# pCon

# Product Information Interface (PI-API)

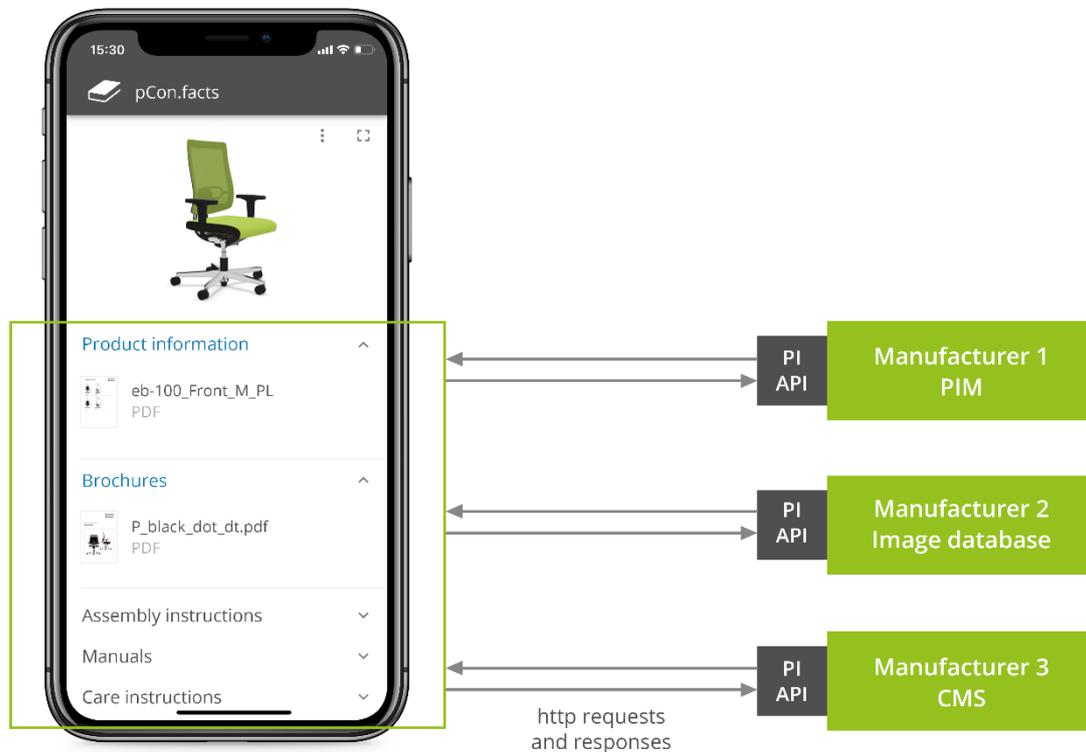| | |
|---|---|
| Document version | 2.1.2 |
| Document status | The interface is in a stable state. Only largely backward compatible changes are to be expected. |
| Author | Christian Brosch |
| Date | 2018-07-23 |

**pCon**
**Product Information Interface (PI-API)**

## Content

## 1   Summary

This document describes how to provide additional product information for some pCon services (currently the pCon.facts app). The additional types of product information include product images, product brochures, operating instructions, certificates, materials etc.

# 2 Overview



**Introduction**

pCon services[1] provide visual product configuration, 3D room planning and proposal preparation using OFML data. To provide users with further benefits, additional product information is provided in some pCon services. This additional product information is not part of the OFML data, but rather queried on demand from the product manufacturer's software systems via a web interface, the so-called PI-API (Product Information Interface). The manufacturer might use a third party system that provides the required information, e.g. a Product Information Management (PIM) System, a Content Management System (CMS), an image database or simply a web server that hosts the required files. The manufacturer is responsible for providing the PI-API for his product data.

Because the additional product information is directly retrieved from the manufacturer's systems, the information is always up to date. Since the product information is not stored in the pCon systems, no update process is necessary. However, this solution requires a high availability and fast response times of the manufacturer's systems.

The pCon services provide the additional information only to those pCon users that are granted access to the manufacturer's OFML data. Furthermore, the PI-API is protected against unauthorized use. This ensures that the product information is made available only to authorized users.

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[1] For more information on pCon please visit https://www.easterngraphics.com. For a list of manufacturers that use pCon, see https://update.easterngraphics.com/provider_list.

**Process of use**

Product information is queried as follows:

1. The user opens an article in the pCon service.
2. Via the PI-API, the pCon service requests the categories of product information that are available for this article. Thereafter, these categories are displayed in the pCon service.
3. If the user opens a category, the pCon service requests the information in that category via the PI-API and displays it.

**Steps to be done for manufacturers**

In order to provide the additional product information, the manufacturer has to perform the following steps:

1. Implement the product information web interface (PI-API) that answers the requests from the pCon service using your product information system, content management system etc.
2. Register the URI (Uniform Resource Identifier) of your PI-API with pCon. Please contact you pCon representative for this. If your API requires username and password please provide them as well.

**The Product Information Interface (PI-API)**

The interface consists of two functions: The first allows to query the categories for which information is available for a specific article. The second queries the actual product information for the article and a selected category.

Both functions receive two groups of parameters: First, detailed information on the OFML article for which the information is required, including article number, manufacturer and program identifiers and article texts. This information should be used to match the corresponding information in the PIM system, CMS etc.

Second, a set of filter parameters is transmitted, including information category, media type and minimum image size. This filters reflect what kind of information the user currently needs. The filters should be applied directly during querying the PIM system or CMS or immediately afterwards to ensure that only the required information is processed and transferred in order to ensure fast response times.

Depending on the software architecture of the PIM system, CMS, image database etc., the provision of an additional web service that provides the PI interface may or may not be necessary. The PI-API may be implemented by the product manufacturer or by the manufacturer of the PIM system. In the latter case, the interface needs to be implemented only once in the PIM system. All users of the PIM system that also use pCon will then benefit from it.

The following chapters contain a list of the supported categories of product information and media types as well as detailed descriptions of the two functions within the PI-API.

# 3 Categories of information

Product information from the following categories may be provided via the interface.

| Category | Description | Preferred media types |
|---|---|---|
| PRODUCT_IMAGE | Product image | Image |
| SOLUTION_IMAGE | Image of a furnishing solution containing the product | Image |
| MATERIAL_INFOR-MATION | Material images, material documents, material description | Image, PDF, Text |
| PRODUCT_INFOR-MATION | General product information | Text, PDF |
| PRODUCT_BROCHURE | Product brochure | PDF |
| ASSEMBLY_INSTRUC-TIONS | Assembly instructions | PDF |
| USER_INSTRUCTIONS | Instructions for use | PDF |
| CARE_INSTRUCTIONS | Care instructions | PDF |
| CERTIFICATE | Certificate, e.g. ISO 9001, TÜV GS, FSC | Image, PDF with image as thumbnail, Text |
| ENVIRONMENTAL_IN-FORMATION | Environmental information | Text, PDF |
| CONTACT | Contact information (only as JSON document with a specific structure) | JSON |
| CUSTOM_ | Prefix for user-defined categories (for example, CUSTOM_DESIGNER) | Any of the supported |
| * | Wildcard that matches all categories. May be used to search in all categories. | |

# 4 Media types

Internet media types are used to identify the content provided through the interface. The following media types are supported.

| Media type | Description |
| --- | --- |
| `text/plain` | Simple text |
| `text/markdown` | Markdown formatted text[3] |
| `image/jpeg` | Image (JPEG) |
| `image/png` | Image (PNG) |
| `image/gif` | Image (GIF) |
| `application/pdf` | PDF |
| `application/json` | Structured information (JSON) |

# 5 General information on the interface

All interfaces are REST interfaces that transmit JSON over HTTPS. All access (APIs, images, documents…) have to be done via port 443. The character set for all JSON strings is UTF-8.

The interface may be provided on the server under any operator-specified base path (e.g. `https://www.ex-ample.com/services/product-information/`).

Upon successful execution of an http request, the http status code 200 is to be returned. For invalid requests, a suitable http status code detailing the particular error, e.g. 400 has to be returned.

If required, every interface may be extended by additional JSON elements and properties in an upward-compatible form. Both the server and the client should ignore unknown elements in the JSON objects they receive.

**Security and Authentication**

For the PI-API the use of HTTPS with a valid CA server certificate is mandatory. The client checks the authenticity of the server by checking the validity of the certificate.

If the provided product information is not public, the API on the server should be protected by username/password to be provided via HTTP basic authentication. One user for pCon is sufficient. The login credentials are only used by the pCon product information backend, they are never passed to end users.

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[3] Text formatted in Github-flavored markdown, see:
https://en.wikipedia.org/wiki/Markdown
https://github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet
Supported elements: headings, paragraphs, emphasis, lists, links and tables.

The users of the pCon services log in with their pCon.login. The pCon product information backend determines which manufacturers approved access to their OFML catalogs for the respective user. Only for this manufacturers the product information is queried via the PI-API and afterwards provided to the user. Thus it is ensured, that only desired users have access to your product information.

# 6 Query category information

This call returns the categories of product information that are available for a specific article.

**Query**

```
POST /v2/categories/query
Content-Type: application/json

{
    "article":
    {
        "manufacturer":"demo",
        "manufacturerId":"DEMO",
        "manufacturerName":"Demo manufacturer",
        "program":"program42",
        "programId":"PRO42",
        "programName":"program 42",
        "distributionRegion":"EN",
        "catalogPath":"Program 42/Chairs/Chair 13",
        "artNo":"5000251",
        "longText":"Chair 13, four-legged",
        "shortText":"Chair 13",
        "language":"en"
    },
    "filters":
    {
        "contentTypes":["*"],
        "imageMinWidth":80,
        "imageMinHeight":80
    }
}
```

**Fields in section `article`**

This sections specifies the article for which the categories should be returned. All relevant OFML fields of the article are provided. Which fields are actually used is up to the provider of the product information.

| Field | Mandatory | Explanation |
|---|---|---|
| manufacturer | X | OFML identifier of the manufacturer (This is the manufacturer's OFML short name which was used to register the manufacturer with EasternGraphics. It always consists of lowercase letters. It is also in the DSR key manufacturer.) |
| manufacturerId | X | Commercial identifier of the manufacturer |

|  |  |  |
|---|---|---|
|  |  | (The manufacturer's commercial short name which was used to register the manufacturer with EasternGraphics. It always consists of uppercase letters. It is also in the DSR key manufacturer.) |
| `manufacturerName` | X | Display name of the manufacturer |
| `program` | X | OFML identifier of the series<br>(This is in the DSR key `program`, consisting lowercase letters) |
| `programId` | X | Commercial identifier of the series<br>(This is in the DSR key `program_id`, consisting uppercase letters) |
| `programName` | X | Display name of the series |
| `distributionRegion` |  | Short name of the sales area<br>If provided, it may be used to provide more significant results. |
| `catalogPath` |  | Path in the catalog<br>If provided, it may be used to provide more significant results. |
| `artNo` | X | OFML article number |
| `longText` | X | Long text of the article |
| `shortText` | X | Short text of the article |
| `language` | X | Language of identifiers/texts in the request, if language-dependent |

**Fields in section `filters`**

This section contains filters that the target application may set to display only product information relevant in the respective use case. Only categories that contain at least one product information item that fulfills ALL filters should be returned.

| Field | Mandatory | Explanation |
|---|---|---|
| `contentTypes` |  | Filter for the media types<br>Must be an array of media types (page 6).<br>Only product information of these media types should be considered. If the array contains the value `*` or the field is missing, then all media types should be considered. |
| `imageMinWidth` |  | Filter for the width of images<br>Only Images with a width ≥ `minWidth` should be considered.<br>This filter should only be considered for images. |
| `imageMinHeight` |  | Filter for the height of images<br>Only Images with a height ≥ `minHeight` should be considered.<br>This filter should only be considered for images. |

**Response**

```
Content-type: application/json

{
    "categories":
    [
        {
            "category":"PRODUCT_IMAGE",
            "contentTypes":["image/jpeg", "image/png", "image/gif"]
        },
        {
            "category":"ASSEMBLY_INSTRUCTIONS",
            "contentTypes":["application/pdf"]
        },
        {
            "category":"CUSTOM_DESIGNER",
            "name":"Designer",
            "contentTypes":["text/plain"]
        }
    ]
}
```

**Fields**

| Field | Mandatory | Explanation |
|---|---|---|
| category | X | Contains the identifier of the provided category (page 4)<br>Both predefined categories and custom categories are possible. |
| name | | Only for own categories: Display name of the category in the same language as the requested article.<br>The field is not required for the predefined categories. |
| contentTypes | X | Must be an array of media types (see page 6) for which product information in that category are provided |

**Error cases**

| Error | Behavior of the function |
|---|---|
| Invalid or unsupported manufacturer code | Return of http status 404 (Not found) , alternatively http status 400 (Bad Request) |
| Nonexistent article | Return of http status 404 (Not found) , alternatively http status 400 (Bad Request) |
| Missing or other invalid information (for example missing mandatory fields) | Return of http status 400 (Bad Request) |
| No categories available for the specified article | Returning an empty result list (Empty list within `categories`) |

# 7 Query product information

This call determines the product information.

The call returns a list of product information that meets the specified criteria. The results should always be re-turned in order of relevance. Text-type product information not larger than 10 KiB can be embedded directly in the returned JSON in the data field. All other information must be provided as an external file and the URI must be in the `uri` field.

**Query**

```
POST /v2/product_information/query
Content-Type: application/json

{
    "article":
    {
        "manufacturer":"demo",
        "manufacturerId":"DEMO",
        "manufacturerName":"Demo manufacturer",
        "program":"program42",
        "programId":"PRO42",
        "programName":"program 42",
        "distributionRegion":"EN",
        "catalogPath":"Program 42/Chairs/Chair 13",
        "artNo":"5000251",
        "longText":"Chair 13, four-legged",
        "shortText":"Chair 13",
        "language":"en"
    },
    "filters":
    {
        "categories":["*"],
        "contentTypes":["*"],
        "imageMinWidth":80,
        "imageMinHeight":80
    },
    "resultRange":
    {
        "start":0,
        "count":100
    }
}
```

**Fields in section `article`**

This sections specifies the article for which the product information should be returned. All relevant OFML fields of the article are provided. Whicht fields are achtually used is up to the provider of the product information.

| Field | Mandatory | Explanation |
|---|---|---|
| manufacturer | X | OFML identifier of the manufacturer (This is the manufacturer's OFML short name which was used to register the manufacturer with EasternGraphics. It always consists of lowercase letters. It is also in the DSR key manufacturer.) |
| manufacturerId | X | Commercial identifier of the manufacturer (The manufacturer's commercial short name which was used to register the manufacturer with EasternGraphics. It always consists of uppercase letters. It is also in the DSR key manufacturer.) |
| manufacturerName | X | Display name of the manufacturer |
| program | X | OFML identifier of the series (This is in the DSR key `program`, consisting lowercase letters) |
| programId | X | Commercial identifier of the series (This is in the DSR key `program_id`, consisting uppercase letters) |
| programName | X | Display name of the series |
| distributionRegion | | Short name of the sales area (This is in the DSR key `distribution_region`.) If provided, it may be used to provide more significant results. |
| catalogPath | | Path in the catalog If provided, it may be used to provide more significant results. |
| artNo | X | OFML article number |
| longText | X | Long text of the article |
| shortText | X | Short text of the article |
| language | X | Language of identifiers/texts in the request, if language-dependent |

**Fields in section `filters`**

This section contains filters that the target application may set to display only relevant product information for the respective use case. Only product information that fulfills ALL filters should be returned.

| Field | Mandatory | Explanation |
|---|---|---|
| categories | | Filter for the categories<br>Must be an array of categories (page 5).<br>Only product information from these categories should be returned. If the array contains the value * or the field is missing, then all categories should be considered. |
| contentTypes | | Filter for the media types<br>Must be an array of media types (page 6).<br>Only product information of these media types should be returned. If the array contains the value * or the field is missing, then all media types should be considered. |
| imageMinWidth | | Filter for the width of images<br>Only Images with a width ≥ minWidth should be returned. The evaluation of this parameter is obligatory for images for performance reasons.<br>This filter should only be considered for images.<br><br>Since the images should be returned in order of relevance, specifying minWidth and minHeight may cause relevant images to be omitted and less relevant images to move upwards in the result list. It is therefore explicitly warned to not specifying high minimum values. Larger image sizes than 120x120 are not recommended. |
| imageMinHeight | | Filter for the height of images<br>Only Images with a height ≥ minHeight should be returned. The evaluation of this parameter is obligatory for images for performance reasons.<br>This filter should only be considered for images. |

**Fields in section `resultRange`**

This section specifies the range of results that should be returned. Consecutive calls for the same article and the same filter values, but with adjusted values of `resultRange` must produce a coherent list of results.
The target application sets this values depending on the requirements of the user interface. It should define this values carefully to achieve both optimal load time for the user and reasonable server load for the provider.

| Field | Mandatory | Explanation |
|---|---|---|
| start | X | Position of the result to be returned first. |
| count | X | Number of results to be returned. Not more than 500 results should be requested with one call. If more than 500 results are requested, the provider is entitled to return an error. |

**Response**

```
Content-type: application/json

{
    "resultInfo":
    {
        "total":2956
    },
    "results":
    [
        {
            "category":"PRODUCT_IMAGE",
            "contentType":"image/jpeg",
            "name":"Front view",
            "referrerUri":"https://www.example.com/chair4711",
            "language":"en",
            "size":12728,
            "imageWidth":750,
            "imageHeight":500,
            "uri":"https://www.example.com/chair4711_frontview.jpg"
        },
        {
            "category":"PRODUCT_IMAGE",
            "contentType":"image/jpeg",
            "name":"Sideview",
            "referrerUri":"https://www.example.com/chair4711",
            "language":"en",
            "size":12728,
            "imageWidth":750,
            "imageHeight":500,
            "uri":"https://www.example.com/chair4711_sideview.jpg"
        },
        {
            "category":"ASSEMBLY_INSTRUCTIONS",
            "contentType":"application/pdf",
            "name":"Assembly instructions for armrests",
            "thumbnailUri":"https://www.example.com/chair4711-AI-armrests_thumbnail.png",
            "referrerUri":"https://www.example.com/chair4711",
            "language":"en",
            "size":345869,
            "uri":"https://www.example.com/chair4711-AI-Armlehnen.pdf"
        },
        {
            "category":"CERTIFICATE",
            "contentType":"application/pdf",
            "thumbnailUri":"https://www.example.com/certificates/ISO9001.png",
            "language":"en",
            "uri":"https://www.example.com/certificates/chair4711_ISO9001.pdf"
        },
        {
            "category":"ENVIRONMENTAL_INFORMATION",
            "contentType":"text/plain",
            "language":"en",
            "data":"All woods come from sustainable forestry."
        },
        {
            "category":"CONTACT",
```

```
            "contentType":"application/json",
            "data":
            {
                "name":"John Doe",
                "email":"john.doe@company.com",
                "phone":"+49 30 1234567890",
                "web":"https://www.example.com"
            }
        },
        {
            "category":"CUSTOM_DESIGNER",
            "contentType":"text/plain",
            "referrerUri":"https://www.example.com/designers/James_Edwards",
            "language":"en",
            "data":"James Edwards"
        }
    ]
}
```

**Fields in section `resultInfo`**

| Field | Mandatory | Explanation |
|---|---|---|
| total | | Total number of available results for this request, even beyond the requested `resultRange.count` value.<br>With this information, the caller can, for example, display the number of result pages or (de-)activate a button "Continue" for further search results.<br>If the value can only be determined with great effort, it can be omitted. |

**Fields in section `results`**

| Field | Mandatory | Explanation |
|---|---|---|
| category | X | Category of the respective product information (page 5) |
| contentType | X | Media type of the product information (page 6) |
| name | | Name of product information<br>For example, for multiple downloadable PDF documents, this name should be used as the download link name. If the name is not specified, the file name will be used, if available. |
| thumbnailUri | | Thumbnail of the product information, usable for all media types; The preview image must be an image in one of the formats PNG, JPEG or GIF and must be reachable via https. |
| referrerUri | | URI of the reference web page or source web page for the product information |

| | | |
|---|---|---|
| `language` | | Language of the provided information<br>The same language as the requested article should be used. If this is not possible, information in an alternative language may be provided. |
| `size` | | Size of the actual product information in Bytes (The value may be approximate. An exact value may be obtained by an http HEAD request on the resource.) |
| `imageWidth` | X | Width of the images (only for images)<br>The value is required to achieve an optimal display of the image in the target application. |
| `imageHeight` | X | Height of the images (only for images)<br>The value is required to achieve an optimal display of the image in the target application. |
| `uri` | (X) | URI under which the product information is available as a file<br>• One of the two fields `uri` and `data` is obligatory. The use of both errors at the same time is not allowed.<br>• The file must be provided via https. |
| `data` | (X) | The product information (embedded, only for text information)<br>• One of the two fields `uri` or `data` is obligatory. The use of both errors at the same time is not allowed.<br>• The size of the embedded information must not exceed 10 KiB per entry, otherwise external files must be used.<br>• Some characters (for example line breaks) must be replaced with escape sequences according to the JSON standard.<br>• Text data must be provided in the character set UTF-8. |

**Error cases**

| Error | Behavior of the function |
|---|---|
| Invalid or unsupported manufacturer code | Return of http status 404 (Not found), alternatively http status 400 (Bad Request) |
| Missing article | Return of http status 404 (Not found), alternatively http status 400 (Bad Request) |
| Missing or other invalid information (for example missing mandatory fields) | Return of http status 400 (Bad Request) |
| No information found for the specified parameters | Returning an empty result list |

**Contact data**

The content of the category CONTACT must be structured as follows. Please note that the target application may only show one contact entry, so please ensure that the most relevant contact entry is the first one.
If you provide contact data, you agree that this information will be published within the pCon Community.

```
{
    "name":"John Doe",
    "email":"john.doe@company.com",
    "phone":"+49 30 1234567890",
    "web":"https://www.example.com/contact"
}
```

**Fields**

At least one of the fields is mandatory.

| Field | Mandatory | Explanation |
|---|---|---|
| name | | Name of the contact person/team |
| email | | E-mail address of the contact person/team |
| phone | | Phone number in E.123 international notation, e.g. +22 607 123 4567 (Parentheses are not allowed, a national trunk prefix (often "0") has to be omitted.) |
| web | | Website URL |

# 8 History

| Version | Date | Author | Amendments |
|---------|------|--------|------------|
| 2.1.2 | 2018-07-23 | CBR | <ul><li>New category `MATERIAL_INFORMATION` replaces `MATE-RIAL_IMAGES` and provides broader content</li><li>New media type `text/markdown` allows formatted text that is displayed inline in the pCon.facts app. The support for text/html is omitted.</li><li>Authentication: The PI-API may be protected by username/password via HTTP basic authentication instead of using a HTTP client certificate, because this is easier to implement and more flexible.</li><li>Text-type product information not larger than 10 KiB (up to now 2 KiB) may be embedded directly in the API response.</li></ul> |
| 2.1.1 | 2018-06-25 | CBR | <ul><li>Contact data: Renamed field `e-mail` into `email`.</li><li>Minor improvements</li></ul> |
| 2.1 | 2018-06-19 | CBR | <ul><li>Added the chapter Overview that explains the use of the interface.</li></ul> |
| 2.0.2 | 2018-05-29 | CBR | <ul><li>Added category `CERTIFICATE`</li><li>Added category `CONTACT`</li><li>Added port 443 as general requirement</li></ul> |
| 2.0.1 | 2018-05-14 | CBR | <ul><li>The properties `manufacturerId` and `programId` were added to both queries.</li></ul> |
| 2.0.0 | 2018-04-23 | CBR | <ul><li>Introduced version 2 of the interface. Version 2 should clarify and simplify the whole API.</li><li>The category query is now article-specific. It is necessary to query the available categories separately for each article, because even for articles of the same manufacturer product information in different categories may be available and empty categories should be avoided.</li><li>The specification has been clarified in many details.</li></ul> |

**Legal remarks**