

API Developper Guide

Serviceability

July 2018

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# List of Contributing Members

The following members of MEF participated in the development of this document and have requested to be included in this list.

|  |  |
| --- | --- |
| AT&T | Iometrix |
| CableLabs | Orange |
| Colt | PCCW Global |
| Ericsson |  |

Table Contributing Member Companies

# Abstract

This API Guide is intended to help company to implement MEF Product Offering Qualification API. The API swagger is available on MEF GitHub. In order to help API adoption this document provides:

* API Resource Models
* Resource ProductOfferingQualification lifecycle
* Resource ProductOfferingQualification full representation
* Detailed description of all API Operations provided

# Scope

The scope of this API guide covers the following capabilities for product offering qualification:

* Retrieve a geographic address
* The ability to validate an address.
* Retrieve sites based on filtering criteria
* Retrieve a single site by id
* The ability to determine if service can be delivered to a specific customer site within a Partner’s domain.
* Retrieve product offering qualifications based on filtering criteria
* Retrieve a single product offering qualification by id

# Compliance and Assumptions

## Product Offering Qualification Interface

1. Restricted access sites (e.g., Carrier-owned) shall not be under consideration when determining serviceability of a given location.
2. Serviceability interface may or may not use the previously validated Address id from the Address Validation API call or Site id from the Site API call.
3. Quote/Pricing data will not be supported under Serviceability Interface (Quote is managed in another API Guide).
4. Serviceability is not expected to reserve or guarantee resources.
5. In the “installation interval” in the serviceability response, “Business” hours or days reflect Seller’s perspective.
6. Seller may have alternatives in parameters beyond what Buyer has requested in the Input (e.g., CoS, Diversity/Protection).

## Site Interface

1. Site interface may or may not use the previously validated Address id from the Address Validation API call, or may also take the Address input directly.

## Address Interface

1. When handling ambiguous, or in-sufficient data, as input, multiple/alternative addresses may be returned.
2. Should be able to handle addresses for new development area where a postal address is yet to be assigned. In this case, a geographic (lat/long) or referenced address is recommended.
3. Address Validation shall expect to validate the physical location (either postal address or no postal location, like cell-tower in a field), but the validation specific to either building or at a suite level at a physical location is left to the Seller’s discretion, due to variations in the diverse types of Buildings & Products.
4. The maximum number of suggested Alternative addresses to be returned will be determined by the Seller.

# Resource Models

## Geographic Address Model



Color coding scheme:

* White box: API main resource
* Pink box: API sub resource(s)
* Green Boxes : API related/referred resource(s)

## Address Validation Resource Model



Color coding scheme:

* White box: API main resource
* Pink box: API sub resource(s)
* Green Boxes : API related/referred resource(s)

## Site Resource Model



Figure – Site Resource Model

Color coding scheme:

* White box: API main resource
* Pink box: API sub resource(s)
* Green Boxes : API related/referred resource(s)

## Product Offering Qualification Resource Model



Figure – Product Offering Qualification Resource Model

Color coding scheme:

* White box: API main resource
* Pink box: API sub resource(s)
* Green Boxes : API related/referred resource(s)

# State Diagram

Following diagram shows the state machine for a Product Offering Qualification:

Figure – Product Offering Qualification State Machine

# Notifications

Following notifications are supported for this API:

* productOfferingQualificationCreationNotification
* productOfferingQualificationStateChangeNotification
* productOfferingQualificationAttributeChangeNotification

In order to receive Notification, buyer needs

* to subscribe to a notification
* to provide an Event API in order to allow seller to POST him notifications.

## Subscribe to notification:

By doing the following request SP1 will subscribe to productOfferingQualification state change for his product Offering Qualification requests:

POST {api\_url}/HUB

Accept: application/json

{"callback": <http://in.listener.com>,

“query”:”eventType = • productOfferingQualificationChangeNotification”

}

In yellow, this is the address where Buyer wants to receive the order state change notifications.

The response will be:

201

Content

-

Type:

application/json

Location: /api/hub/42

{"id":"42","callback":"<http://in.listener.com>","query":”eventType = productOfferingQualificationStateChangeNotification”}

Note: 42 is the id of an HUB resource not a productOrder id

Seller provides GET and DELETE operations on HUB resource in order to allow buyer to retrieve his hub and delete them if necessary:

GET {api\_url}/HUB

Accept: application/json

You will have list of your HUB on this API

[

  {

    "id": "42",

    "query": "eventType = productOfferingQualificationStateChangeNotification",

    "callback": " <http://in.listener.com> "

  },

  {

    "id": "98",

    "query": " eventType = • productOfferingQualificationAttributeValueChangeNotification",

    "callback": " <http://in.listener.com> "

  }

]

Buyer did not want any more notification for productOfferingQualificationattribute value change:

DELETE {api\_url}/HUB/98

Accept: application/json

## Receive Notification:

Now that buyer has subscribed to notification for productOfferingQualificationstatus change for example, let’s suppose that he posted a productOfferingQualification and this one is processed by the seller. The productOfferingQualificationstate changes. Seller will POST an Event to the Buyer:

POST {callback}

{

"eventType": " productOfferingQualificationStateChangeNotification",

"eventTime": "2014-09-27T05:46:25.0Z",

"eventId": "92445",

"event":

{

"productOfferingQualification": {

“id”: “456987”

}

}

Buyer will response with a standard HTTP 201 if event received.

# Data mapping between IPS model and API resource model:

| IPS Class Model | Ethernet Serviceability Technical Specification | API resource or sub-resource | API attribute |
| --- | --- | --- | --- |
| *Product Offering Qualification* | |  |  |
|  | id | ProductOfferingQualification | id |
|  | state | ProductOfferingQualification | state |
|  | projectId | MEFProductOfferingQualification | projectId |
|  | Order Date | ProductOfferingQualification | provideAlternative |
|  | provideAlternative | MEFProductOfferingQualification | expirationDate |
|  | expirationDate | ProductOfferingQualification | state |
|  | expectedResponseDate | ProductOrder | requestedCompletionDate |
| ***Product Offering Qualification Item*** | |  |  |
|  | id | ProductOfferingQualificationItem | id |
|  | state | ProductOfferingQualificationItem | state |
|  | MPOE | MEFProductOfferingQualificationItem | MPOE |
|  | serviceabilityConfidence | MEFProductOfferingQualificationItem | serviceabilityConfidence |
|  | installationInterval | MEFProductOfferingQualificationItem | installationInterval |
|  | desiredActivationDate | ProductOfferingQualificationItem | desiredActivationDate |
| ***Product Offering Qualification Item Relationship*** | |  |  |
|  | type | ProductOfferingQualificationItemRelationship | type |
|  | id | ProductOfferingQualificationItemRelationship | id |
| ***Product Offering*** | |  |  |
|  | id | ProductOfferingRef | id |
| ***Product Relationship*** | |  |  |
|  | type | ProductRelationship | type |
|  | id | ProductRelationship | id |
| ***Alternate Product Proposal*** | |  |  |
|  | serviceabilityDate | AlternateProductProposal | serviceabilityDate |
| ***RelatedParty*** | |  |  |
|  | id | RelatedParty | id |
|  | role | RelatedParty | role |
|  | name | RelatedParty | name |
|  | emailAddress | RelatedParty | emailAddress |
|  | number | RelatedParty | number |
|  | numberExtension | RelatedParty | numberExtension |
| ***Place*** | |  |  |
|  | type | Place | role |
|  | id | Place | type |
|  | role | Place | role |
| ***Site*** | | managed with @referredType=site |  |
|  | siteCompanyName | Provided in all place schema | siteCompanyName |
|  | id | Site | id |
|  | siteCustomerName | Provided in all place schema | siteCustomerName |
|  | additionnalSiteInformation | Provided in all place schemae | additionnalSiteInformation |
|  | siteDescription | Provided in all place schema | description |
| ***GeographicAddress*** | |  |  |
|  | streetNr | managed with @referredType=FieldedAddress | streetNr |
|  | streetNrSuffix | managed with @referredType=FieldedAddress | streetNrSuffix |
|  | streetNrLast | managed with @referredType=FieldedAddress | streetNrLast |
|  | streetNrLastSuffix | managed with @referredType=FieldedAddress | streetNrLastSuffix |
|  | streetName | managed with @referredType=FieldedAddress | streetName |
|  | streetType | managed with @referredType=FieldedAddress | streetType |
|  | streetSuffix | managed with @referredType=FieldedAddress | streetSuffix |
|  | locality | managed with @referredType=FieldedAddress | locality |
|  | postcode | managed with @referredType=FieldedAddress | postcode |
|  | postcodeExtension | managed with @referredType=FieldedAddress | postcodeExtension |
|  | country | managed with @referredType=FieldedAddress | country |
|  | stateOrProvince | managed with @referredType=FieldedAddress | stateOrProvince |
|  | referenceType | managed with @referredType=ReferencedAddress | referenceType |
|  | referenceId | managed with @referredType=ReferencedAddress | referenceId |
|  | addrLine1 | managed with @referredType=FormattedAddress | addrLine1 |
|  | addrLine2 | managed with @referredType=FormattedAddress | addrLine2 |
|  | city | managed with @referredType=FormattedAddress | city |
| ***Geographic Sub Address*** | | managed with @referredType=FormattedAddress |  |
|  | id | managed with @referredType=FieldedAddress  GeographicSubAddress | id |
|  | subUnitType | managed with @referredType=FieldedAddress  GeographicSubAddress | subUnitType |
|  | subUnitNr | managed with @referredType=FieldedAddress  GeographicSubAddress | subUnitNr |
|  | levelType | managed with @referredType=FieldedAddress  GeographicSubAddress | levelType |
|  | levelNr | managed with @referredType=FieldedAddress  GeographicSubAddress | levelNr |
|  | buildingName | managed with @referredType=FieldedAddress  GeographicSubAddress | buildingName |
|  | privateStreetNr | managed with @referredType=FieldedAddress  GeographicSubAddress | privateStreetNr |
|  | privateStreetName | managed with @referredType=FieldedAddress  GeographicSubAddress | privateStreetName |
| ***Geographic Point*** | | managed with @referredType=geographicLocation |  |
|  | id | managed with @referredType=geographicLocation | id |
|  | latitude | managed with @referredType=geographicLocation | x |
|  | longitude | managed with @referredType=geographicLocation | y |

Table – Class attribute to API attribute mappings

# JSON Representation Samples

## Geographic Address

Illustrated below is a JSON representation of an example of a ‘GeographicAddress’ resource object:

|  |
| --- |
| {  "id": "9090",   "streetNr": "225",   "streetNrSuffix": "B",   "streetName": " Strathmore",   "streetType": "Terrace",   "postcode": "5004",   "city": "Brighton",   "stateOrProvince": "SA",   "country": "Australia",   "geographicLocation":   "geoPoint": [  {  "spatialRef": "WGS84",   "x": " 1.430937",   "y": " 43.597208",   }  ]  },  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..." } |

## Address Validation

We provide below the JSON representations of examples of an 'AddressValidation' resource object:

Exhibit 1: Validation result is a success

|  |
| --- |
| {  "id":"125",  "status":"done",  "validationDate":"2017-07-11T13:58:24.975Z",  "validationResult":"partial",  "provideaAlternative":true,  "validAddress":{  "id":"78963",  "streetNr":"60",  "streetName":"Spear",  "postcode":"94106",  "city":"San Francisco",  "stateOrProvince":"CA",  "country":"US",  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  }  } |

Exhibit 2: validation result is partial … several addresses match result:

|  |
| --- |
| {  "id":"126",  "status":"done",  "validationDate":"2017-07-11T13:58:24.975Z",  "validationResult":"partial",  "provideaAlternative":true,  "validAddress":{  "streetNr":"60",  "streetName":"Spear",  "postcode":"94106",  "city":"San Francisco",  "stateOrProvince":"CA",  "country":"US",  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  },  "alternateAddress":[  {  "id":"456987",  "streetNr":"60",  "streetNrSuffix":"A",  "streetName":"Spear",  "streetType":"Street",  "postcode":"94105",  "city":"san Francisco",  "stateOrProvince":"CA",  "country":"US",  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  },  {  "id":"499999",  "streetNr":"60",  "streetNrSuffix":"B",  "streetName":"Spare",  "streetType":"Street",  "postcode":"94105",  "city":"san Francisco",  "stateOrProvince":"CA",  "country":"US"  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  }  ]  } |

Exhibit 3: Validation result is a fail – no address matches and no alternative found

|  |
| --- |
| {  "id":"127",  "status":"done",  "validationDate":"2017-07-11T13:58:24.975Z",  "validationResult":"fail",  "provideaAlternative":true,  "validAddress":{  "id":"78963",  "streetNr":"60",  "streetName":"Speart",  "postcode":"94108",  "city":"San Francicoso",  "stateOrProvince":"CA",  "country":"US",  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  },  } |

## Site Resource

We provide below the JSON representations of examples of a ‘Site’ resource object:

|  |
| --- |
| {  "id":"456",  "name":"Orange Plano",  "description":"Orange equipment in Plano, TX",  "status":"Existing",  "geographicAddress":{  "id":"123",  "streetNr":"45",  "streetName":"Powell",  "streetType":"Avenue",  "city":"Plano",  "postcode":"54369",  "stateOrProvince":"TX",  "country":"US",  "geographicSubAddress":{  "id":"17",  "levelNumber":"17",  "buildingName":"Beltre Building"  },  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  },  "siteCompanyName":"A&M Lease Company",  "siteCustomerName":"Air France",  "additionnalSiteInformation":"No comment",  "@type":"Site",  "@schemaLocation":" https://wiki.mef.net/pages/...."  } |

## Product Offering Qualification

We provide below the JSON representation of an example of a ProductOfferingQualification resource object:

|  |
| --- |
| {  "id":"12",  "href":" http://api.xxx.com/productOfferingQualification/12",  "state":"COMPLETED",  "provideAlternative":false,  "expectedResponseDate":"2017-07-21",  "projectId":"12-123-2017",  "expirationDate":"2017-08-19",  "relatedParty":[  {  "id":"100",  "name":"Orange France",  "role":"buyer",  "number":"973-3-9775555"  },  {  "id":"1",  "name":"ECITele",  "role":"seller",  "number":"973-3-926-2222"  }  ],  "productOfferingQualificationItem":[  {  "id":"1",  "desiredActivationDate":"2017-07-20",  "state":"COMPLETED",  "serviceabilityConfidence":"GREEN",  "estimatedResponseDate":"2017-07-20",  "serviceConfidenceReason":"checked by Siva himself",  "installationInterval":{  "amount":5,  "timeUnit":"HOURS"  },  "MPOE":true,  "product":{  "productSpecificationRef":{  "id":" UNISpec ",  "describing":{  "@type":"UNISPEC",  "@schemaLocation":" http://mef/productSpec/qualification/UNISpec "  },  **<<Product Spec instanciation payload>>**  }  },  "relatedParty":[  {  "name":"Jessie",  "role":"UNI Site Contact",  "numberExtension":"+972",  "number":"4758978555",  "emailAddress":"Jessie@ airfrance.com"  }  ],  "geographicAddress":[  {  "id":"12fd-d556-98jki",  "href":"http://api.xxx.com/address/4569812fd-d556-98jki",  "role":"UNI Site",  "@referredType":"FieldedAddress"  }  ]  },  {  "id":"2",  "desiredActivationDate":"2017-07-20",  "state":"COMPLETED",  "serviceabilityConfidence":"YELLOW",  "estimatedResponseDate":"2017-07-20",  "serviceConfidenceReason":"UNICEendPoint needs to be checked",  "installationInterval":{  "amount":15,  "timeUnit":"DAYS"  },  "MPOE":true,  "product":{  "productSpecificationRef":{  "id":" accessELineSpec ",  "describing":{  "@type":"UNISPEC",  "@schemaLocation":" http://mef/productSpec/qualification/accessELineSpec "  },  **<<Product Spec instanciation payload>>**  }  },  "relatedParty":[  {  "name":"Fahim",  "role":"ENNI Site Contact",  "numberExtension":"+972",  "number":"4758978dsr",  "emailAddress":"Fahim@ airfrance.com"  }  ]  },  {  "id":"3",  "desiredActivationDate":"2017-07-20",  "state":"COMPLETED",  "serviceabilityConfidence":"GREEN",  "estimatedResponseDate":"2017-07-20",  "serviceConfidenceReason":"Automatic processing",  "installationInterval":{  "amount":1,  "timeUnit":"DAYS"  },  "MPOE":true,  "product":{  "productSpecificationRef":{  "id":" ENNICeEndpointSpec ",  "describing":{  "@type":" ENNICeEndpointSpec ",  "@schemaLocation":  "http://mef/productSpec/qualification/ENNICeEndpointSpec"  },  "productRelationship":[  {  "type":"reliesOn",  "id":"1217"  }  ],  **<<Product Spec instanciation payload>>**  },  "productOfferingQualificationItemRelationship":[  {  "type":"Relies",  "id":"2"  }  ]  }  },  {  "id":"4",  "desiredActivationDate":"2017-07-20",  "state":"COMPLETED",  "serviceabilityConfidence":"YELLOW",  "estimatedResponseDate":"2017-07-20",  "serviceConfidenceReason":"Failed to complete verification",  "installationInterval":{  "amount":15,  "timeUnit":"DAYS"  },  "MPOE":true,  "product":{  "productSpecificationRef":{  "id":" UNICeEndpointSpec ",  "describing":{  "@type": "UNICeEndpointSpec",  "@schemaLocation":  "http://mef/productSpec/qualification/UNICeEndpointSpec"  },  **<<Product Spec instanciation payload>>**  },  "productOfferingQualificationItemRelationship":[  {  "type":"Relies",  "id":"1"  },  {  "type":"Relies",  "id":"2"  }  ]  }  }  ]  } |

# API Operations

In the following tables, the use cases and operations defined in this specification are mapped to the API operations

## Geographic Address API

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case | Operation on Entities | Uniform API Operation | Description |
| [UC\_SONATA\_SERVICEABILITY\_0003](#UC_SONATA_SERVICEABILITY_0003) | getAddress | GET Resource | GET must be used to retrieve a representation of a resource. |

Table – GeographicAddress API Operations

RETRIEVE A GEOGRAPHIC ADDRESS

GET /geographicAddress/{id}

Description

This operation is used to retrieve a geographic address entity

Behavior

* Returns HTTP/1.1 status code 200 if the request was successful

Otherwise:

|  |  |
| --- | --- |
| 401 | Unauthorized |
| 403 | Forbidden |
| 404 | Not Found |
| 405 | Method Not Allowed |
| 408 | Request Time-out |

Usage Samples

Request

|  |
| --- |
| GET /geographicAddressManagement/geographicAddress/9090 Accept: application/json |

Response

|  |
| --- |
| {  "id": "9090",  "streetNr": "225",  "streetNrSuffix": "B",  "streetName": " Strathmore",  "streetType": "Terrace",  "postcode": "5004",  "city": "Brighton",  "stateOrProvince": "SA",  "country": "Australia",  "geographicLocation":  "geoPoint":[  "spatialRef": "WGS84",  "x": "1.430937",  "y": "43.597208"  }  ]  },  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..." } |

## Address Validation API

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case | Operation on Entities | Uniform API Operation | Description |
| [UC\_SONATA\_SERVICEABILITY\_0005](#UC_SONATA_SERVICEABILITY_0005)  [UC\_SONATA\_SERVICEABILITY\_0006](#UC_SONATA_SERVICEABILITY_0006) | getAddressValidations  getAddressValidation | GET Resource | GET must be used to retrieve a representation of a resource. |
| [UC\_SONATA\_SERVICEABILITY\_0004](#UC_SONATA_SERVICEABILITY_0004) | validateAddress | POST Resource | POST must be used to create a new resource. |

Table – AddressValidation API Operations











POST ADDRESS VALIDATION

POST /addressValidation

Description

This operation creates an addressValidation entity

Behavior

* Standard 201 response if address validation entity is created

Otherwise:

|  |  |
| --- | --- |
| 400 | Bad Request |
| 401 | Unauthorized |
| 403 | Forbidden |
| 405 | Method Not Allowed |
| 408 | Request Time-out |
| 422 | Unprocessable entity |

**Note:** This API could be used only in synchronous context.

The API Supplier will provide on the fly the requested information in the POST response..

Usage Samples

Request

|  |
| --- |
| POST /geographicAddressManagement/addressValidation Content-Type: application/json  {  "provideaAlternative": true,  "validAddress":{  "streetNr":"60",  "streetName":"Spear",  "postcode":"94106",  "city":"San Francisco",  "stateOrProvince":"CA",  "country":"US"  },  } |

Response

|  |
| --- |
| 201  {  "id":"125",  "status":"done",  "validationDate":"2017-07-11T13:58:24.975Z",  "validationResult":"partial",  "provideaAlternative":true,  "validAddress":{  "id":"78963",  "streetNr":"60",  "streetName":"Spear",  "postcode":"94106",  "city":"San Francisco",  "stateOrProvince":"CA",  "country":"US",  "@type": "FieldedAddress",  "@schemaLocation": " http://wiki.mef.net/pages/..."  }  } |

## Site API

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case | Operation on Entities | Uniform API Operation | Description |
| [UC\_SONATA\_SERVICEABILITY\_0001](#UC_SONATA_SERVICEABILITY_0001)  [UC\_SONATA\_SERVICEABILITY\_0002](#UC_SONATA_SERVICEABILITY_0002) | getSites  getSite | GET Resource | GET must be used to retrieve a representation of a resource. |

Table – Site API Operations

LIST SITE

GET /site?{filtering}

Description

This operation is used to retrieve site(s) corresponding to search criteria(s)

The response will provide site summary

Only following attributes could be used as search criteria:

* name
* status
* streetNr
* streetName
* streetType
* city
* postcode
* country
* siteCustomerName
* siteCompanyName

Only following attributes will be retrieved in summary view:

* id
* name
* status
* streetNr
* streetName
* streetType
* city
* postcode
* country
* siteCustomerName
* siteCompanyName

Behavior

* Returns HTTP/1.1 status code 200 if the request was successful

Otherwise:

|  |  |
| --- | --- |
| 400 | Bad Request |
| 401 | Unauthorized |
| 403 | Forbidden |
| 405 | Method Not Allowed |
| 408 | Request Time-out |

Usage Samples

Request

|  |
| --- |
| GET /siteManagement/site?state=existing&city=Paris&siteCustomerName=Bank of America&country=France Accept: application/json |

Response

|  |
| --- |
| [  {  "id": "10",  "name": "BOA Paris Champs-Elysées",  "status": "Planned",  "siteCustomerName": "Bank of America",  "geographicAddress": {  "streetNr": "45",  "streetName": "Champs-Elysées",  "streetType": "Avenue",  "city": "Paris",  "postcode": "75002",  "country": "France"  }  },  {  "id": "986",  "name": " BOA Paris Montparnasse ",  "status": "Former",  "siteCompanyName": " BOA Paris Tour Montparnasse ",  "siteCustomerName": " Bank of America ",  "geographicAddress": {  "streetNr": "1",  "streetName": "Montparnasse",  "streetType": "Avenue",  "city": "Paris",  "postcode": "75006",  "country": "France"  }  }  ] |

RETRIEVE SITE

GET /site/{id}

Description

This operation is used to retrieve a site entity

Behavior

* Returns HTTP/1.1 status code 200 if the request was successful

Otherwise:

|  |  |
| --- | --- |
| 400 | Bad Request |
| 401 | Unauthorized |
| 403 | Forbidden |
| 405 | Method Not Allowed |
| 408 | Request Time-out |

Usage Samples

Request

|  |
| --- |
| GET /siteManagement/site/456 Accept: application/json |

Response

|  |
| --- |
| {  "id":"456",  "name":"Orange Plano",  "description":"Orange equipment in Plano, TX",  "status":"Existing",  "geographicAddress":{  "id":"123",  "streetNr":"45",  "streetName":"Powell",  "streetType":"Avenue",  "city":"Plano",  "postcode":"54369",  "stateOrProvince":"TX",  "country":"US",  "geographicSubAddress":{  "id":"17",  "levelNumber":"17",  "buildingName":"Beltre Building"  },  "postCodeExtension":"77"  },  "siteCompanyName":"A&M Lease Company",  "siteCustomerName":"Air France",  "additionnalSiteInformation":"No comment",  "@type":"MEFSite",  "@schemaLocation":"http://wiki.mef.net/pages/...."  } |

## Product Offering Qualification API

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case | Operation on Entities | Uniform API Operation | Description |
| [UC\_SONATA\_SERVICEABILITY\_0008](#UC_SONATA_SERVICEABILITY_0008)  [UC\_SONATA\_SERVICEABILITY\_0009](#UC_SONATA_SERVICEABILITY_0009) | getProductOfferingQualifications  getProductOfferingQualification | GET Resource | GET must be used to retrieve a representation of a resource. |
| [UC\_SONATA\_SERVICEABILITY\_0007](#UC_SONATA_SERVICEABILITY_0007) | createProductOfferingQualification | POST Resource | POST must be used to create a new resource. |

Table – ProductOfferingQualification API Operations

RETRIEVE PRODUCT OFFERING QUALIFICATION

GET /productOfferingQualification/{id}

Description

This operation is used to retrieve a ProductOfferingQualification entity

Behavior

* Returns HTTP/1.1 status code 200 if the request was successful

Otherwise:

|  |  |
| --- | --- |
| 400 | Bad Request |
| 401 | Unauthorized |
| 403 | Forbidden |
| 404 | Not Found |
| 405 | Method Not Allowed |
| 408 | Request Time-out |

Usage Samples

This sample illustrates an productOffering qualification with alternate product proposition.

Request

|  |
| --- |
| GET /productOfferingQualificationManagement/productOfferingQualification/13 Accept: application/json |

Response

|  |
| --- |
| {  "id":"13",  "state":"COMPLETED",  "provideAlternative":true,  "expectedResponseDate":"2017-07-21",  "projectId":"12-123-2017",  "expirationDate":"2017-08-19",  "@type":"MEFProductOfferingQualification",  "@schemaLocation":" http://wiki.mef.net/pages/....",  "relatedParty":[  {  "id":"100",  "name":"Orange France",  "role":"buyer",  "number":"973-3-9775555"  },  {  "id":"1",  "name":"ECITele",  "role":"seller",  "number":"973-3-926-2222"  }  ],  "productOfferingQualificationItem":[  {  "id":"1",  "desiredActivationDate":"2017-07-20",  "state":"COMPLETED",  "serviceabilityConfidence":"RED",  "estimatedResponseDate":"2017-07-21",  "product":{  "productSpecificationRef":{  "id":" UNISpec ",  "describing":{  "@type":"UNISPEC",  "@schemaLocation":" http://mef/productSpec/qualification/UNISpec "  },  "portSpeed":{  "amount":10,  "unit":"Mbps"  },  "accessTechnology":"DIRECT\_FIBER",  "interfaceType":"ELECTRICAL",  "accessMedium":"FIBER",  "physicalLayer":"100BASE-TX"  }  },  "relatedParty":[  {  "name":"Jessie",  "role":"UNI Site Contact",  "numberExtension":"+972",  "number":"4758978555",  "emailAddress":"Jessie@airfrance.com"  }  ],  "geographicAddress":[  {  "role":"UNI Site",  "type":"FIELDED",  "streetNr":"60",  "streetName":"Ha-Yarkon",  "streetType":"Street",  "streetSuffix":"A",  "city":"Tel Aviv-Yafo",  "postcode":"78963",  "stateOrProvince":"Tel Aviv Area",  "country":"Israel",  "geographicSubAddress":{  "type":"Level",  "name":"Air France Office",  "levelType":"Floor",  "levelNumber":"11"  }  }  ],  "alternateProductProposal":[  {  "serviceabilityDate":"2017-07-21",  "productSpecificationRef":{  "id":" UNISpec ",  "describing":{  "@type":" UNISpec ",  "@schemaLocation":"http://mef/productSpec/qualification/UNISpec"  },  "portSpeed":{  "amount":1,  "unit":"Mbps"  },  "accessTechnology":"BONDED\_COPPER",  "interfaceType":"ELECTRICAL",  "accessMedium":"TWISTED\_PAIR",  "physicalLayer":"10BASE-TX"  }  }  ]  }  ]  } |

LIST PRODUCT OFFERING QUALIFICATION

GET /productOfferingQualification?{filtering}

Description

This operation is used to retrieve ProductOfferingQualification(s) corresponding to search criteria(s)

Only following attributes could be used as search criteria:

* state
* expectedResponseDate
* projectId

Only following attributes will be retrieved in summary view:

* id
* state
* expectedResponseDate
* projectId

Behavior

* Returns HTTP/1.1 status code 200 if the request was successful

Otherwise:

|  |  |
| --- | --- |
| 400 | Bad Request |
| 401 | Unauthorized |
| 403 | Forbidden |
| 405 | Method Not Allowed |
| 408 | Request Time-out |

Usage Samples

Request

|  |
| --- |
| GET /productOfferingQualificationManagement/productOfferingQualification?projectId=Air France Accept: application/json |

Response

|  |
| --- |
| [  {  "id": "145",  "state": "COMPLETED",  "expectedResponseDate": "2017-07-20",  "projectId": " Air France "  },  {  "id": "123",  "state": "UNDER\_REVIEW",  "expectedResponseDate": "2017-07-25",  "projectId": " Air France "  },  {  "id": "214",  "state": "UNDER\_REVIEW",  "expectedResponseDate": "2017-08-02",  "projectId": " Air France "  },  {  "id": "12",  "state": "REJECTED",  "expectedResponseDate": "2016-09-25",  "projectId": " Air France "  }  ] |

POST PRODUCT OFFERING QUALIFICATION

POST /productOfferingQualification

Description

This operation creates a product offering qualification entity

Behavior

* Standard 201 response if product order created

Otherwise:

|  |  |
| --- | --- |
| 400 | Bad Request |
| 401 | Unauthorized |
| 403 | Forbidden |
| 405 | Method Not Allowed |
| 408 | Request Time-out |
| 422 | Unprocessable entity (see below) |

Specific business errors will be encapsulated in HTTP Response 422 Unprocessable entity:

* 100: A relatedParty – at productOfferingQualification level – with a role ‘Buyer’ must be provided

**Note:** This API could be used in synchronous/asynchronous context.

If the API Supplier is able – on the fly – to provide requested information it is possible to put this information in the POST response. If not, he will only provide a productOfferingQualification id and the API user will use the GET operation to retrieve the result later.

Usage Samples

Request

|  |
| --- |
| {  "provideAlternative":false,  "expectedResponseDate":"2017-07-21",  "projectId":"12-123-2017",  "@type":"MEFProductOfferingQualification",  "@schemaLocation":" http://wiki.mef.net/pages/....",  "relatedParty":[  {  "id":"100",  "name":"Orange France",  "role":"buyer",  "number":"973-3-9775555"  },  {  "id":"1",  "name":"ECITele",  "role":"seller",  "number":"973-3-926-2222"  }  ],  "productOfferingQualificationItem":[  {  "id":"1",  "desiredActivationDate":"2017-07-20",  "product":{  "productSpecificationRef":{  "id":" UNISpec ",  "describing":{  "@type":"UNISPEC",  "@schemaLocation":" http://mef/productSpec/qualification/UNISpec "  },  "portSpeed":{  "amount":10,  "unit":"Mbps"  },  "accessTechnology":"DIRECT\_FIBER",  "interfaceType":"ELECTRICAL",  "accessMedium":"FIBER"  }  },  "relatedParty":[  {  "name":"Jessie",  "role":"UNI Site Contact",  "numberExtension":"+972",  "number":"4758978555",  "emailAddress":"Jessie@ airfrance.com"  }  ],  "geographicAddress":[  {  "role":"UNI Site",  "type":"FIELDED",  "streetNr":"60",  "streetName":"Ha-Yarkon",  "streetType":"Street",  "streetSuffix":"A",  "city":"Tel Aviv-Yafo",  "postcode":"78963",  "stateOrProvince":"Tel Aviv Area",  "country":"Israel",  "geographicSubAddress":{  "type":"Level",  "name":"Air France Office",  "levelType":"Floor",  "levelNumber":"11"  }  }  ]  },  {  "id":"2",  "desiredActivationDate":"2017-07-20",  "product":{  "productSpecificationRef":{  "id":" accessELineSpec ",  "describing":{  "@type":"UNISPEC",  "@schemaLocation":" http://mef/productSpec/qualification/ accessELineSpec "  },  "mtuSize":1456,  "colorForwardingEnabled":true  }  },  "relatedParty":[  {  "name":"Fahim",  "role":"ENNI Site Contact",  "numberExtension":"+972",  "number":"4758978dsr",  "emailAddress":"Fahim@ airfrance.com"  }  ]  },  {  "id":"3",  "desiredActivationDate":"2017-07-20",  "product":{  "productSpecificationRef":{  "id":" ENNICeEndpointSpec ",  "describing":{  "@type":" ENNICeEndpointSpec ",  "@schemaLocation":" http://mef/productSpec/qualification/ENNICeEndpointSpec "  },  "productRelationship":[  {  "type":"reliesOn",  "id":"1217"  }  ],  "ingressBWProfile":[  {  "cosId":"Medium",  "cir":{  "amount":10,  "unit":"Mbps"  },  "sellerCosName":"Silver"  }  ],  "egressBWProfile":[  {  "cosId":"Medium",  "cir":{  "amount":10,  "unit":"Mbps"  },  "sellerCosName":"Silver"  }  ]  },  "productOfferingQualificationItemRelationship":[  {  "type":"Relies",  "id":"2"  }  ]  }  },  {  "id":"4",  "desiredActivationDate":"2017-07-20",  "product":{  "productSpecificationRef":{  "id":" UNICeEndpointSpec ",  "describing":{  "@type":" UNICeEndpointSpec ",  "@schemaLocation":" http://mef/productSpec/qualification/UNICeEndpointSpec "  },  "ingressBWProfile":[  {  "cosId":"Medium",  "cir":{  "amount":10,  "unit":"Mbps"  },  "sellerCosName":"Silver"  }  ],  "egressBWProfile":[  {  "cosId":"Medium",  "cir":{  "amount":10,  "unit":"Mbps"  },  "sellerCosName":"Bronze"  }  ]  },  "productOfferingQualificationItemRelationship":[  {  "type":"Relies",  "id":"1"  },  {  "type":"Relies",  "id":"2"  }  ]  }  }  ]  } |

Response

|  |
| --- |
| 201  {  "id": "12"  } |

# Appendix – Product Specification Description

## Product Specification management in the API

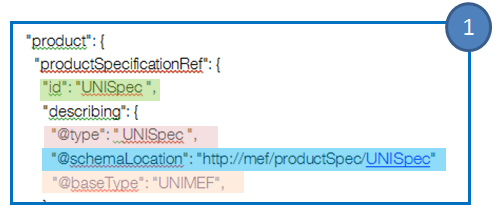
The productOfferingQualification API is product-agnostic. The product specification information is managed with an API extension pattern. This pattern allows distinguishing 2 types of data:

* Catalog information: What are the product specification attributes? What is the attribute format? What is the cardinality of each attribute? In case of a predefined list, what are the values?
* Qualification-instantiated productSpec description: What are the attributes values for this productOffering qualification? These values should be filled accordingly to catalog information.

The pattern to describe the data is described in the following 3 steps:

Step 1: Identifying the productSpec

Basically, let’s assume a productOfferingQualifcationItem is describing the productOffering Qualifcation of a productSpecification .

The first thing is to identify this productSpecification for the seller by means of an *identifier* (this id is the catalog id of the productSpec for the seller). This id should have been communicated by the seller to the buyer during the on-boarding process between the service provider and the partner (or on-the-fly accessible with a catalog API).

Then we need to provide additional information to retrieve catalog information used to describe this productSpec:

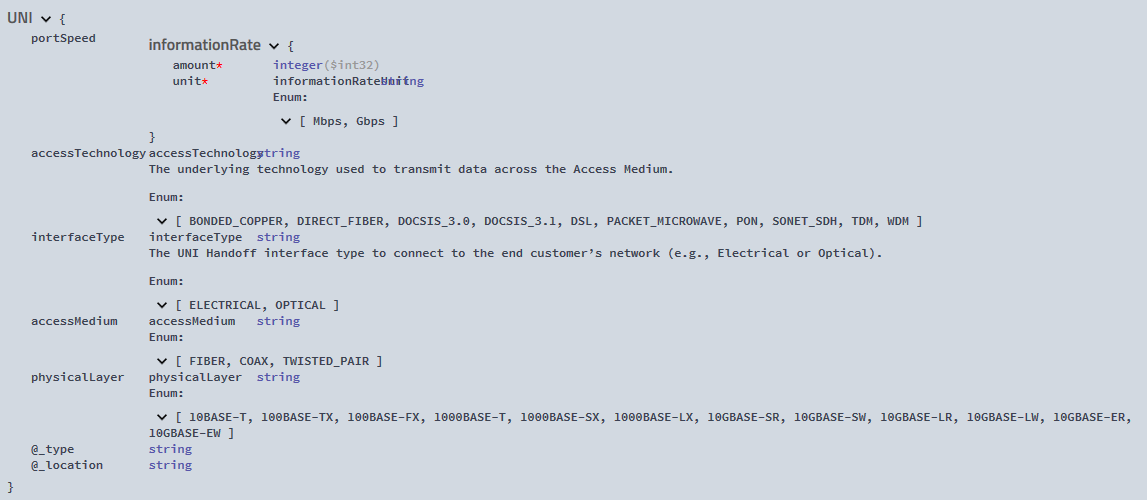
* @type – This is type of productSpec as defined in the MEF. In the example, id and @type have same value but nothing prevents a service provider to have id AZ45hT7 as a productSpec knows a UNISpec in the MEF.
* @schemaLocation describes a URL … and this URL targets the MEF server. Following this URL we have a JSON describing the productSpec. We have there the catalog view of the product spec
* @baseType – is an additional information (optional) to indicate the productSpec category type

@type and @schemaLocation are mandatory information to be filled in the order item.

Step 2: Getting the productSpec description

If we follow the link indicated in the @schemaLocation we reach a JSON file stored in the MEF server where the serviceability productSpec catalog description is available. The buyer uses this description to describe the qualification and describe the ‘to-be-qualified’ product.

We have the following information for the UNI Spec:



We note also there that we have @type and @location attributes. These attributes could be optionally used by a service provider to enrich the productSpec with additional attribute specific to this service provider. Use of this extension must be agreed during the on-boarding process between the service provider and the partner.

Step 3: Describing the ‘to-be-qualified’ productSpec

The buyer uses the productSpec Description (step 2) to describe the instance of the ‘to-be-qualified’ productSpec. This description is done in a straightforward way with the list of attributes and values directly described in the product structure (described in Orange below).



## Product Specification description

### UNI Specification

The UNI description for product offering qualification is found here: [**https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/UNISpec.json**](https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/UNISpec.json)

|  |
| --- |
| UNI {  portSpeed (informationRate, optional):  accessTechnology (string, optional): = ['BONDED\_COPPER', 'DIRECT\_FIBER', 'DOCSIS\_3.0', 'DOCSIS\_3.1', 'DSL', 'PACKET\_MICROWAVE', 'PON', 'SONET\_SDH', 'TDM', 'WDM'],  interfaceType (string, optional): = ['ELECTRICAL', 'OPTICAL'],  accessMedium (string, optional): = ['FIBER', 'COAX', 'TWISTED\_PAIR'],  physicalLayer (string, optional): = ['10BASE-T', '100BASE-TX', '100BASE-FX', '1000BASE-T', '1000BASE-SX', '1000BASE-LX', '10GBASE-SR', '10GBASE-SW', '10GBASE-LR', '10GBASE-LW', '10GBASE-ER', '10GBASE-EW'],  @\_type (string, optional): ,  @\_location (string, optional):  }  informationRate {  amount (integer): ,  unit (string): = ['Mbps', 'Gbps']  } |

### E-Line Specification

An E-Line is decomposed into 3 distinct product specifications:

* ELine description is found here: [**https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/ELineSpec.json**](https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/ELineSpec.json)
* uniCeEndpoint description is found here: [**https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/UNICEEndPointSpec.json**](https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/UNICEEndPointSpec.json)
* enniCeEndpoint description is found here: [**https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/ENNICEEndPointSpec.json**](https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/master/experimental/api/ProductSpecDescription/Serviceability/ENNICEEndPointSpec.json)

These 3 productSpecs must be ordered **together** in the **same** productOffering qualification request in 3 distinct productOffering items.

ELine description:

|  |
| --- |
| AccessELine {  mtuSize (integer, optional):  colorForwardingEnabled (boolean, optional):,  @type (string, optional): ,  @schemaLocation (string, optional):  } |

uniCeEndpoint description:

|  |
| --- |
| uniCeEndpoint {  ingressBWProfile (Array[BandwidthProfile], optional): ,  egressBWProfile (Array[BandwidthProfile], optional): ,  @type (string, optional): ,  @schemaLocation (string, optional):  }  BandwidthProfile {  cosId (string, optional):  cir (informationRate, optional):  sellerCosName (string, optional):  }  informationRate {  amount (integer): ,  unit (string): = ['Mbps', 'Gbps']  } |

enniCeEndpoint description:

|  |
| --- |
| enniCeEndpoint {  ingressBWProfile (Array[BandwidthProfile], optional): ,  egressBWProfile (Array[BandwidthProfile], optional): ,  @type (string, optional): ,  @schemaLocation (string, optional):  }  BandwidthProfile {  cosId (string, optional):  cir (informationRate, optional):  sellerCosName (string, optional):  }  informationRate {  amount (integer): ,  unit (string): = ['Mbps', 'Gbps']  }  } |