Customer Management

NOTICE

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Introduction

The following document is the specification of the Async API for Customer Management. It includes the model definition as well as all available operations.

It provides a standardized mechanism for customer and customer account management such as creation, update, retrieval, deletion and notification of events.

Customer can be a person, an organization or another service provider who buys products from an enterprise. Customer management API allows management of identification and financial information about him.

Customer management API manages the following data resources:

- **Customer**
  - Customer represents a person or organization that buys products and services from the enterprise or receives free offers or services. Customers can also be other service providers who resell the enterprises products, other service providers that lease the enterprise's resources for utilization by the other service provider's products and services, and so forth.
  - Customer resource contains information about the customer. Main attributes are its identifier, name, status and validity, description, characteristics, contact medium, related customer account, related party, customer credit profile information

The customer management API performs the following operation on customer:

- Retrieval, creation, full or partial update and deletion of customers.

API Dependencies

This API assumes that the information regarding customer *accounts* and *payment means* is obtained by accessing the *Account Management API*.

This API assumes that the information regarding related parties is obtained by accessing the *Party Management API*.

Sample Use Cases

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

Support of polymorphism and extension patterns

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

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

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

Customer resource

Resource model

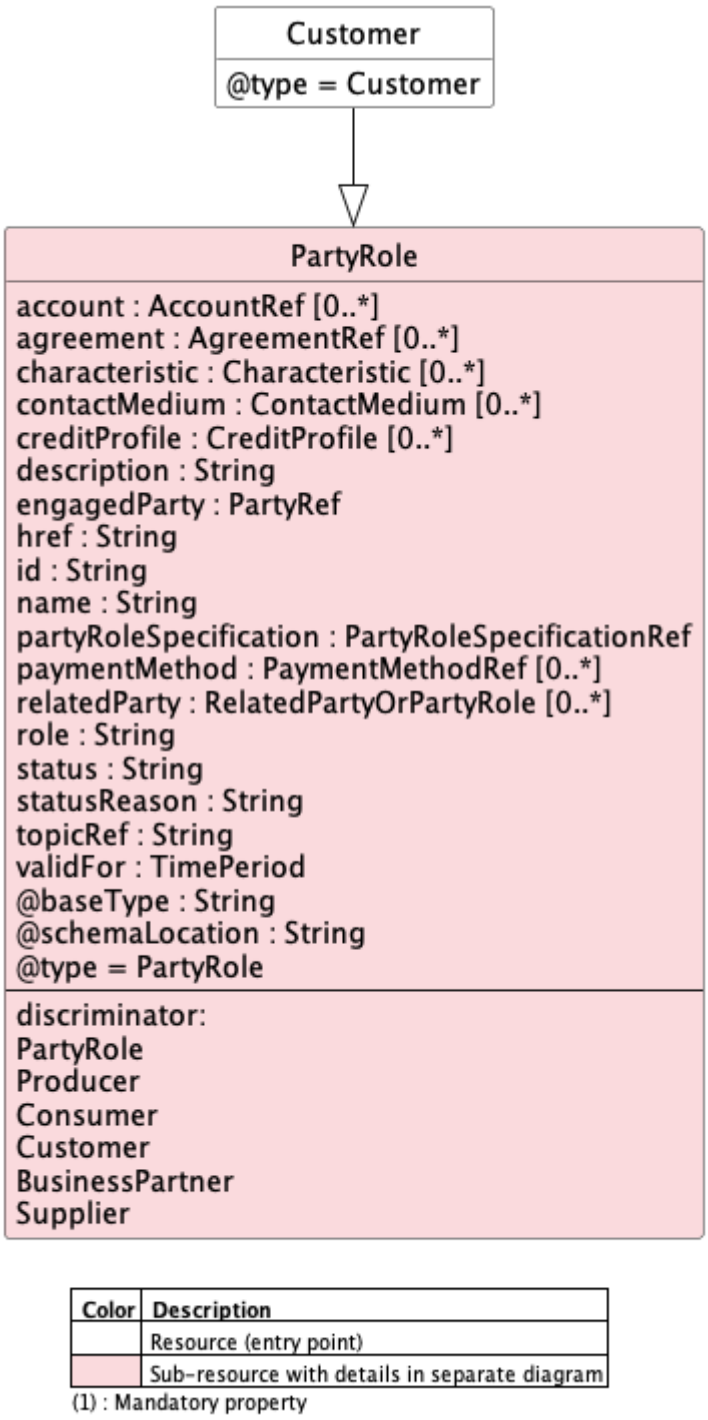

Figure 1 - Customer

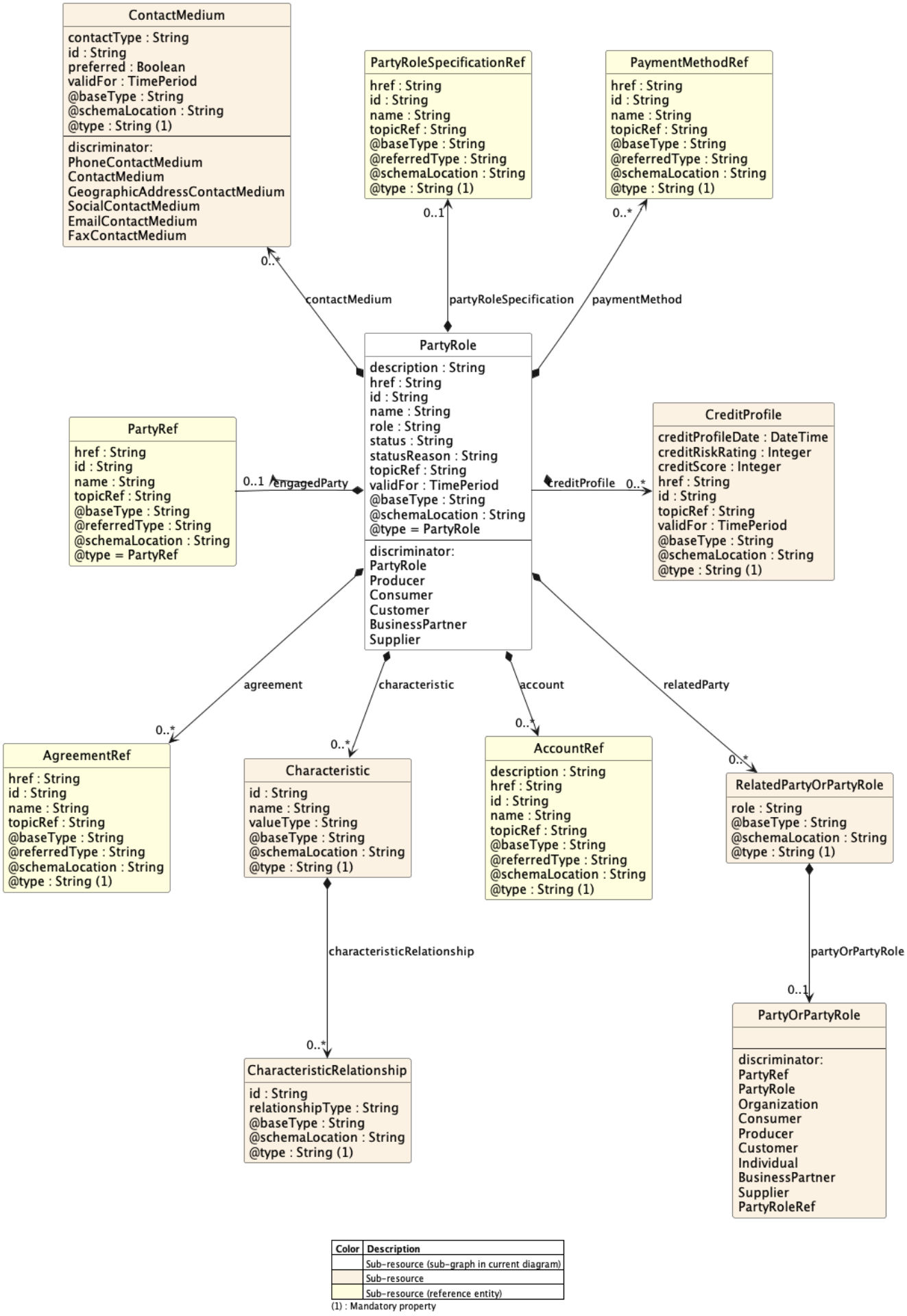

Figure 2 - PartyRole

Field descriptions

Customer fields

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

AccountRef sub-resource fields

description	A String. Detailed description of the account.
href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. Name of the referred entity.
topicRef	A String. A reference to the topic from which this entity can be fetched.
@baseType	A String. When sub-classing, this defines the super-class.
@referredType	A String. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

AgreementRef sub-resource fields

href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. Name of the referred entity.
topicRef	A String. A reference to the topic from which this entity can be fetched.
@baseType	A String. When sub-classing, this defines the super-class.
@referredType	A String. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

Characteristic sub-resource fields

characteristicRelationship	A 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.
valueType	A String. Data type of the value of the characteristic.
@baseType	A String. When sub-classing, this defines the super-class.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

CharacteristicRelationship sub-resource fields

id	A String. Unique identifier of the characteristic.
relationshipType	A String. The type of relationship.
@baseType	A String. When sub-classing, this defines the super-class.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

ContactMedium sub-resource fields

contactType	A String. Type of the contact medium to qualifiy it like pro email / personal email. This is not used to define the contact medium used.
id	A String. Identifier for this contact medium.
preferred	A Boolean. If true, indicates that is the preferred contact medium.
validFor	A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both.
@baseType	A String. When sub-classing, this defines the super-class.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

CreditProfile sub-resource fields

creditProfileDate	A DateTime. The date the profile was established.
creditRiskRating	An Integer. This is an integer whose value is used to rate the risk.

creditScore	An Integer. A measure of a person or organizations creditworthiness calculated on the basis of a combination of factors such as their income and credit history.
href	A String. Hyperlink reference.
id	A String. Unique identifier.
topicRef	A String. A reference to the topic from which this entity can be fetched.
validFor	A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both.
@baseType	A String. When sub-classing, this defines the super-class.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

EmailContactMedium sub-resource fields

emailAddress	A String. Full email address in standard format.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

FaxContactMedium sub-resource fields

faxNumber	A String. The fax number of the contact.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

GeographicAddressContactMedium sub-resource fields

city	A String. The city.
country	A String. The country.
geographicAddress	A GeographicAddressRef. Reference to a Geographic Address.
postCode	A String. Postcode.
stateOrProvince	A String. State or province.
street1	A String. Describes the street.
street2	A String. Complementary street description.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

GeographicAddressRef sub-resource fields

href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. Name of the referred entity.
topicRef	A String. A reference to the topic from which this entity can be fetched.
@baseType	A String. When sub-classing, this defines the super-class.
@referredType	A String. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

PartyRef sub-resource fields

href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. Name of the referred entity.
topicRef	A String. A reference to the topic from which this entity can be fetched.
@baseType	A String. When sub-classing, this defines the super-class.
@referredType	A String. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

PartyRole sub-resource fields

account	An AccountRef. Account reference. A account may be a party account or a financial account.
agreement	An AgreementRef. 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.
characteristic	A Characteristic. Describes a given characteristic of an object or entity through a name/value pair.

contactMedium	A ContactMedium. Indicates the contact medium that could be used to contact the party.
creditProfile	A CreditProfile. Credit profile for the party (containing credit scoring, ...). By default only the current credit profile is retrieved. It can be used as a list to give the party credit profiles history, the first one in the list will be the current one.
description	A String. A description of the PartyRole.
engagedParty	A PartyRef. A Party reference.
href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. A word, term, or phrase by which the PartyRole is known and distinguished from other PartyRoles. It's the name of the PartyRole unique entity.
partyRoleSpecification	A PartyRoleSpecificationRef. Party role specification reference. A party role specification gives additional details on the part played by a party in a given context.
paymentMethod	A PaymentMethodRef. PaymentMethod reference. A payment method defines a specific mean of payment (e.g direct debit).
relatedParty	A RelatedPartyOrPartyRole. RelatedParty reference. A related party defines party or party role or its reference, linked to a specific entity.
role	A String. Role played by the engagedParty in this context. As role is defined by partyRoleSpecification, this role attribute can be used to precise the role defined by partyRoleSpecification, or it can be used to define the role in case there is no partyRoleSpecification.
status	A String. Used to track the lifecycle status of the party role.
statusReason	A String. A string providing an explanation on the value of the status lifecycle. For instance if the status is Rejected, statusReason will provide the reason for rejection.
topicRef	A String. A reference to the topic from which this entity can be fetched.
validFor	A TimePeriod. A period of time, either as a deadline (endDateTime only) a startDateTime only, or both.
@baseType	A String. When sub-classing, this defines the super-class.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

PartyRoleSpecificationRef sub-resource fields

href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. Name of the referred entity.
topicRef	A String. A reference to the topic from which this entity can be fetched.
@baseType	A String. When sub-classing, this defines the super-class.
@referredType	A String. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

PaymentMethodRef sub-resource fields

href	A String. Hyperlink reference.
id	A String. Unique identifier.
name	A String. Name of the referred entity.
topicRef	A String. A reference to the topic from which this entity can be fetched.
@baseType	A String. When sub-classing, this defines the super-class.
@referredType	A String. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

PhoneContactMedium sub-resource fields

phoneNumber	A String. The phone number of the contact.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

RelatedPartyOrPartyRole sub-resource fields

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

@schemaLocation	A String. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

SocialContactMedium sub-resource fields

socialNetworkId	A String. Identifier as a member of a social network.
@type	A String. When sub-classing, this defines the sub-class Extensible name.

Json representation sample(s)

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

```
{
    "@type": "Customer",
    "href": "https://host:port/tmf-api/customerManagement/v5/customer/1140",
    "id": "1140",
    "name": "Moon Football Club",
    "status": "Approved",
    "statusReason": "Account details checked",
    "validFor": {
        "startDateTime": "2018-06-12T00:00:00Z",
        "endDateTime": "2019-01-01T00:00:00Z"
    },
    "engagedParty": {
        "href": "https://host:port/tmf-api/partyManagement/v5/organization/500",
        "id": "500",
        "name": "Happy Travellers",
        "@referredType": "Organization"
    },
    "account": [
        {
            "@type": "AccountRef",
            "href": "https://host:port/tmf-
api/settlementAccount/v5/settlementAccount/99807",
            "id": "99807",
            "@referredType": "SettlementAccount"
        },
        {
            "@type": "AccountRef",
            "href": "https://host:port/tmf-api/accountManagement/v5/account/8251",
            "id": "8251",
            "name": "Travel Account",
            "@referredType": "BillingAccount",
            "description": "Primary billing account"
        }
    ],
```

```
    "paymentMethod": [
        {
            "@type": "PaymentMethodRef",
            "href": "https://host:port/tmf-api/paymentMethods/v1/paymentMethod/9562",
            "id": "9562",
            "name": "professional payment",
            "@referredType": "CreditCardPayment"
        }
    ],
    "contactMedium": [
        {
            "@type": "PhoneContactMedium",
            "preferred": true,
            "contactType": "homePhone",
            "validFor": {
                "startDateTime": "2018-06-12T00:00:00Z",
                "endDateTime": "2019-01-01T00:00:00Z"
            },
            "phoneNumber": "01 09 75 83 51"
        },
        {
            "@type": "GeographicAddressContactMedium",
            "preferred": false,
            "contactType": "homeAddress",
            "validFor": {
                "startDateTime": "2018-06-12T00:00:00Z",
                "endDateTime": "2019-01-01T00:00:00Z"
            },
            "city": "Paris",
            "country": "France",
            "postCode": "75014",
            "street1": "15 Rue des Canards"
        }
    ],
    "creditProfile": [
        {
            "@type": "CreditProfile",
            "creditProfileDate": "2018-06-15T00:00:00Z",
            "creditRiskRating": 4,
            "creditScore": 5,
            "validFor": {
                "startDateTime": "2018-06-12T00:00:00Z",
                "endDateTime": "2019-01-01T00:00:00Z"
            }
        }
    ],
    "agreement": [
        {
            "@type": "AgreementRef",
            "href": "https://host:port/tmf-api/agreementManagement/v5/agreement/4721",
            "id": "4721",
```

```
            "name": "Summer Contract Agreement"
        }
    ],
    "relatedParty": [
        {
            "@type": "RelatedPartyRefOrPartyRoleRef",
            "role": "bill receiver",
            "partyOrPartyRole": {
                "href": "https://host:port/tmf-
api/partyManagement/v5/organization/2777",
                "id": "2777",
                "name": "John Doe (Accounting) Ltd",
                "@referredType": "Organization"
            }
        }
    ]
}
```

Notification Resource Models

4 notifications are defined for this API Notifications related to Customer: - CustomerCreateEvent - CustomerAttributeValueChangeEvent - CustomerStateChangeEvent - CustomerDeleteEvent 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).

4 notifications are defined for this API.

Notifications related to Customer:

- Customer Create Event
- Customer Delete Event
- Customer Attribute Value Change Event
- Customer State Change Event

The notification structure for all notifications in this API follow the pattern depicted by the figure below. A notification event resource (depicted by "SpecificEvent" placeholder) is a sub class of a generic Event structure containing at least an id of the event occurrence (eventId), an event timestamp (eventTime), and the name of the resource (eventType). This notification structure owns an event payload structure ("SpecificEventPayload" placeholder) linked to the resource concerned by the notification using the resource name as access field ("resourceName" placeholder).

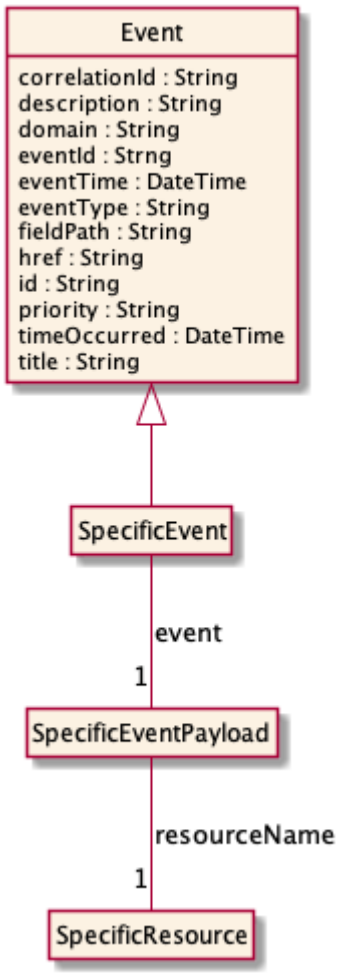

Figure 3 Notification Pattern

Customer Create Event

Message example for CustomerCreateEvent Notification

```
Content-Type: application/json

{
    "@type": "CustomerCreateEvent",
    "eventId": "3cc17ff9-d674-4b0a-ab50-06841b1fd574",
    "eventTime": "2023-06-14T12:15:59.96747+02:00",
    "eventType": "CustomerCreateEvent",
    "event": {
        "customer": {
            "@type": "Customer",
            "href": "https://host:port/tmf-api/customerManagement/v5/customer/1140",
            "id": "1140",
            "name": "Moon Football Club",
            "status": "Created",
            "engagedParty": {
                "@type": "PartyRef",
                "href": "https://host:port/tmf-
api/partyManagement/v5/organization/500",
                "id": "500",
```

```
                "name": "Happy Travellers",
                "@referredType": "Organization"
            },
            "contactMedium": [
                {
                    "@type": "PhoneContactMedium",
                    "preferred": true,
                    "contactType": "homePhone",
                    "validFor": {
                        "startDateTime": "2018-06-12T00:00:00Z",
                        "endDateTime": "2019-01-01T00:00:00Z"
                    },
                    "phoneNumber": "01 09 75 83 51"
                },
                {
                    "@type": "GeographicAddressContactMedium",
                    "preferred": false,
                    "contactType": "homeAddress",
                    "validFor": {
                        "startDateTime": "2018-06-12T00:00:00Z",
                        "endDateTime": "2019-01-01T00:00:00Z"
                    },
                    "city": "Paris",
                    "country": "France",
                    "postCode": "75014",
                    "street1": "15 Rue des Canards"
                }
            ],
            "relatedParty": [
                {
                    "@type": "RelatedPartyRefOrPartyRoleRef",
                    "role": "bill receiver",
                    "partyOrPartyRole": {
                        "@type": "PartyRef",
                        "href": "https://host:port/tmf-
api/partyManagement/v5/organization/2777",
                        "id": "2777",
                        "name": "John Doe (Accounting) Ltd",
                        "@referredType": "Organization"
                    }
                }
            ]
        }
    }
}
```


Customer Delete Event

Message example for CustomerDeleteEvent Notification

```
Content-Type: application/json

{
  "@type": "CustomerDeleteEvent",
  "eventId": "63749ead-f133-4c64-b2ed-3a93a2a56999",
  "eventTime": "2023-06-14T12:15:59.969117+02:00",
  "eventType": "CustomerDeleteEvent",
  "event": {
    "customer": {
      "@type": "Customer",
      "id": "1140",
      "href": "https://host:port/tmf-api/customerManagement/v5/customer/1140"
    }
  }
}
```

Customer Attribute Value Change Event

Message example for CustomerAttributeValueChangeEvent Notification

```
Content-Type: application/json

{
    "@type": "CustomerAttributeValueChangeEvent",
    "eventId": "e3dac91d-a035-465f-afc5-d3b603b53ad2",
    "eventTime": "2018-06-12T00:00:00Z",
    "eventType": "CustomerAttributeValueChangeEvent",
    "event": {
        "customer": {
            "@type": "Customer",
            "href": "https://host:port/tmf-api/customerManagement/v5/customer/1140",
            "id": "1140",
            "engagedParty": {
                "@type": "PartyRef",
                "href": "https://host:port/tmf-
api/partyManagement/v5/organization/236",
                "id": "236",
                "name": "Long Distance Travellers",
                "@referredType": "Organization"
            }
        }
    }
}
```

Customer State Change Event

Message example for CustomerStateChangeEvent Notification

```
Content-Type: application/json

{
    "@type": "CustomerStateChangeEvent",
    "priority": "high",
    "eventId": "b14f7023-e982-4c02-a0c1-9790ee991659",
    "eventTime": "2023-06-14T12:15:59.969746+02:00",
    "eventType": "CustomerStateChangeEvent",
    "event": {
        "customer": {
            "@type": "Customer",
            "href": "https://host:port/tmf-api/customerManagement/v5/customer/1140",
            "id": "1140",
            "status": "CreditCheckDone"
        }
    }
}
```

API OPERATIONS

Every operation consists of two parts:

- REQUEST: Publish a message on a 'commandRequest' channel.
- RESPONSE: Subscribe to the corresponding 'commandReply' channel to receive the response.

Remember the following Async Uniform Contract:

Operation on Entities	Uniform Async API Operation	Description
Query One Entity	retrieveResource	retrieve must be used to retrieve a representation of a resource.
Query Entities	listResource	list must be used to retrieve a list of resources.
Create Entity	createResource	create must be used to create a new resource
Partial Update of an Entity	patchResource	patch must be used to partially update a resource
Remove an Entity	deleteResource	delete must be used to remove a resource

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

Notifications are also described in a subsequent section.

Operations on Customer

Retrieves a Customer by ID

Request topic: {prefix}.customerManagement.v5.retrieveCustomer.commandRequest

Reply topic: {prefix}.customerManagement.v5.retrieveCustomer.commandReply

Description

This operation retrieves a Customer entity. Attribute selection is enabled for all first level attributes. Filtering may be available depending on the compliance level supported by an implementation.

Usage samples

Request message header

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.retrieveCustomer.commandReply
Parameters: {
```

```
    "id": 1140
}
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 200
X-Request-Channel: {prefix}.customerManagement.v5.retrieveCustomer.commandRequest
```

Response Payload

```
{
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
  "name" : "Moon Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/500",
    "id" : "500",
    "name" : "Happy Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
```

```
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
}
```

List or find Customer objects

Request topic: {prefix}.customerManagement.v5.listCustomer.commandRequest

Reply topic: {prefix}.customerManagement.v5.listCustomer.commandReply

Description

This operation list Customer 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 list of Customers

Request Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.listCustomer.commandReply
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 200
X-Request-Channel: {prefix}.customerManagement.v5.listCustomer.commandRequest
```

Response Payload

```
[ {
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
```

```
  "name" : "Moon Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/500",
    "id" : "500",
    "name" : "Happy Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
} ]
```

Creates a Customer

Request topic: {prefix}.customerManagement.v5.createCustomer.commandRequest

Reply topic: {prefix}.customerManagement.v5.createCustomer.commandReply

Description

This operation creates a Customer entity.

Mandatory Attributes

Mandatory Attributes	Rule
engagedParty	
name	

Usage samples

Here is an example of a request for creating a specific Customer.

Request Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.createCustomer.commandReply
```

Request Payload

```
{
  "@type" : "Customer",
  "name" : "Moon Football Club",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/500",
    "id" : "500",
    "name" : "Happy Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
```

```
    "@type" : "GeographicAddressContactMedium",
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ]
}
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 201
X-Request-Channel: {prefix}.customerManagement.v5.createCustomer.commandRequest
```

Response Payload

```
{
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
  "name" : "Moon Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/500",
    "id" : "500",
    "name" : "Happy Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
```

```
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
}
```

Updates partially a Customer

Request topic: {prefix}.customerManagement.v5.patchCustomer.commandRequest

Reply topic: {prefix}.customerManagement.v5.patchCustomer.commandReply

Description

This operation allows partial updates of a Customer entity. Support of json/merge (https://tools.ietf.org/html/rfc7386) is mandatory, support of json/patch (http://tools.ietf.org/html/

rfc5789) is optiona. 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 createCustomer operation applies to the patchCustomer operation. Hence these tables are not repeated here.

Patchable and Non Patchable Attributes

Non Patchable Attributes	Rule
@type	
href	
id	

Patchable Attributes	Rule
account	
agreement	
contactMedium	
creditProfile	
engagedParty	
name	
paymentMethod	
relatedParty	
status	
statusReason	
validFor	

Usage samples

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

This example uses the PatchCustomerJsonRequest request message (used for a payload of type application/json).

Request message header

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.patchCustomer.commandReply
Parameters: {
    "id": 1140
}
```

Request Payload

```
{
  "@type" : "Customer",
  "name" : "Sun Football Club",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/237",
    "id" : "237",
    "name" : "Another Long Distance Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  }
}
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 200
X-Request-Channel: {prefix}.customerManagement.v5.patchCustomer.commandRequest
```

Response Payload

```
{
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
  "name" : "Sun Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/237",
    "id" : "237",
    "name" : "Another Long Distance Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
```

```
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
}
```

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

This example uses the PatchCustomerMergePatchRequest request message (used for a payload of type application/merge-patch+json).

Request message header

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.patchCustomer.commandReply
Parameters: {
    "id": 1140
}
```

Request Payload

```
{
  "@type" : "Customer",
  "name" : "Sun Football Club",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/237",
```

```
    "id" : "237",
    "name" : "Another Long Distance Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  }
}
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 200
X-Request-Channel: {prefix}.customerManagement.v5.patchCustomer.commandRequest
```

Response Payload

```
{
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
  "name" : "Sun Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/237",
    "id" : "237",
    "name" : "Another Long Distance Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
```

```
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
}
```

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

This example uses the PatchCustomerJsonPatchRequest request message (used for a payload of type application/json-patch+json).

Request message header

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.patchCustomer.commandReply
Parameters: {
    "id": 1140
}
```

Request Payload

```
[ {
  "op" : "replace",
  "path" : "/name",
  "value" : "Sun Football Club"
}, {
  "op" : "replace",
  "path" : "/engagedParty",
  "value" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/237",
    "id" : "237",
    "name" : "Another Long Distance Travellers",
    "@referredType" : "Organization",
```

```
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  }
} ]
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 200
X-Request-Channel: {prefix}.customerManagement.v5.patchCustomer.commandRequest
```

Response Payload

```
{
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
  "name" : "Sun Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/237",
    "id" : "237",
    "name" : "Another Long Distance Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
    "preferred" : false,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
```

```
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
}
```

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

This example uses the PatchCustomerPatchQueryRequest request message (used for a payload of type application/json-patch-query+json).

Request message header

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Reply-Channel: {prefix}.customerManagement.v5.patchCustomer.commandReply
Parameters: {
    "id": 1140
}
```

Request Payload

```
[ {
  "op" : "replace",
  "path" : "/contactMedium/preferred?city=Paris",
  "value" : true
} ]
```

Response Headers

```
X-Correlation-Id: 4226B739-1DD2-4B43-A393-5E6F05CEF169
Status-Code: 200
X-Request-Channel: {prefix}.customerManagement.v5.patchCustomer.commandRequest
```

Response Payload

```
{
  "@type" : "Customer",
  "href" : "https://host:port/tmf-api/customerManagement/v5/customer/1140",
  "id" : "1140",
  "name" : "Moon Football Club",
  "status" : "Created",
  "engagedParty" : {
    "@type" : "PartyRef",
    "href" : "https://host:port/tmf-api/partyManagement/v5/organization/236",
    "id" : "236",
    "name" : "Long Distance Travellers",
    "@referredType" : "Organization",
    "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
  },
  "contactMedium" : [ {
    "@type" : "PhoneContactMedium",
    "preferred" : true,
    "contactType" : "homePhone",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "phoneNumber" : "01 09 75 83 51"
  }, {
    "@type" : "GeographicAddressContactMedium",
    "preferred" : true,
    "contactType" : "homeAddress",
    "validFor" : {
      "startDateTime" : "2018-06-12T00:00:00Z",
      "endDateTime" : "2019-01-01T00:00:00Z"
    },
    "city" : "Paris",
    "country" : "France",
    "postCode" : "75014",
    "street1" : "15 Rue des Canards"
  } ],
  "relatedParty" : [ {
    "@type" : "RelatedPartyRefOrPartyRoleRef",
    "role" : "bill receiver",
    "partyOrPartyRole" : {
      "@type" : "PartyRef",
      "href" : "https://host:port/tmf-api/partyManagement/v5/organization/2777",
      "id" : "2777",
      "name" : "John Doe (Accounting) Ltd",
      "@referredType" : "Organization",
      "topicRef" :
"kafka://host/{prefix}.partyManagement.v5.retrieveOrganization.commandRequest"
    }
  } ],
```

```
  "topicRef" :
"kafka://host/{prefix}.customerManagement.v5.retrieveCustomer.commandRequest"
}
```

Deletes a Customer

Request topic: {prefix}.customerManagement.v5.deleteCustomer.commandRequest

Reply topic: {prefix}.customerManagement.v5.deleteCustomer.commandReply

Description

This operation deletes a Customer entity.

Usage samples

This operation deletes a Customer resource.

Request

```
DELETE /customer/1140
```

Response

```
204
```

NOTIFICATIONS

Topic for Customer entity: {prefix}.customerManagement.v5.customer.notificationEvent

For every single of operation on the entities use the following templates and provide sample notification message payloads.

It is assumed that consumers will subscribe to the notificationEvent channel to receive notifications, and that the server component will post notifications to that channel.

Publish Event to listener

Here’s an example of a notification received by the consumer. 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.

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

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

Acknowledgements

Release History

Release Number	Date	Release led by:	Description
0.a	28/11/2013	Arindam Basu (Ericsson) Sudipta Dutta (Ericsson) Brinda Santh M (IBM) Hemant Gour (IBM) Shashank Singh (IBM) Vishal Aggarwal (IBM) Nitish Jaisoor (Infosys) Rajesh Gannaprapu (Infosys) Srinivasan Duraiswamy (Infosys) Veeramani K (Infosys)	Initial Spec prepared in the TMF Conference held at Bangalore, India (Nov 26 to Nov 28)
0.b	5/03/2014	Christian Traxler (Infonova) Alexander Sturn (Infonova) Gilbert Scheiblhofer (A1) Josh Salomon (Amdocs) Véronique Mauneau (Orange) Maxime Delon (Orange)	Extension of customer API mgmt. during Spec Jam held in Vienna, Austria
2.0	15/04/2016	Pierre Gauthier (TM Forum) Mariano Belaunde (Orange)	Regenerated from API Data Model and re-branded. Does not include any more accounting and payment mean resources since this is provided through the Accounting API.
3.0	24/04/2018	Mariano Belaunde (Orange)	Update to support Guidelines 3.0
Release 4.0	30/05/2019	Mariano Belaunde Orange Labs	Regeneration after schematization
Release 5.0	08/03/2023	Rajesh Sinha Jio Platforms Ltd	Regeneration after schematization
Release 5.0	16/06/2023	Uwe Sülter Sergei Lukin Deutsche Telekom	Migration to v5

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