TM Forum Specification

Sales Management API REST Specification

TMF699
Release 19.0.0
June 2019

Latest Update: TM Forum Release 19.0.0	Member Evaluation
Version 4.0.0	IPR Mode: RAND

NOTICE

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Introduction

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

This API provides interfaces for Sales Lead, Sales Opportunity, Sales Quote and the other management capabilities to support the sales activities to build relationship with the prospect customer who could be a person or organization that has an interest in the goods and/or services and possibly become the actual customers with one or more subscriptions.

The first release of this API specifies only the SalesLead resource.

The Lead corresponds to the nominal result of an interaction involving a prospective customer towards one of offers or services. It is the first stage (S) of the SPANCO process.

A prospect could have expressed a commercial interest or a commercial interest has been detected from his behavior analysis. The Lead Management function enables to collect, evaluate and attribute the leads to the appropriate sales representatives. The lead is an interest concerning an offer family or a product line, or expressed literally during an interaction, possibly further to a marketing campaign, and it must be handled and specified to become an opportunity or an order.

In a nominal way, once the interest towards offers or services is confirmed and the prospective customer clearly identified, then an Opportunity is created.

SAMPLE USE CASES

Use case 1: A prospect shows interest in a commercial link

Use case 2: A prospect asks for information in a trade show

Use case 3: A prospect is the target of a marketing mailing campaign

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 CustomerInterest and B2BInterest, inherit properties from the abstract SalesLead 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 SalesLead instances some may be instances of CustomerInterest where other could be instances of B2BInterest. 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 a SalesLeadRef 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 CustomerInterestRef or B2BInterestRef, 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

Sales Lead resource

A Sales Lead is the identification of a person or organization that has an interest in the goods and/or services provided in the prospect of them becoming Customers with one or more Subscriptions.

Resource model
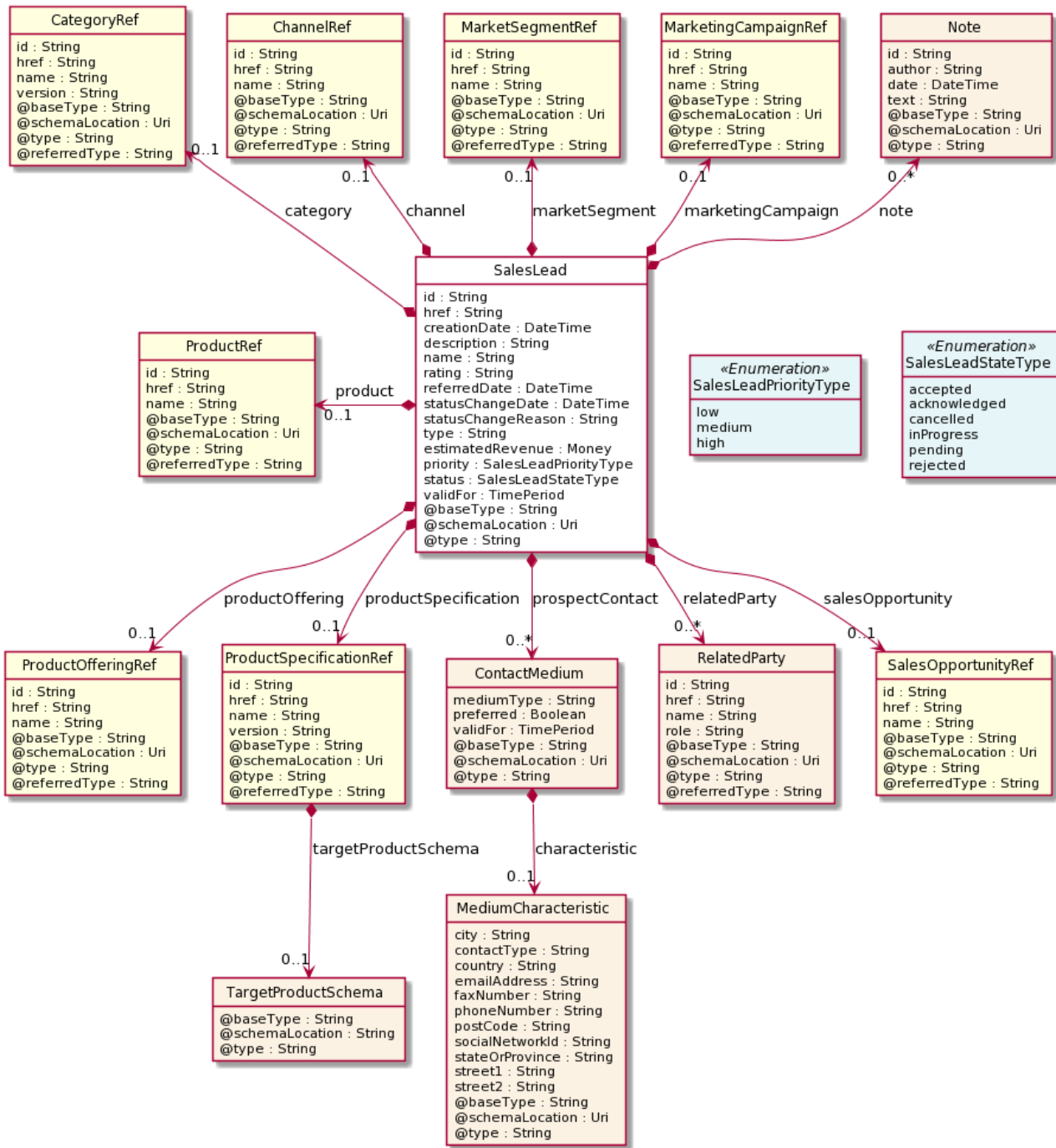
Lifecycle
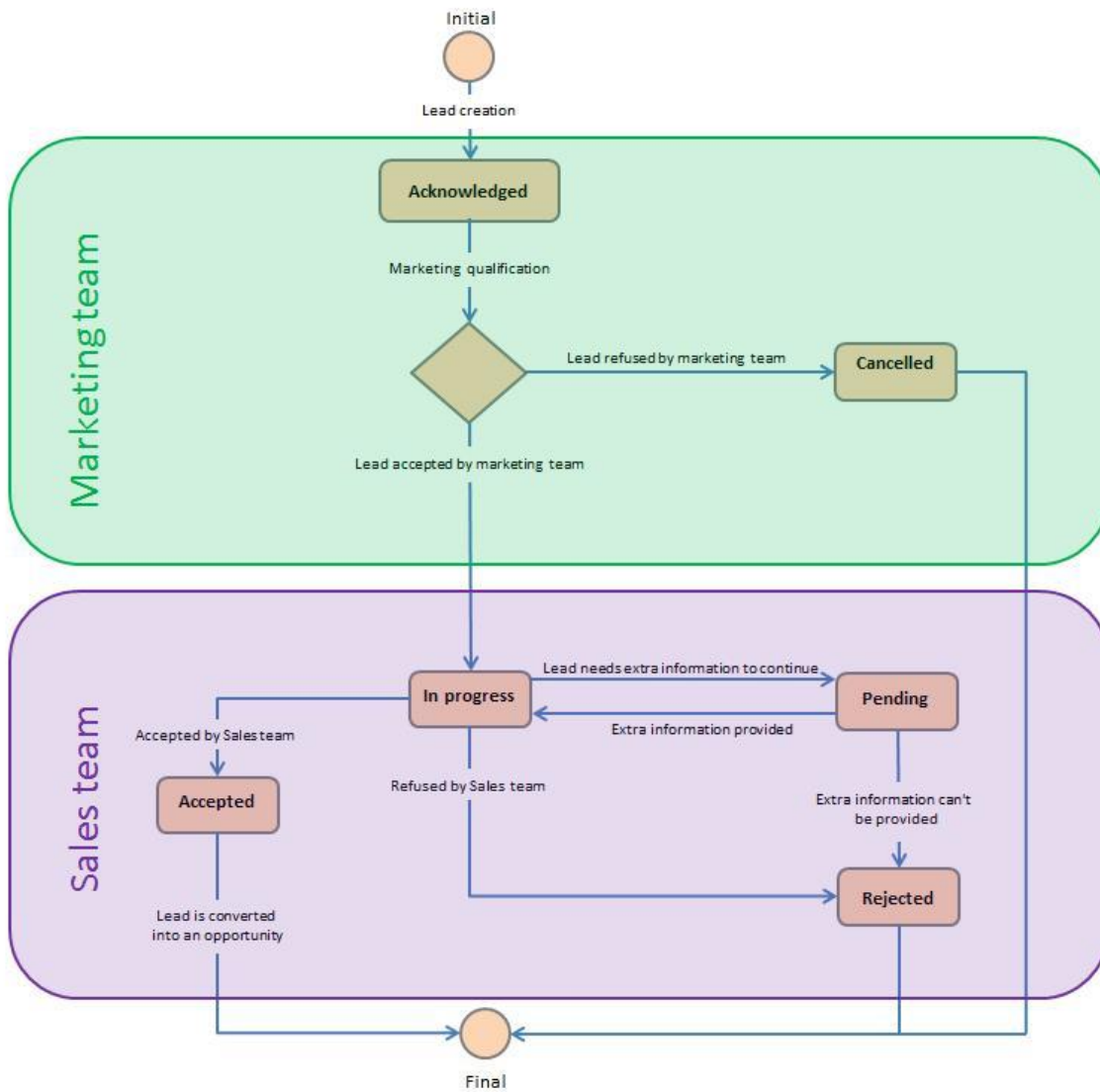
Status values	Definition
Acknowledged	The Lead has just been created manually or by an upstream system. This is the first step of the salesLead lifecycle.
Cancelled	After a marketing qualification, the lead has been refused. It is abandoned.
In Progress	After its qualification, the lead has been accepted. It's being treated by the sales team.
Pending	Sales team needs more information to accept the lead. The process is waiting for additional information.
Accepted	The lead is accepted by the sales team. This is the end of the lifecycle.
Rejected	Either the expected information was not provided, on the sales team refused the lead for any reason.

Field descriptions

SalesLead fields

category   A category reference (CategoryRef). The category for grouping recommendations.

| channel	A channel reference (ChannelRef). The channel to which the resource reference to. e.g. channel for selling product offerings, channel for opening a trouble ticket etc..
creationDate	A date time (DateTime). Date and time of the salesLead creation.
description	A string. Unique description of the salesLead.
estimatedRevenue	A money (Money). Estimation of the revenue if the salesLead turns into a sale.
href	A string. Reference of the salesLead.
id	A string. Unique identifier of the salesLead.
marketSegment	A market segment reference (MarketSegmentRef). A Market Segment is a grouping of Parties, GeographicAreas, SalesChannels, and so forth. MarketSegments are the target of MarketingCampaigns, ProductOfferings, ProductPromotions, ProductPlacements, and ProductPrograms from both internal and external (Competitors, and other Providers) perspective.
marketingCampaign	A marketing campaign reference (MarketingCampaignRef). Campaign represents the carrier-initiated marketing activity which aims at the better recognition about its brand and offerings by the market.
name	A string. Name of the salesLead.
note	A list of notes (Note [*]). Extra information about a given entity.
priority	A sales lead priority type (SalesLeadPriorityType). Urgency of working this salesLead.
product	A product reference (ProductRef).
productOffering	A product offering reference (ProductOfferingRef). A product offering represents entities that are orderable from the provider of the catalog, this resource includes pricing information.
productSpecification	A product specification reference (ProductSpecificationRef). A ProductSpecification is a detailed description of a tangible or intangible object made available externally in the form of a ProductOffering to customers or other parties playing a party role.
prospectContact	A list of contact mediums (ContactMedium [*]). Indicates the contact medium that could be used to contact the party.
rating	A string. Identifies the potential of a salesLead for becoming a sale. Usual ratings for qualified leads are: hot, warm, cold.
referredDate	A date time (DateTime). Date when the prospect information was received (for example, from a trade show).

relatedParty	A list of related parties (RelatedParty [*]). Related Entity reference. A related party defines party or party role linked to a specific entity.
salesOpportunity	A sales opportunity reference (SalesOpportunityRef). Sales Opportunity is an 'opportunity' to generate revenue from a Sales Account or Sales Lead. Opportunities are the pending deals that need to be tracked and on which Sales Team plans and executes Sales Activities (Events and Tasks).
status	A sales lead state type (SalesLeadStateType). Valid values for the lifecycle state of a salesLead resource.
statusChangeDate	A date time (DateTime). Date and time of the last update.
statusChangeReason	A string. Reason why the status has changed.
type	A string. Indicates the nature of the salesLead.
validFor	A time period. The period for which the salesLead is valid.

ContactMedium sub-resource

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

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).

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 instalation….
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.

Money sub-resource

A base / value business entity used to represent money.

| unit | A string. Currency (ISO4217 norm uses 3 letters to define the currency). |
| value | A float. A positive floating point number. |

Note sub-resource

Extra information about a given entity.

author	A string. Author of the note.
date	A date time (DateTime). Date of the note.
id	A string. Identifier of the note within its containing entity (may or may not be globally unique, depending on provider implementation).
text	A string. Text of the note.

RelatedParty sub-resource

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

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

TargetProductSchema sub-resource

The reference object to the schema and type of target product which is described by product specification.

@schemaLocation	A string. This field provides a link to the schema describing the target product.
@type	A string. Class type of the target product.

CategoryRef relationship

The category for grouping recommendations.

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

ChannelRef relationship

The channel to which the resource reference to. e.g. channel for selling product offerings, channel for opening a trouble ticket etc..

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

MarketSegmentRef relationship

provides references to the corresponding market segment as target of product offerings. A market segment is grouping of Parties, GeographicAreas, SalesChannels, and so forth.

@referredType	A string. (Class) type of the referred market segment.
href	A string. Reference of the market segment.
id	A string. Unique identifier of the market segment.
name	A string. Name of the market segment.

MarketingCampaignRef relationship

MarketingCampaign reference. Marketing campaign represents the carrier-initiated marketing activity which aims at the better recognition about its brand and offerings by the market.

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

ProductOfferingRef relationship

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

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

ProductRef relationship

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

ProductSpecificationRef relationship

Product specification reference: A ProductSpecification is a detailed description of a tangible or intangible object made available externally in the form of a ProductOffering to customers or other parties playing a party role.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related entity.
id	A string. Unique identifier of a related entity.
name	A string. Name of the related entity.
targetProductSchema	A target product schema (TargetProductSchema). A target product schema reference. The reference object to the schema and type of target product which is described by product specification.

version   A string. Version of the product specification.

SalesOpportunityRef relationship

Sales Opportunity is an 'opportunity' to generate revenue from a Sales Account or Sales Lead. Opportunities are the pending deals that need to be tracked and on which Sales Team plans and executes Sales Activities (Events and Tasks). .

@referredType   A string. The actual type of the target instance when needed for disambiguation.

href   A string. Reference of the related entity.

id   A string. Unique identifier of a related entity.

name   A string. Name of the related entity.

Json representation sample

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

```
{
    "id": "123",
    "href": "https://serverRoot/tmf-api/sales/v4/salesLead/123",
    "@type": "SalesLead",
    "creationDate": "2019-01-19T12:27:59.123Z",
    "description": "salesLead generated by a clic on a commercial link",
    "name": "Campaign 17 salesLead 7852",
    "priority": "medium",
    "rating": "hot",
    "referredDate": "2019-01-19T12:27:59.123Z",
    "status": "inProgress",
    "statusChangeDate": "2019-01-25T15:53:29.961Z",
    "statusChangeReason": "Lead accepted by marketing team",
    "type": "advertisingLink",
    "category": {
        "id": "15",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/category/15",
        "name": "Individual Bank account category"
    },
    "channel": {
        "id": "1",
        "name": "www.orange.fr"
    },
    "estimatedRevenue": {
        "unit": "EUR",
        "value": 1200
    },
    "marketSegment": {
        "id": "657",
        "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketSegment/657",
        "name": "Active youngs market segment"
    },
    "marketingCampaign": {
```

```
        "id": "21",
        "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketingCampaign/21",
        "name": "January 2019 campaign for Orange Bank"
    },
    "note": [
        {
            "author": "Saul Goodman",
            "date": "2019-01-22T15:53:29.961Z",
            "text": "Customer with a very good credit profile"
        }
    ],
    "product": {
        "id": "7321",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/product/7321"
    },
    "productOffering": {
        "id": "42",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/productOffering/42",
        "name": "Gold Credit Card"
    },
    "contactMedium": [
        {
            "preferred": "false",
            "mediumType": "email",
            "validFor": {
                "startDateTime": "2017-03-15T07:49:25.246Z",
                "endDateTime": ""
            },
            "characteristic": {
                "emailAddress": "gustavo.fring@mail.com"
            }
        },
        {
            "preferred": "true",
            "mediumType": "phone",
            "validFor": {
                "startDateTime": "2017-03-15T07:49:25.246Z",
                "endDateTime": ""
            },
            "characteristic": {
                "phoneNumber": "+33607080910"
            }
        },
        {
            "preferred": "false",
            "mediumType": "postal address",
            "validFor": {
                "startDateTime": "2017-03-15T07:49:25.246Z",
                "endDateTime": ""
            },
            "characteristic": {
                "street1": "Rue de Provence",
                "postCode": "75001",
                "city": "Paris",
                "country": "France"
```

```
        }
      }
    ],
    "relatedParty": [
      {
        "id": "127",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/127",
        "name": "Walter White",
        "role": "marketing team",
        "@referredType": "individual"
      },
      {
        "id": "475",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/475",
        "name": "Saul Goodman",
        "role": "sales team",
        "@referredType": "individual"
      }
    ],
    "salesOpportunity": {
      "id": "7894325",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/salesOpportunity/7894325",
      "name": "GoBank account"
    },
    "validFor": {
      "startDateTime": "2019-01-19T12:27:59.123Z",
      "endDateTime": "2019-02-19T12:27:59.123Z"
    }
  }
}
```

Notification Resource Models

4 notifications are defined for this API

Notifications related to SalesLead:
  - SalesLeadCreateEvent
  - SalesLeadAttributeValueChangeEvent
  - SalesLeadStateChangeEvent
  - SalesLeadDeleteEvent

Sales Lead Create Event

Notification SalesLeadCreateEvent case for resource SalesLead

Json representation sample

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

```
{
    "eventId":"00001",
```

```
    "eventTime":"2015-11-16T16:42:25-04:00",
    "eventType":"SalesLeadCreateEvent",
     "event": {
       "salesLead" :
          {-- SEE SalesLead RESOURCE SAMPLE --}
    }
}
```

Sales Lead Attribute Value Change Event

Notification SalesLeadAttributeValueChangeEvent case for resource SalesLead

Json representation sample

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

```
{
    "eventId":"00001",
    "eventTime":"2015-11-16T16:42:25-04:00",
    "eventType":"SalesLeadAttributeValueChangeEvent",
     "event": {
       "salesLead" :
          {-- SEE SalesLead RESOURCE SAMPLE --}
    }
}
```

Sales Lead State Change Event

Notification SalesLeadStateChangeEvent case for resource SalesLead

Json representation sample

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

```
{
    "eventId":"00001",
    "eventTime":"2015-11-16T16:42:25-04:00",
    "eventType":"SalesLeadStateChangeEvent",
     "event": {
       "salesLead" :
          {-- SEE SalesLead RESOURCE SAMPLE --}
    }
}
```

Sales Lead Delete Event

Notification SalesLeadDeleteEvent case for resource SalesLead

Json representation sample

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

```
{
    "eventId":"00001",
    "eventTime":"2015-11-16T16:42:25-04:00",
    "eventType":"SalesLeadDeleteEvent",
    "event": {
      "salesLead" :
        {-- SEE SalesLead 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 Sales Lead

List sales leads

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

Description

This operation list sales lead 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 sales leads. The given criteria is the id of the customer Gustavo Fring with the following selected attributes: id, name, description and status.

Request
GET {apiRoot}/salesLead?fields=id,name,description,status&relatedParty.id=94587 Accept: application/json

Response

200
 	
`[`
  `{`
    `"id": "123",`
    `"name": "Campaign 17 salesLead 7852",`
    `"description": "salesLead generated by a clic on a commercial link",`
    `"status": "inProgress"`
  `},`
  `{`
    `"id": "456",`
    `"name": "Web site request 123456",`
    `"description": "salesLead generated by a clic on a commercial link",`
    `"status": "inProgress"`
  `}`
`]`

Retrieve sales lead

```
GET /salesLead/{id}?fields=...&{filtering}
```

Description

This operation retrieves a sales lead 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 a sample of a request for retrieving a sales lead.

Request

```
GET {apiRoot}/salesLead/123
Accept: application/json
```

Response

```
200

{
   "id": "123",
   "href": "https://serverRoot/tmf-api/sales/v4/salesLead/123",
   "@type": "SalesLead",
   "creationDate": "2019-01-19T12:27:59.123Z",
   "description": "salesLead generated by a clic on a commercial link",
   "name": "Campaign 17 salesLead 7852",
   "priority": "medium",
   "rating": "hot",
   "referredDate": "2019-01-19T12:27:59.123Z",
   "status": "inProgress",
   "statusChangeDate": "2019-01-25T15:53:29.961Z",
   "statusChangeReason": "Lead accepted by marketing team",
   "type": "advertisingLink",
   "category": {
      "id": "15",
      "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/category/15",
      "name": "Individual Bank account category"
   },
   "channel": {
      "id": "1",
      "name": "www.orange.fr"
   },
   "estimatedRevenue": {
      "unit": "EUR",
      "value": 1200
   },
   "marketSegment": {
      "id": "657",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketSegment/657",
      "name": "Active youngs market segment"
   },
   "marketingCampaign": {
      "id": "21",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketingCampaign/21",
      "name": "January 2019 campaign for Orange Bank"
   },
   "note": [
      {
         "author": "Saul Goodman",
         "date": "2019-01-22T15:53:29.961Z",
         "text": "Customer with a very good credit profile"
      }
   ],
   "product": {
```

```
        "id": "7321",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/product/7321"
    },
    "productOffering": {
        "id": "42",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/productOffering/42",
        "name": "Gold Credit Card"
    },
    "prospectContact": [
        {
            "preferred": "false",
            "mediumType": "email",
            "validFor": {
                "startDateTime": "2017-03-15T07:49:25.246Z",
                "endDateTime": ""
            },
            "characteristic": {
                "emailAddress": "gustavo.fring@mail.com"
            }
        },
        {
            "preferred": "true",
            "mediumType": "phone",
            "validFor": {
                "startDateTime": "2017-03-15T07:49:25.246Z",
                "endDateTime": ""
            },
            "characteristic": {
                "phoneNumber": "+33607080910"
            }
        },
        {
            "preferred": "false",
            "mediumType": "postal address",
            "validFor": {
                "startDateTime": "2017-03-15T07:49:25.246Z",
                "endDateTime": ""
            },
            "characteristic": {
                "street1": "Rue de Provence",
                "postCode": "75001",
                "city": "Paris",
                "country": "France"
            }
        }
    ],
    "relatedParty": [
        {
            "id": "127",
            "href": "https://serverRoot/tmf-api/partyManagement/v1/party/127",
            "name": "Walter White",
            "role": "marketing team",
            "@referredType": "individual"
        },
```

```
      {
        "id": "475",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/475",
        "name": "Saul Goodman",
        "role": "sales team",
        "@referredType": "individual"
      }
    ],
    "salesOpportunity": {
      "id": "7894325",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/salesOpportunity/7894325",
      "name": "GoBank account"
    },
    "validFor": {
      "startDateTime": "2019-01-19T12:27:59.123Z",
      "endDateTime": "2019-02-19T12:27:59.123Z"
    }
}
```

Create sales lead

POST /salesLead

Description

This operation creates a sales lead entity.

Mandatory and Non Mandatory Attributes

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

Mandatory Attributes	Rule
name	

Non Mandatory Attributes	Rule
category	
channel	
creationDate	
description	
estimatedRevenue	
marketSegment	
marketingCampaign	
note	
priority	
product	
productOffering	
productSpecification	

prospectContact	
rating	
referredDate	
relatedParty	
salesOpportunity	
status	
statusChangeDate	
statusChangeReason	
type	
validFor	

Usage Samples

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

Request

```
POST {apiRoot}/salesLead
Content-Type: application/json

{
   "name": "Campaign 17 salesLead 7852",
   "description": "salesLead generated by a clic on a commercial link",
   "referredDate": "2019-01-19T12:27:59.123Z",
   "type": "advertisingLink",
   "rating": "hot",
   "priority": "medium",
   "estimatedRevenue": {
      "unit": "EUR",
      "value": 1200
   },
   "validFor": {
      "startDateTime": "2019-01-19T12:27:59.123Z",
      "endDateTime": "2019-02-19T12:27:59.123Z"
   },
   "marketSegment": {
      "id": "657",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketSegment/657",
      "name": "Active youngs market segment"
   },
   "marketingCampaign": {
      "id": "21",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketingCampaign/21",
      "name": "January 2019 campaign for Orange Bank"
   },
   "channel": {
      "id": "1",
      "name": "www.orange.fr"
   },
   "productOffering": {
```

```
    "id": "42",
    "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/productOffering/42",
    "name": "Gold Credit Card"
  },
  "relatedParty": [
    {
      "id": "127",
      "href": "https://serverRoot/tmf-api/partyManagement/v1/party/127",
      "name": "Walter White",
      "role": "marketing team",
      "@referredType": "individual"
    },
    {
      "id": "475",
      "href": "https://serverRoot/tmf-api/partyManagement/v1/party/475",
      "name": "Saul Goodman",
      "role": "sales team",
      "@referredType": "individual"
    }
  ],
  "prospectContact": [
    {
      "preferred": "false",
      "mediumType": "email",
      "validFor": {
        "startDateTime": "2017-03-15T07:49:25.246Z",
        "endDateTime": ""
      },
      "characteristic": {
        "emailAddress": "gustavo.fring@mail.com"
      }
    },
    {
      "preferred": "true",
      "mediumType": "phone",
      "validFor": {
        "startDateTime": "2017-03-15T07:49:25.246Z",
        "endDateTime": ""
      },
      "characteristic": {
        "phoneNumber": "+33607080910"
      }
    },
    {
      "preferred": "false",
      "mediumType": "postal address",
      "validFor": {
        "startDateTime": "2017-03-15T07:49:25.246Z",
        "endDateTime": ""
      },
      "characteristic": {
        "street1": "Rue de Provence",
        "postCode": "75001",
        "city": "Paris",
```

```
                "country": "France"
            }
        }
    ],
    "category": {
        "id": "15",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/category/15",
        "name": "Individual Bank account category"
    },
    "salesOpportunity": {
        "id": "7894325",
        "href": "https://serverRoot/tmf-api/marketingManagement/v4/salesOpportunity/7894325",
        "name": "GoBank account"
    },
    "product": {
        "id": "7321",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/product/7321"
    },
    "note": [
        {
            "author": "Saul Goodman",
            "date": "2019-01-22T15:53:29.961Z",
            "text": "Customer with a very good credit profile"
        }
    ]
}
```

Response

```
201

{
    "id": "123",
    "href": "https://serverRoot/tmf-api/sales/v4/salesLead/123",
    "@type": "SalesLead",
    "name": "Campaign 17 salesLead 7852",
    "description": "salesLead generated by a clic on a commercial link",
    "status": "acknowledged",
    "statusChangeDate": "2019-01-25T15:53:29.961Z",
    "creationDate": "2019-01-19T12:27:59.123Z",
    "referredDate": "2019-01-19T12:27:59.123Z",
    "statusChangeReason": "Lead created",
    "type": "advertisingLink",
    "rating": "hot",
    "priority": "medium",
    "estimatedRevenue": {
        "unit": "EUR",
        "value": 1200
    },
    "validFor": {
        "startDateTime": "2019-01-19T12:27:59.123Z",
        "endDateTime": "2019-02-19T12:27:59.123Z"
```

```
    },
    "marketSegment": {
      "id": "657",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketSegment/657",
      "name": "Active youngs market segment"
    },
    "marketingCampaign": {
      "id": "21",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketingCampaign/21",
      "name": "January 2019 campaign for Orange Bank"
    },
    "channel": {
      "id": "1",
      "name": "www.orange.fr",
      "role": "originChannel"
    },
    "productOffering": {
      "id": "42",
      "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/productOffering/42",
      "name": "Gold Credit Card"
    },
    "relatedParty": [
      {
        "id": "127",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/127",
        "name": "Walter White",
        "role": "marketing team",
        "@referredType": "individual"
      },
      {
        "id": "475",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/475",
        "name": "Saul Goodman",
        "role": "sales team",
        "@referredType": "individual"
      }
    ],
    "prospectContact": [
      {
        "preferred": "false",
        "mediumType": "email",
        "validFor": {
          "startDateTime": "2017-03-15T07:49:25.246Z",
          "endDateTime": ""
        },
        "characteristic": {
          "emailAddress": "gustavo.fring@mail.com"
        }
      },
      {
        "preferred": "true",
        "mediumType": "phone",
        "validFor": {
          "startDateTime": "2017-03-15T07:49:25.246Z",
```

```
            "endDateTime": ""
          },
          "characteristic": {
            "phoneNumber": "+33607080910"
          }
        },
        {
          "preferred": "false",
          "mediumType": "postal address",
          "validFor": {
            "startDateTime": "2017-03-15T07:49:25.246Z",
            "endDateTime": ""
          },
          "characteristic": {
            "street1": "Rue de Provence",
            "postCode": "75001",
            "city": "Paris",
            "country": "France"
          }
        }
      ],
      "category": {
        "id": "15",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/category/15",
        "name": "Individual Bank account category"
      },
      "salesOpportunity": {
        "id": "7894325",
        "href": "https://serverRoot/tmf-api/marketingManagement/v4/salesOpportunity/7894325",
        "name": "GoBank account"
      },
      "product": {
        "id": "7321",
        "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/product/7321"
      },
      "note": [
        {
          "author": "Saul Goodman",
          "date": "2019-01-22T15:53:29.961Z",
          "text": "Customer with a very good credit profile"
        }
      ]
}
```

Patch sales lead

PATCH /salesLead/{id}

Description

This operation allows partial updates of a sales lead 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
category	
channel	
description	
estimatedRevenue	
marketSegment	
marketingCampaign	
name	
note	
priority	
product	
productOffering	
productSpecification	
prospectContact	
rating	
referredDate	
relatedParty	
salesOpportunity	
status	
statusChangeDate	
statusChangeReason	
type	
validFor	

Non Patchable Attributes	Rule
id	
href	
creationDate	

Usage Samples

Here's an example of a request for patching a sales lead. In this example, a new status is set, together with a change reason.

Request

PATCH {apiRoot}/salesLead/123
Content-Type: application/merge-patch+json

```
{
   "status": "pending",
   "statusChangeReason": "Lead needs extra information to continue the process"
}
```

Response

```
200

{
   "id": "123",
   "href": "https://serverRoot/tmf-api/sales/v4/salesLead/123",
   "@type": "SalesLead",
   "name": "Campaign 17 salesLead 7852",
   "description": "salesLead generated by a clic on a commercial link",
   "status": "pending",
   "statusChangeDate": "2019-01-26T14:12:54.349Z",
   "creationDate": "2019-01-19T12:27:59.123Z",
   "referredDate": "2019-01-19T12:27:59.123Z",
   "statusChangeReason": "Lead needs extra information to continue the process",
   "type": "advertisingLink",
   "rating": "hot",
   "priority": "medium",
   "estimatedRevenue": {
      "unit": "EUR",
      "value": 1200
   },
   "validFor": {
      "startDateTime": "2019-01-19T12:27:59.123Z",
      "endDateTime": "2019-02-19T12:27:59.123Z"
   },
   "marketSegment": {
      "id": "657",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketSegment/657",
      "name": "Active youngs market segment"
   },
   "marketingCampaign": {
      "id": "21",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/marketingCampaign/21",
      "name": "January 2019 campaign for Orange Bank"
   },
   "channel": {
      "id": "1",
      "name": "www.orange.fr",
      "role": "originChannel"
   },
```

```
"productOffering": {
    "id": "42",
    "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/productOffering/42",
    "name": "Gold Credit Card"
},
"relatedParty": [
    {
        "id": "127",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/127",
        "name": "Walter White",
        "role": "marketing team",
        "@referredType": "individual"
    },
    {
        "id": "475",
        "href": "https://serverRoot/tmf-api/partyManagement/v1/party/475",
        "name": "Saul Goodman",
        "role": "sales team",
        "@referredType": "individual"
    }
],
"prospectContact": [
    {
        "preferred": "false",
        "mediumType": "email",
        "validFor": {
            "startDateTime": "2017-03-15T07:49:25.246Z",
            "endDateTime": ""
        },
        "characteristic": {
            "emailAddress": "gustavo.fring@mail.com"
        }
    },
    {
        "preferred": "true",
        "mediumType": "phone",
        "validFor": {
            "startDateTime": "2017-03-15T07:49:25.246Z",
            "endDateTime": ""
        },
        "characteristic": {
            "phoneNumber": "+33607080910"
        }
    },
    {
        "preferred": "false",
        "mediumType": "postal address",
        "validFor": {
            "startDateTime": "2017-03-15T07:49:25.246Z",
            "endDateTime": ""
        },
        "characteristic": {
            "street1": "Rue de Provence",
            "postCode": "75001",
```

```
          "city": "Paris",
          "country": "France"
        }
      }
    ],
    "category": {
      "id": "15",
      "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/category/15",
      "name": "Individual Bank account category"
    },
    "salesOpportunity": {
      "id": "7894325",
      "href": "https://serverRoot/tmf-api/marketingManagement/v4/salesOpportunity/7894325",
      "name": "GoBank account"
    },
    "product": {
      "id": "7321",
      "href": "https://serverRoot/tmf-api/productCatalogManagement/v4/product/7321"
    },
    "note": [
      {
        "author": "Saul Goodman",
        "date": "2019-01-22T15:53:29.961Z",
        "text": "Customer with a very good credit profile"
      }
    ]
}
```

Delete sales lead

DELETE /salesLead/{id}

Description

This operation deletes a sales lead entity.

Usage Samples

Here's an example of a request for deleting a sales Lead.

Request
DELETE {apiRoot}/salesLead/123
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.

Acknowledgements

Release History

Release Number	Date	Release led by:	Description
Release 19.0	18-Jun-2019	Pierre Gauthier TM Forum pgauthier@tmforum.org Grégoire Laurent gregoire.laurent@orange.com Ludovic Robert ludovic.robert@orange.com Sophie Bouleau sophie.bouleau@orange.com	Version 4.0 of the API REST *Note: the version 4.0 is assigned to all the APIs delivered in the release 19.0*