TM Forum Specification

Product Offering Qualification API Conformance Profile

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NOTICE

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INTRODUCTION

The following document is the REST API Conformance for the Product Offering Qualification API (TMF 679).

API DESCRIPTION

Product Offering Qualification API is one of Pre-Ordering Management API Family. Product Offering Qualification API goal is to provide Product Offering commercial eligibility. This API allows to

- request a specific productOffering eligibility
- look for productOffering eligibles (ot not) from a product category
- look for productOffering eligibles (or not) from a productspec description.

Because the API allows describing product from the inventory, it is also possible to use it to retrieve productOffering available to complete existing product.

ProductOfferingQualification API could be used…

…. Before Shopping Cart or ProductOrder API

… After recommendation API to filtering result(s).

RESOURCE MODEL CONFORMANCE

ProductOfferingQualification API MANDATORY AND OPTIONAL RESOURCES

Resource Name	Mandatory or Optional	Comments
ProductOfferingQualification	M	

ProductOfferingQualification MANDATORY AND OPTIONAL ATTRIBUTES

Attribute Name	Mandatory or Optional	Comments
id	M (in response messages) O (otherwise)	Initially generated by the server and provided in the response upon resource creation. Not available in POST request
href	M (in response messages) O (otherwise)	Initially generated by the server and provided in the response upon resource creation Value in response must be the same as the one set in Location header provided upon entity creation Not available in POST request
productOfferingQualificationDate	M (in response messages)	Not available in POST request
description	O	
state	M (in response messages) O (otherwise)	Only required in response messages from the server when providing the ProductOfferingQualification entity contents (responses to create-POST and read-GET the entity
qualificationResult	O	Not available in POST request
productOfferingQualificationDate	M (in response messages)	Refers to the date when the

Attribute Name	Mandatory or Optional	Comments
		productOfferingQualification entity was created in the server. Only required in response messages from the server when providing the productOfferingQualification entity contents
expectedQualificationDate	O	
estimatedResponseDate	O	Not available in POST request
effectiveQualificationDate	O	Not available in POST request
expirationDate	O	Not available in POST request
provideAlternative	O	By default 'false'
provideOnlyAvailable	O	By default 'true'
provideUnavailabilityReason	O	By default 'false'
relatedParty	M	Array of structures – At least one relatedParty must be provided
id	M (if relatedParty included and href not provided) O (otherwise)	
href	M (if relatedParty included and id not provided) O (otherwise)	
role	M	
name	O	
@referredType	O	
channel	O	zero or one channel
id	M (if channel included) O (otherwise)	
href	O	
name	O	
@type	O	
ProductOfferingQualificationItem	M	Array or items. At least one must be provided.
id	M	
state	M (in response messages) O (otherwise)	Only required in response messages from the server when providing the

Attribute Name	Mandatory or Optional	Comments
		ProductOfferingQualification entity contents (responses to create-POST and read-GET the entity
expectedActivationDate	O	
qualificationItemResult	O	Not available in POST request
TerminationError	O	Array of termination error(s)
id	M if value not provided, O otherwise	
value	M is id not provided, O otherwise	
Category	O	Array of productOffering category
id	M if href not provided, O otherwise	
href	M if id not provided, O otherwise	
version	O	
name	O	
@referredType	O	
QualificationItemRelationship	O	Array of qualification Item relationship
type	M	
id	M	
EligibilityUnavailabilityReason	O	An Array Must not be provided in POST Request
code	M if label not provided, O otherwise	
label	M if code not provided, O otherwise	
@type	O	
@schemaLocation	O	
AlternateProductOfferingProposal	O	An Array Must not be provided in the POST Request
id	O	
alternateActivationDate	O	
@type	O	

Attribute Name	Mandatory or Optional	Comments
@schemaLocation	O	
ProductOfferingRef	O	0 or 1
id	M if href not provided, O otherwise	
href	M if code not provided, O otherwise	
name	O	
@referredType	O	
Product		0 or 1
id	O	
href	O	
name	O	
ProductSpecificationRef	O	0 or 1
id	M if href not provided, O otherwise	
href	M if code not provided, O otherwise	
version	O	
name	O	
@referredType	O	
ProductSpecificationSchemaRef	O	0,1
@type	M	
@schemaLocation	M	
Place	O	An Array
id	M if href not provided, O otherwise	
href	M if code not provided, O otherwise	
name	O	
role	M	
@referredType	O	
@schemaLocation	O	
ProductCharacteristic		An Array
Name	M except if @schemaLocation provided	
Value	M except if @schemaLocation provided	

Attribute Name	Mandatory or Optional	Comments
@type	M	
@schemaLocation	M	
ProductRelationship		An Array
type	M	
(product) targeted	M	A referred or valued product must be present

API OPERATIONS CONFORMANCE

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

QUOTE MANDATORY AND OPTIONAL OPERATIONS

Uniform API Operation	Mandatory/Optional	Comments
GET	M	GET must be used to retrieve a representation of a resource
POST	M	POST must be used to create a new resource
PUT	O	PUT must be used to completely update a resource identified by its resource URI
PATCH (JSON-MERGE)	O	PATCH must be used to partially update a resource
DELETE	O	DELETE must be used to remove a resource

API GET FILTERING OPERATION CONFORMANCE

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>)

Filtered Data (Attribute selection): 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=category,state) will provide in the response only the values assigned to attributes category and state. Attribute selection capabilities are the same for collections retrieval and individual resource queries

Filtering in ProductOfferingQualification resource

Attribute name	Filtered search First Level	Filtered search N Level	Attribute Selection First Level	Attribute Selection N Level
id	NA	NA	M	NA
href	NA	NA	M	NA
productOfferingQualificationDate	O	NA	M	NA
description	O	NA	M	NA
category	O	NA	O	NA
state	M	NA	M	NA
qualificationItem	M	O	M	O
expectedQualification Date	M	NA	O	NA
estimatedResponseDate	O	NA	M	NA
effectiveQualificationDate	O	NA	O	NA
expirationDate	O	NA	M	NA
provideAlternative	NA	NA	O	NA
provideOnlyAvailable	NA	NA	O	NA
provideUnavailabilityReason	NA	NA	O	NA
channel				
id	O	NA	O	O
href	NA	NA	NA	NA
name	O	NA	O	NA
RelatedParty				

Attribute name	Filtered search First Level	Filtered search N Level	Attribute Selection First Level	Attribute Selection N Level
id	O	NA	O	O
href	NA	NA	NA	NA
role	O	NA	O	O
name	O	NA	O	NA
validFor	NA	NA	NA	NA
productOfferingQualificationItem				
id	NA	NA	M	O
state	O	NA	M	O
qualificationItemResult	M	O	M	O
expectedActivationDate	O	O	O	O
category				
id	O	NA	O	NA
href	NA	NA	NA	NA
version	O	NA	O	NA
name	O	NA	O	NA
productOfferingRef				
id	O	NA	O	NA
href	NA	NA	NA	NA
name				
productSpecificationRef				
id	O	NA	O	NA
href	NA	NA	NA	NA
version	O	NA	O	NA
name	O	NA	O	NA
product				
id	O	NA	O	NA
href	NA	NA	NA	NA
name	O	NA	O	NA
place				
id	O	NA	O	NA
href	NA	NA	NA	NA
role	O	NA	O	NA
name	O	NA	O	NA

GET /productOfferingQualificationManagement /productOfferingQualification /

Filtered Search: A filtered search can be applied using the following filtering criteria

- state: To obtain the list of productOfferingQualification that are in a given state

  - other optional attributes as defined in "Filtered search First Level" column in the table above

Filtered Data: A filtered response can be requested for the following attributes using the "?fields=" query parameter

- Any of the attributes in the first level of productOfferingQualification resource definition

GET /productOfferingQualificationManagement /productOfferingQualification /{ID}

Filtered Search: A filtered response can be requested for the following attributes using the "?fields=" query parameter

- Any of the attributes in the first level of productOfferingQualification resource definition

API POST OPERATION CONFORMANCE

POST /productOfferingQualificationManagement /productOfferingQualification /

This Uniform Contract operation is used to create a ProductOfferingQualification resource in the server.

The response to this operation must include a Location header set to /productOfferingQualificationManagement /productOfferingQualification /{ID} where {ID} indicates the identifier assigned by the server to the new ProductOfferingQualification resource created

POST	M	
Response Status Code 201	M	
Other Status Codes	NA	

The following table indicates attributes that are required to be sent when creating a new productOfferingQualification as well as attributes with special considerations. All other attributes defining the resource are not required to be sent as part of the BODY of the POST request message:

Attribute name	Mandatory	Default	Rule
id	NA		
href	NA		
productOfferingQualificationDate	NA		
state	NA		
qualificationResult	NA		
expectedQualificationDate	N	today	
provideAlternative	N	false	
provideOnlyAvailable	N	true	
estimatedResponseDate	NA		
effectiveQualificationDate	NA		
expirationDate	NA		
provideUnavailabilityReason	N	false	
productOfferingQualificationItem	Y		At least one item must be provided

Attribute name	Mandatory	Default	Rule
			At least a category OR a productOffering OR a product must be provided per item.
productOfferingQualificationItem.state	NA		
productOfferingQualificationItem.qualificationItemResult	NA		
RelatedParty.id or relatedParty.href	Y		for each related party provided
RelatedParty.role	N		
RelatedParty.name	N		
Channel.id or channel.href	Y		If channel is provided
EligibilityUnavailabilityReason	NA		
Category	O		id or href must be provided
QualificationItemRelationship	O		
QualificationItemRelationship.type	M		
QualificationItemRelationship.id	M		
Product	O		id or href or productSpecificationId or productSpecification.href must be provided.
TerminationError	NA		
ProductOffering	O		id or href must be provided
AlternateProductOfferingProposal	NA		
Place	O		id or href must be provided
ProductRelationship	O		type is mandatory + required a product targeted (referred or valued)
ProductCharacteristic	O		Name & value are required

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.: ProductOfferingName)

If the POST request includes optional parameters (as per the model resource definition) that are not supported by the server, then the server must reject the request (replying with a 4xx error response) indicating the parameter not supported.

The BODY of the response from the server must include attribute "href" set to the same value as the one in the Location header.

The server must include in the BODY of the response, even if they are not included in the request, the following attributes that are mandatory in the definition of a ProductOfferingQualification as per the resource model defined

- id
- href
- state
- qualificationResult
- productOfferingQualificationDate
- productOfferingQualificationItem.state

We must not that some attributes must not be send in the POST request and could be not valued in the POST answer:
- estimatedResponseDate
- effectiveQualificationDate
- expirationDate
- productOfferingQualificationItem.qualificationItemResult

The BODY of the response from the server must include attribute "href" (or "reference") under each one of the entities within the productOfferingQualification model that can be addressed individually and were included in the response. This applies to any of the following entities

- relatedParty
- productOffering
- productSpecification
- channel
- place
- product

API PATCH OPERATION CONFORMANCE

This section defines which attributes are patchable.

Since PATCH operation is optional and not included in the basic CONNECT certification this is not applicable in this conformance document.

API DELETE OPERATION CONFORMANCE

This section defines what operations can be used to delete a ProductOfferingQualification resource.

Since DELETE operation is optional and not included in the basic CONNECT certification this is not applicable in this conformance document

API CONFORMANCE TEST SCENARIOS

This section describes the test scenarios required for the basic CONNECT certification of ProductOfferingQualification 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}/productOfferingQualificationManagement/v1**, being {serverRoot} defines the certification endpoint.

ProductOfferingQualification resource TEST CASES

Nominal Scenarios

TC_ProductOfferingQualification_N1 – Create new ProductOfferingQualification with minimum required information

- Send a POST message to {apiRoot}/productOfferingQualification/ with the following contents in the BODY

```
{
    "description": "qualification for productOffering",
    "expectedQualificationDate": "2017-09-21",
    "provideAlternative": true,
    "provideOnlyAvailable": false,
    "provideUnavailabilityReason": true,
    "productOfferingQualificationItem": [
        {
            "id": "1",
            "expectedActivationDate": "2017-10-04",
            "note": [
                {
                    "date": "2017-10-02T00:00",
                    "author": "Dr. Jeckill",
                    "text": "This is quite important"
                }
            ],
            "productOffering": {
                "id": "7431",
                "href": "https://host:port/productOffering/productOffering/7431",
                "name": "Virtual Storage Medium"
            }
        },
        {
            "id": "2",
            "expectedActivationDate": "2017-10-11",
            "productOffering": {
                "id": "66",
```

```
                              "href": "https://host:port/productOffering/productOffering/66",
                              "name": "Mobile A+ Tariff Plan"
                      }
                 }
           ],
           "relatedParty": [
                 {
                      "id": "14",
                      "href": "https://host:port/partyManagement/individual/14",
                      "role": "customer",
                      "name": "Jean Pontus"
                 }
           ],
           "channel": {
                 "id": "1",
                 "href": "https://host:port/productCatalogManagement/channel/1",
                 "name": "Online Channel"
           }
}
```

- 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}/productOfferingQualification/{IDPOQ1} where {IDPOQ1} indicates the
      identifier assigned by the server to the new productOfferingQualification resource

    - The response message includes all mandatory parameters (including id, state and
      productOfferingQualificationDate 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}/productOfferingQualification /

- Wait for a response from the server with the following characteristics

    - Response Code 200-OK

    - The body of the response includes one ProductOfferingQualification resource with
      ID set to {IDQ1}, 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 {IDQ1} matches the values
      set in the original request

- Send a GET message to /{apiRoot}/productOfferingQualification /{IDQ1}

- 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 ProductOfferingQualification resource structure that matches the values in the original request

TC_ProductOfferingQualification_N2 – Create new ProductOfferingQualification with minimum set of parameters supported by server

- Send a POST message to {apiRoot}/productOfferingQualification/ with the following contents in the BODY

```
{
    "description": "qualification for productOffering",
    "expectedQualificationDate": "2017-10-05",
    "provideAlternative": false,
    "provideOnlyAvailable": true,
    "provideUnavailabilityReason": false,
    "productOfferingQualificationItem": [
        {
            "id": "1",
            "expectedActivationDate": "2017-10-11",
            "category": {
                "id": "21",
                "href": "https://host:port/productOffering/category/21",
                "version": "1.0",
                "name": "Data Bundle for Mobile"
            }
        }
    ],
    "relatedParty": [
        {
            "id": "24",
            "href":
"https://host:port/partyManagement/individual/24",
            "role": "customer",
            "name": "Jean-Luc Tymen"
        }
    ],
    "channel": {
        "id": "3",
        "href":
"https://host:port/productCatalogManagement/channel/3",
        "name": "Online Channel"
    }
}
```

- 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}/productOfferingQualification/{IDPOQ2} where {IDPOQ2} indicates the identifier assigned by the server to the new ProductOfferingQualification resource

- - The response message includes all mandatory parameters (including productOfferingQualification Date and state 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}/productOfferingQualification/

- Wait for a response from the server with the following characteristics

  - Response Code 200-OK

  - The body of the response includes one ProductOfferingQualification resource with ID set to {IDPOQ2}, 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 {IDPOQ2} matches the values set in the original request

- Send a GET message to /{apiRoot}/productOfferingQualification/{IDPOQ2}

- 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 ProductOfferingQualification resource structure that matches the values in the original request

TC_ProductOfferingQualification_N3 – Search for ProductOfferingQualification s with specific characteristics

- Send a GET message to /{apiRoot}/productOfferingQualification

- Wait for a response from the server with the following characteristics
  - Response Code 200-OK

  - The body of the response includes at least two ProductOfferingQualification resources referring to {IDPOQ1} and {IDPOQ2}

  - 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}/ productOfferingQualification ?expectedQualificationDate=2017-09-21

- Wait for a response from the server with the following characteristics

    - Response Code 200-OK

    - The body of the response includes one ProductOfferingQualification resource referring to {IDPOQ1} and there is no reference to ProductOfferingQualification resource {IDPOQ2}

    - The response message includes all mandatory parameters

    - The body of the response for the resource with identifier {IDPOQ1} matches the values in the original request

- Send a GET message to /{apiRoot}/productOfferingQualification ?relatedParty.Id=24&relatedParty.role=customer

- Wait for a response from the server with the following characteristics

    - Response Code 200-OK

    - The body of the response includes one ProductOfferingQualification resource referring to {IDPOQ2} and there is no reference to ProductOfferingQualification resource {IDPOQ1}

    - The response message includes all mandatory parameters

    - The body of the response for the resource with identifier {IDPOQ2} matches the values in the original request

TC_ProductOfferingQualification_N4 – Filtered retrieval of ProductOfferingQualification

- Send a GET message to /{apiRoot}/productOfferingQualification /{IDPOQ1}?fields=id, state, productOfferingItem.state, productOfferingItem.qualificationItemResult

- Wait for a response from the server with the following characteristics

    - Response Code 200-OK

    - The body of the response includes one ProductOfferingQualification resource referring to {IDQ1} and including only attributes productOfferingQualification Id and state, and an array of productOfferingQualificationItem with state and result.

- Send a GET message to /{apiRoot}/ productOfferingQualification /{IDPOQ2}?fields= estimatedResponseDate, effectiveQualificationDate,id, state

- Wait for a response from the server with the following characteristics

    - Response Code 200-OK

    - The body of the response includes one ProductOfferingQualification resource referring to {IDPOQ2} and including only attributes estimatedResponseDate, effectiveQualificationDate, id, and state matching the values in the original request

Notice that this test case is using parameters "state" ," productOfferingQualification", "id" and " estimatedResponseDate" to filter the data included in the response but any other parameter could be used

TC_ProductOfferingQualification_N5 – Filtered Search and Filtered data response

- Send a GET message to /{apiRoot}/productOfferingQualification ?channel.id=1&fields=id,state

- Wait for a response from the server with the following characteristics

    - Response Code 200-OK

    - The body of the response includes one ProductOfferingQualification resource referring to {IDPOQ1} and there is no reference to ProductOfferingQualification resource {IDPOQ2}

    - The body of the response for the resource includes only attributes id and state, matching the values in the corresponding original request

Notice that this test case is using the parameter "channel.id" to filter the data included in the response but any other parameter could be used

Error Scenarios

TC_ProductOfferingQualification_E1 – Unknown Trouble ProductOfferingQualification identifier

- Send a GET message to /{apiRoot}/productOfferingQualification /{IDPOQ3}, where {IDPOQ3} does not match any of the identifiers previously created in the server

- Wait for a response from the server with the following characteristics

    o Response Code 404-Not Found

TC_ProductOfferingQualification_E2 – Invalid Request – Missing mandatory parameter

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

```
{
    "description": "qualification for productOffering",
    "expectedQualificationDate": "2017-10-05",
    "provideAlternative": true,
    "provideOnlyAvailable": false,
    "provideUnavailabilityReason": true,
    "productOfferingQualificationItem": [
        {
            "id": "1",
            "expectedActivationDate": "2017-10-04"
            ]
        }
    ],
    "relatedParty": [
        {
            "id": "14",
            "role": "customer",
            "name": "Jean Pontus"
        }
    ],
    "channel": {
        "id": "1",
        "name": "Online Channel"
    }
}
```

Notice that this request is missing at least a productOffering or a productSpecification or a category 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

TC_ProductOfferingQualification _E3 – Invalid Request – Missing parameter mandatory in context

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

```
{
    "description": "qualification for productOffering",
    "expectedQualificationDate": "2017-10-05",
    "provideAlternative": true,
    "provideOnlyAvailable": false,
```

```
      "provideUnavailabilityReason": true
}
```

Notice that this request is missing mandatory parameter `productOfferingQualificationItem` 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