API CUSTOMER MANAGEMENT  
CONFORMANCE

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# Table of Contents

[NOTICE 2](#_Toc484183329)

[Table of Contents 3](#_Toc484183330)

[Introduction - API DESCRIPTION 4](#_Toc484183331)

[RESOURCE MODEL CONFORMANCE 5](#_Toc484183332)

[API MANDATORY AND OPTIONAL RESOURCES 5](#_Toc484183333)

[Customer MANDATORY AND OPTIONAL ATTRIBUTES 5](#_Toc484183334)

[NOTIFICATION MODEL CONFORMANCE 7](#_Toc484183335)

[API MANDATORY AND OPTIONAL NOTIFICATIONS 7](#_Toc484183336)

[API OPERATIONS CONFORMANCE 8](#_Toc484183337)

[API MANDATORY AND OPTIONAL OPERATIONS 8](#_Toc484183338)

[API GET OPERATION CONFORMANCE 9](#_Toc484183339)

[/customer?fields=...&{filtering} 9](#_Toc484183340)

[/customer/{id}?fields=...&{filtering} 9](#_Toc484183341)

[API POST OPERATION CONFORMANCE 10](#_Toc484183342)

[/customer 10](#_Toc484183343)

[API PATCH OPERATION CONFORMANCE 12](#_Toc484183344)

[/customer/{id} 12](#_Toc484183345)

[API DELETE OPERATION CONFORMANCE 14](#_Toc484183346)

[/customer/{id} 14](#_Toc484183347)

[API CONFORMANCE TEST SCENARIOS 15](#_Toc484183348)

[Customer resource TEST CASES 15](#_Toc484183349)

[Release History 19](#_Toc484183350)

# Introduction - API DESCRIPTION

The Custome Management API 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.

# RESOURCE MODEL CONFORMANCE

## API MANDATORY AND OPTIONAL RESOURCES

For the resources defined by the API fill the following table and indicate which ones are mandatory and which ones are optional.

|  |  |  |
| --- | --- | --- |
| Resource Name | Mandatory or Optional | Comments |
| Customer | M |  |

## Customer MANDATORY AND OPTIONAL ATTRIBUTES

The table below summarizes mandatory and optional attributes for resource "Customer"

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Mandatory or Optional** | **Comments** |
| href | M (in response messages) O (otherwise) | Url for the created resource |
| id | M (in response messages) O (otherwise) | Generated by the server |
| name | M (for resource creation) O (otherwise) |  |
| status | O |  |
| statusReason | O |  |
| validFor | O |  |
| engagedParty | O |  |
| type | M (for resource creation) O (otherwise) |  |
| account | O |  |
| paymentMethod | O |  |
| contactMedium | O |  |
| characteristic | O |  |
| creditProfile | O |  |
| agreement | O |  |
| relatedParty | O |  |

# NOTIFICATION MODEL CONFORMANCE

<Optional section in basic CONNECT certification>

The Pub/Sub models are common and described in the TMF REST Design Guidelines. Use the following templates to describe the Hub Mandatory and Optional attributes and filtering support.

## API MANDATORY AND OPTIONAL NOTIFICATIONS

For the Notifications defined by the API the following table indicates which ones are mandatory and which ones are optional.

|  |  |  |
| --- | --- | --- |
| Notification Name | Mandatory or Optional | Comments |
| CustomerCreationNotification | M |  |
| CustomerAttributeValueChangeNotification | M |  |
| CustomerStateChangeNotification | M |  |
| CustomerRemoveNotification | M |  |

All attributes of the resource associated with the notification are mandatory

# API OPERATIONS CONFORMANCE

For every single resource use the following templates and define what operations are optional and what operations are mandatory.

## API MANDATORY AND OPTIONAL OPERATIONS

The following table indicates which ones are mandatory and which ones are optional for each one of the resources in the API (default is for all resources).

|  |  |  |
| --- | --- | --- |
| Uniform API Operation | Mandatory/Optional | Comments |
| GET | M for all resources | GET must be used to retrieve a representation of a resource |
| POST | M for resources:  Customer | POST must be used to create a new resource |
| PATCH | M for resources:  Customer | PATCH must be used to partially update a resource |
| DELETE | M for resources:  Customer | DELETE must be used to remove a resource |

# API GET OPERATION CONFORMANCE

For every single resource use the following template to specify the mandatory and optional features supported by the GET operation.

**Definitions**

**Filtered Search:** A filtered search can be applied using query parameters in order to obtain only the resource entities that meet the criteria defined by the filtering parameters included in the query request. Several elements can be applied to the filtered search. In that case logic, a logical AND is applied to combine the criteria (e.g.:?severity=<value> &status=<value>)

**Attribute selection (Filtered Response Data):** In order to apply a filter and limit the number of attributes included in the response, the GET request can include the “?fields=” query parameter. Several elements can be applied to the filter. In that case, a logical AND is applied to combine the values (e.g.:?fields=severity,status) will provide in the response only the values assigned to attributes category and channel. Attribute selection capabilities are the same for collections retrieval and individual resource queries

All the GET operations in this API share the same status code pattern.

|  |  |  |
| --- | --- | --- |
| GET | M |  |
| Response Status Code 200 | M |  |
| Other Status Codes | NA |  |

## /customer?fields=...&{filtering}

This operation list customer entities.  
Attribute selection is mandatory for all first level attributes.  
Filtering is mandatory for first compliance level (L1) and optional otherwise.

## /customer/{id}?fields=...&{filtering}

This operation retrieves a customer entity.  
Attribute selection is mandatory for all first level attributes.  
Filtering on sub-resources is optional for all compliance levels.

# API POST OPERATION CONFORMANCE

All the POST operations in this API share the same status code pattern.

|  |  |  |
| --- | --- | --- |
| POST | M |  |
| Status Code 201 | M |  |
| Other Status Codes | NA |  |

## /customer

This operation creates a customer entity.

**Mandatory and Non Mandatory Attributes**

The following tables provides the list of mandatory and non mandatory attributes when creating a Customer, 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** | **Default Value** | **Rule** |
| status |  |  |
| statusReason |  |  |
| validFor |  |  |
| engagedParty | Automatically generated |  |
| account |  |  |
| paymentMethod |  |  |
| contactMedium |  |  |
| characteristic |  |  |
| creditProfile |  |  |
| agreement |  |  |
| type |  | |
| relatedParty |  |  |

**Additional Rules**

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

|  |  |
| --- | --- |
| **Context** | **Mandatory Sub-Attributes** |
| engagedParty | id |
| characteristic | name, value |
| contactMedium | type, medium |
| partyAccount | id, name, status |
| creditProfile | creditProfileDate, validFor |
| paymentMean | id, href |

**Default Values Summary**

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

|  |  |
| --- | --- |
| Attributes | Default Value |
| id | Automatically generated |
| engagedParty | Automatically generated |

The response from the server must include a BODY with the contents of the new resource created, filled with at least the same information elements that were included in the request and are supported by the server. Notice that the value stored by the server may be different than the one set in the request (e.g.: status may be differently set by the server after processing than the one requested by the requestor)

# API PATCH OPERATION CONFORMANCE

All the PATCH operations in this API share the same status code pattern.

|  |  |  |
| --- | --- | --- |
| PATCH | O |  |
| Status Code 201 | M |  |
| Other Status Codes | NA |  |

## /customer/{id}

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 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.

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Patchable (YES/NO)** | **Rule** |
| id | N |  |
| href | N |  |
| name | Y |  |
| status | Y |  |
| statusReason | Y |  |
| validFor | Y |  |
| engagedParty | Y |  |
| type | Y |  |
| account | Y |  |
| paymentMethod | Y |  |
| contactMedium | Y |  |
| characteristic | Y |  |
| creditProfile | Y |  |
| agreement | Y |  |
| relatedParty | Y |  |

# API DELETE OPERATION CONFORMANCE

All the DELETE operations in this API share the same status code pattern.

|  |  |  |
| --- | --- | --- |
| DELETE | O |  |
| Status Code 200 | M |  |
| Other Status Codes | NA |  |

## /customer/{id}

This operation deletes a customer entity.

# API CONFORMANCE TEST SCENARIOS

This section describes the test scenarios required for the basic CONNECT certification of the API.

Test Cases must be executed in the order defined for each resource because the result from one of the scenarios will be input for the next one.

Requests must be addressed to the endpoint provided for certification, specifically they must be addressed to the URI defined by the concatenation of the {apiRoot} and the specific resource, where the {apiRoot} is defined as **{serverRoot}/customer/v1**, where {serverRoot} defines the certification endpoint

## Customer resource TEST CASES

**Nominal Scenarios**

**TC\_Trou\_N1 – Create new Ticket with minimum required information**

* Send a POST message to {apiRoot}/customer/ with the following contents in the BODY

{

"name": "John Smith",

}

* Wait for a response from the server with the following characteristics
  + Response Code 201-Created
  + Include a location header in the body set to /{apiRoot}/customer/{IDtt1} where {IDtt1} indicates the identifier assigned by the server to the new ticket resource
  + The response message includes all mandatory parameters (including description, severity and type that were not sent in the original request)
  + The body of the response matches the values set in the original request
* Send a GET message to /{apiRoot}/customer/
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The body of the response includes one Customer resource with ID set to {IDtt1}, the same identifier as assigned by the server to the new resource created
  + The response message includes all mandatory parameters
  + The body of the response for the resource with identifier {IDtt1} matches the values set in the original request
* Send a GET message to /{apiRoot}/customer/{IDtt1}
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The response message includes all mandatory parameters
  + The body of the response includes a Customer resource structure that matches the values in the original request

**TC\_Trou\_N2 – Search for Tickets with specific characteristics**

* Send a GET message to /{apiRoot}/customer
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The body of the response includes at least two ticket resources referring to {IDtt1} and {IDtt2}
  + The body of the response for the resource with each identifier matches the values in the corresponding original request
* Send a GET message to /{apiRoot}/ customer?contactMedium.type=email
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The body of the response includes one Customer resource referring to {IDtt1} and there is no reference to Customer resource {IDtt2}
  + The response message includes all mandatory parameters
  + The body of the response for the resource with identifier {IDtt1} matches the values in the original request

**TC\_Trou\_N3 – Filtered retrieval of Tickets**

* Send a GET message to /{apiRoot}/customer/{IDtt1}?fields=description
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The body of the response includes one Customer resource referring to {IDtt1} and including only attributes name and status, matching the values in the original request
* Send a GET message to /{apiRoot}/ customer /{IDtt2}?fields=name,contactMedium
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The body of the response includes one Customer resource referring to {IDtt2} and including only attributes severity and status, matching the values in the original request

Notice that this test case is using parameters ”name” and ”contactMedium” to filter the data included in the response but any other parameter could be used

**TC\_Trou\_N4 – Filtered Search and Filtered data response**

* Send a GET message to /{apiRoot}/customer?status=Active&fields=contactMedium
* Wait for a response from the server with the following characteristics
  + Response Code 200-OK
  + The body of the response includes one Customer resource referring to {IDtt1} and there is no reference to Customer resource {IDtt2}
  + The body of the response for the resource with each identifier includes only attribute description, matching the values in the corresponding original request

Notice that this test case is using the parameter ”contactMedium” to filter the data included in the response but any other parameter could be used

**Error Scenarios**

**TC\_Trou\_E1 – Unknown Trouble Ticket identifier**

* Send a GET message to /{apiRoot}/customer/{IDtt3}, where {IDtt3} does not match any of the identifiers previously creted in the server
* Wait for a response from the server with the following characteristics
  + Response Code 404-Not Found

**TC\_Trou\_E2 – Invalid Request – Missing mandatory parameter**

* Send a POST message to {apiRoot}/customer/ with the following contents in the BODY.

{

}

Notice that this request is missing mandatory parameter ”name” but any other mandatory parameter could be used

* Wait for an error response from the server indicating the mandatory parameter is missing in the request

## Release History

|  |  |  |  |
| --- | --- | --- | --- |
| **Release Number** | **Date** | **Release led by:** | **Description** |
| Release 1.0 | 07/15/2015 | Pierre Gauthier  TM Forum  pgauthier@tmforum.orf | First Release of Draft Version of the Document. |
| Release 1.1 | 03/15/2017 |  | Updated version including Test scenarios |