

# TM Forum Specification

## Agreement Management API REST Specification

TMF651  
Release 18.0.0  
June 2018

Latest Update: TM Forum Release 18.0.0	Member Evaluation
Version 2.0.1	IPR Mode: RAND

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N/A

## INTRODUCTION

The Agreement API provides standardized mechanism for managing agreements, especially in the context on partnerships between partners.

The API allows creation, update and query of agreement instances as well as creation, update and query of agreement specifications – serving as templates for agreement instances.

## SAMPLE USE CASES

Reader will find example of use cases using Usage API in “Open Digital Business Scenarios and Use Cases” document.

## SUPPORT OF POLYMORPHISM AND EXTENSION PATTERNS

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

Generic support of polymorphism and pattern extensions is described in the TMF API Guidelines v3.0 Part 2 document.

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

The `@referredType` can be used within reference entities (like for instance an `AccountRef` object) to explicitly denote the actual entity type of the referred class. Notice that in reference entities the `@type`, when used, denotes the class type of the reference itself, such as `BillingAccountRef` or `SettlementAccountRef`, and not the class type of the referred object. However, since reference classes are rarely sub-classed, `@type` is generally not useful in reference objects.

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

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



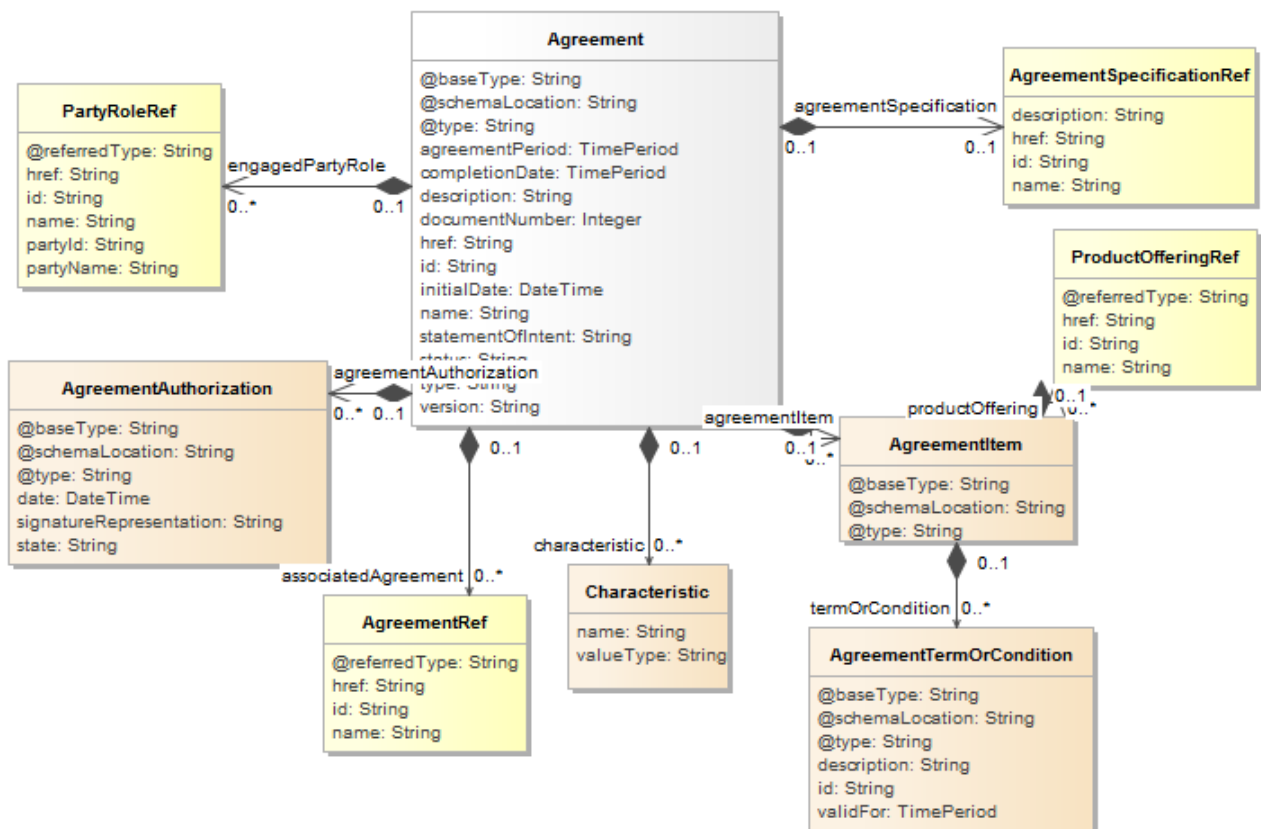
## RESOURCE MODEL

### Managed Entity and Task Resource Models

#### AGREEMENT RESOURCE

An agreement represents a contract or arrangement, either written or verbal and sometimes enforceable by law, such as a service level agreement or a customer price agreement. An agreement involves a number of other business entities, such as products, services, and resources and/or their specifications.

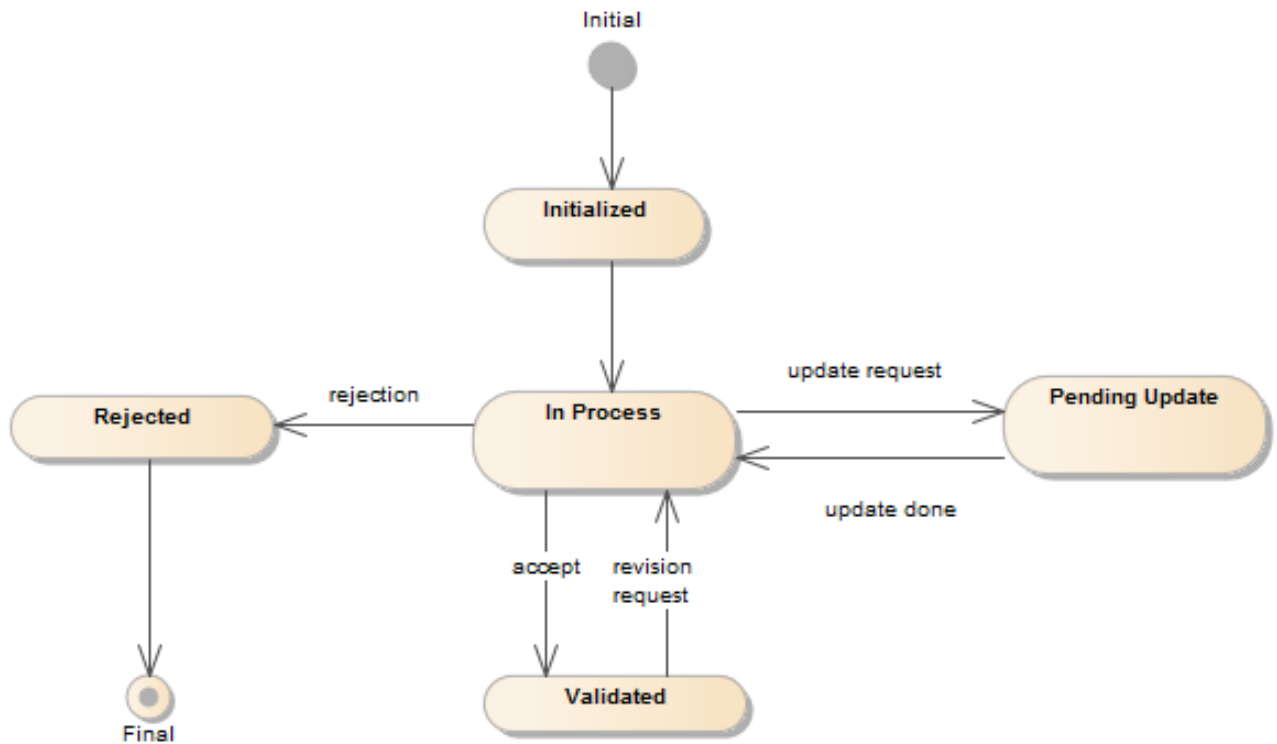
##### Resource model



##### Lifecycle

The Agreement lifecycle is tracked using the *status* field. The typical lifecycle values that can be taken are: Initialized, In process, Pending Update, validated and Rejected.

Note that an implementation of the specification may enrich the list of states depicted in the diagram. The state machine specifying the typical state change transitions is provided below.



**Field descriptions**

Agreement fields

@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.
@type	A string. Generic attribute containing the name of the resource class type.
agreementPeriod	A time period. The time period during which the Agreement is in effect.
completionDate	A time period. Date at which the agreement is completed.
description	A string. Narrative that explains the agreement and details about the it , such as why the agreement is taking place.
documentNumber	An integer. A reference number assigned to an Agreement that follows a prescribed numbering system.
href	A string. Unique url identifying the agreement as a resource.
id	A string. Unique identifier for the agreement.

initialDate	A date time (DateTime). Date at which the agreement was initialized.
name	A string. A human-readable name for the agreement.
statementOfIntent	A string. An overview and goals of the Agreement.
status	A string. The current status of the agreement. Typical values are: in process, approved and rejected.
type	A string. The type of the agreement. For example, "commercial".
version	A string. A string identifying the version of the agreement.
agreementSpecification	An agreement specification reference (AgreementSpecificationRef). An AgreementSpecification represents a template of an agreement that can be used when establishing partnerships.
agreementItem	A list of agreement items (AgreementItem [*]). A part of the agreement expressed in terms of a product offering and possibly including specific terms and conditions.
engagedPartyRole	A list of party role references (PartyRoleRef [*]). A party role represents the part played by a party in a given context.
agreementAuthorization	A list of agreement authorizations (AgreementAuthorization [*]). A business participant that is responsible for approving the agreement.
characteristic	A list of characteristics (Characteristic [*]). Describes a given characteristic of an object or entity through a name/value pair.
associatedAgreement	A list of agreement references (AgreementRef [*]). An agreement represents a contract or arrangement, either written or verbal and sometimes enforceable by law, such as a service level agreement or a customer price agreement. An agreement involves a number of other business entities, such as products, services, and resources and/or their specifications.

#### AgreementAuthorization sub-resource

A business participant that is responsible for approving the agreement.

@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.
@type	A string. Generic attribute containing the name of the resource class type.

date	A date time (DateTime). The date associated with the authorization state.
signatureRepresentation	A string. Indication that represents whether the signature is a physical paper signature or a digital signature.
state	A string. Current status of the authorization, for example in process, approved, rejected.

AgreementItem sub-resource

A part of the agreement expressed in terms of a product offering and possibly including specific terms and conditions.

@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.
@type	A string. Generic attribute containing the name of the resource class type.
productOffering	A list of product offering references (ProductOfferingRef [*]). A product offering represents entities that are orderable from the provider of the catalog, this resource includes pricing information.
termOrCondition	A list of agreement term or conditions (AgreementTermOrCondition [*]). Aspects of the agreement not formally specified elsewhere in the agreement and that cannot be captured elsewhere in a formal notation, or automatically monitored and require a more human level of management.

AgreementTermOrCondition sub-resource

Aspects of the agreement not formally specified elsewhere in the agreement and that cannot be captured elsewhere in a formal notation, or automatically monitored and require a more human level of management.

@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.
@type	A string. Generic attribute containing the name of the resource class type.
description	A string. Text that explains the term or condition of the agreement.
id	A string. Unique number assigned for reference.

**validFor** A time period. The period of time during which the term or condition of the agreement applies.

#### Characteristic sub-resource

Describes a given characteristic of an object or entity through a name/value pair.

**name** A string. Name of the characteristic.

**valueType** A string. The type of the values (if we have a common type for values).

#### AgreementRef relationship

Agreement reference. An agreement represents a contract or arrangement, either written or verbal and sometimes enforceable by law, such as a service level agreement or a customer price agreement. An agreement involves a number of other business entities, such as products, services, and resources and/or their specifications.

**@referredType** A string. Generic attribute indicating the name of the class type of the referred resource entity.

**href** A string. Reference of the agreement.

**id** A string. Identifier of the agreement.

**name** A string. Name of the agreement.

#### AgreementSpecificationRef relationship

AgreementSpecification reference. An AgreementSpecification represents a template of an agreement that can be used when establishing partnerships.

**@referredType** A string. Generic attribute indicating the name of the class type of the referred resource entity.

**description** A string. A narrative that explains in detail what the agreement specification is about.

**href** A string. Reference URL of the agreement specification.

**id** A string. Unique identifier of the agreement specification.

**name** A string. Name of the agreement specification.

#### PartyRoleRef relationship

Party role reference. A party role represents the part played by a party in a given context.

**@referredType** A string. Generic attribute indicating the name of the class type of the referred resource entity.

href	A string. Reference of the product.
id	A string. Unique identifier of the product.
name	A string. The name of the referred party role.
partyId	A string. The identifier of the engaged party that is linked to the PartyRole object.
partyName	A string. The name of the engaged party that is linked to the PartyRole object.

### ProductOfferingRef relationship

ProductOffering reference. A product offering represents entities that are orderable from the provider of the catalog, this resource includes pricing information.

@referredType	A string. Generic attribute indicating the name of the class type of the referred resource entity.
href	A string. Reference of the product offering.
id	A string. Unique identifier of the product offering.
name	A string. Name of the product offering.

### Json representation sample

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

```
{
  "@baseType": "a string ...",
  "@schemaLocation": "a string ...",
  "@type": "a string ...",
  "agreementPeriod": {
    "startDateTime": "2018-06-08T00:00",
    "endDateTime": "2019-01-07T00:00"
  },
  "completionDate": "2016-10-16",
  "description": "This agreement ...",
  "documentNumber": 12,
  "href": "https://host:port/tmf-api/agreementManagement/v2/agreement/3582",
  "id": "3582",
  "initialDate": "2014-12-06",
  "name": "Summer Contract Agreement",
  "statementOfIntent": "Agreement on restricting the working hours ",
  "status": "process",
  "type": "commercial",
  "version": "1.5",
  "agreementSpecification": {
    "@referredType": "a string ...",
    "description": "This agreement specification defines the environment protection rules to be followed by each party.",
    "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/2186",
  }
}
```

```

    "id": "2186",
    "name": "Purchase Agreement Specification"
  },
  "agreementItem": [
    {
      "@baseType": "a string ...",
      "@schemaLocation": "a string ...",
      "@type": "a string ...",
      "productOffering": [
        {
          "@referredType": "a string ...",
          "href": "https://host:port/tmf-api/productCatalogManagement/v2/productOffering/1308",
          "id": "1308",
          "name": "My Quick BB Offer"
        }
      ]
    },
    {
      "@baseType": "a string ...",
      "@schemaLocation": "a string ...",
      "@type": "a string ...",
      "description": "This agreement term or condition ...",
      "id": "7482",
      "validFor": {
        "startDateTime": "2018-06-07T00:00",
        "endDateTime": "2019-01-07T00:00"
      }
    }
  ]
},
"engagedPartyRole": [
  {
    "@referredType": "a string ...",
    "href": "https://host:port/tmf-api/partyRole/v2/partyRole/5057",
    "id": "5057",
    "name": "Supplier",
    "partyId": "786",
    "partyName": "Zero Bug LTD"
  }
],
"agreementAuthorization": [
  {
    "@baseType": "a string ...",
    "@schemaLocation": "a string ...",
    "@type": "a string ...",
    "date": "2018-06-11T00:00",
    "signatureRepresentation": "Dr Mabuse",
    "state": "rejected"
  }
],
"characteristic": [
  [
    {
      "name": "country",
      "value": "France"
    }
  ]
]

```

```

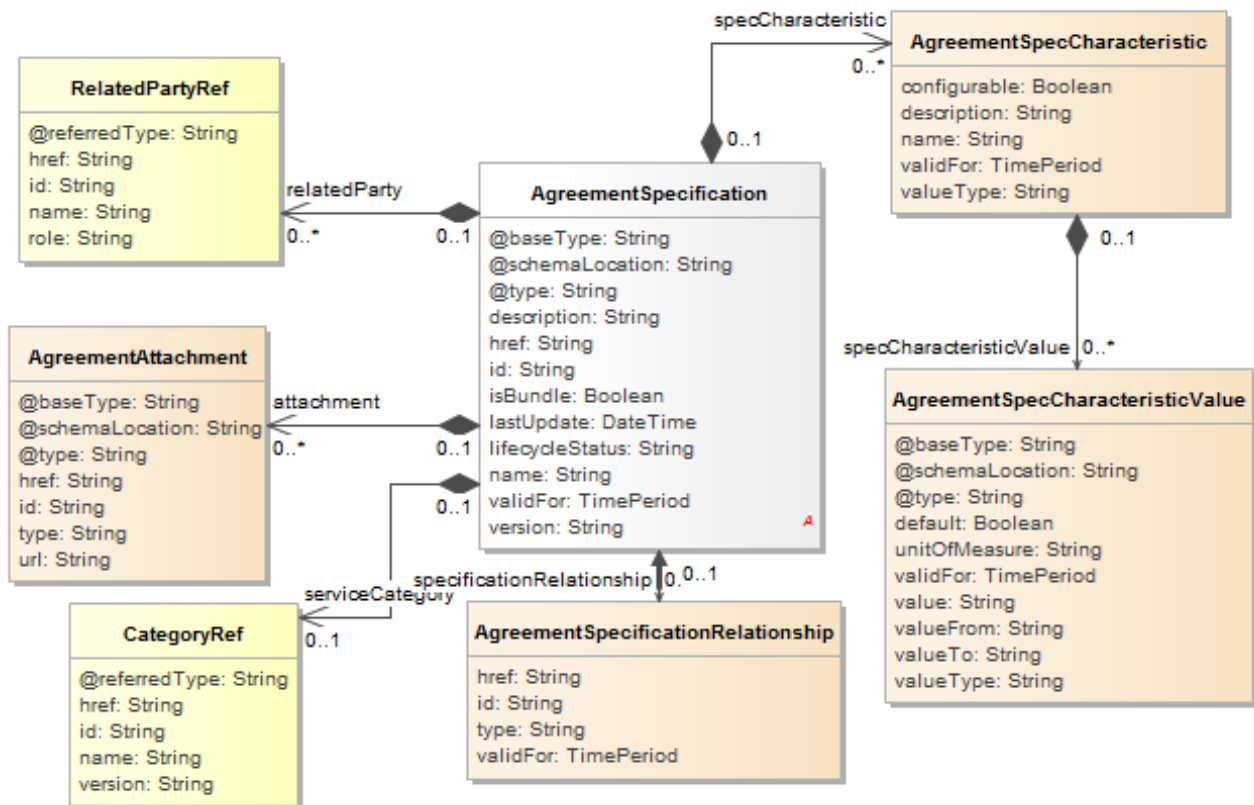
    },
    {
      "name": "confidentialLevel",
      "value": "low"
    }
  ]
],
"associatedAgreement": [
  [
    {
      "name": "General Partnership Agreement",
      "id": "98765453"
    }
  ]
]
}
}

```

## AGREEMENT SPECIFICATION RESOURCE

A template of an agreement that can be used when establishing partnerships.

### Resource model



### Field descriptions

#### AgreementSpecification fields



@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.
@type	A string. Generic attribute containing the name of the resource class type.
description	A string. A narrative that explains in detail what the agreement specification is about.
href	A string. Reference of the agreement specification.
id	A string. Unique identifier of the agreement specification.
isBundle	A boolean. Indicates that this agreement specification is a grouping of other agreement specifications. The list of bundled agreement specifications is provided via the specificationRelationship property.
lastUpdate	A date time (DateTime). Date and time of the last update.
lifecycleStatus	A string. Indicates the current lifecycle status.
name	A string. Name of the agreement specification.
validFor	A time period. The period for which the agreement specification is valid.
version	A string. Agreement specification version.
serviceCategory	A category reference (CategoryRef). The category for grouping recommendations.
specCharacteristic	A list of agreement spec characteristics (AgreementSpecCharacteristic [*]). A characteristic quality or distinctive feature of an agreement.
relatedParty	A list of related party references (RelatedPartyRef [*]). A related party defines party or party role linked to a specific entity.
attachment	A list of agreement attachments (AgreementAttachment [*]). Represents a complementary piece of information to describe the agreement. Could be a document, picture, a video or any kind of multimedia content.
specificationRelationship	A list of agreement specification relationships (AgreementSpecificationRelationship [*]). A relationship between agreement specifications. Typical relationships are substitution and dependency.

#### AgreementAttachment sub-resource

Represents a complementary piece of information to describe the agreement. Could be a document, picture, a video or any kind of multimedia content.

@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.
@type	A string. Generic attribute containing the name of the resource class type.
href	A string. Reference of the attachment.
id	A string. Unique identifier of the attachment.
type	A string. Attachment type such as video, picture.
url	A string. Uniform Resource Locator, is a web page address (a subset of URI).

#### AgreementSpecCharacteristic sub-resource

A characteristic quality or distinctive feature of an agreement.

configurable	A boolean. If true, the Boolean indicates that the characteristic is configurable.
description	A string. A narrative that explains in detail what the characteristic is.
name	A string. Name of the characteristic being specified.
validFor	A time period. The period for which the specification characteristic is valid.
valueType	A string. A kind of value that the characteristic can take on, such as numeric, text and so forth.
specCharacteristicValue	A list of agreement spec characteristic values (AgreementSpecCharacteristicValue [*]). A number or text that can be assigned to an agreement specification characteristic.

#### AgreementSpecCharacteristicValue sub-resource

A number or text that can be assigned to an agreement specification characteristic.

@baseType	A string. Generic attribute indicating the base class type of the extension class of the current object. Useful only when the class type of the current object is unknown to the implementation.
@schemaLocation	A string. Generic attribute containing the link to the schema that defines the structure of the class type of the current object.

@type	A string. Generic attribute containing the name of the resource class type.
default	A boolean. Indicates if the value is the default value for a characteristic.
unitOfMeasure	A string. Unit of measure for the characteristic, such as minutes, gigabytes (GB) and so on.
validFor	A time period. The period of time for which a value is applicable.
value	A string. A discrete value that the characteristic can take on.
valueFrom	A string. The low range value that a characteristic can take on.
valueTo	A string. The upper range value that a characteristic can take on.
valueType	A string. A kind of value that the characteristic can take on, such as numeric, text, and so forth.

#### AgreementSpecificationRelationship sub-resource

A relationship between agreement specifications. Typical relationships are substitution and dependency.

href	A string. Reference of an agreement specification.
id	A string. Unique identifier of the related agreement specification.
type	A string. Type of relationship such as, substitution or dependency.
validFor	A time period. The period for which the relationship is valid.

#### CategoryRef relationship

The category for grouping recommendations.

@referredType	A string. Generic attribute indicating the name of the class type of the referred resource entity.
href	A string. Hypertext Reference of the category.
id	A string. Unique identifier of category.
name	A string. Name of the category.

#### RelatedPartyRef relationship

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

@referredType	A string. Generic attribute indicating the name of the class type of the referred resource entity.
href	A string. Reference of the related party, could be a party reference or a party

	role reference.
id	A string. Unique identifier of a related party.
name	A string. Name of the related party.
role	A string. Role of the related party.

### Json representation sample

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

```
{
  "@baseType": "a string ...",
  "@schemaLocation": "a string ...",
  "@type": "a string ...",
  "description": "This agreement specification defines the ethic rules to be followed by each party.",
  "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/6500",
  "id": "6500",
  "isBundle": false,
  "lastUpdate": "2018-06-11T00:00",
  "lifecycleStatus": "completed",
  "name": "Purchase Agreement Specification",
  "validFor": {
    "startDateTime": "2018-06-12T00:00",
    "endDateTime": "2019-01-07T00:00"
  },
  "version": "2.1",
  "serviceCategory": {
    "@referredType": "a string ...",
    "href": "https://host:port/tmf-api/productOffering/v2/category/3380",
    "id": "3380",
    "name": "Cloud"
  },
  "specCharacteristic": [
    {
      "configurable": false,
      "description": "This agreement spec characteristic ...",
      "name": "Screen color",
      "validFor": {
        "startDateTime": "2018-06-08T00:00",
        "endDateTime": "2019-01-07T00:00"
      },
      "valueType": "string",
      "specCharacteristicValue": [
        {
          "@baseType": "a string ...",
          "@schemaLocation": "a string ...",
          "@type": "a string ...",
          "default": true,
          "unitOfMeasure": "Hz",
          "validFor": {
            "startDateTime": "2018-06-10T00:00",
            "endDateTime": "2019-01-07T00:00"
          }
        }
      ]
    }
  ]
}
```

```

    },
    "value": "blue",
    "valueFrom": "",
    "valueTo": "",
    "valueType": "string"
  }
]
},
"relatedParty": [
  {
    "@referredType": "a string ...",
    "href": "https://host:port/tmf-api/partyManagement/v2/organization/3472",
    "id": "3472",
    "name": "Richard Cole",
    "role": "customer"
  }
],
"attachment": [
  {
    "@baseType": "a string ...",
    "@schemaLocation": "a string ...",
    "@type": "a string ...",
    "href": "http://hostname:port/documentManagement/attachment/22",
    "id": "22",
    "type": "Photo",
    "url": "http://yyyyy"
  }
],
"specificationRelationship": [
  {
    "href": "https://host:port/tmf-api/agreements/v2/agreementSpecificationRelationship/3383",
    "id": "3383",
    "type": "dependency",
    "validFor": {
      "startDateTime": "2018-06-09T00:00",
      "endDateTime": "2019-01-07T00:00"
    }
  }
]
}

```

## Notification Resource Models

4 notifications are defined for this API

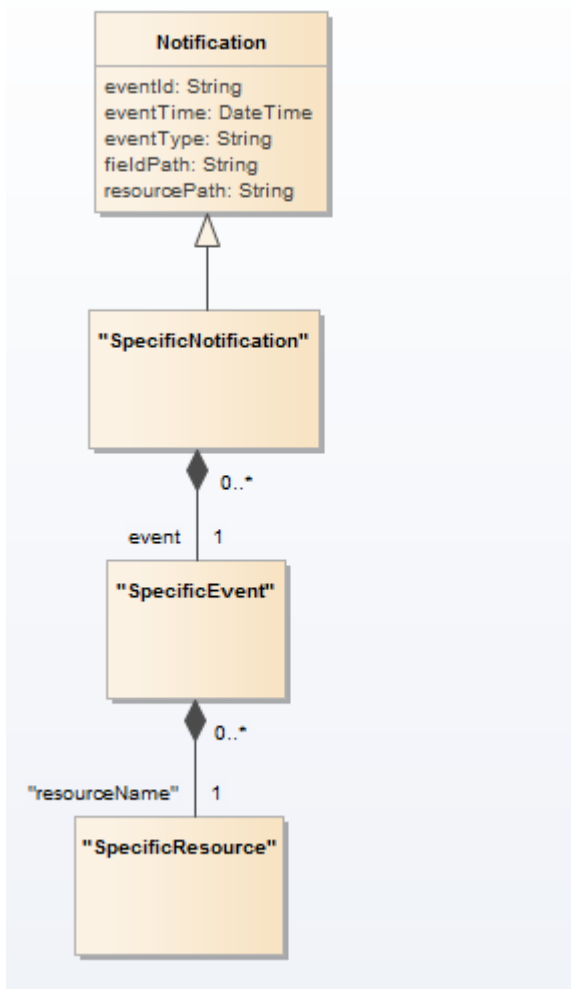
Notifications related to Agreement:

- AgreementCreationNotification
- AgreementAttributeValueChangeNotification
- AgreementStateChangeNotification
- AgreementRemoveNotification

The notification structure for all notifications in this API follow the pattern depicted by the figure below.

A notification resource (depicted by "SpecificNotification" placeholder) is a sub class of a generic Notification structure containing an id of the event occurrence (eventId), an event timestamp (eventTime), and the name of the notification resource (eventType).

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




---

## AGREEMENT CREATION NOTIFICATION

Notification sent when a new Agreement resource is created.

### Json representation sample

We provide below the json representation of an example of a 'AgreementCreationNotification' notification object

```
{
```

```
"eventId":"00001",
"eventTime":"2015-11-16T16:42:25-04:00",
"eventType":"AgreementCreationNotification",
"event": {
  "agreement" :
    {-- SEE Agreement RESOURCE SAMPLE --}
}
}
```

---

## AGREEMENT ATTRIBUTE VALUE CHANGE NOTIFICATION

Notification sent when changing an attribute of an Agreement resource.

### Json representation sample

We provide below the json representation of an example of a 'AgreementAttributeValueChangeNotification' notification object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AgreementAttributeValueChangeNotification",
  "event": {
    "agreement" :
      {-- SEE Agreement RESOURCE SAMPLE --}
  }
}
```

---

## AGREEMENT STATE CHANGE NOTIFICATION

Notification sent when changing the state of an Agreement resource.

### Json representation sample

We provide below the json representation of an example of a 'AgreementStateChangeNotification' notification object

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AgreementStateChangeNotification",
  "event": {
    "agreement" :
      {-- SEE Agreement RESOURCE SAMPLE --}
  }
}
```

---

## AGREEMENT REMOVE NOTIFICATION

Notification sent when removing an Agreement resource.

### Json representation sample

We provide below the json representation of an example of a 'AgreementRemoveNotification' notification object

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "AgreementRemoveNotification",
  "event": {
    "agreement": {
      "-- SEE Agreement RESOURCE SAMPLE --"
    }
  }
}
```



## API OPERATIONS

Remember the following Uniform Contract:

Operation on Entities	Uniform API Operation	Description
Query Entities	GET Resource	GET must be used to retrieve a representation of a resource.
Create Entity	POST Resource	POST must be used to create a new resource
Partial Update of an Entity	PATCH Resource	PATCH must be used to partially update a resource
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.

## OPERATIONS ON AGREEMENT

### LIST AGREEMENTS

#### GET /agreement?fields=...&{filtering}

##### Description

This operation list agreement entities.

Attribute selection is enabled for all first level attributes.

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

##### Usage Samples

Here's an example of a request for retrieving Agreement resources.

Retrieving all approved agreements of engaged party 'So Magic Ltd'. The result items are shrunk to show only the id and name(fields=id,name)

<b>Request</b>
GET {apiRoot}/agreement?fields=id,name&status=approved&engagedParty.name="So Magic Ltd" Accept: application/json
<b>Response</b>
200  [ { "id": "8756", "name": "Employment Quota" }, { "id": "9435", "name": "Zero Bug" } ]

### RETRIEVE AGREEMENT

#### GET /agreement/{id}?fields=...&{filtering}

##### Description

This operation retrieves an agreement entity.

Attribute selection is enabled for all first level attributes.

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

### Usage Samples

Here's an example of a request for retrieving an Agreement resource.

Request
GET {apiRoot}/agreement/3582 Accept: application/json
Response
200  <pre>{   "@baseType": "a string ...",   "@schemaLocation": "a string ...",   "@type": "a string ...",   "agreementPeriod": {     "startDateTime": "2018-06-08T00:00",     "endDateTime": "2019-01-07T00:00"   },   "completionDate": "2016-10-16",   "description": "This agreement ...",   "documentNumber": 12,   "href": "https://host:port/tmf-api/agreementManagement/v2/agreement/3582",   "id": "3582",   "initialDate": "2014-12-06",   "name": "Summer Contract Agreement",   "statementOfIntent": "Agreement on restricting the working hours ",   "status": "process",   "type": "commercial",   "version": "1.5",   "agreementSpecification": {     "@referredType": "a string ...",     "description": "This agreement specification defines the environment protection rules to be followed     by each party.",     "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/2186",     "id": "2186",     "name": "Purchase Agreement Specification"   },   "agreementItem": [     {       "@baseType": "a string ...",       "@schemaLocation": "a string ...",       "@type": "a string ...",       "productOffering": [         {</pre>

```

    "@referredType": "a string ...",
    "href": "https://host:port/tmf-api/productCatalogManagement/v2/productOffering/1308",
    "id": "1308",
    "name": "My Quick BB Offer"
  }
],
"termOrCondition": [
  {
    "@baseType": "a string ...",
    "@schemaLocation": "a string ...",
    "@type": "a string ...",
    "description": "This agreement term or condition ...",
    "id": "7482",
    "validFor": {
      "startDateTime": "2018-06-07T00:00",
      "endDateTime": "2019-01-07T00:00"
    }
  }
]
},
"engagedPartyRole": [
  {
    "@referredType": "a string ...",
    "href": "https://host:port/tmf-api/partyRole/v2/partyRole/5057",
    "id": "5057",
    "name": "Supplier",
    "partyId": "786",
    "partyName": "Zero Bug LTD"
  }
],
"agreementAuthorization": [
  {
    "@baseType": "a string ...",
    "@schemaLocation": "a string ...",
    "@type": "a string ...",
    "date": "2018-06-11T00:00",
    "signatureRepresentation": "Dr Mabuse",
    "state": "rejected"
  }
],
"characteristic": [
  [
    {
      "name": "country",
      "value": "France"
    },
    {
      "name": "confidentialLevel",
      "value": "low"
    }
  ]
],
"associatedAgreement": [
  [
    {

```

```

        "name": "General Partnership Agreement",
        "id": "98765453"
    }
  ]
}

```

## CREATE AGREEMENT

### POST /agreement

*Note: this operation is available only to ADMIN API users*

#### Description

This operation creates an agreement entity.

#### Mandatory and Non Mandatory Attributes

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

Mandatory Attributes	Rule
name	
type	
engagedPartyRole	
agreementItem	

Non Mandatory Attributes	Default Value	Rule
@baseType		
@schemaLocation		
@type		
agreementPeriod		
completionDate	Current date	
description		
documentNumber		
initialDate		
statementOfIntent		
status		
version	0	
agreementSpecification		
agreementAuthorization		
characteristic		
associatedAgreement		

#### Additional Rules

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

Context	Mandatory Sub-Attributes
engagedPartyRole	id, name
associatedAgreement	id, href

### Default Values Summary

When creating the resource, the following table summarizes the default values applicable to optional attributes of the resource (or sub-resources).

Attributes	Default Value
id	Automatically generated
completionDate	Current date
version	0

### Usage Samples

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

```

Request

POST {apiRoot}/agreement
Content-Type: application/json

{
  "name": "Summer Contract Agreement",
  "type": "commercial",
  "agreementItem": [
    {
      "@baseType": "a string ...",
      "@schemaLocation": "a string ...",
      "@type": "a string ...",
      "productOffering": [
        {
          "@referredType": "a string ...",
          "href": "https://host:port/tmf-api/productCatalogManagement/v2/productOffering/1308",
          "id": "1308",
          "name": "My Quick BB Offer"
        }
      ]
    },
    {
      "termOrCondition": [
        {
          "@baseType": "a string ...",
          "@schemaLocation": "a string ...",
          "@type": "a string ...",
          "description": "This agreement term or condition ...",
          "id": "7482",
        }
      ]
    }
  ]
}
    
```

```

        "validFor": {
          "startDateTime": "2018-06-07T00:00",
          "endDateTime": "2019-01-07T00:00"
        }
      }
    ]
  },
  "engagedPartyRole": [
    {
      "@referredType": "a string ...",
      "href": "https://host:port/tmf-api/partyRole/v2/partyRole/5057",
      "id": "5057",
      "name": "Supplier",
      "partyId": "786",
      "partyName": "Zero Bug LTD"
    }
  ]
}

```

## Response

201

```

{
  "completionDate": "2016-10-16",
  "href": "https://host:port/tmf-api/agreementManagement/v2/agreement/3582",
  "id": "3582",
  "name": "Summer Contract Agreement",
  "type": "commercial",
  "version": "0",
  "agreementItem": [
    {
      "@baseType": "a string ...",
      "@schemaLocation": "a string ...",
      "@type": "a string ...",
      "productOffering": [
        {
          "@referredType": "a string ...",
          "href": "https://host:port/tmf-api/productCatalogManagement/v2/productOffering/1308",
          "id": "1308",
          "name": "My Quick BB Offer"
        }
      ]
    }
  ],
  "termOrCondition": [
    {
      "@baseType": "a string ...",
      "@schemaLocation": "a string ...",
      "@type": "a string ...",
      "description": "This agreement term or condition ...",
      "id": "7482",
      "validFor": {
        "startDateTime": "2018-06-07T00:00",
        "endDateTime": "2019-01-07T00:00"
      }
    }
  ]
}

```

```

    }
  }
]
},
"engagedPartyRole": [
  {
    "@referredType": "a string ...",
    "href": "https://host:port/tmf-api/partyRole/v2/partyRole/5057",
    "id": "5057",
    "name": "Supplier",
    "partyId": "786",
    "partyName": "Zero Bug LTD"
  }
]
}

```

---

## PATCH AGREEMENT

### PATCH /agreement/{id}

#### Description

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

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

#### Patchable and Non Patchable Attributes

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

Notice that patching is possible only for 'admin' API users.

Patchable Attributes	Rule
agreementAuthorization	
agreementItem	

Non Patchable Attributes	Rule
id	
href	
completionDate	

#### Usage Samples



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

Changing the status of the agreement as rejected (using json-patch)

<b>Request</b>
<pre>PATCH {apiRoot}/agreement/42 Content-Type: application/json-patch+json  {   "path": "/status",   "value": "rejected",   "op": "replace" }</pre>
<b>Response</b>
<pre>201  { Similar JSON as in GET response with bank account domiciliation changed }</pre>

---

## DELETE AGREEMENT

### DELETE /agreement/{id}

*Note: this operation is available only to ADMIN API users*

#### Description

This operation deletes an agreement entity.

#### Usage Samples

Here's an example of a request for deleting an Agreement resource.

<b>Request</b>
<pre>DELETE {apiRoot}/agreement/42</pre>
<b>Response</b>
<pre>204</pre>

## OPERATIONS ON AGREEMENT SPECIFICATION

---

## LIST AGREEMENT SPECIFICATIONS

### GET /agreementSpecification?fields=...&{filtering}

#### Description

This operation list agreement specification entities.

Attribute selection is enabled for all first level attributes.

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

#### Usage Samples

Here's an example of a request for retrieving AgreementSpecification resources.

Retrieving all agreement specifications with the government army. The result items are shrinked to show only the id and name (fields=id,name)

<b>Request</b>
GET {apiRoot}/agreementSpecification?fields=id,name&relatedParty.name="Army" Accept: application/json
<b>Response</b>
200  [ { "id": "5434", "name": "General Maintenance" }, { "id": "9080", "name": "Secret" } ]

---

## RETRIEVE AGREEMENT SPECIFICATION

### GET /agreementSpecification/{id}?fields=...&{filtering}

#### Description

This operation retrieves an agreement specification entity.

Attribute selection is enabled for all first level attributes.

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

## Usage Samples

Here's an example of a request for retrieving a AgreementSpecification resource.

<b>Request</b>
GET {apiRoot}/agreementSpecification/6500 Accept: application/json
<b>Response</b>
200  <pre>{   "@baseType": "a string ...",   "@schemaLocation": "a string ...",   "@type": "a string ...",   "description": "This agreement specification defines the ethic rules to be followed by each party.",   "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/6500",   "id": "6500",   "isBundle": false,   "lastUpdate": "2018-06-11T00:00",   "lifecycleStatus": "completed",   "name": "Purchase Agreement Specification",   "validFor": {     "startDateTime": "2018-06-12T00:00",     "endDateTime": "2019-01-07T00:00"   },   "version": "2.1",   "serviceCategory": {     "@referredType": "a string ...",     "href": "https://host:port/tmf-api/productOffering/v2/category/3380",     "id": "3380",     "name": "Cloud"   },   "specCharacteristic": [     {       "configurable": false,       "description": "This agreement spec characteristic ...",       "name": "Screen color",       "validFor": {         "startDateTime": "2018-06-08T00:00",         "endDateTime": "2019-01-07T00:00"       },       "valueType": "string",       "specCharacteristicValue": [         {           "@baseType": "a string ...",           "@schemaLocation": "a string ...",           "@type": "a string ...",           "default": true,           "unitOfMeasure": "Hz", </pre>

```

    "validFor": {
      "startDateTime": "2018-06-10T00:00",
      "endDateTime": "2019-01-07T00:00"
    },
    "value": "blue",
    "valueFrom": "",
    "valueTo": "",
    "valueType": "string"
  }
]
},
"relatedParty": [
  {
    "@REFERREDTYPE": "a string ...",
    "href": "https://host:port/tmf-api/partyManagement/v2/organization/3472",
    "id": "3472",
    "name": "Richard Cole",
    "role": "customer"
  }
],
"attachment": [
  {
    "@BASETYPE": "a string ...",
    "@SCHEMALOCATION": "a string ...",
    "@TYPE": "a string ...",
    "href": "http://hostname:port/documentManagement/attachment/22",
    "id": "22",
    "type": "Photo",
    "url": "http://yyyyy"
  }
],
"specificationRelationship": [
  {
    "href": "https://host:port/tmf-api/agreements/v2/agreementSpecificationRelationship/3383",
    "id": "3383",
    "type": "dependency",
    "validFor": {
      "startDateTime": "2018-06-09T00:00",
      "endDateTime": "2019-01-07T00:00"
    }
  }
]
}

```

---

## CREATE AGREEMENT SPECIFICATION

### POST /agreementSpecification

*Note: this operation is available only to ADMIN API users*

#### Description

This operation creates an agreement specification entity.

**Mandatory and Non Mandatory Attributes**

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

Mandatory Attributes	Rule
name	
attachment	

Non Mandatory Attributes	Default Value	Rule
@baseType		
@schemaLocation		
@type		
description		
isBundle	false	
lastUpdate		
lifecycleStatus		
validFor		
version		
serviceCategory		
specCharacteristic		
relatedParty		
specificationRelationship		

**Default Values Summary**

When creating the resource, the following table summarizes the default values applicable to optional attributes of the resource (or sub-resources).

Attributes	Default Value
isBundle	false

## Usage Samples

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

<pre> POST {apiRoot}/agreementSpecification Content-Type: application/json  {   "name": "Purchase Agreement Specification",   "attachment": [     {       "@baseType": "a string ...",       "@schemaLocation": "a string ...",       "@type": "a string ...",       "href": "http://hostname:port/documentManagement/attachment/22",       "id": "22",       "type": "Photo",       "url": "http://yyyyy"     }   ] } </pre>
<p><b>Response</b></p> <pre> 201  {   "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/6500",   "id": "6500",   "isBundle": false,   "name": "Purchase Agreement Specification",   "attachment": [     {       "@baseType": "a string ...",       "@schemaLocation": "a string ...",       "@type": "a string ...",       "href": "http://hostname:port/documentManagement/attachment/22",       "id": "22",       "type": "Photo",       "url": "http://yyyyy"     }   ] } </pre>

---

## PATCH AGREEMENT SPECIFICATION

### PATCH /agreementSpecification/{id}

*Note: this operation is available only to ADMIN API users*

**Description**

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

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

**Patchable and Non Patchable Attributes**

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

Notice that patching is possible only for 'admin' API users.

Patchable Attributes	Rule
@baseType	
@schemaLocation	
@type	
description	
isBundle	
lastUpdate	
lifecycleStatus	
name	
validFor	
version	
serviceCategory	
specCharacteristic	
relatedParty	
attachment	
specificationRelationship	

Non Patchable Attributes	Rule
id	
href	

**Usage Samples**

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

Adding an attachment document to the agreement specification (using json-patch)

Request
PATCH {apiRoot}/agreementSpecification/42 Content-Type: application/json-patch+json

```
{
  "path": "/attachment",
  "value": {
    "url": "http://www.allmydocs.fr/agreement_standard.pdf",
    "type": "Document"
  },
  "op": "add"
}
```

**Response**

201

{ Similar JSON as in GET response with an attachment added }

---

**DELETE AGREEMENT SPECIFICATION****DELETE /agreementSpecification/{id}***Note: this operation is available only to ADMIN API users***Description**

This operation deletes an agreement specification entity.

**Usage Samples**

Here's an example of a request for deleting a AgreementSpecification resource.

**Request**

DELETE {apiRoot}/agreementSpecification/42

**Response**

204



## API NOTIFICATIONS

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

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

### REGISTER LISTENER

#### POST /hub

##### Description

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

##### Behavior

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

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

##### Usage Samples

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

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

## UNREGISTER LISTENER

### DELETE /hub/{id}

#### Description

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

#### Behavior

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

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

#### Usage Samples

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

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

## PUBLISH EVENT TO LISTENER

### POST /client/listener

#### Description

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

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

#### Behavior

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

#### Usage Samples

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

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

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

## ACKNOWLEDGEMENTS

### VERSION HISTORY

Release Number	Date	Release led by:	Description
Release 1.0	15/04/2016	Pierre Gauthier TM Forum <a href="mailto:pgauthier@tmforum.org">pgauthier@tmforum.org</a>  Mariano Belaunde Orange <a href="mailto:mariano.belaunde@orange.com">mariano.belaunde@orange.com</a>	First Release of the Document. Generated from the API Data Model.
Release 2.0	24/04/2018	Mariano Belaunde	Update with minor changes to comply with Guidelines V3.0
Release 2.0.1	27-Jun-2018	Adrienne Walcott	Formatting/style edits prior to R18 publishing

### RELEASE HISTORY

Release Number	Date	Release led by:	Description
Release 18.0.0	25-June-2018	Pierre Gauthier  Mariano Belaunde	Initial Release

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