

TM Forum Specification

Test Environment Management API User Guide

TMF705

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Introduction

The following document is the specification of the REST API for test environment management. It includes the model definition as well as all available operations.

SAMPLE USE CASES

The reader will find examples of use cases in TMF913 “Test API Component Suite” 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 `AbstractEnvironment` and `ConcreteEnvironmentMetaModel` inheriting properties from the abstract `ManagedArtifact` 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 `ManagedArtifact` instances some may be instances of `AbstractEnvironment` where other could be instances of `ConcreteEnvironmentMetaModel`. 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 `@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.

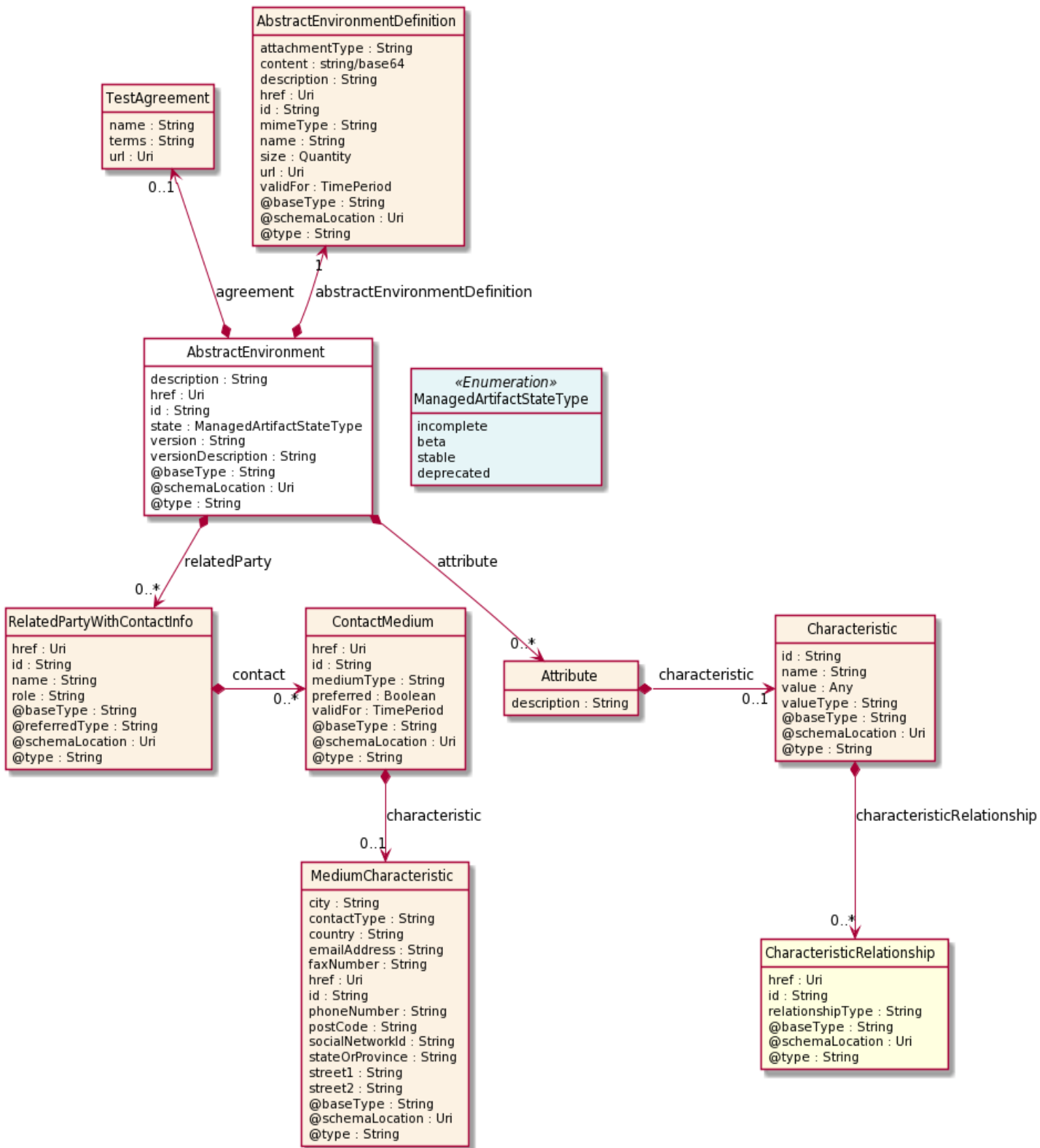
RESOURCE MODEL

Managed Entity and Task Resource Models

Abstract Environment resource

A managed abstract environment resource.

Resource model



Field descriptions

AbstractEnvironment fields

description	A string. The description for the artifact.
version	A string. The artifact version.
versionDescription	A string. The artifact version description.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
abstractEnvironmentDefinition	An abstract environment definition (AbstractEnvironmentDefinition). Abstract environment definition.
agreement	A test agreement (TestAgreement).
attribute	A list of attributes (Attribute [*]).
relatedParty	A list of related party with contact infos (RelatedPartyWithContactInfo [*]). Related party specialization that includes contact information.
state	A managed artifact state type (ManagedArtifactStateType). Possible values for the state of a managed artifact: 'incomplete', 'beta', 'stable', 'deprecated'.

AbstractEnvironmentDefinition sub-resource

Abstract environment definition.

attachmentType	A string. Attachment type such as video, picture.
content	A base 6 4 (Base64). The actual contents of the attachment object, if embedded, encoded as base64.
description	A string. A narrative text describing the content of the attachment.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.

contentType	A string. Attachment mime type such as extension file for video, picture and document.
name	A string. The name of the attachment.
url	An uri (Uri). Uniform Resource Locator, is a web page address (a subset of URI).
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
size	A quantity (Quantity). The size of the attachment.
validFor	A time period. The period of time for which the attachment is valid.

Attribute sub-resource

characteristic	A characteristic (Characteristic). Describes a given characteristic of an object or entity through a name/value pair.
description	A string. The attribute description.

Characteristic sub-resource

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

@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
characteristicRelationship	A list of characteristic relationships (CharacteristicRelationship [*]). Another Characteristic that is related to the current Characteristic.
id	A string. Unique identifier of the characteristic.
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.

CharacteristicRelationship sub-resource

Another Characteristic that is related to the current Characteristic.

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

ContactMedium sub-resource

Indicates the contact medium that could be used to contact the party.

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
characteristic	A medium characteristic (MediumCharacteristic). Any additional characteristic(s) of this contact medium.
mediumType	A string. Type of the contact medium, such as: email address, telephone number, postal address.
preferred	A boolean. If true, indicates that is the preferred contact medium.
validFor	A time period. The time period that the contact medium is valid for.

MediumCharacteristic sub-resource

Describes the contact medium characteristics that could be used to contact a party (an individual or an organization).

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.

@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
city	A string. The city.
contactType	A string. The type of contact, for example: phone number such as mobile, fixed home, fixed office. postal address such as shipping installation....
country	A string. The country.
emailAddress	A string. Full email address in standard format.
faxNumber	A string. The fax number of the contact.
phoneNumber	A string. The primary phone number of the contact.
postCode	A string. Postcode.
socialNetworkId	A string. Identifier as a member of a social network.
stateOrProvince	A string. State or province.
street1	A string. Describes the street.
street2	A string. Complementary street description.

Quantity sub-resource

An amount in a given unit.

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

RelatedPartyWithContactInfo sub-resource

Related party specialization that includes contact information.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
role	A string. Role played by the related party.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.

@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
contact	A list of contact mediums (ContactMedium [*]). Indicates the contact medium that could be used to contact the party.

TestAgreement sub-resource

name	A string. The agreement name.
terms	A string. The terms of the agreement.
url	An uri (Uri). The agreement URL.

Json representation sample

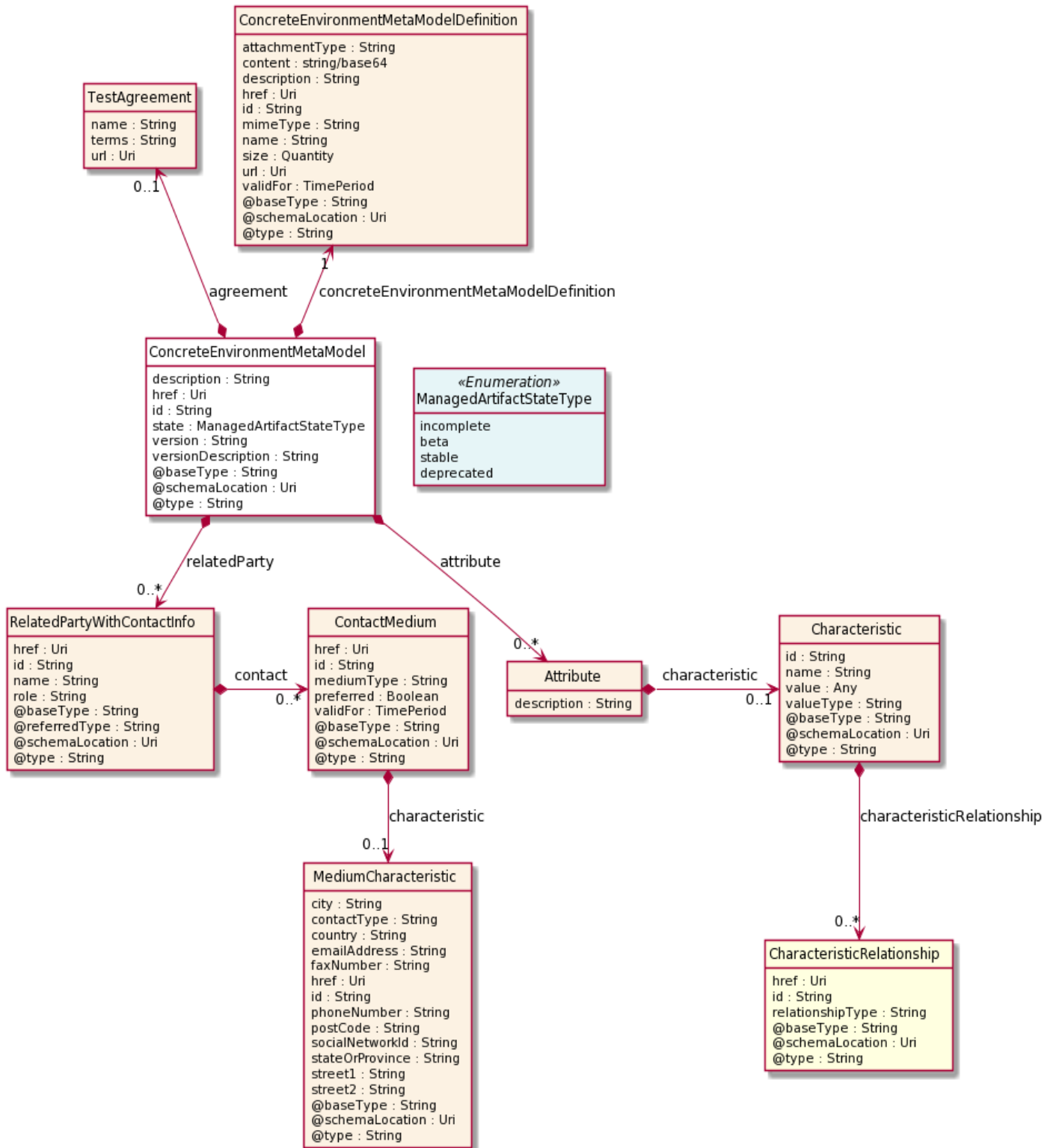
We provide below the json representation of an example of an 'AbstractEnvironment' resource object

```
{
  "id": "f4cfa280-f0d7-45e5-99f8-11ba6059c0dd",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd",
  "description": "Sample abstract test environment",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "incomplete",
  "abstractEnvironmentDefinition": {
    "attachmentType": "json",
    "content": "<base64-encoded abstract environment>",
    "mimeType": "base64"
  }
}
```


Concrete Environment Meta Model resource

A managed concrete environment resource metamodel resource.

Resource model



Field descriptionsConcreteEnvironmentMetaModel fields

description	A string. The description for the artifact.
version	A string. The artifact version.
versionDescription	A string. The artifact version description.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
concreteEnvironmentMetaModelDefinition	A concrete environment meta model definition (ConcreteEnvironmentMetaModelDefinition). Test environment metamodel definition.
agreement	A test agreement (TestAgreement).
attribute	A list of attributes (Attribute [*]).
relatedParty	A list of related party with contact infos (RelatedPartyWithContactInfo [*]). Related party specialization that includes contact information.
state	A managed artifact state type (ManagedArtifactStateType). Possible values for the state of a managed artifact: 'incomplete', 'beta', 'stable', 'deprecated'.

Attribute sub-resource

characteristic	A characteristic (Characteristic). Describes a given characteristic of an object or entity through a name/value pair.
----------------	---

description A string. The attribute description.

Characteristic sub-resource

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

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

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

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

characteristicRelationship A list of characteristic relationships (CharacteristicRelationship [*]). Another Characteristic that is related to the current Characteristic.

id A string. Unique identifier of the characteristic.

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.

CharacteristicRelationship sub-resource

Another Characteristic that is related to the current Characteristic.

href An uri (Uri). Hyperlink reference.

id A string. Unique identifier of the characteristic.

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

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

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

relationshipType A string. The type of relationship.

ConcreteEnvironmentMetaModelDefinition sub-resource

Test environment metamodel definition.

attachmentType A string. Attachment type such as video, picture.

content A base 6 4 (Base64). The actual contents of the attachment object, if embedded, encoded as base64.

description	A string. A narrative text describing the content of the attachment.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
mimeType	A string. Attachment mime type such as extension file for video, picture and document.
name	A string. The name of the attachment.
url	An uri (Uri). Uniform Resource Locator, is a web page address (a subset of URI).
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
size	A quantity (Quantity). The size of the attachment.
validFor	A time period. The period of time for which the attachment is valid.

ContactMedium sub-resource

Indicates the contact medium that could be used to contact the party.

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
characteristic	A medium characteristic (MediumCharacteristic). Any additional characteristic(s) of this contact medium.
mediumType	A string. Type of the contact medium, such as: email address, telephone number, postal address.
preferred	A boolean. If true, indicates that is the preferred contact medium.
validFor	A time period. The time period that the contact medium is valid for.

MediumCharacteristic sub-resource

Describes the contact medium characteristics that could be used to contact a party (an individual or an organization).

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
city	A string. The city.
contactType	A string. The type of contact, for example: phone number such as mobile, fixed home, fixed office. postal address such as shipping installation....
country	A string. The country.
emailAddress	A string. Full email address in standard format.
faxNumber	A string. The fax number of the contact.
phoneNumber	A string. The primary phone number of the contact.
postCode	A string. Postcode.
socialNetworkId	A string. Identifier as a member of a social network.
stateOrProvince	A string. State or province.
street1	A string. Describes the street.
street2	A string. Complementary street description.

Quantity sub-resource

An amount in a given unit.

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

RelatedPartyWithContactInfo sub-resource

Related party specialization that includes contact information.

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

TestAgreement sub-resource

name	A string. The agreement name.
terms	A string. The terms of the agreement.
url	An uri (Uri). The agreement URL.

Json representation sample

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

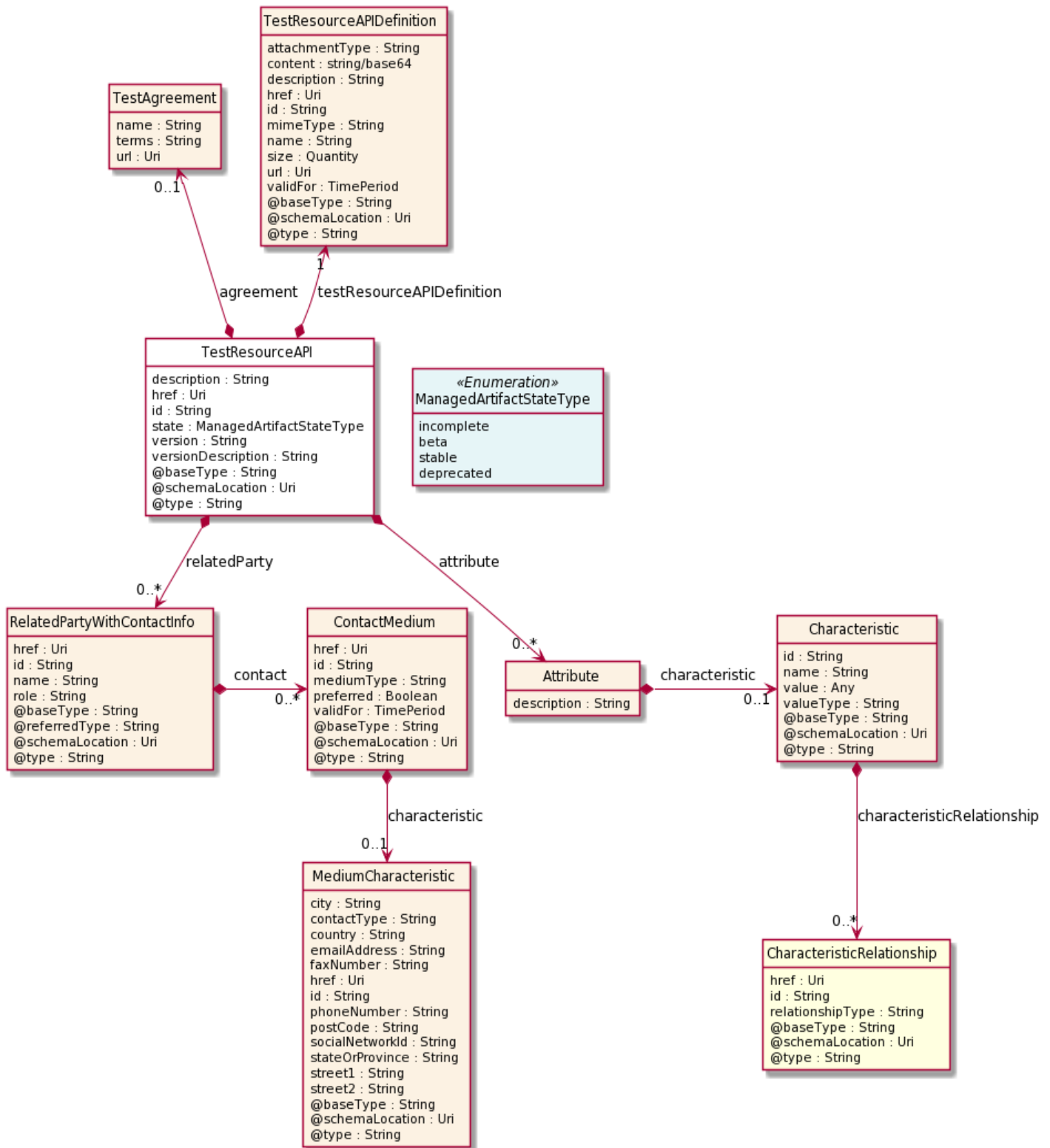
```
{
  "id": "962ce846-4afa-48fb-91cf-9ab7104a8e18",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18",
  "description": "Sample concrete environment metamodel",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ]
}
```

```
    }  
  ],  
  "state": "stable",  
  "concreteEnvironmentMetaModelDefinition": {  
    "attachmentType": "json",  
    "content": "<base64-encoded concrete environment metamodel>",  
    "mimeType": "base64"  
  }  
}
```

Test Resource A P I resource

A managed test resource API resource.

Resource model



Field descriptions

TestResourceAPI fields

description	A string. The description for the artifact.
version	A string. The artifact version.
versionDescription	A string. The artifact version description.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
testResourceAPIDefinition	A test resource a p i definition (TestResourceAPIDefinition). Test resource API definition.
agreement	A test agreement (TestAgreement).
attribute	A list of attributes (Attribute [*]).
relatedParty	A list of related party with contact infos (RelatedPartyWithContactInfo [*]). Related party specialization that includes contact information.
state	A managed artifact state type (ManagedArtifactStateType). Possible values for the state of a managed artifact: 'incomplete', 'beta', 'stable', 'deprecated'.

Attribute sub-resource

characteristic	A characteristic (Characteristic). Describes a given characteristic of an object or entity through a name/value pair.
description	A string. The attribute description.

Characteristic sub-resource

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

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

@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
characteristicRelationship	A list of characteristic relationships (CharacteristicRelationship [*]). Another Characteristic that is related to the current Characteristic.
id	A string. Unique identifier of the characteristic.
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.

CharacteristicRelationship sub-resource

Another Characteristic that is related to the current Characteristic.

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

ContactMedium sub-resource

Indicates the contact medium that could be used to contact the party.

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

mediumType	A string. Type of the contact medium, such as: email address, telephone number, postal address.
preferred	A boolean. If true, indicates that is the preferred contact medium.
validFor	A time period. The time period that the contact medium is valid for.

MediumCharacteristic sub-resource

Describes the contact medium characteristics that could be used to contact a party (an individual or an organization).

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
city	A string. The city.
contactType	A string. The type of contact, for example: phone number such as mobile, fixed home, fixed office. postal address such as shipping installation....
country	A string. The country.
emailAddress	A string. Full email address in standard format.
faxNumber	A string. The fax number of the contact.
phoneNumber	A string. The primary phone number of the contact.
postCode	A string. Postcode.
socialNetworkId	A string. Identifier as a member of a social network.
stateOrProvince	A string. State or province.
street1	A string. Describes the street.
street2	A string. Complementary street description.

Quantity sub-resource

An amount in a given unit.

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

RelatedPartyWithContactInfo sub-resource

Related party specialization that includes contact information.

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

TestAgreement sub-resource

name	A string. The agreement name.
terms	A string. The terms of the agreement.
url	An uri (Uri). The agreement URL.

TestResourceAPIDefinition sub-resource

Test resource API definition.

attachmentType	A string. Attachment type such as video, picture.
content	A base 6 4 (Base64). The actual contents of the attachment object, if embedded, encoded as base64.
description	A string. A narrative text describing the content of the attachment.
href	An uri (Uri). Hyperlink reference.

id	A string. unique identifier.
mimeType	A string. Attachment mime type such as extension file for video, picture and document.
name	A string. The name of the attachment.
url	An uri (Uri). Uniform Resource Locator, is a web page address (a subset of URI).
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
size	A quantity (Quantity). The size of the attachment.
validFor	A time period. The period of time for which the attachment is valid.

Json representation sample

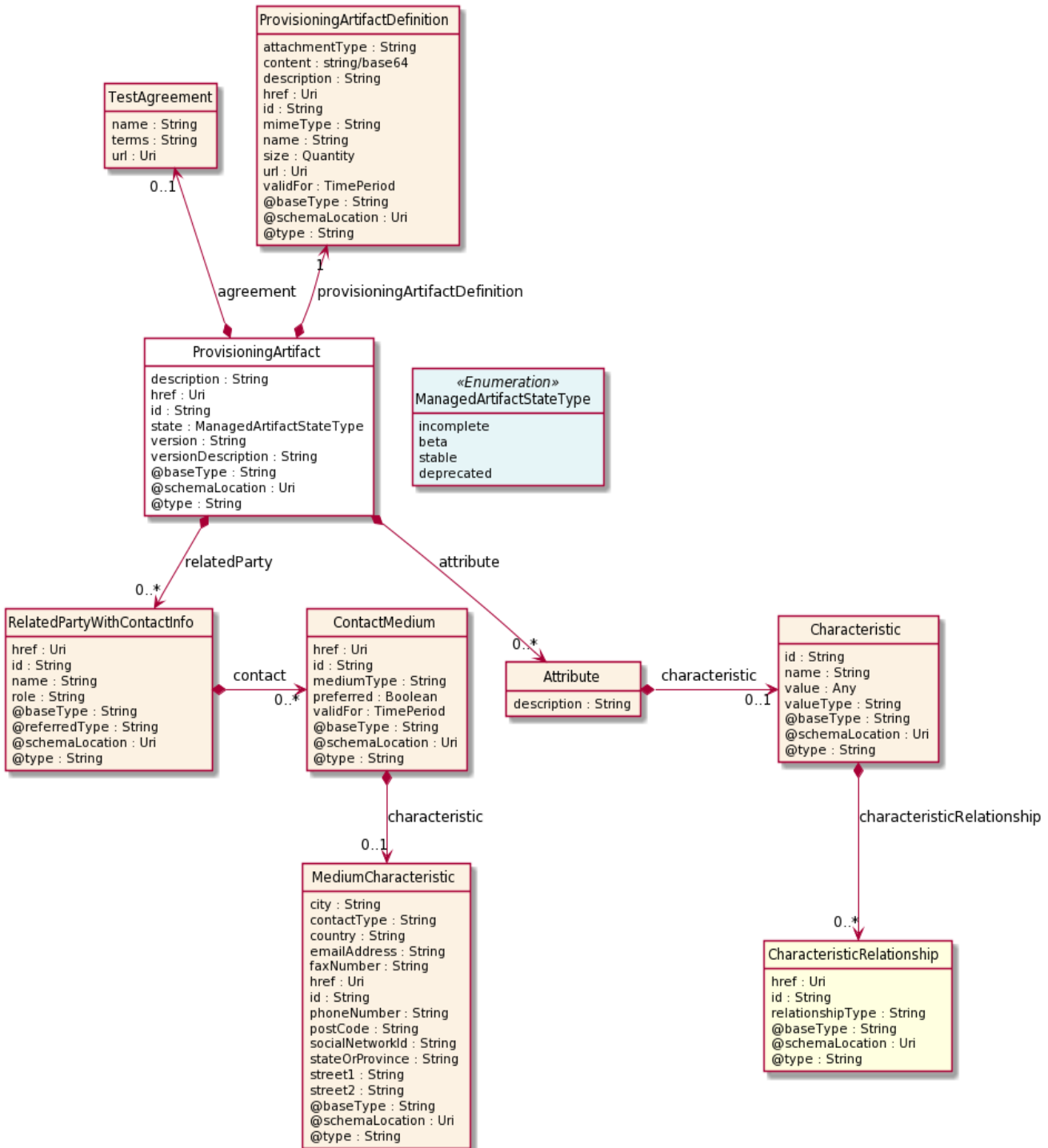
We provide below the json representation of an example of a 'TestResourceAPI' resource object

```
{
  "id": "894f2eef-e8f9-4cad-bfb2-5ae534717086",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/testResourceApi/894f2eef-e8f9-4cad-bfb2-5ae534717086",
  "description": "Sample test resource API",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "testResourceAPIDefinition": {
    "attachmentType": "json",
    "content": "<base64-encoded test resource API>",
    "mimeType": "base64"
  }
}
```

Provisioning Artifact resource

A managed provisioning artifact resource.

Resource model



Field descriptions

ProvisioningArtifact fields

description	A string. The description for the artifact.
version	A string. The artifact version.
versionDescription	A string. The artifact version description.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
provisioningArtifactDefinition	A provisioning artifact definition (ProvisioningArtifactDefinition). Provisioning artifact definition.
agreement	A test agreement (TestAgreement).
attribute	A list of attributes (Attribute [*]).
relatedParty	A list of related party with contact infos (RelatedPartyWithContactInfo [*]). Related party specialization that includes contact information.
state	A managed artifact state type (ManagedArtifactStateType). Possible values for the state of a managed artifact: 'incomplete', 'beta', 'stable', 'deprecated'.

Attribute sub-resource

characteristic	A characteristic (Characteristic). Describes a given characteristic of an object or entity through a name/value pair.
description	A string. The attribute description.

Characteristic sub-resource

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

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

@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
characteristicRelationship	A list of characteristic relationships (CharacteristicRelationship [*]). Another Characteristic that is related to the current Characteristic.
id	A string. Unique identifier of the characteristic.
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.

CharacteristicRelationship sub-resource

Another Characteristic that is related to the current Characteristic.

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

ContactMedium sub-resource

Indicates the contact medium that could be used to contact the party.

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

mediumType	A string. Type of the contact medium, such as: email address, telephone number, postal address.
preferred	A boolean. If true, indicates that is the preferred contact medium.
validFor	A time period. The time period that the contact medium is valid for.

MediumCharacteristic sub-resource

Describes the contact medium characteristics that could be used to contact a party (an individual or an organization).

href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.
@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
city	A string. The city.
contactType	A string. The type of contact, for example: phone number such as mobile, fixed home, fixed office. postal address such as shipping installation....
country	A string. The country.
emailAddress	A string. Full email address in standard format.
faxNumber	A string. The fax number of the contact.
phoneNumber	A string. The primary phone number of the contact.
postCode	A string. Postcode.
socialNetworkId	A string. Identifier as a member of a social network.
stateOrProvince	A string. State or province.
street1	A string. Describes the street.
street2	A string. Complementary street description.

ProvisioningArtifactDefinition sub-resource

Provisioning artifact definition.

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

RelatedPartyWithContactInfo sub-resource

Related party specialization that includes contact information.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
role	A string. Role played by the related party.
name	A string. Name of the related entity.
href	An uri (Uri). Hyperlink reference.
id	A string. unique identifier.

@baseType	A string. When sub-classing, this defines the super-class.
@schemaLocation	An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class Extensible name.
contact	A list of contact mediums (ContactMedium [*]). Indicates the contact medium that could be used to contact the party.

TestAgreement sub-resource

name	A string. The agreement name.
terms	A string. The terms of the agreement.
url	An uri (Uri). The agreement URL.

Json representation sample

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

```
{
  "id": "bd73ed1f-05fa-4a08-a461-835242ee505a",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a",
  "description": "Sample provisioning artifact",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "provisioningArtifactDefinition": {
    "attachmentType": "script",
    "content": "<base64-encoded provisioning artifact>",
    "mimeType": "base64"
  }
}
```

Notification Resource Models

20 notifications are defined for this API

Notifications related to AbstractEnvironment:

- AbstractEnvironmentCreateEvent
- AbstractEnvironmentChangeEvent
- AbstractEnvironmentDeleteEvent
- AbstractEnvironmentAttributeValueChangeEvent
- AbstractEnvironmentStateChangeEvent

Notifications related to ConcreteEnvironmentMetaModel:

- ConcreteEnvironmentMetaModelCreateEvent
- ConcreteEnvironmentMetaModelChangeEvent
- ConcreteEnvironmentMetaModelDeleteEvent
- ConcreteEnvironmentMetaModelAttributeValueChangeEvent
- ConcreteEnvironmentMetaModelStateChangeEvent

Notifications related to TestResourceAPI:

- TestResourceAPICreateEvent
- TestResourceAPIChangeEvent
- TestResourceAPIDeleteEvent
- TestResourceAPIAttributeValueChangeEvent
- TestResourceAPIStateChangeEvent

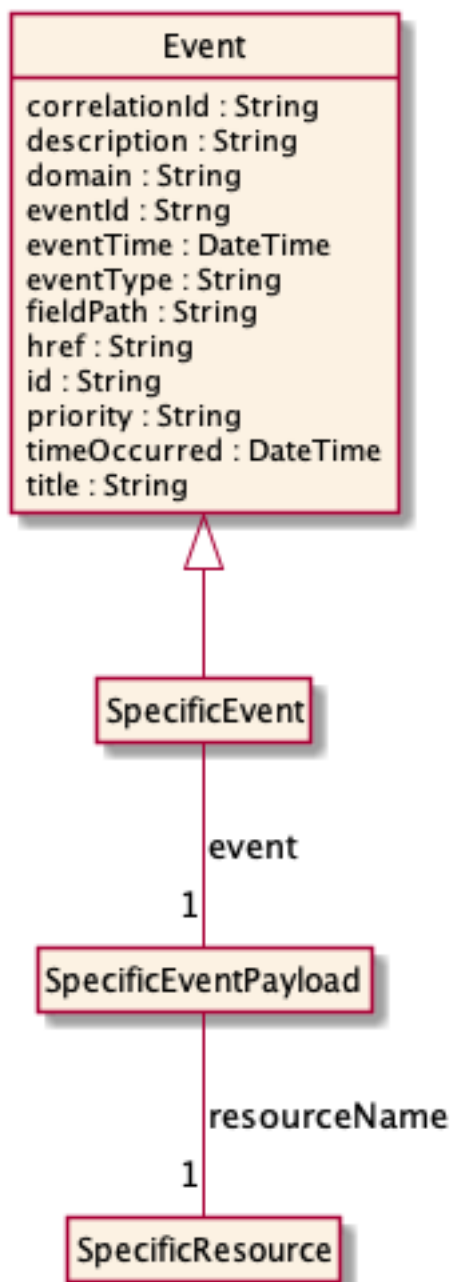
Notifications related to ProvisioningArtifact:

- ProvisioningArtifactCreateEvent
- ProvisioningArtifactChangeEvent
- ProvisioningArtifactDeleteEvent
- ProvisioningArtifactAttributeValueChangeEvent
- ProvisioningArtifactStateChangeEvent

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).



Abstract Environment Create Event

Notification `AbstractEnvironmentCreateEvent` case for resource `AbstractEnvironment`

Json representation sample

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

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

```
"eventType":"AbstractEnvironmentCreateEvent",
"event": {
  "abstractEnvironment" :
    {-- SEE AbstractEnvironment RESOURCE SAMPLE --}
}
}
```

Abstract Environment Change Event

Notification AbstractEnvironmentChangeEvent case for resource AbstractEnvironment

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AbstractEnvironmentChangeEvent",
  "event": {
    "abstractEnvironment" :
      {-- SEE AbstractEnvironment RESOURCE SAMPLE --}
  }
}
```

Abstract Environment Delete Event

Notification AbstractEnvironmentDeleteEvent case for resource AbstractEnvironment

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AbstractEnvironmentDeleteEvent",
  "event": {
    "abstractEnvironment" :
      {-- SEE AbstractEnvironment RESOURCE SAMPLE --}
  }
}
```

Abstract Environment Attribute Value Change Event

Notification AbstractEnvironmentAttributeValueChangeEvent case for resource AbstractEnvironment

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AbstractEnvironmentAttributeValueChangeEvent",
  "event": {
    "abstractEnvironment" :
      {-- SEE AbstractEnvironment RESOURCE SAMPLE --}
  }
}
```

Abstract Environment State Change Event

Notification AbstractEnvironmentStateChangeEvent case for resource AbstractEnvironment

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"AbstractEnvironmentStateChangeEvent",
  "event": {
    "abstractEnvironment" :
      {-- SEE AbstractEnvironment RESOURCE SAMPLE --}
  }
}
```

Concrete Environment Meta Model Create Event

Notification ConcreteEnvironmentMetaModelCreateEvent case for resource ConcreteEnvironmentMetaModel

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"ConcreteEnvironmentMetaModelCreateEvent",
  "event": {
    "concreteEnvironmentMetaModel" :
      {-- SEE ConcreteEnvironmentMetaModel RESOURCE SAMPLE --}
  }
}
```

```
}  
}
```

Concrete Environment Meta Model Change Event

Notification ConcreteEnvironmentMetaModelChangeEvent case for resource ConcreteEnvironmentMetaModel

Json representation sample

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

```
{  
  "eventId":"00001",  
  "eventTime":"2015-11-16T16:42:25-04:00",  
  "eventType":"ConcreteEnvironmentMetaModelChangeEvent",  
  "event": {  
    "concreteEnvironmentMetaModel" :  
      {-- SEE ConcreteEnvironmentMetaModel RESOURCE SAMPLE --}  
  }  
}
```

Concrete Environment Meta Model Delete Event

Notification ConcreteEnvironmentMetaModelDeleteEvent case for resource ConcreteEnvironmentMetaModel

Json representation sample

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

```
{  
  "eventId":"00001",  
  "eventTime":"2015-11-16T16:42:25-04:00",  
  "eventType":"ConcreteEnvironmentMetaModelDeleteEvent",  
  "event": {  
    "concreteEnvironmentMetaModel" :  
      {-- SEE ConcreteEnvironmentMetaModel RESOURCE SAMPLE --}  
  }  
}
```

Concrete Environment Meta Model Attribute Value Change Event

Notification ConcreteEnvironmentMetaModelAttributeValueChangeEvent case for resource ConcreteEnvironmentMetaModel

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "ConcreteEnvironmentMetaModelAttributeValueChangeEvent",
  "event": {
    "concreteEnvironmentMetaModel" :
      {-- SEE ConcreteEnvironmentMetaModel RESOURCE SAMPLE --}
  }
}
```

Concrete Environment Meta Model State Change Event

Notification ConcreteEnvironmentMetaModelStateChangeEvent case for resource ConcreteEnvironmentMetaModel

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "ConcreteEnvironmentMetaModelStateChangeEvent",
  "event": {
    "concreteEnvironmentMetaModel" :
      {-- SEE ConcreteEnvironmentMetaModel RESOURCE SAMPLE --}
  }
}
```

Test Resource A P I Create Event

Notification TestResourceAPICreateEvent case for resource TestResourceAPI

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "TestResourceAPICreateEvent",
  "event": {
    "testResourceAPI" :
      {-- SEE TestResourceAPI RESOURCE SAMPLE --}
  }
}
```

```
}
```

Test Resource A P I Change Event

Notification TestResourceAPIChangeEvent case for resource TestResourceAPI

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"TestResourceAPIChangeEvent",
  "event": {
    "testResourceAPI" :
      {-- SEE TestResourceAPI RESOURCE SAMPLE --}
  }
}
```

Test Resource A P I Delete Event

Notification TestResourceAPIDeleteEvent case for resource TestResourceAPI

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"TestResourceAPIDeleteEvent",
  "event": {
    "testResourceAPI" :
      {-- SEE TestResourceAPI RESOURCE SAMPLE --}
  }
}
```

Test Resource A P I Attribute Value Change Event

Notification TestResourceAPIAttributeValueChangedEvent case for resource TestResourceAPI

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "TestResourceAPIAttributeValueChangeEvent",
  "event": {
    "testResourceAPI":
      {-- SEE TestResourceAPI RESOURCE SAMPLE --}
  }
}
```

Test Resource A P I State Change Event

Notification TestResourceAPIStateChangeEvent case for resource TestResourceAPI

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "TestResourceAPIStateChangeEvent",
  "event": {
    "testResourceAPI":
      {-- SEE TestResourceAPI RESOURCE SAMPLE --}
  }
}
```

Provisioning Artifact Create Event

Notification ProvisioningArtifactCreateEvent case for resource ProvisioningArtifact

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "ProvisioningArtifactCreateEvent",
  "event": {
    "provisioningArtifact":
      {-- SEE ProvisioningArtifact RESOURCE SAMPLE --}
  }
}
```

Provisioning Artifact Change Event

Notification ProvisioningArtifactChangeEvent case for resource ProvisioningArtifact

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"ProvisioningArtifactChangeEvent",
  "event": {
    "provisioningArtifact" :
      {-- SEE ProvisioningArtifact RESOURCE SAMPLE --}
  }
}
```

Provisioning Artifact Delete Event

Notification ProvisioningArtifactDeleteEvent case for resource ProvisioningArtifact

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"ProvisioningArtifactDeleteEvent",
  "event": {
    "provisioningArtifact" :
      {-- SEE ProvisioningArtifact RESOURCE SAMPLE --}
  }
}
```

Provisioning Artifact Attribute Value Change Event

Notification ProvisioningArtifactAttributeValueChangeEvent case for resource ProvisioningArtifact

Json representation sample

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

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

```
"eventType":"ProvisioningArtifactAttributeValueChangeEvent",
"event": {
  "provisioningArtifact" :
    {-- SEE ProvisioningArtifact RESOURCE SAMPLE --}
}
}
```

Provisioning Artifact State Change Event

Notification ProvisioningArtifactStateChangeEvent case for resource ProvisioningArtifact

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"ProvisioningArtifactStateChangeEvent",
  "event": {
    "provisioningArtifact" :
      {-- SEE ProvisioningArtifact RESOURCE SAMPLE --}
  }
}
```

API OPERATIONS

Remember the following Uniform Contract:

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

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

Notifications are also described in a subsequent section.

Operations on Abstract Environment

List abstract environments

GET /abstractEnvironment?fields=...&{filtering}

Description

This operation list abstract environment 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 a list of abstract test environment(s).

Request
<pre>GET /tmf-api/testEnvironment/v4/abstractEnvironment Accept: application/json</pre>
Response
<pre>200 [{ "id": "f4cfa280-f0d7-45e5-99f8-11ba6059c0dd", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd", "description": "Sample abstract test environment", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }] }, "state": "incomplete", "abstractEnvironmentDefinition": { "content": "<base64-encoded abstract environment> - please see Example 1 in Appendix 1", "mimeType": "base64", "url": "http://myservice.com/abstractEnvironment/1234" } }]</pre>

Retrieve abstract environment

GET /abstractEnvironment/{id}?fields=...&{filtering}

Description

This operation retrieves an abstract environment entity.

Attribute selection is enabled for all first level attributes.

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

Usage Samples

Here's an example of a request for retrieving a specific abstract test environment.

Request
GET /tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd Accept: application/json
Response
<pre> 200 { "id": "f4cfa280-f0d7-45e5-99f8-11ba6059c0dd", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd", "description": "Sample abstract test environment", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }], "state": "incomplete", "abstractEnvironmentDefinition": { "content": "<base64-encoded abstract environment> - please see Example 1 in Appendix 1", "mimeType": "base64", "url": "http://myservice.com/abstractEnvironment/1234" } } </pre>

Create abstract environment

POST /abstractEnvironment

Description

This operation creates an abstract environment entity.

Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a AbstractEnvironment, 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
description	
version	
termsOfService	
contact	
license	
abstractEnvironmentDefinition	

Non Mandatory Attributes	Rule
versionDescription	
@baseType	
@schemaLocation	
@type	
agreement	
attribute	
relatedParty	
state	

Usage Samples

Here's an example of a request for creating an abstract test environment.

Request
POST /tmf-api/testEnvironment/v4/abstractEnvironment Content-Type: application/json <pre>{ "description": "Sample abstract test environment", "version": "1.2.3", "relatedParty": [{ "name": "testUser",</pre>

```

    "@referredType": "Individual",
    "role": "Owner",
    "contact": [
      {
        "mediumType": "email",
        "characteristic": {
          "emailAddress": "testUser@abc.com"
        }
      }
    ]
  },
  "state": "incomplete",
  "abstractEnvironmentDefinition": {
    "attachmentType": "json",
    "content": "<base64-encoded abstract environment> - please see Example 1 in Appendix 1",
    "mimeType": "base64"
  }
}

```

Response

201

```

{
  "id": "f4cfa280-f0d7-45e5-99f8-11ba6059c0dd",
  "href": "https://myscp:8080/tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd",
  "description": "Sample abstract test environment",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "abstractEnvironmentDefinition": {
    "content": "<base64-encoded abstract environment> - please see Example 1 in Appendix 1",
    "mimeType": "base64",
    "url": "http://myservice.com/abstractEnvironment/1234"
  }
}

```

```
}

```

Patch abstract environment

PATCH /abstractEnvironment/{id}

Description

This operation allows partial updates of an abstract environment 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
description	
versionDescription	
@baseType	
@schemaLocation	
@type	
abstractEnvironmentDefinition	
agreement	
attribute	
relatedParty	
state	

Non Patchable Attributes	Rule
id	
href	
version	

Usage Samples

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

Request

PATCH /tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd
 Content-Type: application/merge-patch+json

```
{
  "name": "new name"
}
```

Response

200

```
{
  "id": "f4cfa280-f0d7-45e5-99f8-11ba6059c0dd",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd",
  "description": "Sample abstract test environment",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "incomplete",
  "abstractEnvironmentDefinition": {
    "attachmentType": "json",
    "content": "<base64-encoded abstract environment>",
    "mimeType": "base64"
  },
  "name": "new name"
}
```

Delete abstract environment

DELETE /abstractEnvironment/{id}

Description

This operation deletes an abstract environment entity.

Usage Samples

Here's an example of a request for deleting an abstract test environment.

Request
DELETE /tmf-api/testEnvironment/v4/abstractEnvironment/f4cfa280-f0d7-45e5-99f8-11ba6059c0dd
Response
204

Operations on Concrete Environment Meta Model

List concrete environment meta models

GET /concreteEnvironmentMetaModel?fields=...&{filtering}

Description

This operation list concrete environment meta model 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 a list of concrete environment metamodel(s).

Request
GET /tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel Accept: application/json
Response
200 [{ "id": "962ce846-4afa-48fb-91cf-9ab7104a8e18", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-

```

91cf-9ab7104a8e18",
  "description": "Sample concrete environment metamodel",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "concreteEnvironmentMetaModelDefinition": {
    "content": "<base64-encoded concrete environment metamodel> - please see Example 2 in Appendix 1",
    "mimeType": "base64",
    "url": "http://myservice.com/concreteEnvironmentMetaModel/1234"
  }
}
]

```

Retrieve concrete environment meta model

GET

`/concreteEnvironmentMetaModel/{id}?fields=...&{filtering}`

Description

This operation retrieves a concrete environment meta model entity.

Attribute selection is enabled for all first level attributes.

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

Usage Samples

Here's an example of a request for retrieving a specific concrete environment metamodel.

Request

```

GET /tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18
Accept: application/json

```

```

Response

200

{
  "id": "962ce846-4afa-48fb-91cf-9ab7104a8e18",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18",
  "description": "Sample concrete environment metamodel",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "concreteEnvironmentMetaModelDefinition": {
    "content": "<base64-encoded concrete environment metamodel> - please see Example 2 in Appendix 1",
    "mimeType": "base64",
    "url": "http://myservice.com/concreteEnvironmentMetaModel/1234"
  }
}
    
```

Create concrete environment meta model

POST /concreteEnvironmentMetaModel

Description

This operation creates a concrete environment meta model entity.

Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a ConcreteEnvironmentMetaModel, 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
description	
version	

Mandatory Attributes	Rule
termsOfService	
contact	
license	
concreteEnvironmentMetaModelDefinition	

Non Mandatory Attributes	Rule
versionDescription	
@baseType	
@schemaLocation	
@type	
agreement	
attribute	
relatedParty	
state	

Usage Samples

Here's an example of a request for creating a concrete environment metamodel.

Request
POST /tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel Content-Type: application/json <pre>{ "description": "Sample concrete environment metamodel", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "@referredType": "Individual", "role": "Owner", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }] }, "state": "incomplete", "concreteEnvironmentMetaModelDefinition": { "attachmentType": "json", "content": "<base64-encoded concrete environment metamodel> - please see Example 2 in Appendix 1", "mimeType": "base64" } }</pre>

}
Response
<pre> 201 { "id": "962ce846-4afa-48fb-91cf-9ab7104a8e18", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18", "description": "Sample concrete environment metamodel", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }], "state": "stable", "concreteEnvironmentMetaModelDefinition": { "content": "<base64-encoded concrete environment metamodel> - please see Example 2 in Appendix 1", "mimeType": "base64", "url": "http://myservice.com/concreteEnvironmentMetaModel/1234" } } </pre>

Patch concrete environment meta model

PATCH /concreteEnvironmentMetaModel/{id}

Description

This operation allows partial updates of a concrete environment meta model 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
description	
versionDescription	
@baseType	
@schemaLocation	
@type	
concreteEnvironmentMetaModelDefinition	
agreement	
attribute	
relatedParty	
state	

Non Patchable Attributes	Rule
id	
href	
version	

Usage Samples

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

Request
<pre>PATCH /tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18 Content-Type: application/merge-patch+json { "name": "new name" }</pre>
Response
<pre>200 { "id": "962ce846-4afa-48fb-91cf-9ab7104a8e18", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18", "description": "Sample concrete environment metamodel", "version": "1.2.3", "relatedParty": [</pre>

```

{
  "name": "testUser",
  "role": "Owner",
  "@referredType": "Individual",
  "contact": [
    {
      "mediumType": "email",
      "characteristic": {
        "emailAddress": "testUser@abc.com"
      }
    }
  ]
},
"state": "stable",
"concreteEnvironmentMetaModelDefinition": {
  "attachmentType": "json",
  "content": "<base64-encoded concrete environment metamodel>",
  "mimeType": "base64"
},
"name": "new name"
}

```

Delete concrete environment meta model

DELETE /concreteEnvironmentMetaModel/{id}

Description

This operation deletes a concrete environment meta model entity.

Usage Samples

Here's an example of a request for deleting a concrete environment metamodel.

Request
DELETE /tmf-api/testEnvironment/v4/concreteEnvironmentMetaModel/962ce846-4afa-48fb-91cf-9ab7104a8e18
Response
204

Operations on Test Resource A P I

List test resource a p i s

GET /testResourceAPI?fields=...&{filtering}

Description

This operation list test resource a p i 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 a list of provisioning artifact(s).

Request
GET /tmf-api/testEnvironment/v4/testResourceAPI Accept: application/json
Response
200 [{ "id": "894f2eef-e8f9-4cad-bfb2-5ae534717086", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/testResourceApi/894f2eef-e8f9-4cad-bfb2-5ae534717086", "description": "Sample test resource API", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }] }],

```

"state": "stable",
"testResourceAPIDefinition": {
  "content": "<base64-encoded test resource API> - please see Example 4 in Appendix 1",
  "mimeType": "base64",
  "url": "http://myservice.com/testResourceApi/1234"
}
}
]
    
```

Retrieve test resource a p i

GET /testResourceAPI/{id}?fields=...&{filtering}

Description

This operation retrieves a test resource a p i entity.

Attribute selection is enabled for all first level attributes.

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

Usage Samples

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

Request
GET /tmf-api/testEnvironment/v4/testResourceAPI/894f2eef-e8f9-4cad-bfb2-5ae534717086 Accept: application/json
Response
200 { "id": "894f2eef-e8f9-4cad-bfb2-5ae534717086", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/testResourceApi/894f2eef-e8f9-4cad-bfb2-5ae534717086", "description": "Sample test resource API", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": {

```

        "emailAddress": "testUser@abc.com"
      }
    }
  ]
},
"state": "stable",
"testResourceAPIDefinition": {
  "content": "<base64-encoded test resource API> - please see Example 4 in Appendix 1",
  "mimeType": "base64",
  "url": "http://myservice.com/testResourceApi/1234"
}
}

```

Create test resource a p i

POST /testResourceAPI

Description

This operation creates a test resource a p i entity.

Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a TestResourceAPI, 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
description	
version	
termsOfService	
contact	
license	
testResourceAPIDefinition	

Non Mandatory Attributes	Rule
versionDescription	
@baseType	
@schemaLocation	
@type	
agreement	
attribute	
relatedParty	
state	

Usage Samples

Here's an example of a request for creating a provisioning artifact.

Request
<pre> POST /tmf-api/testEnvironment/v4/testResourceAPI Content-Type: application/json { "description": "Sample abstract test resource API", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "@referredType": "Individual", "role": "Owner", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }], "state": "stable", "testResourceAPIDefinition": { "attachmentType": "json", "content": "<base64-encoded test resource API> - please see Example 4 in Appendix 1", "mimeType": "base64" } } </pre>
Response
<pre> 201 { "id": "894f2eef-e8f9-4cad-bfb2-5ae534717086", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/testResourceApi/894f2eef-e8f9-4cad-bfb2-5ae534717086", "description": "Sample test resource API", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }] } </pre>

```

        "mediumType": "email",
        "characteristic": {
            "emailAddress": "testUser@abc.com"
        }
    ]
},
"state": "stable",
"testResourceAPIDefinition": {
    "content": "<base64-encoded test resource API> - please see Example 4 in Appendix 1",
    "mimeType": "base64",
    "url": "http://myservice.com/testResourceApi/1234"
}
}

```

Patch test resource a p i

PATCH /testResourceAPI/{id}

Description

This operation allows partial updates of a test resource a p i 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
description	
versionDescription	
@baseType	
@schemaLocation	
@type	
testResourceAPIDefinition	
agreement	
attribute	
relatedParty	
state	

Non Patchable Attributes	Rule
id	
href	
version	

Usage Samples

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

Request
PATCH /tmf-api/testEnvironment/v4/testResourceAPI/894f2eef-e8f9-4cad-bfb2-5ae534717086 Content-Type: application/merge-patch+json <pre>{ "name": "new name" }</pre>
Response
200 <pre>{ "id": "894f2eef-e8f9-4cad-bfb2-5ae534717086", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/testResourceAPI/894f2eef-e8f9-4cad-bfb2-5ae534717086", "description": "Sample test resource API", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }], "state": "stable", "testResourceAPIDefinition": { "attachmentType": "json", "content": "<base64-encoded test resource API>", "mimeType": "base64" }, "name": "new name" }</pre>

```
}
```

Delete test resource a p i

```
DELETE /testResourceAPI/{id}
```

Description

This operation deletes a test resource a p i entity.

Usage Samples

Here's an example of a request for deleting a provisioning artifact.

Request
DELETE /tmf-api/testEnvironment/v4/testResourceAPI/894f2eef-e8f9-4cad-bfb2-5ae534717086
Response
204

Operations on Provisioning Artifact

List provisioning artifacts

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

Description

This operation list provisioning artifact 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 a list of provisioning artifact(s).

Request
GET /tmf-api/testEnvironment/v4/provisioningArtifact Accept: application/json
Response
<pre> 200 [{ "id": "bd73ed1f-05fa-4a08-a461-835242ee505a", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a", "description": "Sample provisioning artifact", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }], "state": "stable", "provisioningArtifactDefinition": { "content": "<base64-encoded provisioning artifact> - please see Example 3 in Appendix 1", "mimeType": "base64", "url": "http://myservice.com/provisioningArtifact/1234" } }] </pre>

Retrieve provisioning artifact

GET /provisioningArtifact/{id}?fields=...&{filtering}

Description

This operation retrieves a provisioning artifact entity.

Attribute selection is enabled for all first level attributes.

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

Usage Samples

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

Request
GET /tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a Accept: application/json
Response
200 <pre>{ "id": "bd73ed1f-05fa-4a08-a461-835242ee505a", "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a", "description": "Sample provisioning artifact", "version": "1.2.3", "relatedParty": [{ "name": "testUser", "role": "Owner", "@referredType": "Individual", "contact": [{ "mediumType": "email", "characteristic": { "emailAddress": "testUser@abc.com" } }] }], "state": "stable", "provisioningArtifactDefinition": { "content": "<base64-encoded provisioning artifact> - please see Example 3 in Appendix 1", "mimeType": "base64", "url": "http://myservice.com/provisioningArtifact/1234" } }</pre>

Create provisioning artifact**POST /provisioningArtifact****Description**

This operation creates a provisioning artifact entity.

Mandatory and Non Mandatory Attributes

The following tables provide the list of mandatory and non mandatory attributes when creating a ProvisioningArtifact, 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
description	
version	
termsOfService	
contact	
license	
provisioningArtifactDefinition	

Non Mandatory Attributes	Rule
versionDescription	
@baseType	
@schemaLocation	
@type	
agreement	
attribute	
relatedParty	
state	

Usage Samples

Here's an example of a request for creating a provisioning artifact.

Request
POST /tmf-api/testEnvironment/v4/provisioningArtifact Content-Type: application/json <pre>{ "description": "Sample Sample provisioning artifact", "version": "1.2.3", "relatedParty": [{ "name": "testUser",</pre>

```

    "@referredType": "Individual",
    "role": "Owner",
    "contact": [
      {
        "mediumType": "email",
        "characteristic": {
          "emailAddress": "testUser@abc.com"
        }
      }
    ]
  },
  "state": "stable",
  "provisioningArtifactDefinition": {
    "attachmentType": "script",
    "content": "<base64-encoded provisioning artifact> - please see Example 3 in Appendix 1",
    "mimeType": "base64"
  }
}

```

Response

201

```

{
  "id": "bd73ed1f-05fa-4a08-a461-835242ee505a",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a",
  "description": "Sample provisioning artifact",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "provisioningArtifactDefinition": {
    "content": "<base64-encoded provisioning artifact> - please see Example 3 in Appendix 1",
    "mimeType": "base64",
    "url": "http://myservice.com/provisioningArtifact/1234"
  }
}

```

```
}

```

Patch provisioning artifact

PATCH /provisioningArtifact/{id}

Description

This operation allows partial updates of a provisioning artifact 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
description	
versionDescription	
@baseType	
@schemaLocation	
@type	
provisioningArtifactDefinition	
agreement	
attribute	
relatedParty	
state	

Non Patchable Attributes	Rule
id	
href	
version	

Usage Samples

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

Request

```
PATCH /tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a
Content-Type: application/merge-patch+json
```

```
{
  "name": "new name"
}
```

Response

```
200
```

```
{
  "id": "bd73ed1f-05fa-4a08-a461-835242ee505a",
  "href": "https://mycsp:8080/tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a",
  "description": "Sample provisioning artifact",
  "version": "1.2.3",
  "relatedParty": [
    {
      "name": "testUser",
      "role": "Owner",
      "@referredType": "Individual",
      "contact": [
        {
          "mediumType": "email",
          "characteristic": {
            "emailAddress": "testUser@abc.com"
          }
        }
      ]
    }
  ],
  "state": "stable",
  "provisioningArtifactDefinition": {
    "attachmentType": "script",
    "content": "<base64-encoded provisioning artifact>",
    "mimeType": "base64"
  },
  "name": "new name"
}
```

Delete provisioning artifact

DELETE /provisioningArtifact/{id}

Description

This operation deletes a provisioning artifact entity.

Usage Samples

Here's an example of a request for deleting a provisioning artifact.

Request
DELETE /tmf-api/testEnvironment/v4/provisioningArtifact/bd73ed1f-05fa-4a08-a461-835242ee505a
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
POST /client/listener Accept: application/json { "event": { EVENT BODY }, "eventType": "EVENT_TYPE" }
Response
201

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


```

    "type": "singleCondition",
    "attribute": "type",
    "operator": "equals",
    "value": "iPhone"
  },
  "api": [
    {
      "id": "894f2eef-e8f9-4cad-bfb2-5ae534717086"
    }
  ]
}
}
}
}
}

```

Example 3. Provisioning artifact representation example

Encoded value
<p>ewogICAgInByb3Zpc2lvbmZ0YydGlmYWN0TmFtZSI6ICJpUGhvbmlhZGRhYmVQcm9maWx1MSIsCiAgICAicHJvdmVzW9uaW5nQXJ0aWZ3Y3RUeXBlljogImFwcGx1UHJvZmVsZSIKICAgICJwcm9maWx1lJogJiw/eG1sIHZlcnNpb2494oCZMS4w4oCZIGVuY29kaW5nPeKAmVVURi044oCZPz4KPCFETONUWVBFIHBSaXN0IFBVQkxJQyDigJgtLy9BcHBsZS8vRFREIFBMSVNUIDEuMCA8vRU7igJkg4oCYaHR0cDovL3d3dy5hcHBsZS5jb20vRFREcy9Qcm9wZXJ0eUxpc3QtMS4wLmR0ZOKAmT4KPHBSaXN0IHZlcnNpb2494oCZMS4w4oCZPgo8ZGljdD4KICAgIDxrZXk+Q29tbWFuZDwva2V5PgogICAgPGRpY3Q+CiAgICAgICAgICAgIDwhLS1iYXNILTY0IGVuY29kZWQgaVBob25IIHByb2ZpbGUuIFNlZSBBCkBsZSBkZXZlbG9wZXIgdW1lbnRhdGlvbiBmb3JgZXh5hbsZXMgLS0+CiAgICAgICAgICAgPC9kYXRhPgoICAgICAgIDxrZXk+UmVxdWVzdFR5cGU8L2tleT4KICAgICAgICAgICA8c3RyaW5nPkLuc3RhbGxQcm92aXNpb25pbmdQcm9maWx1PC9zdHJpbmc+CiAgICA8L2Rpy3Q+CiAgICAgICA8a2V5PkNvbW1hbmRVVUUEPC9rZXk+CiAgICAgICA8c3RyaW5nPkAwMDDFSW5zdGFsbFByb3Zpc2lvbmZ0Y2lvbmZ1Byb2ZpbGU8L3N0cm9kaWx1PC9kaWN0Pgo8L3BSaXN0PiIKfQo=</p>
Original /decoded JSON object
<pre> { "provisioningArtifactName": "iPhoneProfile1", "provisioningArtifactType": "appleProfile" "profile": "<?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" 'http://www.apple.com/DTDs/PropertyList-1.0.dtd'> <plist version='1.0'> <dict> <key>Command</key> <dict> <key>ProvisioningProfile</key> <data> <!--base-64 encoded iPhone profile. See Apple developer documentation for relevant examples --> </data> <key>RequestType</key> <string>InstallProvisioningProfile</string> </dict> </pre>

Acknowledgements

Document History

Version History

Version Number	Date Modified	Modified by:	Description of changes
4.0.0	21-Sep-2020	Alan Pope	Final edits for initial release

Release History

Release Status	Date	Release led by:	Description
Pre-production	21-Sep-2020	Pierre Gauthier TM Forum pgauthier@tmforum.org Edward Pershwitz ITEA Technologies edward.pershwitz@iteatechnologies.com	First Release of the Document.

Contributors to Document

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