id=VirtualStorageMedium
Accept: application/json
```

RESPONSE

```
200
Content-Type: application/json

[
{
        "id": "VirtualStorageMedium",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/VirtualStorage
Medium",
        "version": "1.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",
…..
},
{
        "id": "VirtualStorageMedium",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/VirtualStorage
Medium",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",
…..
}
]
```

QUERY A SPECIFIC VERSIONED CATALOG RESOURCE

In general, a non admin API user only has visibility to the latest version number or visibility to a subset of versioned catalog resources.

It may be possible for an admin API user to retrieve a resource with a specific version number by using an ID and versioning filtering criteria.

REQUEST

```
GET api/admin/catalogManagement/resourceCandidate/?id=VirtualStorageMedium&version=1.0
Accept: application/json
```

RESPONSE

```
200
Content-Type: application/json

[
{
        "id": "VirtualStorageMedium",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/VirtualStorage
Medium",
        "version": "1.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",
…..
},
…..
]
```

QUERY CURRENT VERSION OF A CATALOG RESOURCE

By default, only the most current version is returned (for admin and non admin).

REQUEST

```
GET api/admin/catalogManagement/resourceCandidate/VirtualStorageMedium
Accept: application/json
```

RESPONSE

```
200
Content-Type: application/json

{
        "id": "VirtualStorageMedium",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/VirtualStorageMedium",
        "version": "2.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",
…..
}
```

CREATE NEW VERSION OF A CATALOG RESOURCE

POST is used to create a new version of a catalog resource.

The constraint is that the version numbers for the resource having the same ID must differ.

REQUEST

```
POST catalogManagement/resourceCandidate
Content-type: application/json

{
       "id": "VirtualStorage",
        "version": "3.0",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
…
}
```

RESPONSE

```
201
Content-Type: application/json

{
        "id": "VirtualStorage",
        "href": "http://serverlocation:port/catalogManagement/resourceCandidate/42",
        "version": "3.0",
        "lastUpdate": "2016-04-19T16:42:23-04:00",
        "name": "Virtual Storage Medium",
        "description": "Virtual Storage Medium",
        "lifecycleStatus": "Active",
        "validFor": {
                "startDateTime": "2016-04-19T16:42:23-04:00",
                "endDateTime": "2016-06-19T00:00:00-04:00"
        },
…
        }
```

MODIFY AN EXISTING VERSION OF A CATALOG RESOURCE

By default, PATCH or PUT will be acting only on the latest version of a Catalog Resource. For example, PATCH /…/resourceCandidate/VirtualStorageMedium will only update the VirtualStoageMedium ResourceCandidate at Version 2.0 (which is the most current).

To update a specific version of an entity the (Version=X) directive is added to the ID (i.e /id:(version=x).

Note that this capability is only available to API users having the proper authorizations to change the catalog entities with specific version numbers.

For example, to change the VirtualStorageMedium versioned at 1.0 we could use:
/resourceCandidate/VirtualStorageMedium(Version=1.0)

REQUEST

```
PATCH /catalogManagement/resourceCandidate/VirtualStorageMedium(Version=1.0)
Content-type: application/json-patch+json
```

```
{
"lifecycleStatus": "Active"
}
```

RESPONSE

```
200
Content-Type: application/json
{
         "id": "VirtualStorageMedium",
         "href":
"http://serverlocation:port/catalogManagement/resourceCanddidate/VirtualStorageMedium",
         "version": "1.0",

         "lifecycleStatus": "Active",

…..

}
```

ROLE BASED ACCESS CONTROL

The user presents their credentials for authentication

If the credentials are valid

1. The user is given access to the catalog
2. As defined by their role(s)
3. As defined by their access rights
4. As defined by the access type: CRUD, discover
5. As defined by the pre-defined filter

For example, if they issue a get on a catalog that a party has no access they get an error response

Or if they try to modify an area of the catalog but do not have Write Access they get an error response

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

RELEASE HISTORY

Release Number	Date	Release led by:	Description
Release 1.0	04/15/2013	Pierre Gauthier TM Forum pgauthier@tmforum.org	First Release of Draft Version of the Document.
Release 1.1			Updated for use in the Paris Spec Jam – and rebranded,.
Release 1.7	16/08/2016	Kamal Maghsoudlou Ericsson kamal.maghsoudlou@ericsson.com	Updated following resource catalog API discussion in the Vancouver Action Week
Release 16.5.0.1	30/08/2016	Kamal Maghsoudlou Ericsson kamal.maghsoudlou@ericsson.com	Incorporated comments from the review meeting