Working Draft 1.0

API Developer Guide

Product Order Management

October 2018

This draft represents MEF work in progress and is subject to change.

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Table of Contents

78 # List of Figures

83 # List of Tables

86

1. 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.

Member Company

Table 1 – Contributing Member Companies

2. Abstract

This API Guide is intended to help software developers to implement the MEF Product Ordering API. The API swagger is available on the MEF GitHub. This document covers the following topics:

- Product Ordering API Resource Model
- Product Order Resource Lifecycle
- Product Ordering API Notifications
- Product Resource JSON Representation
- Description of all API Operations

3. Scope

The scope of this API Guide covers the following product ordering functions:

- Creating an order to request installation of a new Product
- Creating an order to change an existing in-service Product
- Creating an order to disconnect an existing in-service Product

- Cancelling of an inflight-order
- Retrieving Product Order instances based upon a filter of Product Order attributes
- Retrieving a specific Product Order instance based upon a Product Order identifier
- Support for Order Notifications

Specifically, out of scope for this release are the following functions:

- Modifying an inflight-order

4. Resource Models

4.1 Product Order Resource Model

The Product Order REST resource model is as follows:

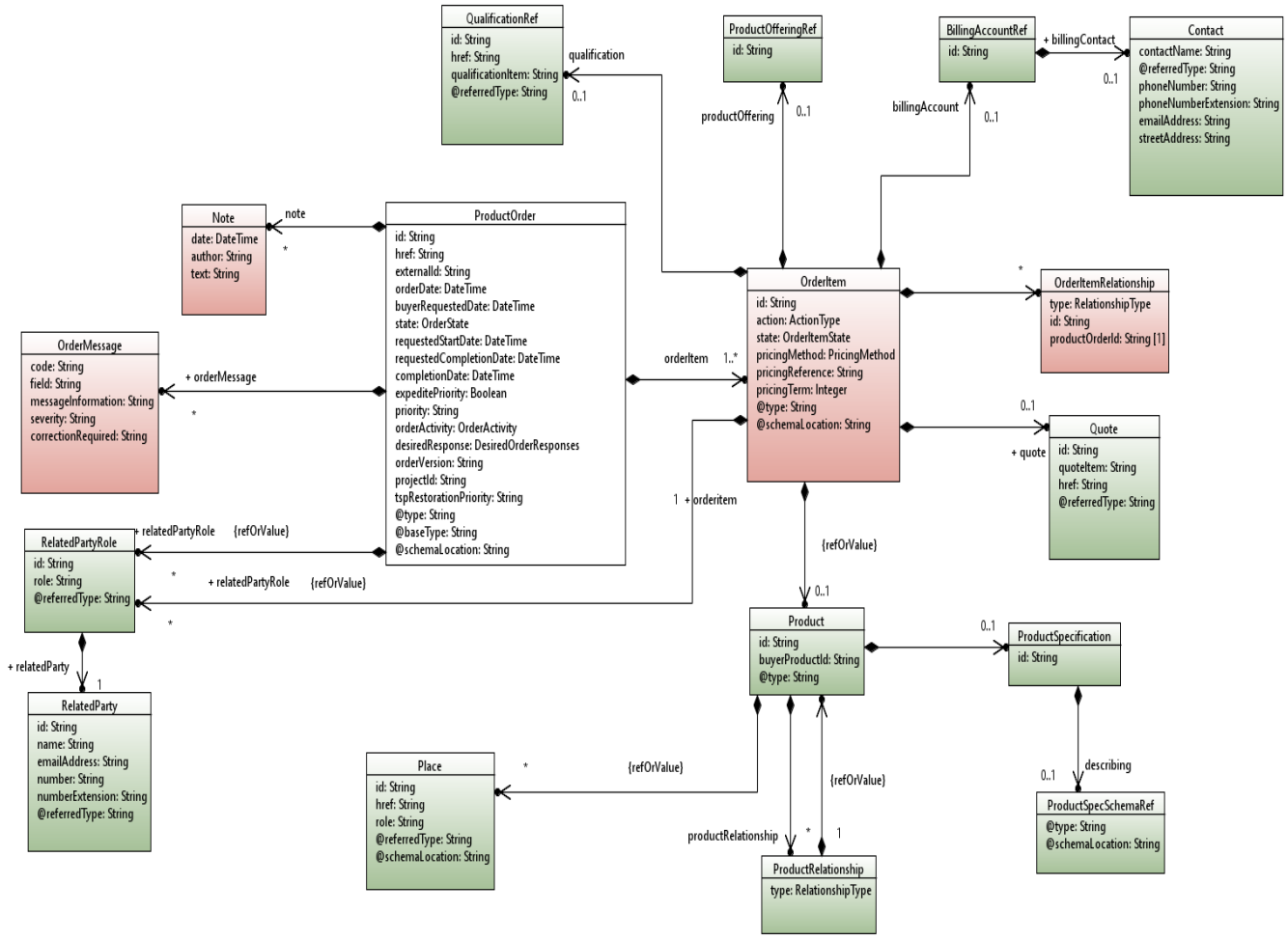


Figure 1 – Product Order Resource Model

Color coding scheme:

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

5. State Diagrams

5.1 Product Order State Machine

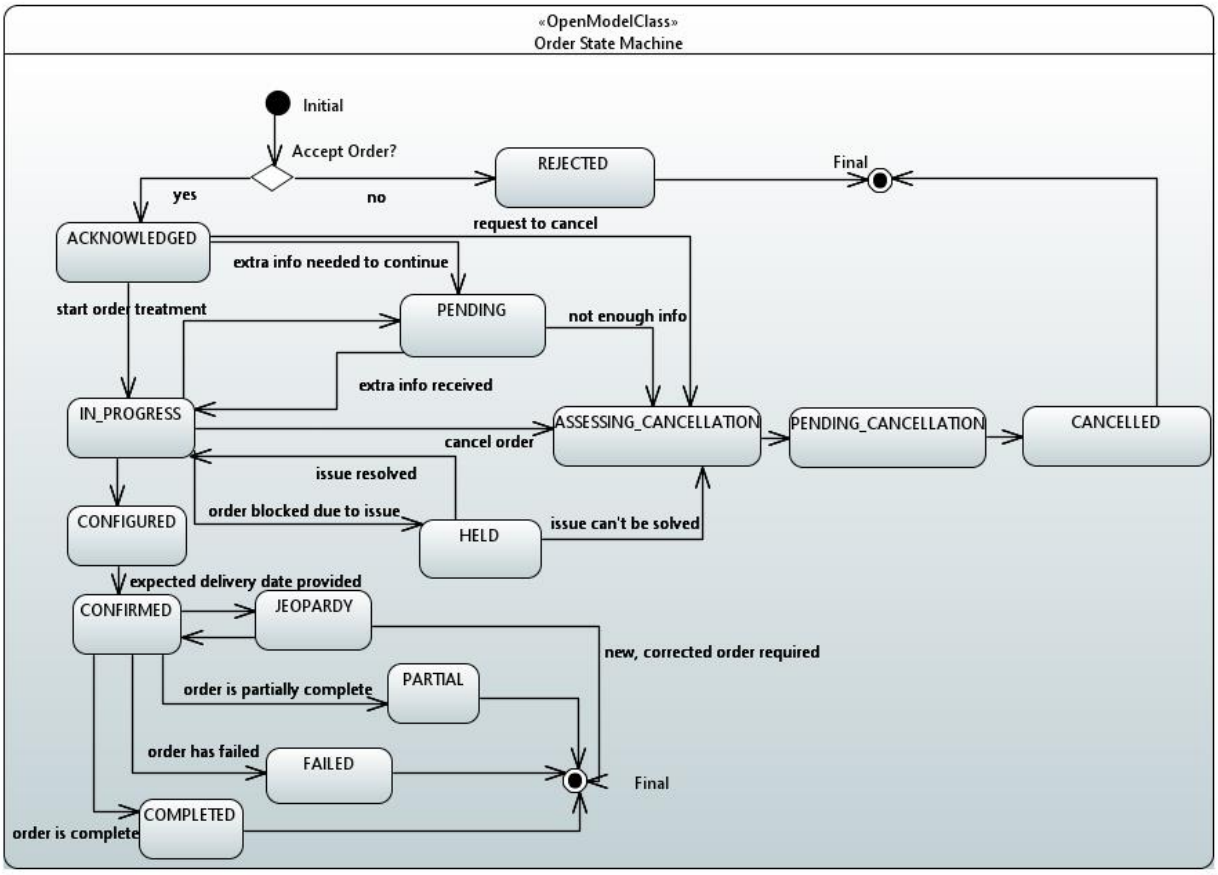


Figure 2 – Product Order State Machine

The definitions of the various order states are as follows:

State	Description
REJECTED	One of the following has occurred: 1. The order has failed a feasibility check 2. Invalid information was provided on the order 3. The order fails to meet business rules for ordering
ACKNOWLEDGED	An order has been received and has passed message and basic business validation.
IN_PROGRESS	An order has passed the order feasibility check successfully and service delivery has started.
PENDING	The order is currently in a waiting stage for an action/activity to be completed before the order can progress further, pending order amend or cancel assessment.
HELD	An order cannot progress due to an issue on either the Buyer or Seller side and the Seller has temporarily delayed completing the Order.

ASSESSING_CANCELLATION	A request has been made by the buyer or seller to cancel the order and the order is currently being assessed to determine whether it can be cancelled.
PENDING_CANCELLATION	The request has been assessed and it has been determined that it is feasible to proceed with the cancellation.
CANCELLED	The in-flight order has been successfully cancelled.
CONFIGURED	Prior to confirmation of the order, the seller configures seller specific data such as Seller UNI ID, Seller ENNI ID, Seller OVC ID, etc.
CONFIRMED	The order is committed to delivery on an expected completion date.
JEOPARDY	The order is in danger of not meeting its expected completion date. The seller may request that a new, corrected order be submitted.
PARTIAL	Some order items have failed to complete, and some have completed. This is an end state.
FAILED	All order items have failed which results in the order failing. This is an end state.
COMPLETED	An order has completed provisioning and the service is now active. This is an end state.

Table 2 – Product Order State Values

5.2 Product Order Item State Machine

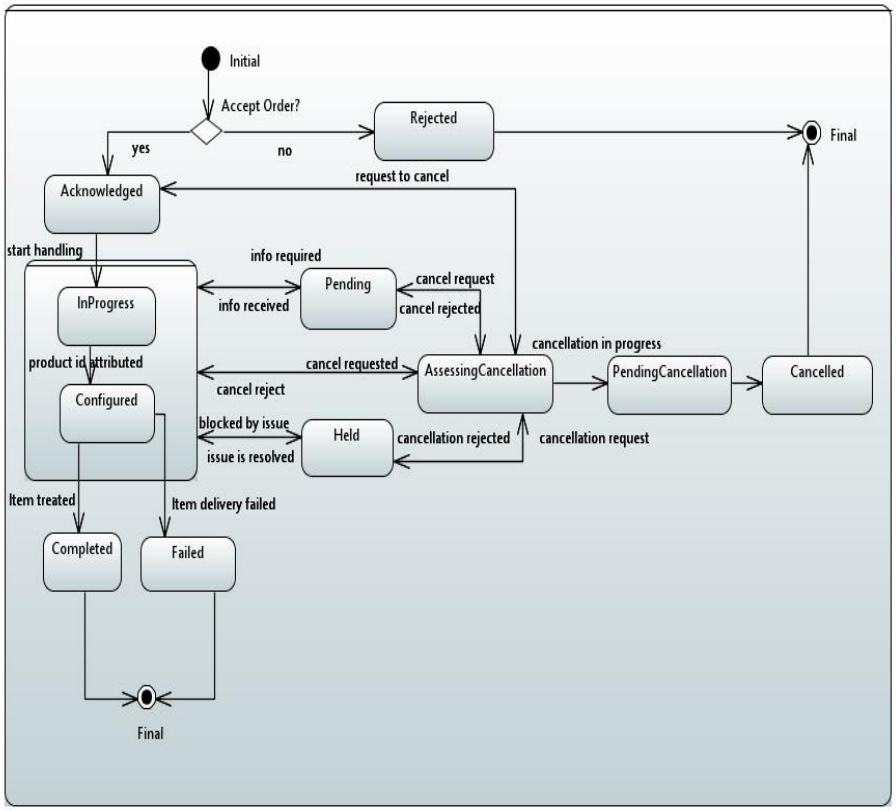


Figure 3 – Product Order Item State Machine

The definition of the product order item states are similar to those found in the product order state values table above.

6. Notifications

The following notifications are supported in this API:

- productOrderCreationNotification
- productOrderAttributeValueChangeNotification
- productOrderStateChangeNotification
- productOrderInformationRequiredNotification

In order to receive a Notification, a Buyer needs

- to subscribe to a notification
- to provide an Event API in order to allow the Seller to POST notifications to him.

6.1 Subscribe to notifications

By doing the following request the Buyer will subscribe to productOrder state change notifications for his Product Order(s):

```
POST serverRoot/api/mef/productOrderManagement/v1/hub
Accept: application/json

{
        "callback": "http://in.listener.com",
        "query": "eventType = ProductOrderStateChangeNotification"
}
```

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

The response will be:

```
201
{
        "id": "42",
        "callback": "http://in.listener.com",
        "query": "eventType = ProductOrderStateChangeNotification"
}
```

Note: 42 is the id of a hub resource not a productOrder id

The Seller provides GET and DELETE operations on a hub resource in order to allow the Buyer to retrieve his hubs and delete any of them if necessary:

```
GET serverRoot/api/mef/productOrderManagement/v1/hub
Accept: application/json
```

The API will provide a list of your hub as in the following example:

```
[
        {
                "id": "42",
                "query": "eventType=ProductOrderStateChangeNotification",
                "callback": "http://in.listener.com"
        },
        {
                "id": "98",
                "query":
"eventType=ProductOrderAttributeValueChangeNotification",
                "callback": "http://in.listener.com"
        }
]
```

If the Buyer does not want any more notifications for product order attribute value change:

```
DELETE serverRoot/api/mef/productOrderManagement/v1/hub/98
Accept: application/json
```

6.2 Receive Notification

Now that the Buyer has subscribed to notifications for product order state change for example, let's suppose that a product order was posted and processed by the Seller. Now let's suppose the product order state changes. The Seller will POST an Event to the Buyer:

```
POST {callback URL}
{
        "eventType": "PRODUCT_ORDER_STATE_CHANGE_NOTIFICATION",
        "eventTime": "2014-09-27T05:46:25.0Z",
        "eventId": "92445",
        "event": {
                "productOrder": {
                        "id": "456987"
                }
        }
}
```

The Buyer will respond with a standard answer with HTTP 201 and event id.

```
201

{"id":"123"
}
```

7. JSON Representation Samples

7.1 Product Order

The following is a JSON representation of an example of a 'ProductOrder' resource object.

Important note about product description: The productOrder API is **product-agnostic**. The product specification information is managed with an API extension pattern and it must be dynamically added in an API instantiated message. All productSpec attributes are not directly described in this API and in the swagger.

This loose decoupling between the API itself and the ProductSpec allows provides a lot of flexibility. Introduction of new products or a release of a new version of an existing product will not impact the API itself and will not require a new API release.

To allow the reader to identify where ordered product characteristics must be added on API instantiation, depending on the ordered product, the following comment is added `<< This is where product spec characteristic values would be given>>` where these attributes should be present.

This example illustrates an order representation (not the POST Request) for new UNI+E-Line.

Comments about this example:

- TopBuyer Inc. organization is the buyer
- AwesomeEthernetCompany is the seller
- The complete order will be billed on a new billing account; billing contact information is provided
- Additionally, the following partyRoles are provided for the order:
  - Buyer Order Contact
  - Buyer Technical contact
  - Buyer Implementation Contact
- The orderItem 1 covers the UNI ordering
  - This item refers to the UNI description provided in the MEF Git Hub
  - The requested place of the UNI is 12 Avenue Pierre Marie, 69001 Lyon, Rhône, France
  - UNI Site contact related party role is provided
  - Before this order, a productOfferingQualification has been done for this UNI
  - Before this order, a quote has been done for this UNI (#12 – line 1)
  - (#1369-4523 – item 1)
- The orderItem 2 covers the E-Line ordering
  - This item refers to the UNI description provided in the MEF Git Hub
  - Via the productRelationship the E-Line link to the ENNI is provided. Please note that the ENNI place is also provided.
  - ENNI Site contact is provided
  - Before this order, a productOfferingQualification has been done for this E-Line (#1369-4523 – item 2)
  - Before this order, a quote has been done for this E-Line (#12 – item 2)

263


```
{
        "id": "456987",
        "href":
"https://rootServer/api/mef/productOrderManagement/v1/456789",
        "externalId": "AZCO456",
        "orderDate": "2018-02-15T14:05:03.498Z",
        "buyerRequestDate": "2018-02-15T14:04:08.365Z",
        "state": "IN_PROGRESS",
        "requestedStartDate": "2018-02-16T14:05:03.498Z",
        "requestedCompletionDate": "2018-02-17T14:05:03.498Z",
        "completionDate": "",
        "expeditePriority": true,
        "priority": 1,
        "orderActivity": "INSTALL",
        "desiredResponses": "CONFIRMATION_AND_ENGINEERING_DESIGN",
        "orderVersion": "1",
        "projectId": "AZCO",
        "tspRestorationPriority": "2",
        "relatedBuyerPON": "AZCO0023",
        "relatedPartyRole": [
                {
                        "role": "Buyer",
                        "relatedParty": {
                                "name": "TopBuyer Inc.",
                                "number": "4698521478",
                                "@referredType": "organization"
                        }
                },
                {
                        "role": "Seller",
                        "relatedParty": {
                                "name": "AwesomeEthernetCompany",
                                "number": "+33 54 67 87 64",
                                "@referredType": "organization"
                        }
                },
                {
                        "role": "Buyer Order Contact",
                        "relatedParty": {
                                "name": "Jessie",
                                "number": "415 465 7666",
                                "numberExtension": "00",
                                "emailAddress": "Jessie@mef.net",
                                "@referredType": "individual"
                        }
                },
                {
                        "role": "Buyer Technical contact",
                        "relatedParty": {
                                "name": "Romeo",
                                "number": "415 465 7656",
                                "numberExtension": "00",
                                "emailAddress": "romeo@mef.net",
                                "@referredType": "individual"
                        }
```

```
                },
                {
                        "role": "Buyer Implementation Contact",
                        "relatedParty": {
                                "name": "Jessie",
                                "number": "415 465 7666",
                                "numberExtension": "00",
                                "emailAddress": "Jessie@mef.net",
                                "@referredType": "individual"
                        }
                }
        ],
        "billingAccount": {
                "id": "NEW",
                "billingContact": {
                        "contactName": "Fahim",
                        "@referredType": "Individual",
                        "phoneNumber": "23456789",
                        "streetAdress": "12 Rue Rivoli, 75002, Paris,
France"
                }
        },
        "note": {
                "text": "ProductOrder following discussion established Jan
14, 2018",
                "date": "2018-02-15T14:05:03.498Z",
                "author": "Siva"
        },
        "orderItem": [
                {
                        "id": "1",
                        "action": "INSTALL",
                        "state": "IN_PROGRESS",
                        "productOffering": {
                                "id": "OrangeUNI"
                        },
                        "product": {
                                "productSpecification": {
                                        "id": "UNISpec",
                                        "describing": {
                                                "@type": "UNISpec",
                                                "@schemaLocation": "{MEF
Product Spec Location}/UNISpec.json"
                                        }
                                },
                                "//": "This is where product spec
characteristic values would be given",
                                "physicalLayer": "10GBASE-SW",
                                "synchronousModeEnabled": false,
                                "numberOfLinks": 1
                        },
                        "place": [
                                {
                                        "role": "UNI Site",
                                        "@referredType": "FormattedAddress",
                                        "@schemaLocation": "{MEF Address
Location}/FormattedAddress.json",
```

```
                                        "addrline1": "12 Avenue Pierre
Marie",
                                        "city": "Lyon",
                                        "stateorProvince": "Rhone",
                                        "postcode": "69001",
                                        "country": "France"
                                }
                        ],
                        "relatedPartyRole": [
                                {
                                        "role": "UNI Site Contact",
                                        "relatedParty": {
                                                "name": "Jessie",
                                                "number": "415 465 7666",
                                                "numberExtension": "00",
                                                "emailAddress":
"Jessie@mef.net",
                                                "@referredType": "individual"
                                        }
                                }
                        ],
                        "qualification": [
                                {
                                        "id": "1369-4523",
                                        "href":
"https://rootServer/api/mef//productOfferingQualificationManagement/POQ/136
9-4523",
                                        "qualificationItem": "1"
                                }
                        ],
                        "quote": {
                                "id": "12",
                                "href":
"https://rootServer/api/mef/quoteManagement/v1/12",
                                "quoteItem": "1"
                        }
                },
                {
                        "id": "2",
                        "action": "INSTALL",
                        "state": "ACKNOWLEDGED",
                        "productOffering": {
                                "id": "OrangeELine"
                        },
                        "product": {
                                "productSpecification": {
                                        "id": "eLineSpec",
                                        "describing": {
                                                "@type": "eLineSpec",
                                                "@schemaLocation": "{MEF
Product Spec Location/ELineSpec.json"
                                        }
                                },
                                "//": "This is where product spec
characteristic values would be given",
                                "svlanId": 5656,
                                "mtuSize": 1522,
```

```
                                "colorFowardingEnabled": false,
                                "place": [
                                        {
                                                "id": "AZe78-45fgh6-45de5r",
                                                "role": "ENNI Site",
                                                "@referredType": "site"
                                        }
                                ],
                                "productRelationship": [
                                        {
                                                "type": "RELIES_ON",
                                                "product": {
                                                        "id": "ENNI67H",

        "productSpecification": {
                                                                "id": "ENNI"
                                                        }
                                                }
                                        }
                                ],
                                "relatedPartyRole": [
                                        {
                                                "role": "ENNI Site Contact",
                                                "relatedParty": {
                                                        "name": "Mike",
                                                        "number": "415 345
2333",
                                                        "numberExtension":
"00",
                                                        "emailAddress":
"mike@mef.net",
                                                        "@referredType":
"individual"
                                                }
                                        }
                                ]
                        },
                        "orderItemRelationship": [
                                {
                                        "type": "RELIES_ON",
                                        "id": "1"
                                }
                        ],
                        "qualification": [
                                {
                                        "id": "1369-4523",
                                        "href":
"https://rootServer/api/mef/productOfferingQualificationManagement/POQ/1369
-4523",
                                        "qualificationItem": "2",
                                        "@referredType": "string"
                                }
                        ],
                        "quote": {
                                "id": "12",
                                "href":
"https://rootServer/api/mef/quoteManagement/v1/12",
```

```
                                "quoteItem": "2"
                            }
                        }
            ],
            "@type": "MEFProductOrder"
}
```


264

8. API Interactions

8.1 Sequence Diagram

The product order interaction model is described below:

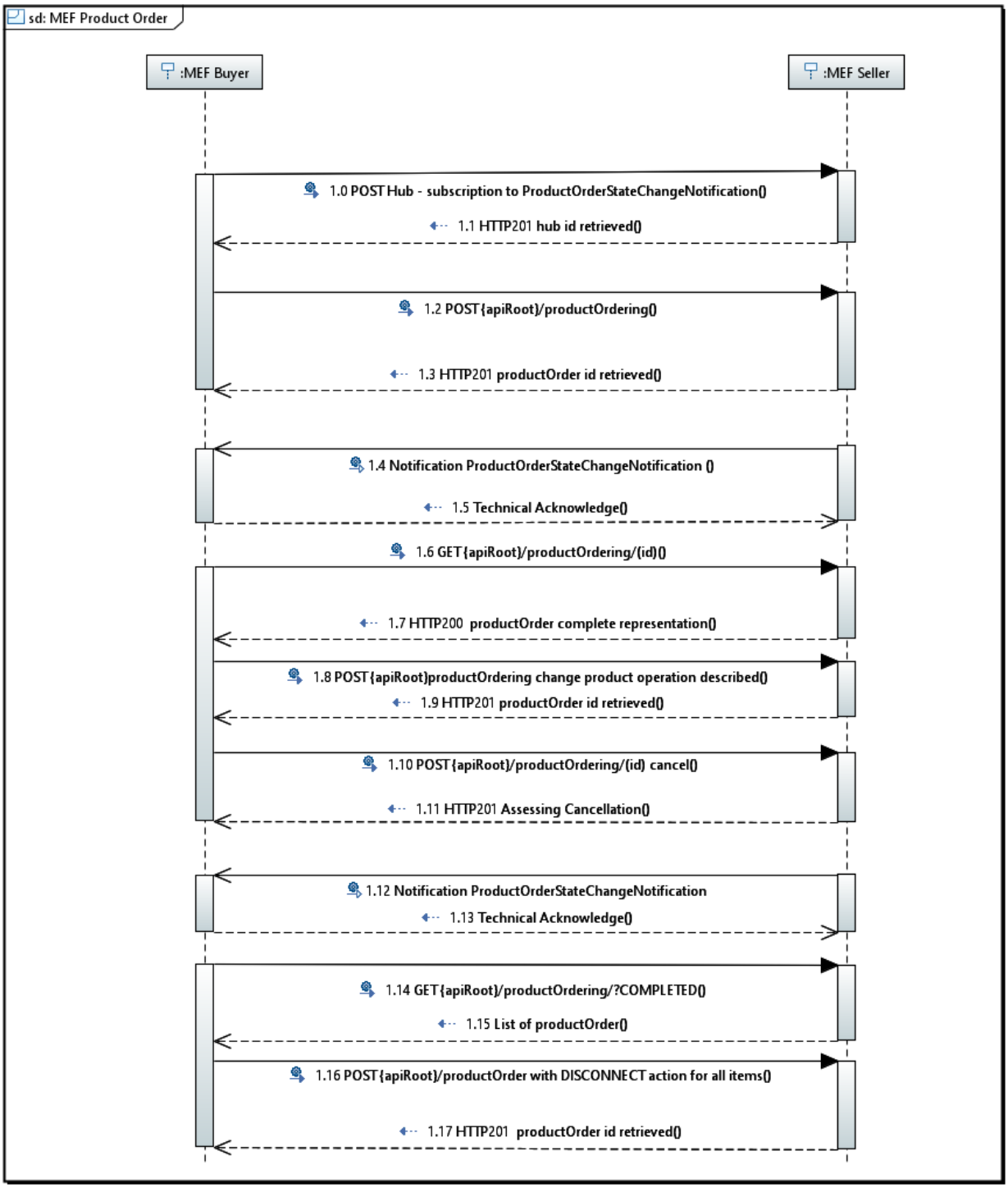


Figure 4 – Product Order API Interactions

8.2 Operations

8.2.1 Create Order

`POST /serverRoot/api/mef/productOrderingManagement/v1/productOrder`

Description

This operation creates a product order entity

Behavior

Standard 201 response if product order is 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: Missing order item (minimum 1) At least one order item must be provided
- 101: Missing Buyer at order level one and only one related party with a "Buyer" role should be provided at the product order level.
- 102: A relatedParty is at the wrong level The party role provided is not managed - MEF allows to have "Buyer", "Seller", "Billing Contact", "Order Contact", "Implementation Contact", "Technical Contact" roles at product order level "UNI Site Contact", "UNI Alt Site Contact", "ENNI Site Contact", "ENNI Alt Site Contact" at product order item level.
- 103: Missing Buyer Contact at order level one and only one related party with an "Order Contact" role should be provided at the product order level. Buyer Contact name & Telephone number must be provided.
- 104: Missing Buyer Implementation Contact at order level one and only one related party with a "Implementation Contact" role should be provided at the product order level. Implementation Contact name & Telephone number must be provided.
- 105: Missing Buyer Technical contact at order level one and only one related party with a "Technical Contact" role should be provided at the product order level. Technical Contact name, Telephone number and email address must be provided.
- 108: If orderItemAction is not INSTALL, orderItem.product.id is mandatory
- 109: If orderActivity is set to INSTALL, all orderItemAction must be INSTALL
- 110: Quote expired – (use to be defined later)
- 111: If orderActivity is set to DISCONNECT, all orderItemAction must be DISCONNECT

- 112: if orderActivity is set to CHANGE, all order item must not be all DISCONNECT or INSTALL
- 113: Referred Serviceability request is expired

Usage Sample

This JSON representation covers a UNI & E-Line ordering.

Request:

```
POST /serverRoot/api/mef/productOrderingManagement/v1/productOrder
Content-Type: application/json

{
        "externalId": "AZCO456",
        "buyerRequestDate": "2018-02-15T14:04:08.365Z",
        "requestedStartDate": "2018-02-16T14:05:03.498Z",
        "requestedCompletionDate": "2018-02-17T14:05:03.498Z",
        "expeditePriority": true,
        "priority": 1,
        "orderActivity": "INSTALL",
        "desiredResponses": "CONFIRMATION_AND_ENGINEERING_DESIGN",
        "orderVersion": "1",
        "projectId": "AZCO",
        "tspRestorationPriority": "2",
        "relatedBuyerPON": "AZCO0023",
        "relatedPartyRole": [
                {
                        "role": "Buyer",
                        "relatedParty": {
                                "name": "TopBuyer Inc.",
                                "number": "4698521478",
                                "@referredType": "organization"
                        }
                },
                {
                        "role": "Seller",
                        "relatedParty": {
                                "name": "AwesomeEthernetCompany",
                                "number": "+33 54 67 87 64",
                                "@referredType": "organization"
                        }
                },
                {
                        "role": "Buyer Order Contact",
                        "relatedParty": {
                                "name": "Jessie",
                                "number": "415 465 7666",
                                "numberExtension": "00",
                                "emailAddress": "Jessie@mef.net",
                                "@referredType": "individual"
                        }
```

```
                },
                {
                        "role": "Buyer Technical contact",
                        "relatedParty": {
                                "name": "Romeo",
                                "number": "415 465 7656",
                                "numberExtension": "00",
                                "emailAddress": "romeo@mef.net",
                                "@referredType": "individual"
                        }
                },
                {
                        "role": "Buyer Implementation Contact",
                        "relatedParty": {
                                "name": "Jessie",
                                "number": "415 465 7666",
                                "numberExtension": "00",
                                "emailAddress": "Jessie@mef.net",
                                "@referredType": "individual"
                        }
                }
        ],
        "billingAccount": {
                "id": "NEW",
                "billingContact": {
                        "contactName": "Fahim",
                        "@referredType": "Individual",
                        "phoneNumber": "23456789",
                        "streetAdress": "12 Rue Rivoli, 75002, Paris, France"
                }
        },
        "note": {
                "text": "ProductOrder following discussion established Jan 14,
2018",
                "date": "2018-02-15T14:05:03.498Z",
                "author": "Siva"
        },
        "orderItem": [
                {
                        "id": "1",
                        "action": "INSTALL",
                        "productOffering": {
                                "id": "OrangeUNI"
                        },
                        "product": {
                                "productSpecification": {
                                        "id": "UNISpec",
                                        "describing": {
                                                "@type": "UNISpec",
                                                "@schemaLocation":
"https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/latest-developer-
release/payload_descriptions/ProductSpecDescription/UNISpec_v3.json"
                                        }
                                },
                                "//": "This is where productspec characteristics
would be given value",
                                "physicalLayer": "10GBASE-SW",
```

```
                                "synchronousModeEnabled": false,
                                "numberOfLinks": 1,
                                "place": [
                                        {
                                                "role": "UNI Site",
                                                "@referredType":
"FormattedAddress",
                                                "@schemaLocation":
"https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/latest-developer-
release/payload_descriptions/PlaceDescription/FormattedAddress.json",
                                                "addrline1": "12 Avenue Pierre
Marie",
                                                "city": "Lyon",
                                                "stateorProvince": "Rhone",
                                                "postcode": "69001",
                                                "country": "France"
                                        }
                                ]
                        },
                        "relatedPartyRole": [
                                {
                                        "role": "UNI Site Contact",
                                        "relatedParty": {
                                                "name": "Jessie",
                                                "number": "415 465 7666",
                                                "numberExtension": "00",
                                                "emailAddress": "Jessie@mef.net",
                                                "@referredType": "individual"
                                        }
                                }
                        ],
                        "qualification": [
                                {
                                        "id": "1369-4523",
                                        "href":
"https://rootServer/api/mef//productOfferingQualificationManagement/POQ/1369-
4523",
                                        "qualificationItem": "1"
                                }
                        ],
                        "quote": {
                                "id": "12",
                                "href":
"https://rootServer/api/mef/quoteManagement/v1/12",
                                "quoteItem": "1"
                        }
                },
                {
                        "id": "2",
                        "action": "INSTALL",
                        "productOffering": {
                                "id": "OrangeELine"
                        },
                        "product": {
                                "productSpecification": {
                                        "id": "eLineSpec",
                                        "describing": {
```

```
                                        "@type": "eLineSpec",
                                        "@schemaLocation":
"https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/latest-developer-
release/payload_descriptions/ProductSpecDescription/ELineSpec_v3.json"
                                }
                        },
                        "//": "This is where productspec characteristics
would be given value",
                        "svlanId": 5656,
                        "mtuSize": 1522,
                        "colorFowardingEnabled": false,
                        "place": [
                                {
                                        "id": "AZe78-45fgh6-45de5r",
                                        "role": "ENNI Site",
                                        "@referredType": "site"
                                }
                        ],
                        "productRelationship": [
                                {
                                        "type": "RELIES_ON",
                                        "product": {
                                                "id": "ENNI67H",
                                                "productSpecification": {
                                                        "id": "ENNI"
                                                }
                                        }
                                }
                        ]
                },
                "relatedPartyRole": [
                        {
                                "role": "ENNI Site Contact",
                                "relatedParty": {
                                        "name": "Mike",
                                        "number": "415 345 2333",
                                        "numberExtension": "00",
                                        "emailAddress": "mike@mef.net",
                                        "@referredType": "individual"
                                }
                        }
                ],
                "orderItemRelationship": [
                        {
                                "type": "RELIES_ON",
                                "id": "1"
                        }
                ],
                "qualification": [
                        {
                                "id": "1369-4523",
                                "href":
"https://rootServer/api/mef/productOfferingQualificationManagement/POQ/1369-
4523",
                                "qualificationItem": "2",
                                "@referredType": "string"
                        }
```

```
                        ],
                        "quote": {
                                "id": "12",
                                "href":
"https://rootServer/api/mef/quoteManagement/v1/12",
                                "quoteItem": "2"
                        }
                }
        ],
        "@type": "MEFProductOrder"
}
```

308 **Response:**

```
201
{
  "id": "456987"
…
///complete productOrder representation ///
}
```

309

310 Complete productOrder representation is provided in the JSON representation

8.2.2 Retrieve Orders

`GET /serverRoot/api/mef/productOrderingManagement/v1/productOrder?{filtering}`

Description

This operation is used to retrieve product order(s) corresponding to search criteria.

The response will be a product order summary.

Only the following attributes can be used as search criteria.

- buyerId
- sellerId
- state
- buyerRequestedDate
- externalId
- orderDate (With a greaterThan and lessThan date time)
- requestedStartDate (With a period of date time)
- requestedCompletionDate (With a period of date time)
- expectedCompletionDate (With a period of date time)
- completionDate (With a period of date time)
- orderCancellationDate (With a period of date time)
- siteName
- siteCompanyName
- siteCustomerName
- projectId
- offset (requested index for start of resources to be provided in response requested by client)
- limit (Requested number of resources to be provided in response requested by client)

Only the following attributes will be retrieved in a summary view:

- id
- externalId
- orderDate
- state

Behavior

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

  Note: if no productOrder matches the criteria, an empty list is retrieved with a 200 status code (not considered as a fail)

345 Otherwise:

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

346 **Usage Sample**

347 **Request:**

```
GET
/serverRoot/api/mef/productOrderingManagement/v1/productOrder?state=acknowled
ged&projectId=Air France Customer&orderDate.gt=2017-06-16T00:00:00.000Z
Accept: application/json
```

348 **Response:**

```
200
[
        {
                "id": "17",
                "externalId": "OrangeforAirFrance002",
                "orderDate": "2017-06-16T07:54:51.696Z",
                "state": "acknowledged"
        },
        {
                "id": "45",
                "externalId": "OrangeforAirFrance003",
                "orderDate": "2017-06-17T09:44:21.614Z",
                "state": "acknowledged"
        }
]
```

349

350 ### 8.2.3 Retrieve a Single Product Order by Order Identifier

351 `GET /serverRoot/api/mef/productOrderingManagement/v1/productOrder /{id}`

352 **Description**

353 This operation is used to retrieve a product order entity.

354 **Behavior**

355 • 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
422	Unprocessable entity (see below)

Usage Sample

Request:

```
GET {api_url}/productOrderingManagement/productOrder/456987
Accept: application/json
```

Response:

See JSON representation illustrating productOrder

8.2.4 Change Order

`POST {apiRoot}/productOrder`

Description

This operation creates a product order entity.

All order item action must be set to ‘CHANGE” or “INSTALL” or “DISCONNECT” however not all an can contain just “INSTALL” or all contain “DISCONNECT”

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)

Usage Sample

It is important to note that several attributes must be correctly filled:

- orderActivity set to CHANGE
- action for orderItem to be changed: CHANGE
- product.Id must be filled with the seller product id referred the product to be modified
- When modification is about product attributes values, the modified attributes/values must be specified

Request:

```
POST serverRoot/api/mef/productOrderingManagement/v1/productOrder
Content-Type: application/json

{
        "externalId": "CHG12365",
        "requestedCompletionDate": "2018-02-15T20:36:48.667Z",
        "requestedStartDate": "2018-02-15T20:36:48.667Z",
        "@type": "MEFProductOrder",
        "orderActivity": "CHANGE",
        "relatedPartyRole": [],
        "orderItem": [
                {
                        "id": "1",
                        "action": "CHANGE",
                        "product": {
                                "id": "12h3-856h-hf55-rt56",
                                "productSpecification": {
                                        "id": "UNISpec",
                                        "describing": {
                                                "@type": "UNISpec",
                                                "@schemaLocation": "{MEF Product
Spec Location}/UNISpec.json"
                                        }
                                },
                                "//": "This is where modified product
characteristic values would be given.",
                                "synchronousModeEnabled": true,
                                "numberOfLinks": 2
                        }
                }
        ]
}
```

Response:

```
201
{
  "id": "744544"
…
///complete productOrder representation ///
}
```

8.2.5 Cancel Order

```
POST /productOrder/{id}/cancel
```

Description

This specific operation allows the Buyer to request a pending order cancellation.

In the response, the Seller can indicate if

- the request for cancellation is accepted (state PENDING_CANCELLATION or CANCELLED is sent back in the response)
- a delay is required to assess if cancellation is possible (state ASSESSING_CANCELLATION sent back)
- the request is denied (current order state is retrieved) – the Seller could indicate a cancellation Denied reason in the response.

In the case where the Seller needs time to assess the request, the Buyer will know the assessment output via an order ProductOrderStateChangeNotification once the seller has made his decision.

Behavior

Standard 201 response if cancellation request created.

Otherwise:

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

Usage Sample

Request:

```
POST serverRoot/api/mef/productOrderingManagement/v1/productOrder/17/cancel
Accept: application/json
```

Response:

Cancellation request accepted:

```
201
```

```
{
        "id": "744544",
        "state": "CANCELLED"
}
```

Cancellation request needs to be assessed:

```
201
{
        "id": "744544",
        "state": "ASSESSING_CANCELATION"
}
```

Cancelation request denied:

```
201
{
        "id": "744544",
        "state": "CONFIRMED",
        "cancellationDeniedReason": "Order already confirmed – cancellation
impossible"
}
```

8.2.6 Disconnect Order

`POST {apiRoot}/productOrder`

Description

This operation creates a product order entity.

All order item actions are set to “DISCONNECT”

Behavior

Standard 201 response if the product order is created.

Otherwise:

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

Usage Sample

442 Buyer asks for the disconnect of an existing UNI provided by the seller. This UNI has id 459h-
443 85df-87hhj-45uu in the seller's product inventory system.

444

445 **Request:**

```
POST serverRoot/api/mef/productOrderingManagement/v1/productOrder
Content-Type: application/json
```


```
{
        "externalId": "DIS452136",
        "requestedCompletionDate": "2018-02-15T20:36:48.667Z",
        "requestedStartDate": "2018-02-15T20:36:48.667Z",
        "expeditePriority": 0,
        "@type": "MEFProductOrder",
        "orderActivity": "DISCONNECT",
        "relatedPartyRole": [
                {
                        "role": "Buyer",
                        "relatedParty": {
                                "name": "TopBuyer Inc.",
                                "number": "4698521478",
                                "@referredType": "organization"
                        }
                },
                {
                        "role": "Seller",
                        "relatedParty": {
                                "name": "AwesomeEthernetCompany",
                                "number": "+33 54 67 87 64",
                                "@referredType": "organization"
                        }
                },
                {
                        "role": "Buyer Order Contact",
                        "relatedParty": {
                                "name": "Jessie",
                                "number": "415 465 7666",
                                "numberExtension": "00",
                                "emailAddress": "Jessie@mef.net",
                                "@referredType": "individual"
                        }
                }
        ],
        "orderItem": [
                {
                        "id": "1",
                        "action": "DISCONNECT",
                        "product": {
                                "id": "459h-85df-87hhj-45uu",
                                "@type": "UNISpec",
                                "productSpecification": {
                                        "id": "UNISpec"
                                }
```

```
                        }
                    }
            ]
}
```

446

447 **Response:**

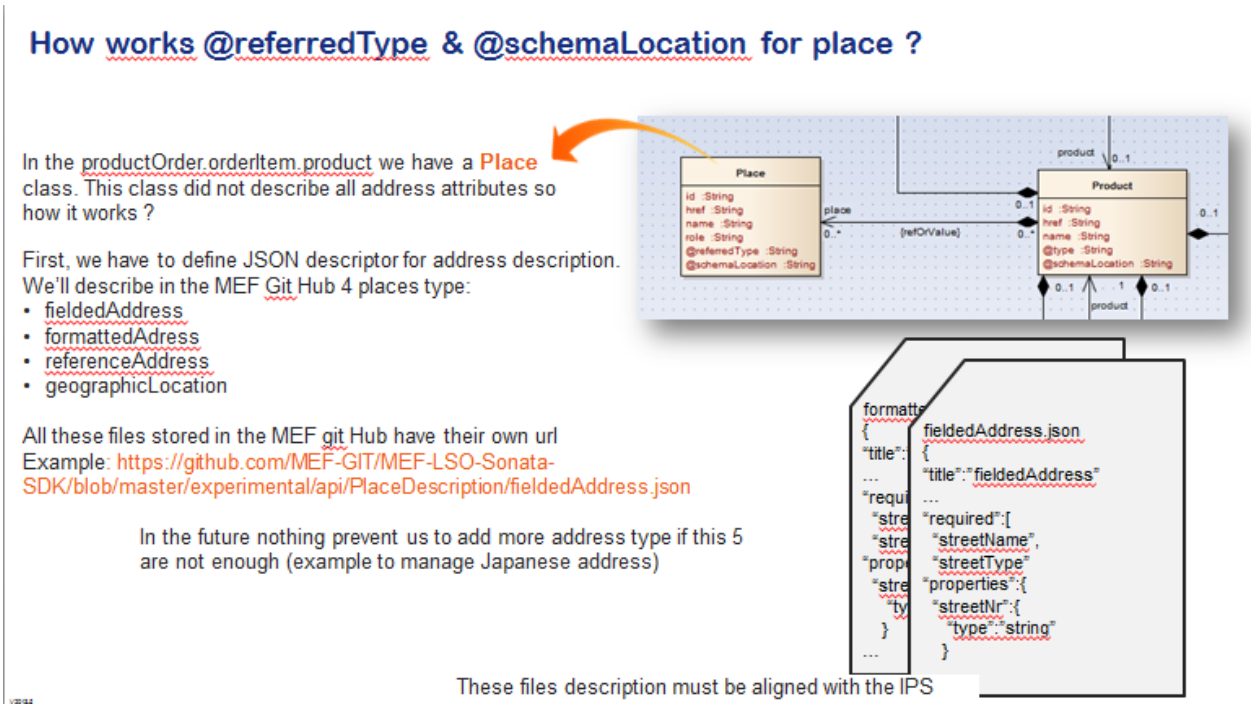
```
201
{
  "id": "789963"
…
///complete productOrder representation ///
}
```

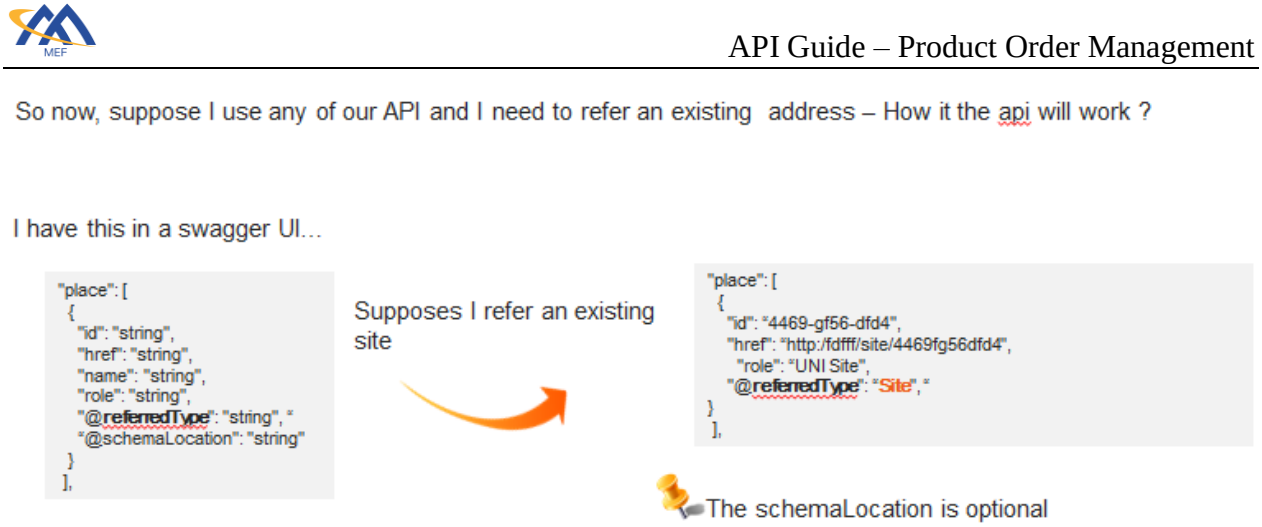
454

9. Appendix – Place Description Pattern

The following 3 diagrams illustrate how to leverage MEF API polymorphism to manage any address description:

As of now MEF described address in JSON files are available here: https://github.com/MEF-GIT/MEF-LSO-Sonata-SDK/blob/latest-developer-release/payload_descriptions/PlaceDescription/FieldedAddress.json





463

464 10. Appendix – Product Specification Management in the API

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

467 • Catalog information: What are product specification attributes? What is the attribute
468 format? What is the cardinality of each attribute? In the case of a predefined list, what are
469 the values?
470 • Order-instantiated productSpec description: What are the attributes values for this order?
471 These values should be filled in according to the catalog information.

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

473 **Step 1: Identifying the productSpec**

474 Basically, let's assume an orderItem is describing the order of a productSpecification (and an
475 order is an array of order items) [*That's a simplification because an order item could also describe a*
476 *bundledProductOffering with no productSpec… but not currently in the MEF*]

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:

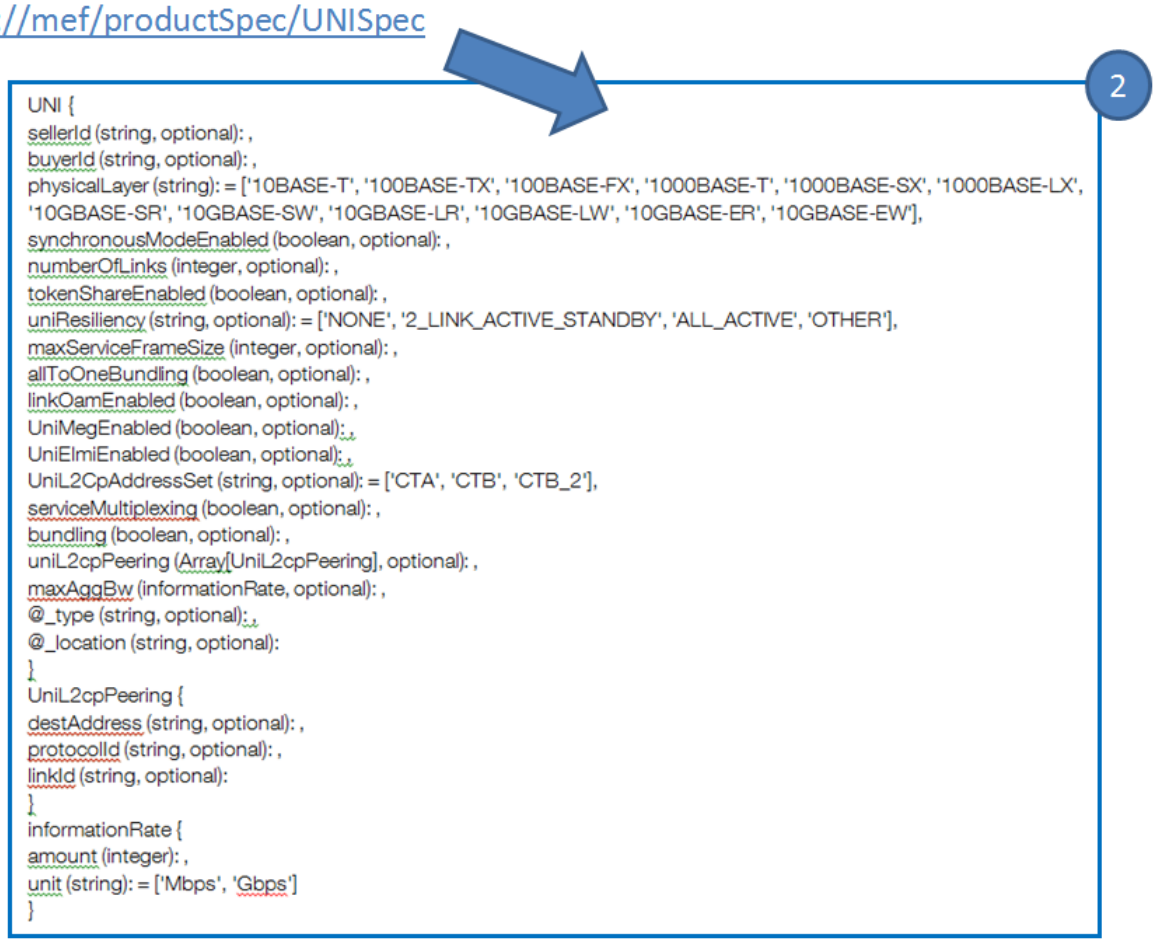
- @type – This is the type of productSpec as defined in the MEF. In the example, id and @type have same value but nothing prevents a service provider to have id AZ45hT7 as a productSpec referencing a UNISpec in the MEF.
- @schemaLocation describes a URL … and this URL targets the MEF server. Following this URL we have 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 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 ordered productSpec catalog description is available. The buyer uses this description to build his order and describe the ordered product.

http://mef/productSpec/UNISpec



We have the following information for the UNI Spec. We can see there that the

- physicalLayer is a mandatory attribute and has a pre-defined list,
- maxAggBw is a complex structure which is itself defined there,
- etc…

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 attributes specific to this service provider. Use of this extension must be agreed upon during the on-boarding process between the service provider and the partner.

Step 3: Describing the ordered productSpec

The Buyer uses the productSpec Description (step 2) to describe the instance of the ordered productSpec. This description is done in a straightforward way with the list of attributes and values directly described in the product structure (in orange).