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N/A

INTRODUCTION

The following document is the REST API Conformance for the Service Qualification API (TMF 645).

API DESCRIPTION

Service Qualification API is one of Pre-Ordering Management API Family. Service Qualification API goal is to provide service technical eligibility in the context of the interaction. This API allows to:

- request a specific service eligibility,
- look for service eligibles (or not) from a service category,
- look for service eligibles (or not) from a service specification and characteristics.

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

RESOURCE MODEL CONFORMANCE

ServiceQualification API MANDATORY AND OPTIONAL RESOURCES

Resource Name	Mandatory or Optional	Comments
ServiceQualification	M	

ServiceQualification 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
serviceQualificationDate	M (in response messages)	Refers to the date when the serviceQualification entity was created in the server. Only required in response messages from the server when providing the serviceQualification entity contents Not available in POST request
description	O	
state	M (in response messages)	Only required in response messages from the server when

Attribute Name	Mandatory or Optional	Comments
	O (otherwise)	providing the ServiceQualification entity contents (responses to create-POST and read-GET the entity)
externalId	O	
qualificationResult	O	Not available in POST request
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'
@baseType	O	
@type	O	
@schemaLocation	O	
relatedParty	O	Array of structures
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	
@baseType	O	
@schemaLocation	O	
@type	O	
@referredType	O	

Attribute Name		Mandatory or Optional	Comments
serviceQualificationItem		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 serviceQualification entity contents (responses to create-POST and read-GET the entity)
	category	O	serviceCategoryRef
	expectedServiceAvailabilityDate	O	
	expirationDate	O	Not available in POST request
	qualificationResult	O	Not available in POST request
	@type	O	
	@schemaLocation	O	
	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	serviceCategoryRef
	qualificationItemRelationship	O	Array of qualification Item relationship
	type	M	
	id	M	
	ServiceEligibilityUnavailabilityReason	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	

Attribute Name	Mandatory or Optional	Comments
@schemaLocation	O	
AlternateServiceProposal	O	An Array Must not be provided in the POST Request
id	O	
alternateServiceAvailabilityDate	O	
@type	O	
@schemaLocation	O	
@baseType	O	
service	O	0 or 1
id	O	
href	O	
name	O	
serviceSpecificationRef	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	
@schemaLocation	O	
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	
serviceCharacteristic	O	An Array
name	M excepted if @schemaLocation provided	
value	M excepted if	

Attribute Name	Mandatory or Optional	Comments
	@schemaLocation provided	
@type	M	
@schemaLocation	M	
serviceRelationship	O	An Array
type	M	
(service) targeted	M	A referred or valued service must be present
serviceQualificationRelationship	O	
id	O	
relationshipType	O	
@baseType	O	
@schemaLocation	O	
@type	O	

API OPERATIONS CONFORMANCE

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

SERVICE QUALIFICATION 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 ServiceQualification 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
serviceQualificationDate	O	NA	M	NA
description	O	NA	M	NA
state	M	NA	M	NA
externalId	O	NA	M	NA
qualificationResult	M	O	M	O
expectedQualificationDate	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

Attribute name	Filtered search First Level	Filtered search N Level	Attribute Selection First Level	Attribute Selection N Level
on				
qualificationResult	O			
@baseType	O			
@schemaLocation	O			
@type	O			
relatedParty				
Id	O	NA	O	O
href	NA	NA	NA	NA
role	O	NA	O	O
name	O	NA	O	NA
@baseType	?	?	?	?
@schemaLocation	?	?	?	?
@type	?	?	?	?
@referredType	?	?	?	?
serviceQualificationItem				
id	NA	NA	M	O
state	O	NA	M	O
qualificationResult	M	O	M	O
expectedServiceAvailabilityDate	O	O	O	O
expirationDate	O	NA	M	NA
category	O			
terminationError	O			
@baseType	O			
@schemaLocation	O			
@type	O			

GET /serviceQualificationManagement /serviceQualification

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

- state: To obtain the list of serviceQualification 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 serviceQualification resource definition

GET /serviceQualificationManagement /serviceQualification /{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 serviceQualification resource definition

API POST OPERATION CONFORMANCE

POST /serviceQualificationManagement /serviceQualification

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

The response to this operation must include a Location header set to /serviceQualificationManagement/serviceQualification/{ID} where {ID} indicates the identifier assigned by the server to the new serviceQualification 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 serviceQualification 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		
serviceQualificationDate	NA		
state	NA		
qualificationResult	NA		
expectedQualificationDate	N	today	
provideAlternative	N	false	
provideOnlyAvailable	N	true	
estimatedResponseDate	NA		
effectiveQualificationDate	NA		
expirationDate	NA		
provideUnavailabilityReason	N	false	
serviceQualificationItem	Y		At least one item must

Attribute name	Mandatory	Default	Rule
			be provided At least a category OR a service must be provided per item.
serviceQualificationItem.state	NA		
serviceQualificationItem.qualificationResult	NA		
relatedParty	N		
relatedParty.id or relatedParty.href	Y		for each related party provided
relatedParty.role	N		
relatedParty.name	N		
serviceEligibilityUnavailabilityReason	NA		
category	O		id or href must be provided
serviceQualificationItemRelationship	O		
serviceQualificationItemRelationship.type	M		
serviceQualificationItemRelationship.id	M		
terminationError	NA		
alternateServiceProposal	NA		
place	O		id or href must be provided
serviceRestriction	O		
serviceRestriction.serviceRelationship	O		type is mandatory + required a service targeted (referred or valued)

Attribute name	Mandatory	Default	Rule
serviceRestriction.serviceCharacteristic	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.

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 serviceQualification as per the resource model defined

- id
- href
- state
- qualificationResult
- serviceQualificationDate
- serviceQualificationItem.state

Some attributes must not be send in the POST request and could be not valued in the POST answer:

- estimatedResponseDate
- effectiveQualificationDate
- expirationDate
- serviceQualificationItem.qualificationItemResult

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

- relatedParty
- serviceSpecification
- place
- service

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 serviceQualification 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 serviceQualification 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}/serviceQualificationManagement/v3, being {serverRoot} defines the certification endpoint

ServiceQualification resource TEST CASES

Nominal Scenarios

TC_ServiceQualification_N1 - Create new ServiceQualification

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

```
{
  "description": "Maximum download/upload speed for access at an address",
  "externalId": "SQ101",
  "expectedQualificationDate": "2017-10-25T12:13:16.361Z",
  "provideAlternative": true,
  "provideOnlyAvailable": false,
  "provideUnavailabilityReason": false,
  "serviceQualificationItem": [{
    "id": "1",
    "service": {
      "serviceSpecification": {
        "id": "111",
        "href": "https://mycsp.com:8080/tmf-api/serviceCatalogManagement/
v3/serviceSpecification/111",
        "name": "CFS_Access"
      },
      "characteristic": [{
        "name": "downloadSpeed"
      },
      {
        "name": "uploadSpeed"
      }
    ]
  }
],
```

```

        "place": [{
            "href":
"https://mycsp.com:8080/tmf-api/geographicAddressManagement/v3/geographicAddress/
25511",
            "id": "25511",
            "name": "160 de Versailles Avenue 75016 Paris France",
            "role": "installationAddress",
            "@type": "geographicAddress"
        }],
        "expectedServiceAvailabilityDate": "2017-10-27T12:14:16.361Z"
    }
}],
"relatedParty": [{
    "id": "14",
    "href": "https://mycsp.com:8080/tmf-api/partyManagement/v4/party/14",
    "role": "requester",
    "name": "John Doe",
    "@referredType": "Individual"
}]
}

```

- 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}/serviceQualification/{IDSQ1}` where `{IDSQ1}` indicates the identifier assigned by the server to the new serviceQualification resource
 - The response message includes all mandatory parameters (including id, state and serviceQualificationDate 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}/serviceQualification`
- Wait for a response from the server with the following characteristics:
 - Response Code 200-OK
 - The body of the response includes one serviceQualification resource with ID set to `{IDSQ1}`, 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 {IDSQ1} matches the values set in the original request
- Send a GET message to `{apiRoot}/serviceQualification/{IDSQ1}`
- 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 serviceQualification resource structure that matches the values in the original request

TC_ServiceQualification_N2 - Create new ServiceQualification with minimum set of parameters supported by server

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

```
{
  "externalId": "SQ102",
  "description": "Deliver access and IPTV at a given address",
  "expectedQualificationDate": "2017-10-25T12:13:16.361Z",
  "provideAlternative": true,
  "provideOnlyAvailable": true,
  "provideUnavailabilityReason": false,
  "serviceQualificationItem": [{
    "id": "1",
    "expectedServiceAvailabilityDate": "2017-10-27T12:14:16.361Z",
    "service": {
      "serviceSpecification": {
        "id": "111",
        "href":
"https://mycsp.com:8080/tmf-api/serviceCatalogManagement/v3/serviceSpecification/
111",
        "name": "CFS_Access"
      },
      "characteristic": [{
        "name": "downloadSpeed"
      },
      {
        "name": "uploadSpeed"
      }
    ]
  }
  ]
}
```

```

    ],
    "place": [{
      "href":
"https://mycsp.com:8080/tmf-api/geographicAddressManagement/v3/geographicAddress/
25511",
      "id": "25511",
      "name": "160 de Versailles Avenue 75016 Paris France",
      "role": "installationAddress",
      "@type": "geographicAddress"
    }]
  }
},
{
  "id": "2",
  "expectedServiceAvailabilityDate": "2017-10-27T12:14:16.361Z",
  "service": {
    "serviceSpecification": {
      "id": "222",
      "href":
"https://mycsp.com:8080/tmf-api/serviceCatalogManagement/v3/serviceSpecification/
222",
      "name": "CFS_IPTV"
    },
    "characteristic": [{
      "name": "4kEnabled",
      "value": {
        "@type": "boolean",
        "value": true
      }
    }]
  },
  "qualificationItemRelationship": [{
    "type": "reliesOn",
    "id": "1"
  }]
}
]
}

```

- 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/serviceQualification/{IDSQ2}` where `{IDSQ2}` indicates the identifier assigned by the server to the new ServiceQualification resource

- The response message includes all mandatory parameters (including serviceQualification 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}/serviceQualification`
- Wait for a response from the server with the following characteristics:
 - Response Code 200-OK
 - The body of the response includes one serviceQualification resource with ID set to `{IDSQ2}`, 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 `{IDSQ2}` matches the values set in the original request
- Send a GET message to `/{apiRoot}/serviceQualification/{IDSQ2}`
- 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 serviceQualification resource structure that matches the values in the original request

TC_ServiceQualification_N3 - Search for ServiceQualification with specific characteristics

- Send a GET message to `/{apiRoot}/serviceQualification`
- Wait for a response from the server with the following characteristics:
 - Response Code 200-OK
 - The body of the response includes at least two serviceQualification resources referring to `{IDSQ1}` and `{IDSQ2}`
 - 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}/serviceQualification?expectedQualificationDate=2017-10-25`
- Wait for a response from the server with the following characteristics:
 - Response Code 200-OK
 - The body of the response includes one serviceQualification resource referring to {IDSQ1} and there is no reference to serviceQualification resource {IDSQ2}
 - The response message includes all mandatory parameters
 - The body of the response for the resource with identifier {IDSQ1} matches the values in the original request
- Send a GET message to `/{apiRoot}/serviceQualification?relatedParty.id=14&relatedParty.role=requester`
- Wait for a response from the server with the following characteristics:
 - Response Code 200-OK
 - The body of the response includes one serviceQualification resource referring to {IDSQ1} and there is no reference to serviceQualification resource {IDSQ2}
 - The response message includes all mandatory parameters
 - The body of the response for the resource with identifier {IDSQ1} matches the values in the original request

TC_ServiceQualification_N4 - Filtered retrieval of ServiceQualification

- Send a GET message to `/{apiRoot}/serviceQualification/{IDSQ1}?fields=id,state,serviceQualificationItem.state,serviceQualificationItem.qualificationItemResult`
- Wait for a response from the server with the following characteristics:
 - Response Code 200-OK
 - The body of the response includes one serviceQualification resource referring to {IDSQ1} and including only attributes serviceQualification id and state, and an array of serviceQualificationItem with state and result.

- Send a GET message to `/{apiRoot}/serviceQualification/{IDSQ2}?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 `serviceQualification` resource referring to `{IDSQ2}` 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" ,"serviceQualification", "id" and " estimatedResponseDate" to filter the data included in the response but any other parameter could be used

TC_ServiceQualification_N5 - Filtered Search and Filtered data response

- Send a GET message to `/{apiRoot}/serviceQualification?relatedParty.id=15&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 `ServiceQualification` resource referring to `{IDSQ2}` and there is no reference to `serviceQualification` resource `{IDSQ1}`
 - 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 "relatedParty.id" to filter the data included in the response but any other parameter could be used.

Error Scenarios

TC_ServiceQualification_E1 - Unknown Trouble ServiceQualification identifier

- Send a GET message to `/{apiRoot}/serviceQualification/{IDSQ3}`, where `{IDSQ3}` 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_ServiceQualification_E2 - Invalid Request - Missing mandatory parameter

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

```
{
  "description": "Maximum download/upload speed for access",
  "expectedQualificationDate": "2017-10-25T12:13:16.361Z",
  "provideAlternative": true,
  "provideOnlyAvailable": false,
  "provideUnavailabilityReason": false,
  "relatedParty": [
    {
      "id": "14",
      "href":
"https://host:port/partyManagement/individual/14",
      "role": "requester",
      "name": "John Doe"
    }
  ],
  "serviceQualificationItem": [
    {
      "id": "1",
      "expectedServiceAvailabilityDate": "2017-10-
27T12:14:16.361Z",
    }
  ]
}
```

Notice that this request is missing at least a service or a serviceSpecification 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_ServiceQualification_E3 - Invalid Request - Missing parameter mandatory in context

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

```
{
  "description": "Maximum download/upload speed for access",
  "expectedQualificationDate": "2017-10-25T12:13:16.361Z",
  "provideAlternative": true,
  "provideOnlyAvailable": false,
```

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

Notice that this request is missing mandatory parameter `serviceQualificationItem` 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