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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.

The following APIs are typically used in conjunction with this API:

- Product Catalog Management API to refer to the product offerings that are linked to the agreements or agreement specifications.
- Party Management API to refer to the engaged parties that have signed agreements

SAMPLE USE CASES

Relevant examples of use cases for this API can be found in the Partnership Management API – Use Case section. In the partnership AP, a Partnership Specifications typically declare Agreement Specifications, and Partnership instances declare Party Roles instances that declare the Agreements that apply to them.

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.

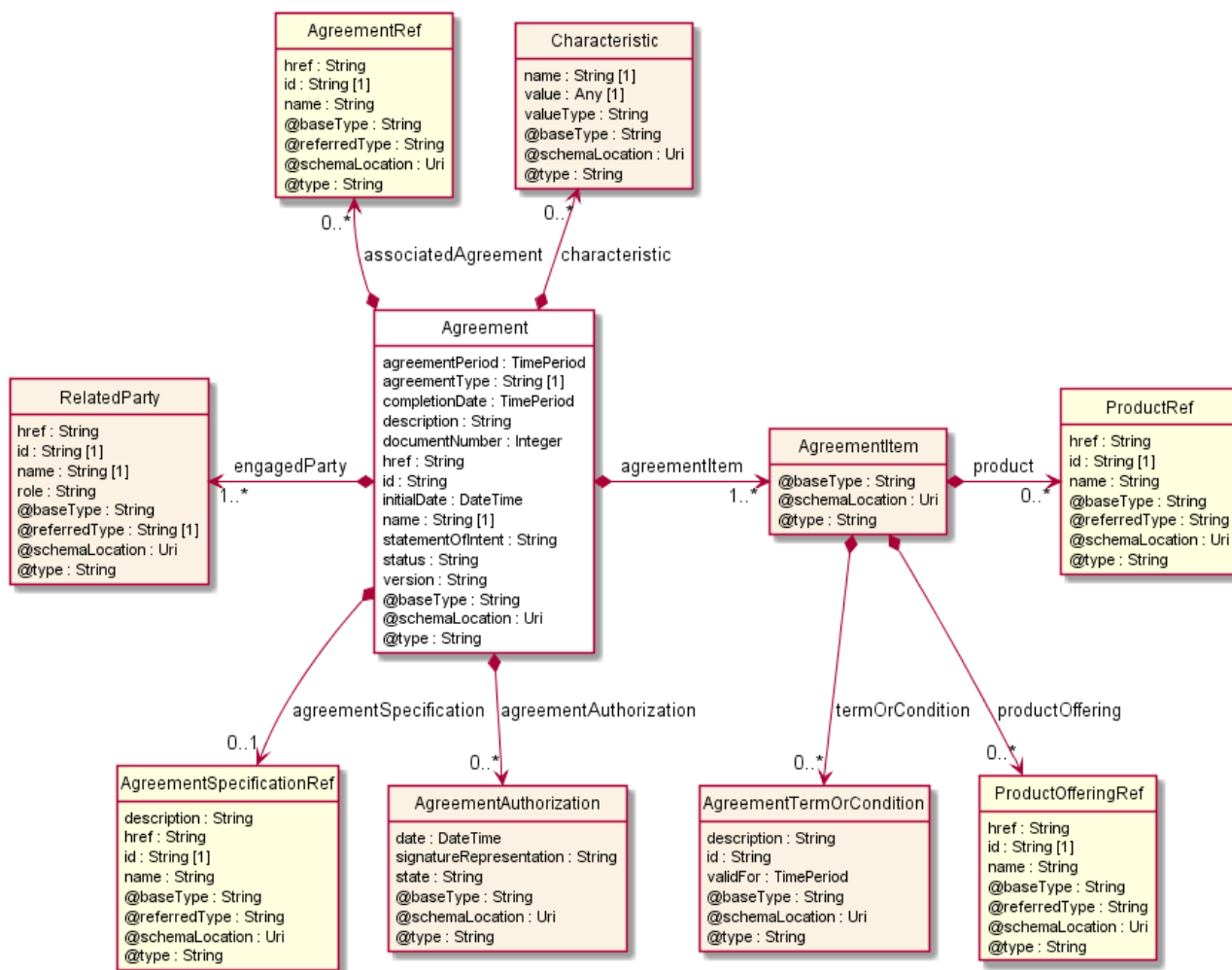
RESOURCE MODEL

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



Field descriptions

Agreement fields

agreementAuthorization A list of agreement authorizations (AgreementAuthorization [*]). A business participant that is responsible for approving the agreement.

agreementItem	A list of agreement items (AgreementItem [1..*]). A part of the agreement expressed in terms of a product offering and possibly including specific terms and conditions.
agreementPeriod	A time period. The time period during which the Agreement is in effect.
agreementSpecification	An agreement specification reference (AgreementSpecificationRef). An AgreementSpecification represents a template of an agreement that can be used when establishing partnerships.
agreementType	A string. The type of the agreement. For example commercial.
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.
characteristic	A list of characteristics (Characteristic [*]). Describes a given characteristic of an object or entity through a name/value pair.
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.
engagedParty	A list of related parties (RelatedParty [1..*]). Related Entity reference. A related party defines party or party role linked to a specific entity.
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.
version	A string. A string identifying the version of the agreement.

AgreementAuthorization sub-resource

A business participant that is responsible for approving the agreement.

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.

product	A list of product references (ProductRef [*]). The list of products indirectly referred by this agreement item (since an agreement item refers primarily to product offerings).
productOffering	A list of product offering references (ProductOfferingRef [*]). The list of product offerings referred by this agreement item.
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.

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.
value	An any (Any). The value of the characteristic.
valueType	A string. Data type of the value of the characteristic.

RelatedParty sub-resource

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

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.
role	A string. Role played by the related party.

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. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
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. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the agreement specification.
description	A string. A narrative that explains in detail what the agreement specification is about.

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. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.

ProductRef relationship

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.

Json representation sample

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

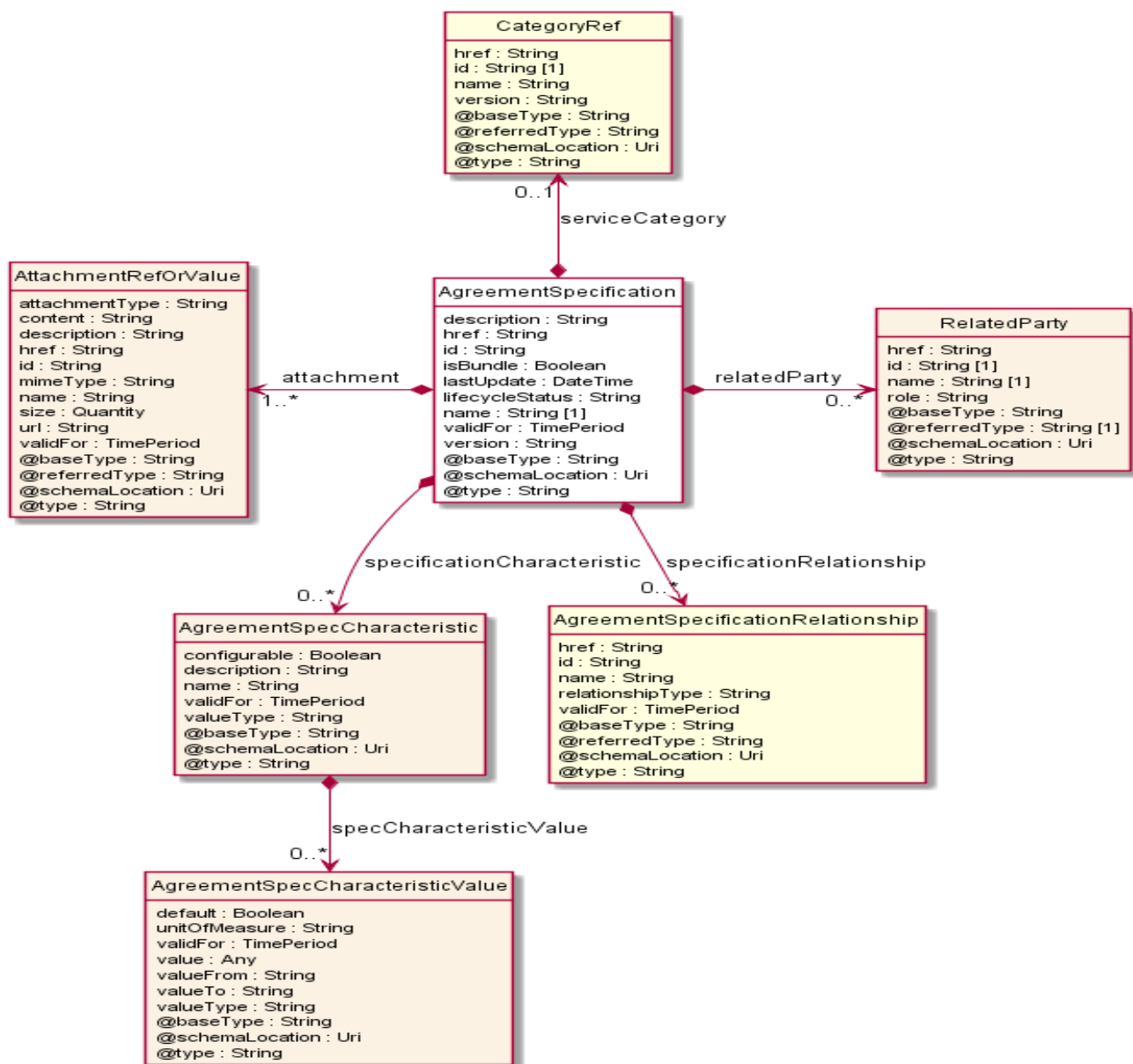
```
{
  "@type": "Agreement",
  "href": "https://host:port/tmf-api/agreementManagement/v4/agreement/40",
  "id": "40",
  "name": "Moon",
  "status": "Pending",
  "documentNumber": "97867",
  "version": "1.0",
  "agreementSpecification": {
    "href": "https://host:port/tmf-api/agreementManagement/v4/agreementSpecification/1140",
    "id": "1140",
    "name": "Moon Agreement Template"
  },
  "validFor": {
    "startDateTime": "2018-06-12T00:00Z",
    "endDateTime": "2019-01-11T00:00Z"
  },
  "engagedParty": [
    {
      "@type": "Organization",
      "href": "https://host:port/tmf-api/partyManagement/v4/organization/500",
      "id": "500",
      "name": "Happy Travellers"
    }
  ],
  "characteristic": [
    {
      "name": "fidelityProgram",
      "value": "premium",
      "valueType": "string"
    }
  ],
  "relatedParty": [
    {
      "href": "https://host:port/tmf-api/partyManagement/v4/organization/2777",
      "id": "2777",
      "name": "John Doe",
      "role": "bill receiver"
    }
  ]
}
```

```
],  
  "agreementItem": [  
    {  
      "productOffering": {  
        "href": "https://host:port/tmf-api/productCatalogManagement/v4/productOffering/61",  
        "name": "ChristmasToy"  
      },  
      "termOrCondition": {  
        "id": "1",  
        "description": "delivery should be done in France"  
      }  
    }  
  ]  
}
```

Agreement Specification resource

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

Resource model



Field descriptions

AgreementSpecification fields

attachment	A list of attachment ref or values (AttachmentRefOrValue [1..*]). An attachment by value or by reference. An attachment complements the description of an element, for example through a document, a video, a picture.
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. If true, this agreement specification is a grouping of other agreement specifications. The list of bundled agreement specifications is provided by 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.
relatedParty	A list of related parties (RelatedParty [*]). Related Entity reference. A related party defines party or party role linked to a specific entity.
serviceCategory	A category reference (CategoryRef). The category for grouping recommendations.
specificationCharacteristic	A list of agreement spec characteristics (AgreementSpecCharacteristic [*]). A characteristic quality or distinctive feature of an agreement.
specificationRelationship	A list of agreement specification relationships (AgreementSpecificationRelationship [*]). A relationship between agreement specifications. Typical relationships are substitution and dependency.
validFor	A time period. The period for which the agreement specification is valid.
version	A string. Agreement specification version.

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.
specCharacteristicValue	A list of agreement spec characteristic values (AgreementSpecCharacteristicValue [*]). A number or text that can be assigned to an agreement specification characteristic.
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.

AgreementSpecCharacteristicValue sub-resource

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

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	An any (Any). 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.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.
relationshipType	A string. Type of relationship such as, substitution or dependency.
validFor	A time period. The period for which the relationship is valid.

AttachmentRefOrValue sub-resource

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

@referredType	A string. The actual type of the target instance when needed for disambiguation.
description	A string. A narrative text describing the content of the attachment.
href	A string. URI for this Attachment.
id	A string. Unique identifier for this particular attachment.
url	A string. Uniform Resource Locator, is a web page address (a subset of URI).
name	A string. The name of the attachment.
attachmentType	A string. Attachment type such as video, picture.
content	A string. The actual contents of the attachment object, if embedded, encoded as base64.

contentType	A string. Attachment mime type such as extension file for video, picture and document.
size	A quantity (Quantity). The size of the attachment.
validFor	A time period. The period of time for which the attachment is valid.

Quantity sub-resource

An amount in a given unit.

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

RelatedParty sub-resource

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

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.
role	A string. Role played by the related party.

CategoryRef relationship

The category for grouping recommendations.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.
version	A string. Category version.

Json representation sample

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

```
{
  "@type": "AgreementSpecification",
  "href": "https://host:port/tmf-api/agreementManagement/v4/agreementSpecification/1140",
  "id": "1140",
  "name": "Moon Agreement Template",
  "lifecycleStatus": "Approved",
}
```

```
"version": "2.0",
"validFor": {
  "startDateTime": "2018-06-12T00:00Z",
  "endDateTime": "2019-01-11T00:00Z"
},
"specificationCharacteristic": [
  {
    "name": "fidelityProgram",
    "configurable": true,
    "valueType": "string"
  }
],
"relatedParty": [
  {
    "@referredType": "Organization",
    "href": "https://host:port/tmf-api/partyManagement/v4/organization/2777",
    "id": "2777",
    "name": "John Doe",
    "role": "bill receiver"
  }
]
}
```

NOTIFICATION RESOURCE MODELS

8 notifications are defined for this API

Notifications related to Agreement:

- AgreementCreateEvent
- AgreementAttributeValueChangeEvent
- AgreementStateChangeEvent
- AgreementDeleteEvent

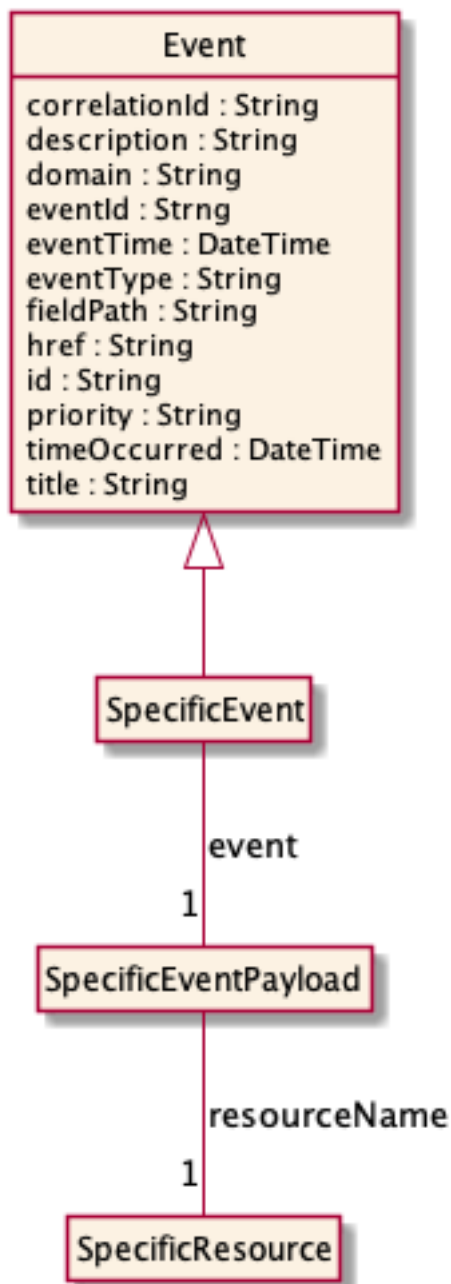
Notifications related to AgreementSpecification:

- AgreementSpecificationCreateEvent
- AgreementSpecificationAttributeValueChangeEvent
- AgreementSpecificationStateChangeEvent
- AgreementSpecificationDeleteEvent

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

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

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



Agreement Create Event

Notification AgreementCreateEvent case for resource Agreement

Json representation sample

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

```

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

```
    {-- SEE Agreement RESOURCE SAMPLE --}  
  }  
}
```

Agreement Attribute Value Change Event

Notification AgreementAttributeValueChangeEvent case for resource Agreement

Json representation sample

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

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

Agreement State Change Event

Notification AgreementStateChangeEvent case for resource Agreement

Json representation sample

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

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

Agreement Delete Event

Notification AgreementDeleteEvent case for resource Agreement

Json representation sample

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

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

Agreement Specification Create Event

Notification AgreementSpecificationCreateEvent case for resource AgreementSpecification

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "AgreementSpecificationCreateEvent",
  "event": {
    "agreementSpecification": :
      {-- SEE AgreementSpecification RESOURCE SAMPLE --}
  }
}
```

Agreement Specification Attribute Value Change Event

Notification AgreementSpecificationAttributeValueChangeEvent case for resource AgreementSpecification

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "AgreementSpecificationAttributeValueChangeEvent",
  "event": {
    "agreementSpecification": :
      {-- SEE AgreementSpecification RESOURCE SAMPLE --}
  }
}
```

Agreement Specification State Change Event

Notification AgreementSpecificationStateChangeEvent case for resource AgreementSpecification

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "AgreementSpecificationStateChangeEvent",
  "event": {
    "agreementSpecification" :
      {-- SEE AgreementSpecification RESOURCE SAMPLE --}
  }
}
```

Agreement Specification Delete Event

Notification AgreementSpecificationDeleteEvent case for resource AgreementSpecification

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "AgreementSpecificationDeleteEvent",
  "event": {
    "agreementSpecification" :
      {-- SEE AgreementSpecification 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

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)

Request
GET /tmf-api/agreementManagement/v4/agreement?fields=id,name&status=approved&engagedParty.name="So Magic Ltd" Accept: application/json
Response
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 /tmf-api/agreementManagement/v4/agreement/4989 Accept: application/json
Response
200 <pre>{ "@type": "Agreement", "href": "https://host:port/tmf-api/agreementManagement/v4/agreement/4989", "id": "4989", "description": "This agreement ...", "name": "Summer Contract Agreement", "initialDate": "2015-10-16T00:00Z", "completionDate": "2018-11-25T00:00Z", "agreementPeriod": { "startDateTime": "2018-04-20T00:00", "endDateTime": "2018-11-20T00:00" }, "documentNumber": 11, "statementOfIntent": "Agreement on minimum prices", "status": "process", "agreementType": "commercial", "version": "1.5", "agreementSpecification": { "@referredType": "AgreementSpecification", "description": "This agreement specification defines the environment protection rules to be followed by each party.", "href": "https://host:port/tmf-api/agreementManagement/v4/agreementSpecification/2633", "id": "2633", "name": "General Agreement Specification" }, "agreementItem": [{ "productOffering": [{ "@typr": "ProductOffering", "href": "https://host:port/tmf-api/productCatalogManagement/v4/productOffering/9085", "id": "9085", "name": "My Quick BB Offer" }] }, { "termOrCondition": [{ "description": "This agreement term or condition ...", </pre>

```

        "id": "5890",
        "validFor": {
            "startDateTime": "2018-04-25T00:00",
            "endDateTime": "2018-11-20T00:00"
        }
    }
],
"engagedParty": [
    {
        "@referredType": "Organization",
        "href": "https://host:port/tmf-api/partyManagement/v4/organization/330",
        "id": "330",
        "role": "Supplier",
        "name": "Magic Tools Company"
    }
],
"agreementAuthorization": [
    {
        "date": "2018-04-24T00:00Z",
        "signatureRepresentation": "Dr Mabuse",
        "state": "approved"
    }
],
"characteristic": [
    [
        {
            "name": "country",
            "value": "Spain"
        },
        {
            "name": "confidentialLevel",
            "value": "high"
        }
    ]
],
"associatedAgreement": [
    [
        {
            "@referredType": "Agreement",
            "name": "General Partnership Agreement",
            "href": "https://host:port/tmf-api/agreementManagement/v4/agreement/5453"
        }
    ]
]
}

```

Create agreement

POST /agreement

Description

This operation creates an agreement entity.

Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a 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
agreementItem	
engagedParty	
name	
agreementType	

Non Mandatory Attributes	Rule
agreementAuthorization	
agreementPeriod	
agreementSpecification	
associatedAgreement	
characteristic	
completionDate	
description	
documentNumber	
initialDate	
statementOfIntent	
status	
version	

Additional Rules

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

Context	Mandatory Sub-Attributes
engagedParty	name

Default Values

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

Attributes	Default Value
completionDate	Current date
version	0

Usage Samples

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

Request
<pre> POST /tmf-api/agreementManagement/v4/agreement Content-Type: application/json { "name": "Summer Contract Agreement", "agreementType": "commercial", "agreementItem": [{ "productOffering": [{ "@referredType": "ProductOffering", "href": "https://host:port/tmf-api/productCatalogManagement/v4/productOffering/9085", "id": "9085", "name": "My Quick BB Offer" }], "termOrCondition": [{ "description": "This agreement term or condition ...", "id": "5890", "validFor": { "startDateTime": "2018-04-25T00:00Z", "endDateTime": "2018-11-20T00:00Z" } }] }], "engagedParty": [{ "@referredType": "Organization", "href": "https://host:port/tmf-api/partyManagement/v4/organization/330", "id": "330", "role": "Supplier", "name": "Magic Tools Company" }] } </pre>
Response
<pre> 201 { "@type": "Agreement", </pre>

```

    "href": "https://host:port/tmf-api/agreementManagement/v4/agreement/28",
    "id": "28",
    "name": "Summer Contract Agreement",
    "agreementType": "commercial",
    "agreementItem": [
      {
        "productOffering": [
          {
            "@referredType": "ProductOffering",
            "href": "https://host:port/tmf-api/productCatalogManagement/v4/productOffering/9085",
            "id": "9085",
            "name": "My Quick BB Offer"
          }
        ],
        "termOrCondition": [
          {
            "description": "This agreement term or condition ...",
            "id": "5890",
            "validFor": {
              "startDateTime": "2018-04-25T00:00Z",
              "endDateTime": "2018-11-20T00:00Z"
            }
          }
        ]
      }
    ],
    "engagedParty": [
      {
        "@referredType": "Organization",
        "href": "https://host:port/tmf-api/partyManagement/v4/organization/330",
        "id": "330",
        "role": "Supplier",
        "name": "Magic Tools Company"
      }
    ]
  }
}

```

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.

Patchable Attributes	Rule
agreementAuthorization	
agreementItem	
agreementPeriod	
agreementSpecification	
agreementType	
associatedAgreement	
characteristic	
description	
documentNumber	
engagedParty	
initialDate	
name	
statementOfIntent	
status	
version	

Non Patchable Attributes	Rule
completionDate	
href	
id	

Usage Samples

Here's an example of a request for patching a Agreement resource.
Changing the status of the agreement as rejected (using JSON merge-patch).

Request
PATCH /tmf-api/agreementManagement/v4/agreement/42 Content-Type: application/merge-patch+json <pre>{ "status": "rejected" }</pre>
Response
200


```
{ Similar JSON as in GET response with status changed }
```

Delete agreement

DELETE /agreement/{id}

Description

This operation deletes an agreement entity.

Usage Samples

This operation deletes a Agreement resource.

Request
DELETE /tmf-api/agreementManagement/v4/agreement/42
Response
204

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

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

Request
GET /tmf-api/agreementManagement/v4/agreementSpecification?fields=id,name&relatedParty.name="Army" Accept: application/json
Response
200 <pre>[{ "id": "5434", "name": "General Maintenance" }, { "id": "9080", "name": "Secret" }]</pre>

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 an AgreementSpecification resource

Request
GET /tmf-api/agreementManagement/v4/agreementSpecification/9320 Accept: application/json
Response
200

```

{
  "@type": "AgreementSpecification",
  "description": "This agreement specification defines the environment protection rules to be followed by each party.",
  "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/9320",
  "id": "9320",
  "isBundle": false,
  "lastUpdate": "2018-04-24T00:00Z",
  "lifecycleStatus": "initialized",
  "name": "General Agreement Specification",
  "validFor": {
    "startDateTime": "2018-04-23T00:00Z",
    "endDateTime": "2018-11-20T00:00Z"
  },
  "version": "3.0",
  "serviceCategory": {
    "href": "https://host:port/tmf-api/productCatalogManagement/v2/category/1545",
    "id": "1545",
    "name": "Secure Home"
  },
  "specCharacteristic": [
    {
      "configurable": true,
      "description": "This agreement spec characteristic ...",
      "name": "Phone color",
      "validFor": {
        "startDateTime": "2018-04-27T00:00Z",
        "endDateTime": "2018-11-20T00:00Z"
      },
      "valueType": "string",
      "specCharacteristicValue": [
        {
          "default": false,
          "unitOfMeasure": "Hz",
          "validFor": {
            "startDateTime": "2018-04-27T00:00Z",
            "endDateTime": "2018-11-20T00:00Z"
          },
          "value": "yellow",
          "valueType": "string"
        }
      ]
    }
  ],
  "relatedParty": [
    {
      "@referredParty": "Organization",
      "href": "https://host:port/tmf-api/partyManagement/v2/organization/7401",
      "id": "7401",
      "name": "Jimmy Doe",
      "role": "bill responsible"
    }
  ],
  "attachment": [
    {
      "@referredParty": "Attachment",

```

```

    "href": "http://hostname:port/tmf-api/documentManagement/v1/attachment/44",
    "id": "44",
    "attachmentType": "Video",
    "url": "http://xxxxx"
  },
  "specificationRelationship": [
    {
      "@type": "AgreementSpecification",
      "href": "https://host:port/tmf-api/agreementManagement/v2/agreementSpecification/2481",
      "id": "2481",
      "relationshipType": "dependency",
      "validFor": {
        "startDateTime": "2018-04-23T00:00Z",
        "endDateTime": "2018-11-20T00:00Z"
      }
    }
  ]
}

```

Create agreement specification

POST /agreementSpecification

Description

This operation creates an agreement specification entity.

Mandatory and Non Mandatory Attributes

The following tables provide 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
attachment	
name	

Non Mandatory Attributes	Rule
description	
isBundle	
lastUpdate	
lifecycleStatus	
relatedParty	
serviceCategory	
specificationCharacteristic	
specificationRelationship	
validFor	
version	

Default Values

When creating the resource, the following table provides 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 an AgreementSpecification resource.

Request
<pre>POST /tmf-api/agreementManagement/v4/agreementSpecification Content-Type: application/json { "name": "General Agreement Specification", "attachment": [{ "href": "http://tmf-api/name:port/tmf-api/documentManagement/v1/attachment/44", "id": "44", "attachmentType": "Video", "url": "http://xxxxx" }] }</pre>
Response
<pre>201 { "@type": "AgreementSpecification", "href": "https://host:port/tmf-api/agreementManagement/v4/agreementSpecification/9320", "id": "9320", "isBundle": false, "name": "General Agreement Specification", "attachment": [{ "@referredType": "Attachment", "href": "http://hostname:port/tmf-api/documentManagement/v4/attachment/44", "id": "44", "attachmmentType": "Video", "url": "http://xxxxx" }] }</pre>

Patch agreement specification**PATCH /agreementSpecification/{id}****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.

Patchable Attributes	Rule
attachment	
description	
isBundle	
lastUpdate	
lifecycleStatus	
name	
relatedParty	
serviceCategory	
specificationCharacteristic	
specificationRelationship	
validFor	
version	

Non Patchable Attributes	Rule
href	
id	

Usage Samples

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

Adding an attachment document to the the agreement specification (using JSON merge-patch).

Request
PATCH /tmf-api/agreementManagement/v4/agreementSpecification/42 Content-Type: application/merge-patch+json

```
{
  "attachment": [
    {
      "url": "http://www.allmydocs.fr/agreement_standard.pdf",
      "agreementType": "Document"
    }
  ]
}
```

Response

200

{ Similar JSON as in GET response with attachment changed }

Delete agreement specification**DELETE** /agreementSpecification/{id}**Description**

This operation deletes an agreement specification entity.

Usage Samples

This operation deletes a AgreementSpecification resource.

Request

DELETE /tmf-api/agreementManagement/v4/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.

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.

Usage Samples

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

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

Publish Event to listener

POST /client/listener

Description

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

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

Behavior

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

Usage Samples

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

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

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

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Document History

Version History

Version Number	Date	Release led by:	Description
1.0	15-Apr-2016	Pierre Gauthier TM Forum pgauthier@tmforum.org Mariano Belaunde Orange mariano.belaunde@orange.com	First Release of the Document. Generated from the API Data Model.
2.0	24-Apr-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 2.0.2	10-Sep-2018	Adrienne Walcott	Updated to reflect TM Forum Approved Status
4.0	11-Aug-2019	Mariano Belaunde Orange Labs	Regeneration after schematization
4.0.1	29-Nov-2019	Adrienne Walcott	Updated to reflect TM Forum Approved Status

Release History

Release Number	Date	Release led by:	Description
Release 18.0.0	25-Jun-2018	Pierre Gauthier Mariano Belaunde	Initial Release
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Release 19.0.0	11-Aug-2019	Mariano Belaunde Orange Labs	Regeneration after schematization

Release Number	Date	Release led by:	Description
19.0.1	29-Nov-2019	Adrienne Walcott	Updated to reflect TM Forum Approved Status

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