

TM Forum Specification

Product Ordering Management API Conformance Profile

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INTRODUCTION - API DESCRIPTION

This document is the REST API conformance profile for the Product Ordering Management REST API (TMF 622).

The Product Ordering API provides a standardized mechanism for placing a product order with all of the necessary order parameters. The API consists of a simple set of operations that interact with CRM/Order Negotiation systems in a consistent manner. A product order is created based on a product offer that is defined in a catalog. The product offer identifies the product or set of products that are available to a customer, and includes characteristics such as pricing, product options and market.

The product order references the product offer and identifies any specific requests made by the customer.

RESOURCE MODEL CONFORMANCE

API MANDATORY AND OPTIONAL RESOURCES

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

| Resource Name | Mandatory or Optional | Comments |
|---------------|-----------------------|----------|
| productOrder | M | |
| cancelOrder | O | |

ProductOrder MANDATORY AND OPTIONAL ATTRIBUTES

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

| 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 |
| cancellationDate | O | |
| cancellationReason | O | |
| category | O | |
| completionDate | O/M | Not available in POST request Must be filled when an order is completed |
| description | O | |

| | | |
|------------------------------|---|---|
| expectedCompletionDate | O | Not available in POST request |
| externalId | O | |
| notificationContact | O | |
| orderDate | M (in response messages) | Not available in POST request |
| priority | O | |
| requestedCompletionDate | O | |
| requestedStartDate | O | |
| state | M (in response messages) O (otherwise) | Only required in response messages from the server when providing the ProductOrdering entity contents (responses to create-POST and read-GET the entity) |
| @baseType | O | |
| @type | O | |
| @schemaLocation | O | |
| agreement | O | Array of agreement |
| id | M | |
| href | O | |
| name | O | |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| @referredType | O | |
| productOfferingQualification | O | Array of Product Offering Qualification |
| id | M | |
| href | O | |
| name | O | |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| @referredType | O | |
| billingAccount | O/M | zero or one billing account same rule applies for billingAccount structure nested in productOrderItem and in tariff Must be managed when recurring charge are present |
| id | M | |
| href | O | |
| name | O | |

| | | | |
|--|-----------------|---|---|
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | @referredType | O | |
| | relatedChannel | O | Array of channel |
| | id | M | |
| | href | O | |
| | name | O | |
| | role | O | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | @referredType | O | |
| | note | O | Array of note(s) |
| | id | O | |
| | date | O | |
| | author | O | |
| | text | M | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | payment | O | Array of payment(s) same rule applies for payment structure nested in productOrderItem Must be managed when payment must be captured |
| | id | M | |
| | href | O | |
| | name | O | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | @referredType | O | |
| | quote | O | Array of quote(s) |
| | id | M | |
| | href | O | |
| | name | O | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |

| | | |
|--|--|--|
| @referredType | O | |
| relatedParty | O/M | Array of structures same rule applies for relatedParty structure nested in product RelatedParty are mandatory to at least specify customer except specific change UC |
| id | M | |
| href | O | |
| role | M/O | The role is mandatory if the id is referring a party resource. The role is optional is the id is referring a partyRole resource. |
| name | O | |
| @referredType | M | It allows to get id type : partyRole or Party or Party specialization: individual or organization |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| orderTotalPrice itemTotalPrice itemPrice | O | Array of orderTotalPrice, itemTotalPrice, itemPrice At least itemPrice is mandatory if price are defined in catalog for this offering. |
| description | O | |
| name | O | |
| priceType | M | |
| recurringChargePeriod | M if price type is recurring – must not be filled else | |
| unitOfMeasure | O | |
| @basetype | O | |
| @schemaLocation | O | |
| @type | O | |
| price | O/M | zero or 1 for each orderPrice and priceAlteration Mandatory if price are defined in catalog for this offering |
| percentage | O | |
| taxRate | O | |
| dutyFreeAmount | M if price taxIncludedAmount | see amount for internal structure |

| | | | |
|--|-----------------------|--|--|
| | | not provided. Exception: : if price is used in priceAlteration dutyFreeAmount and taxIncludedAmount could be null if a percentage is provided | |
| | taxIncludedAmount | M if dutyFreeAmount not provided Exception: if price is used in priceAlteration dutyFreeAmount and taxIncludedAmount could be null if a percentage is provided | see amount for internal structure |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | amount | M for amount | Structure used to describe amount in the API |
| | unit | M | |
| | value | M | |
| | priceAlteration | O/M | Array of price(s) Mandatory if priceAlteration are defined in catalog for this offering |
| | applicationDuration | O | |
| | description | O | |
| | name | O | |
| | priceType | M | |
| | priority | O Exception: if several priceAlteration with same type applied on a same priceItem priority must be valued | |
| | recurringChargePeriod | M if price type is recurring – must not be filled else | |
| | unitOfMeasure | O | |
| | @basetype | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | productOfferingPrice | O | zero or 1 for priceAlteration or |

| | | | |
|----------------------------------|---|--|--|
| | | | itemPrice |
| id | M | | |
| href | O | | |
| name | O | | |
| @baseType | O | | |
| @schemaLocation | O | | |
| @type | O | | |
| @referredType | O | | |
| orderItem | M | | Array of item – At least one must be provided |
| id | M | | |
| quantity | O | | by default '1' if not provided |
| action | M | | |
| state | M (in response messages) O (otherwise) | | Only required in response messages from the server when providing the ProductOrdering entity contents (responses to create-POST and read-GET the entity) |
| @baseType | O | | |
| @schemaLocation | O | | |
| @type | O | | |
| productOfferingQualificationItem | O | | 0 or 1 Product Offering Qualification Item used to qualified previously this product order item |
| id | M | | This is an id of a POQ item (not a POQ id) |
| href | O | | |
| name | O | | |
| productOfferingQualificationHref | O | | |
| productOfferingQualificationName | O | | |
| productOfferingQualificationId | M | | |
| @baseType | O | | |
| @schemaLocation | O | | |
| @type | O | | |
| @referredType | O | | |
| appointment | O | | Array of appointment(s) |
| id | M | | |
| href | O | | |
| description | O | | |
| @baseType | O | | |
| @schemaLocation | O | | |

| | | | |
|------------------------------|------------------|---|---|
| | @type | O | |
| | @referredType | O | |
| itemTerm | | O | Array of term(s) |
| | description | O | |
| | name | M if duration not provided | |
| | duration | M if name not provided | see amount above for internal structure |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| productOffering | | O/M if orderItem.action = add a productOffering or a productSpecification must be provided | 0 or 1 |
| | id | M | |
| | href | O | |
| | name | O | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | @referredType | O | |
| productOrderItem | | O | An array of productOrderItem embedded in this productOrderItem. |
| productOrderItemRelationship | | O | Array of Item relationship |
| | id | M | |
| | relationshipType | M | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| qualification | | O | Array or qualification reference. It could POQ or ServiceQualification. |
| | id | M | |
| | href | O | |
| | name | O | |
| | @baseType | O | |
| | @schemaLocation | O | |
| | @type | O | |
| | @referredType | O – by default ProductOfferingQualification is considered | |

| | | |
|-----------------------|---|---|
| quoteItem | O | 0 or 1 Quote Item used to price previously this product order item |
| id | M | This is an id of a Quote item (not a quote id) |
| href | O | |
| name | O | |
| quoteHref | O | |
| quoteId | M | |
| quoteName | O | |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| @referredType | O | |
| product | M/O Must be provided if not productOffering provided | 0 or 1 |
| id | M or for any productOrderItem.action different from add | |
| href | O | |
| isBundle | O By default: false | |
| name | O | |
| @type | O | |
| @schemaLocation | O | |
| @baseType | O | |
| productCharacteristic | O/M | Array of product characteristic(s) Capability to provide characteristic valued is mandatory if <ul style="list-style-type: none"> • Characteristic defined in catalog for this productSpec and • targetProductSchema no provided |
| name | M | |
| valueType | O string is considered by default | |
| value | M | This attribute type is any in the swagger |
| @baseType | O | |

| | | |
|----------------------|---|--|
| @schemaLocation | O | |
| @type | O | |
| productRelationship | | Array of product relationship(s) |
| relationshipType | M | |
| product | M | A referred or valued product must be present |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| ProductSpecification | O/M if orderItem.action = add a productOffering or a productSpecification must be provided | 0 or 1 |
| id | M | |
| href | O | |
| version | O | |
| name | O | |
| targetProductSchema | | 0 or 1 |
| @baseType | O | |
| @schemaLocation | O | |
| @type | M | |
| realizingResource | O | an array of resource realizing this product |
| id | M | |
| href | O | |
| name | O | |
| value | O | |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| @referredType | O | |
| realizingService | O | an array of service realizing this product |
| id | M | |
| href | O | |
| name | O | |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| @referredType | O | |
| relatedPlace | O/M | Array of place(s) Required to any product ordered requiring an installation address |

| | | | |
|-----------------|-----|--|--|
| | | | or shipping address for example. |
| id | O/M | | |
| href | O | | |
| name | O | | |
| role | M | | |
| @referredType | M | | Because place could be a geographicAddress, geographicLocation or a geographicSite, a type must be provided. |
| @schemaLocation | O | | |
| @baseType | O | | |
| @type | O | | |

CancelProductOrder MANDATORY AND OPTIONAL ATTRIBUTES

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

| 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 |
| cancellationReason | O | |
| effectiveCancellationDate | O | |
| requestedCancellationDate | O | |
| state | M (in response messages) O (otherwise) | Only required in response messages from the server when providing the CancelProductOrder entity contents (responses to create-POST and read-GET the entity) |
| @baseType | O | |
| @schemaLocation | O | |

| | | |
|-----------------|---|--|
| @type | O | |
| productOrder | M | A reference to the product order to be cancelled |
| id | M | |
| href | O | |
| @baseType | O | |
| @schemaLocation | O | |
| @type | O | |
| @referredType | O | |

NOTIFICATION MODEL CONFORMANCE

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

ProductOrder MANDATORY AND OPTIONAL NOTIFICATIONS

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

Here's an example of a request for registering a listener:

| Notification Name | Mandatory or Optional | Comments |
|--------------------------------------|-----------------------|----------|
| productOrderCreateEvent | O | |
| productOrderChangeEvent | O | |
| productOrderDeleteEvent | O | |
| productOrderStateChangeEvent | O | |
| productOrderInformationRequiredEvent | O | |

All attributes of the resource associated with the notification are mandatory.

CancelOrder MANDATORY AND OPTIONAL NOTIFICATIONS

Here's an example of a request for registering a listener:

| Notification Name | Mandatory or Optional | Comments |
|--|-----------------------|----------|
| cancelProductOrderCreateEvent | O | |
| cancelProductOrderStateChangeEvent | O | |
| cancelProductOrderInformationRequiredEvent | O | |

All attributes of the resource associated with the notification are mandatory.

API OPERATIONS CONFORMANCE

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

ProductOrder MANDATORY AND OPTIONAL OPERATIONS

The following table indicates which ones are mandatory and which ones are optional for ProductOrder resource:

| 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 |
| PATCH | O | PATCH must be used to partially update a resource |
| DELETE | O | DELETE must be used to remove a resource |

CancelProductOrder MANDATORY AND OPTIONAL OPERATIONS

The following table indicates which ones are mandatory and which ones are optional for CancelProductOrder resource:

| 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 |

Note: CancelProductOrder is an optional resource but it is managed both POST and GET operations must be provided.

API GET FILTERING OPERATION CONFORMANCE

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

Definitions

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

Attribute selection (Filtered Response Data): In order to apply a filter and limit the number of attributes included in the response, the GET request can include the “?fields=” query parameter. Several elements can be applied to the filter. In that case, a logical AND is applied to combine the values (e.g.:?fields=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

All the GET operations in this API share the state status code pattern:

| | | |
|--------------------------|-----|---|
| GET | M | |
| Response Status Code 200 | M | With JSON appointment objects as body response. |
| Response Status Code 404 | M | When resource can't be found |
| Other Status Codes | N/A | |

/productOrderingManagement/v4/productOrder?fields=...&{filtering}

Filtered Search:

Providing filtering criteria is mandatory to avoid too many answers retrieved. See example below:

- externalId
- description
- orderDate
- state + orderDate interval (orderDate > 11/4/2018 & orderDate > 11/9/2017)
- ...

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 ProductOrder resource definition

/productOrderingManagement/v4/productOrder/{ID}?fields=...

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 ProductOrder resource definition

/productOrderingManagement/v4/cancelProductOrder?fields=...&{filtering}

Filtered Search:

Providing filtering criteria is mandatory to avoid too many answers retrieved. See example below:

- state
- productOrder.id
- cancellationReason

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 CancelProductOrder resource definition

/productOrderingManagement/v4/cancelProductOrder/{ID}?fields=...

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 CancelProductOrder resource definition

API POST OPERATION CONFORMANCE

/productOrderingManagement/v4/productOrder/

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

The response to this operation must include a Location header set to /productOrderingManagement/v4/productOrder/{ID} where {ID} indicates the identifier assigned by the server to the new productOrder 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 ProductOrder as well as attributes with special considerations:

| Attribute name | Mandatory | Default | Rule |
|--|-----------|---------|---|
| id | NA | | Must not be in POST request |
| href | NA | | Must not be in POST request |
| cancellationDate | NA | | Must not be in POST request |
| cancellationReason | NA | | Must not be in POST request |
| category | O | | |
| completionDate | NA | | Must not be in POST request |
| description | O | | |
| expectedCompletionDate | NA | | Must not be in POST request |
| externalId | O | | |
| notificationContact | O | | |
| orderDate | NA | | Must not be in POST request |
| priority | O | "4" | Could be implementation-based defined |
| state | NA | | Must not be in POST request |
| requestedStartDate | O | | |
| requestedCompletionDate | O | | |
| startDate | NA | | Must not be in POST request |
| productOfferingQualification | O | | If present an id must be provided. |
| billingAccount | O | | If present an id must be provided |
| Relatedchannel | O | | If present an id must be provided |
| note | O | | If present a text must be provided. id is optional but very helpful for modification via JSON/PATCH |
| orderTotalPrice itemTotalPrice itemPrice | O | | If provided, priceType is mandatory. If priceType is a recurrent, a recurringChargePeriod must be |

| Attribute name | Mandatory | Default | Rule |
|----------------------------------|-----------|---------|---|
| | | | provided. |
| price | O | | if price is not used within a priceAlteration, the percentage must not be filled – a dutyFreeAmount or a taxIncludedAmount must be filed. If used within a priceAlteration: dutyFreeAmount or taxIncludedAmount or percentage must be provided. |
| amount | O | | unit and value are mandatory |
| priceAlteration | O | | If several for same price instance, a priority must be provided. If provided, priceType is mandatory. If priceType is a recurrent, a recurringChargePeriod must be provided. |
| productOfferingPrice | O | | If present an id must be provided. |
| payment | O | | If present an id must be provided. |
| quote | O | | If present an id must be provided. |
| relatedParty | O | | If present an id must be provided. If id is not a partyRole, the role is mandatory. @referredType is mandatory |
| productOrderItem | M | | At least one item required. id and action are mandatory. quantity is by default set to 1. At least one productOffering or one product must be provided |
| agreement | O | | If present an id must be provided |
| productOfferingQualificationItem | O | | If present an id and productOfferingQualificationId must be provided. |
| appointment | O | | If present an id must be provided. |
| itemTerm | O | | Name or duration must be provided (both can be) Duration must have amount & units valued. |
| product | O | | ...Mandatory if productOffering not provided |
| productCharacteristic | O | | name and value are mandatory. by default, valueType as 'string' value. |
| productRelationship | O | | relationshipType and a product target must be provided |
| productSpecification | O | | if present an id must be provided. if targetProductSchema used @baseType or @type must be provided. |

| Attribute name | Mandatory | Default | Rule |
|---|-----------|---------|--|
| realizingResource | O | | If present an id must be provided. |
| realizingService | O | | If present an id must be provided. |
| relatedPlace | O | | If provided, role is mandatory. If passed by ref then an id and @referredType must be provided. if pass by value then @type is mandatory |
| productOffering | O | | ...Mandatory if product not provided If present an id must be provided. |
| productOrderItem embedded in productOrderItem | O | | |
| productOrderItemRelationship | O | | If present an id & relationshipType must be provided. |
| qualification | O | | If present an id must be provided. |
| quoteItem | O | | If present an id and quoteId must be provided. |
| quote | O | | If present an id must be provided. |

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

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 ProductOrder as per the resource model defined

- id
- href
- state
- orderDate
- orderItem.state

We must note that some attributes must not be send in the POST request and could be not valued in the POST answer:

- expectedCompletionDate
- completionDate
- startDate

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

- relatedParty
- productSpecification
- place
- product
- supportingService
- supportingResource
- quote
- productOfferingQualification
- billingAccount
- payment
- etc...

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 ProductOrder resource.

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

CancelProductOrder resource OPERATION CONFORMANCE

This section defines what operations can be used to CancelProductOrder resource.

Since all CancelProductOrder operations are 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 ProductOrdering 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}/productOrderingManagement/v4, being {serverRoot} defines the certification endpoint

ProductOrder resource TEST CASES

Nominal Scenarios

TC_ProductOrder_N1 – Create new ProductOrder with minimum required information

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

```
{
  "category": "B2Cproductorder",
  "description": "Product Order illustration sample",
  "externalId": "PO-456",
  "priority": "1",
  "requestedCompletionDate": "2019-05-02T08:13:59.506Z",
  "requestedStartDate": "2019-05-03T08:13:59.506Z",
  "relatedChannel": [
    {
      "id": "1",
      "name": "Online channel",
      "role": "used for order Capture"
    }
  ],
  "note": [
    {
      "id": "1",
      "author": "Jean Pontus",
      "date": "2019-04-30T08:13:59.509Z",
      "text": "This is a TMF product order illustration"
    }
  ],
  "productOrderItem": [
    {
      "id": "100",
      "quantity": 1,
      "action": "add",

```

```
"product": {
  "isBundle": true
},
"productOffering": {
  "id": "14277",
  "href": "https://host:port/productCatalogManagement/v4/productOffering/14277",
  "name": "TMF25"
},
"productOrderItemRelationship": [
  {
    "id": "110",
    "relationshipType": "bundles"
  },
  {
    "id": "120",
    "relationshipType": "bundles"
  },
  {
    "id": "130",
    "relationshipType": "bundles"
  }
],
"@type": "ProductOrderItem"
},
{
  "id": "110",
  "quantity": 1,
  "action": "add",
  "itemPrice": [
    {
      "description": "Access Fee",
      "name": "Access Fee",
      "priceType": "nonRecurring",
      "price": {
        "taxRate": 0,
        "dutyFreeAmount": {
          "unit": "EUR",
          "value": 0.99
        },
        "taxIncludedAmount": {
          "unit": "EUT",
          "value": 0.99
        }
      }
    }
  ]
},
"payment": [
  {
    "id": "2365",
```

```
        "href": "https://host:port/paymentManagement/v1/cashPayment/2365",
        "name": "Cash payment for access fee",
        "@type": "CashPayment",
        "@referredType": "Payment"
    }
],
"product": {
    "isBundle": false,
    "productCharacteristic": [
        {
            "name": "TEL_MSISDN",
            "valueType": "string",
            "value": "415 279 7439"
        }
    ],
    "productSpecification": {
        "id": "14307",
        "href":
"https://host:port/productCatalogManagement/v4/productSpecification/14307",
        "name": "Mobile Telephony",
        "version": "1",
        "@type": "ProductSpecification"
    }
},
"productOffering": {
    "id": "14305",
    "href": "https://host:port/productCatalogManagement/v4/productOffering/14305",
    "name": "TMF Mobile Telephony"
},
"@type": "ProductOrderItem"
},
{
    "id": "120",
    "quantity": 1,
    "action": "add",
    "billingAccount": {
        "id": "1513",
        "href": "https://host:port/billingAccountManagement/v4/billingAccount/1513",
        "@type": "BillingAccount"
    },
    "itemPrice": [
        {
            "description": "Tariff plan monthly fee",
            "name": "MonthlyFee",
            "priceType": "recurring",
            "recurringChargePeriod": "month",
            "price": {
                "taxRate": 0,
                "dutyFreeAmount": {
```

```
        "unit": "EUR",
        "value": 20
    },
    "taxIncludedAmount": {
        "unit": "EUR",
        "value": 20
    }
},
"priceAlteration": [
    {
        "applicationDuration": 3,
        "description": "20% for first 3 months",
        "name": "WelcomeDiscount",
        "priceType": "recurring",
        "priority": 1,
        "recurringChargePeriod": "month",
        "price": {
            "percentage": 20,
            "taxRate": 0,
            "@baseType": "string",
            "@schemaLocation": "string",
            "@type": "string"
        }
    }
]
},
"itemTerm": [
    {
        "description": "Tariff plan 12 Months commitment",
        "name": "12Months",
        "duration": {
            "amount": 12,
            "units": "month"
        }
    }
],
"product": {
    "isBundle": false,
    "productSpecification": {
        "id": "14395",
        "href":
"https://host:port/productCatalogManagement/v4/productSpecification/14395",
        "name": "TMF Tariff plan",
        "version": "1",
        "@type": "ProductSpecification"
    }
},
"productOffering": {
```



```

    "id": "14344",
    "href": "https://host:port/productCatalogManagement/v4/productOffering/14344",
    "name": "TMF Tariff Plan"
  },
  "productOrderItemRelationship": [
    {
      "id": "110",
      "relationshipType": "reliesOn"
    }
  ],
  "@type": "ProductOrderItem"
},
{
  "id": "130",
  "quantity": 1,
  "action": "add",
  "product": {
    "isBundle": false,
    "productCharacteristic": [
      {
        "name": "CoverageOptions",
        "valueType": "string",
        "value": "National"
      }
    ],
    "productSpecification": {
      "id": "14353",
      "href":
"https://host:port/productCatalogManagement/v4/productSpecification/14353",
      "name": "Coverage",
      "version": "1",
      "@type": "ProductSpecification"
    }
  },
  "productOffering": {
    "id": "14354",
    "href": "https://host:port/productCatalogManagement/v4/productOffering/14354",
    "name": "Coverage Options"
  },
  "productOrderItemRelationship": [
    {
      "id": "110",
      "relationshipType": "reliesOn"
    }
  ],
  "@type": "ProductOrderItem"
}
],
"relatedParty": [

```

```

{
  "id": "456-dd-df45",
  "href": "https://host:port/partyManagement/v4/individual/456-dd-df45",
  "name": "Joe Doe",
  "role": "Seller",
  "@referredType": "Individual",
  "@type": "relatedParty"
},
{
  "id": "ff55-hjy4",
  "href": "https://host:port/partyRoleManagement/v4/customer/ff55-hjy4",
  "name": "Jean Pontus",
  "@referredType": "Customer",
  "@type": "relatedParty"
}
],
"@type": "ProductOrder"
}

```

- 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}/productOrder/{IDPO1}` where `{IDPO1}` indicates the identifier assigned by the server to the new ProductOrder resource
 - The response message includes all mandatory parameters (**including id, state, orderItem.state and orderDate 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}/productOrder/{IDPO1}`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource with ID set to `{IDPO1}`, 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 `{IDPO1}` matches the values set in the original request

TC_ProductOrder_N2 – Create new ProductOrder with minimum set of parameters supported by server

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

```
{
  "category": "B2Cproductorder",
  "description": "Product Order illustration sample2",
  "externalId": "PO-457",
  "priority": "3",
  "requestedCompletionDate": "2019-05-02T08:13:59.506Z",
  "requestedStartDate": "2019-05-03T08:13:59.506Z",
  "relatedChannel": [
    {
      "id": "2",
      "name": "shop chanel"
    }
  ],
  "note": [
    {
      "id": "1",
      "author": "Louise Pontus",
      "date": "2019-04-30T08:13:59.509Z",
      "text": "This is a TMF product order illustration"
    }
  ],
  "productOrderItem": [
    {
      "id": "100",
      "quantity": 1,
      "action": "add",
      "itemPrice": [
        {
          "description": "Access Fee",
          "name": "Access Fee",
          "priceType": "nonRecurring",
          "price": {
            "taxRate": 0,
            "dutyFreeAmount": {
              "unit": "EUR",
              "value": 0.99
            },
            "taxIncludedAmount": {
              "unit": "EUT",
              "value": 0.99
            }
          }
        }
      ]
    }
  ],
  "payment": [
    {
      "id": "8963",
```

```
        "href": "https://host:port/paymentManagement/v1/cashPayment/8963",
        "name": "Cash payment for access fee",
        "@type": "CashPayment",
        "@referredType": "Payment"
    }
],
"product": {
    "isBundle": false,
    "productCharacteristic": [
        {
            "name": "TEL_MSISDN",
            "valueType": "string",
            "value": "415 420 0169"
        }
    ],
    "productSpecification": {
        "id": "14307",
        "href":
"https://host:port/productCatalogManagement/v4/productSpecification/14307",
        "name": "Mobile Telephony",
        "version": "1",
        "@type": "ProductSpecification"
    }
},
"productOffering": {
    "id": "14305",
    "href": "https://host:port/productCatalogManagement/v4/productOffering/14305",
    "name": "TMF Mobile Telephony"
},
"@type": "ProductOrderItem"
}
],
"relatedParty": [
    {
        "id": "456-dd-df45",
        "href": "https://host:port/partyManagement/v4/individual/456-dd-df45",
        "name": "Joe Doe",
        "role": "Seller",
        "@referredType": "Individual",
        "@type": "relatedParty"
    },
    {
        "id": "54jj-98j6",
        "href": "https://host:port/partyRoleManagement/v4/customer/54jj-98j6",
        "name": "Louise Pontus",
        "@referredType": "Customer",
        "@type": "relatedParty"
    }
],
```

```
"@type": "ProductOrder"  
}
```

- 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}}/productOrder/{{IDPO2}}` where `{IDPO2}` indicates the identifier assigned by the server to the new ProductOrder resource
 - The response message includes all mandatory parameters (including `orderDate` 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}}/productOrder/{{IDPO2}}`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource with ID set to `{IDPO2}`, 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 `{IDPO2}` matches the values set in the original request

TC_ProductOrder_N3 – Search for ProductOrder with specific characteristics

- Send a GET message to `/{{apiRoot}}/productOrder?category=B2Cproductorder`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes at least two ProductOrder resources referring to `{IDPO1}` and `{IDPO2}`
 - 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}}/productOrder?priority=1&category=B2Cproductorder`

- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource referring to {IDPO1} and there is no reference to ProductOrder resource {IDPO2}
 - The response message includes all mandatory parameters
 - The body of the response for the resource with identifier {IDPO1} matches the values in the original request
- Send a GET message to `/{apiRoot}/productOrder?externalId=PO-457`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource referring to {IDPO2} and there is no reference to ProductOrder resource {IDPO1}
 - The response message includes all mandatory parameters
 - The body of the response for the resource with identifier {IDPO2} matches the values in the original request

TC_ProductOrder_N4 – Filtered retrieval of ProductOrder

- Send a GET message to `/{apiRoot}/productOrder/{IDPO2}?fields=id,href,externalId,priority,state`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource referring to {IDPO2} and including only attributes id,href,externalId, priority and state:

```
{
  "id": "30002",
  "href": "https://host:port/productOrderingManagement/v4/productOrder/30002",
  "externalId": "PO-457",
  "priority": "1",
```

```
"state": "acknowledged"
}
```

- Send a GET message to `/{apiRoot}/productOrder/{IDPO1}?fields= id, state, orderItem.id,orderItem.state,orderItem.action`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource referring to {IDPO1} and including only attributes id, state, and an array of order item with attributes: id, state, and action matching the values in the original request:

```
{
  "id": "30001",
  "productOrderItem": [
    {
      "id": "100",
      "action": "add",
      "state": "acknowledged",
    },
    {
      "id": "110",
      "action": "add",
      "state": "acknowledged",
    },
    {
      "id": "120",
      "action": "add",
      "state": "acknowledged",
    },
    {
      "id": "130",
      "action": "add",
      "state": "acknowledged",
    }
  ],
  "state": "acknowledged",
}
```

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

TC_ProductOrder_N5 – Filtered Search and Filtered data response

- Send a GET message to `/{apiRoot}/productOrder?externalId= PO-456&fields=id,state,category,description`
- Wait for a response from the server with the following characteristics
 - Response Code 200-OK
 - The body of the response includes one ProductOrder resource referring to {IDPO1} and there is no reference to ProductOrder resource {IDPO2}
 - The body of the response for the resource includes only attributes id, state and category matching the values in the corresponding original request:

```
{
  "id": "30001",
  "category": "B2Cproductorder",
  "description": "Product Order illustration sample",
  "state": "acknowledged",
}
```

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

Error Scenarios

TC_ProductOrder_E1 – Unknown ProductOrder identifier

- Send a GET message to `/{apiRoot}/productOrder/{IDPO3}`, where {IDPO3} does not match any of the identifiers previously created in the server
- Wait for a response from the server with the following characteristics
 - Response Code 404-Not Found

TC_ProductOrder_E2 – Invalid Request – unexpecting parameter

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

```
{
  "category": "B2Cproductorder",
  "description": "Product Order illustration sample2",
  "externalId": "PO-457",
  "priority": "3",
  "requestedCompletionDate": "2019-05-02T08:13:59.506Z",
  "requestedStartDate": "2019-05-03T08:13:59.506Z",
  "state": "acknowledged",
  "expectedcompletionDate": "2019-05-03T08:13:59.506Z",
  "productOrderItem": [
    {
      "id": "100",
      "quantity": 1,
      "action": "add",
      "product": {
        "isBundle": false,
        "productCharacteristic": [
          {
            "name": "TEL_MSISDN",
            "valueType": "string",
            "value": "415 420 0169"
          }
        ],
        "productSpecification": {
          "id": "14307",
          "href":
            "https://host:port/productCatalogManagement/v4/productSpecification/14307",
          "name": "Mobile Telephony",
          "version": "1",
          "@type": "ProductSpecification"
        }
      },
      "productOffering": {
        "id": "14305",
        "href": "https://host:port/productCatalogManagement/v4/productOffering/14305",
        "name": "TMF Mobile Telephony"
      },
      "@type": "ProductOrderItem",
      "state": "acknowledged"
    }
  ],
  "relatedParty": [
    {
```

```

    "id": "54jj-98j7",
    "href": "https://host:port/partyRoleManagement/v4/customer/54jj-98j7",
    "name": "Jermemy Pontus",
    "@type": "RelatedParty",
    "@referredType": "Customer"
  }
],
"@type": "ProductOrder"
}

```

Notice that this request features unaccepting parameters as state, orderItem.state and expectedCompletionDate.

- Wait for an error response from the server indicating the unexpected parameters in the request

TC_ProductOrder_E3 – Invalid Request – Missing parameter mandatory in context

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

```

{
  "category": "B2Cproductorder",
  "description": "Product Order illustration sample2",
  "externalId": "PO-459",
  "priority": "3",
  "requestedCompletionDate": "2019-05-02T08:13:59.506Z",
  "requestedStartDate": "2019-05-03T08:13:59.506Z",
  "productOrderItem": [
    {
      "id": "100",
      "quantity": 1,
      "action": "add",
      "product": {
        "isBundle": false,
        "productSpecification": {
          "name": "Mobile Telephony"
        }
      },
      "productOffering": {
        "name": "TMF Mobile Telephony"
      },
      "@type": "ProductOrderItem"
    }
  ],
  "@type": "ProductOrder"
}

```

Notice that this request is missing a service specification id in the order item described.

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

Document History

Version History

| Version Number | Date | Release led by: | Description |
|-----------------------|------------|-----------------|--|
| 1.0.0 Release 18.0 | 12/6/2017 | Ludovic Robert | First Release of the Document. |
| 1.0.1 | 4/12/2018 | Ludovic Robert | Corrected following Andreas Schlüter |
| 2.0.0 Release 19.0 | 06/15/2019 | Ludovic Robert | Corrected for R19.0 9/9 edit: remove isRef. |

Contributors to Document

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