pCon

Product Information Interface (PI-API)

Interface Version	3.2
Interface Status	Release
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pCon
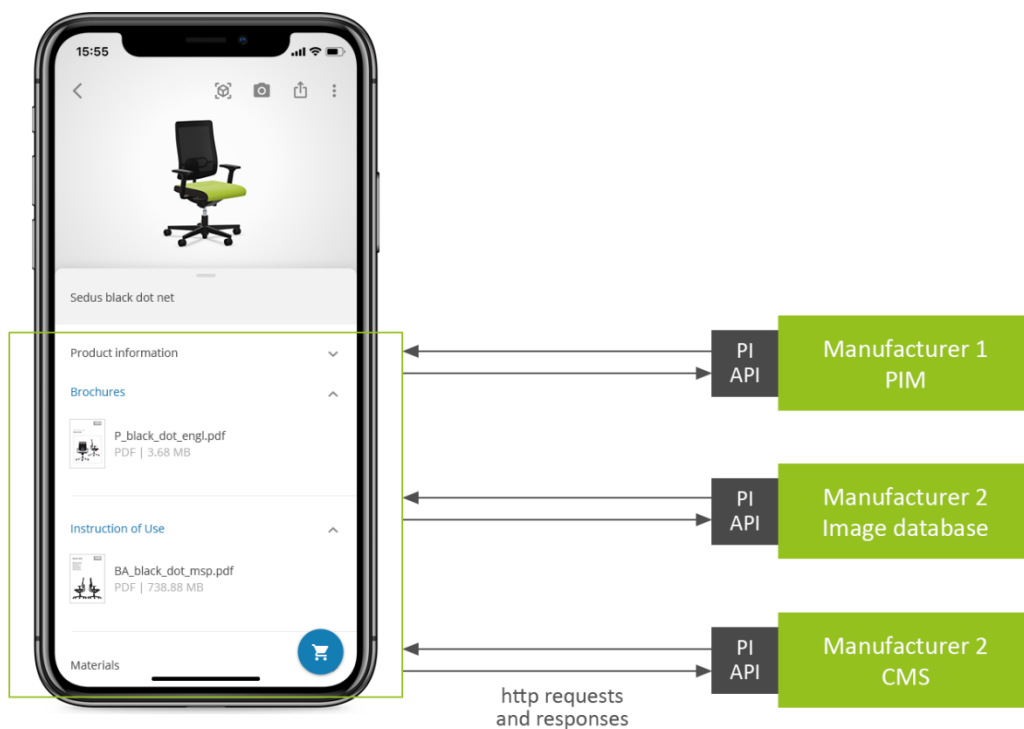**Product Information Interface (PI-API)**

Content

1   Summary

This document describes how to provide additional product information for some pCon services (currently pCon.facts, pCon.box, pCon.planner, pCon.basket, pCon.roomplanner and pCon.catalog). The additional types of product information include product images, product brochures, operating instructions, certificates, materials etc.

Please note that some pCon applications do not display all bits of information, depending on their purpose. In addition, the display can differ in the individual applications.

All changes to the document since version 3.1 are in shown in blue.

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 many 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 an appropriate 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://pcon-solutions.com. For a list of manufacturers that use pCon, see https://pcon-solutions.com/manufacturer_overview.

Process of use

Product information is queried as follows:

1. The user opens an article in the pCon application.
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 your PI-API with pCon: Please send the URI of your API, the provided manufacturer(s) and, if required, username and password for your API to pi-support@easterngraphics.com.

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.

To help you provide a good quality interface, we provide a tool that automatically tests your interface and outputs errors and suggestions for improvement. Please contact us at pi-support@easterngraphics.com for access to this tool. Please further consider that pCon occasionally sends automated queries to all PI APIs to check the availability and correctness of the interfaces as well as to perform automated tests of the pCon applications. pCon tries to limit these tests to the absolutely necessary extent and limits the frequency of the queries to avoid overloading your servers.

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   Version 3.2 of the interface

Version 3.2 of the API is fully downward compatible with version 3.0 and 3.1. Interfaces that meet version 3.0 or 3.1 of the specification continue to function without any changes. Version 3.2 contains the following enhancements compared to version 3.1.

Tables in embedded text

It was already possible to provide text formatted with Markdown via the interface, which is displayed directly in the user interface of the pCon applications. As of version 3.2, tables are supported within the formatted text.

(Specification: page 8)

Consideration of user preferences

Requests to the product information interface now include user preferences (currency, unit of length). This allows to consider these preferences when responding to requests. For example, length information in embedded text can be provided in the user's preferred unit of length.

(Specification and example: page 16)

Please note that the new functions will be implemented gradually in the pCon applications. Therefore, not all functions may be presently available in all pCon applications. To find out which pCon applications currently support the new features, please contact us via pi-support@easterngraphics.com.

4 Categories of information

Product information from the following categories may be provided via the interface. The order of the categories in the table below corresponds with the standard presentation order of the categories. However, the presentation of the categories may vary in the individual pCon products depending on the intended use of the respective pCon application.

Category	Description	Preferred media types
PRODUCT_BROCHURE	Product brochure	PDF
PRODUCT_INFORMATION	General product information	Text, PDF
PRODUCT_IMAGE	Product image	Image
SOLUTION_IMAGE	Image of a furnishing solution containing the product	Image
PRODUCT_VIDEO	Product video	Video
DESIGNER	Designer (only as JSON document with a specific structure)	JSON
CONTACT	Contact information (only as JSON document with a specific structure)	JSON
CUSTOM_	Prefix for user-defined categories (for example, CUSTOM_DATA_SHEET)	Any of the supported
SPECIFICATIONS	Specifications, tender specifications	PDF
CERTIFICATE	Certificate, e.g. ISO 9001, TÜV GS, FSC	Image, PDF with image as thumbnail, Text
ENVIRONMENTAL_INFORMATION	Environmental information	Text, PDF, Video
MATERIAL_INFORMATION	Material images, material documents, material description	Image, PDF, Text
USER_INSTRUCTIONS	Instructions for use	PDF, Video
CARE_INSTRUCTIONS	Care instructions	PDF, Video
OPERATING_INSTRUCTIONS	Operating instructions	PDF, Video
ASSEMBLY_INSTRUCTIONS	Assembly instructions	PDF, Video
*	Wildcard that matches all categories. May be used to search in all categories.	

5 Media types

5.1 Supported 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 (UTF-8)
`text/markdown`	Markdown text (UTF-8), see below
`image/jpeg`	Image (JPEG)
`image/png`	Image (PNG)
`image/gif`	Image (GIF)
`application/pdf`	PDF
`application/json`	Structured information (JSON) Only permitted in the cases described in this document, e.g. contact data.
`Suitable type for the file provided, e.g. application/dwg for DWG files`	Other files For other types of files (e.g. photometric data, BIM data) a suitable content-type should be chosen. These files are not processed by the pCon applications, but passed on to the operating system for further handling. A suitable content-type will help the operating system to choose an appropriate action for the file. Please note that the files should be cross-platform (Windows, MacOS, iOS, Android). The provision of files with executable content (e.g. EXE, BAT, DOC, DOCX, XLS, XLSX, PPT, PPTX) is not permitted for security reasons. We reserve the right to disable interfaces with such files.
`video/x-egr-youtube`	Video files Currently only videos hosted on YouTube are supported.

5.2 Images

For an optimal display of the images in the pCon applications we recommend a resolution of 2-8 Megapixels, e.g. from 1920x1080 up to 3840x2160 pixels. Images that are less than 400 pixels in width or height might be ignored in some pCon applications. We recommend that the file size of the image does not significantly exceed 1 Megabyte. To ensure adequate loading times, we strongly advise against using uncompressed images. We recommend providing the images on a quality level that you also would use on your web page for full screen display in excellent quality.

5.3   Markdown text

Text information displayed directly in the pCon applications can be formatted using Markdown. The interface supports a subset of CommonMark[2] as well as tables from GitHub Flavored Markdown[3]. The supported features are listed in the following table. Other features, especially images, links and HTML are not supported. An example can be found on page 20.

Please note that the following description explains the syntax in a simplified way. Only the CommonMark respective GitHub Flavored Markdown specification is binding for the interpretation. Please remember to escape characters that are not allowed in JSON when you include the markup text in the interface.

Feature	Description	Example
Headings	To insert a headline, start a line with the # character and at least one space followed by the actual heading. Multiple heading levels are not supported.	`# Headline`

Paragraphs	Text that cannot be interpreted otherwise is interpreted as paragraph. Several paragraphs are separated by blank lines.	`Text of paragraph 1.`
		
		`Text of paragraph 2.`

Line breaks	To insert a line break, add two or more spaces at the end of a line.	`line 1(space)(space)` `line 2`
Bold text	To bold text, enclose the text in double stars.	`I like **bold text**.`
Italic text	To italicize text, enclose the text in stars.	`I like *italic text*.`

Lists	To create a list with several items, put each item in a separate line and start each line with a list maker (−, +, *) and a space. Use the same list marker for one list. Nested lists are not supported.	`- item 1`
		`- item 2`
		`- item 3`

Numbered lists	To create a numbered list, put each list item in a separate line and start each line with the number and a space. Nested numbered lists are not supported.	`1. item 1`
		`2. item 2`
		`3. item 3`

Horizontal rules	To create a horizontal rule, add three starts in a separate line.	`***`
Escaping characters	To escape literal characters that would otherwise be interpreted as Markdown formatting, add a backslash in front of the character.	`\*\*This text is not displayed bold.\*\*`

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[2] https://commonmark.org/
[3] https://github.github.com/gfm/

Feature	Description	Example
Tables	To create a table, put each table row in a line and separate the columns with pipes. Place also pipes at the beginning and the end of each line. To create a header row, insert a delimiter row after the header row with only hyphens in each cell. It is not necessary to fill the cells with whitespace so that the columns have the same width.	``` | Column 1 | Column 2 | Column 3 | | --- | --- | --- | | Cell 11 | Cell 12 | Cell 13 | | Cell 21 | Cell 22 | Cell 23 | ```
	To align text in a column to the left, the right or centered, place a colon on the left, the right or both sides of the hyphens in the delimiter row.	``` | Left | Centered | Right | | :--- | :---: | ---: | | Left | Centered | Right | | Left | Centered | Right | ```
	Please note that there is usually little space available in the pCon applications to display this information. We recommend to use tables with a maximum of 4 columns and 6 rows as well as short cell contents to ensure a suitable display.	

6 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. Also, all components should ignore unknown categories and media types.

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.

The files referenced by your API (e.g. images, documents) should be provided under non-guessable URIs to prevent unwanted access.

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.

7 Query category information

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

7.1 Query

```
POST /v3/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",
        "finalArtNo":"5000251",
        "varCode":"c1.p1=0;c2.p1=23",
        "longText":"Chair 13, four-legged",
        "shortText":"Chair 13",
        "language":"en"
    },
    "filters":
    {
        "contentTypes":["*"],
        "imageMinWidth":80,
        "imageMinHeight":80
    },
    "user":
    {
        "type":"hasCatalogApproval",
        "zipcode":"11011",
        "country":"DE"
    }
}
```

Fields in section `article`

This section 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	Guaranteed[4]	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[L]	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[L]	X	Display name of the series
distributionRegion		Identifier of the sales area (This is in the DSR key `distribution_region`.) If provided, it may be used to provide more specific results.
catalogPath[L]		Path in the catalog If provided, it may be used to provide more specific results.
artNo	X	(Base) article number
finalArtNo	X	Final article number
varCode	X	Variant code
longText[L]	X	Long text of the article
shortText[L]	X	Short text of the article
language	X	Language of identifiers/texts in the request, if language-dependent

---

[4] Fields with an X in this column are always provided. The others may be provided or not depending of the context in which the interface is called.
[L] 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	Guaranteed	Explanation
`contentTypes`		Filter for the media types Must be an array of media types (page 7). 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 Only Images with a width ≥ `minWidth` should be considered. This filter should only be considered for images.
`imageMinHeight`		Filter for the height of images Only Images with a height ≥ `minHeight` should be considered. This filter should only be considered for images.

Fields in section `user`

This section contains information about the requesting user. This makes it possible to provide different product information for certain user groups.
Users with a catalog approval may be provided with full product information and public users only with limited product information. Country and zip code of the user allow to provide different contact data depending on the location of the user.

Field	Guaranteed	Explanation
`type`	X	Type of the user. Only the following two values can occur:
		`hasCatalogApproval` — Registered pCon user who has manufacturer approval to use the respective OFML catalog.
		`public` — Unregistered user without a catalog approval.
`zipcode`		Zip code of the requesting user. Not available for public users. The value is taken from the user's pCon.login user account and its correctness cannot be guaranteed.
`country`		ISO 3166-1 alpha -2 Country of the user, e.g. `DE`. Not available for public users. The value is taken from the user's pCon.login user account and its correctness cannot be guaranteed.

7.2 Response

```
Content-type: application/json

{
    "categories":
    [
        {
            "category":"PRODUCT_IMAGE",
            "contentTypes":["image/jpeg", "image/png", "image/gif"]
        },
        {
            "category":" PRODUCT_VIDEO",
            "contentTypes":["video/x-egr-youtube"]
        },
        {
            "category":"ASSEMBLY_INSTRUCTIONS",
            "contentTypes":["application/pdf"]
        },
        {
            "category":"CUSTOM_DATA_SHEET",
            "name":"Data sheet",
            "contentTypes":["application/pdf"]
        }
    ]
}
```

Fields

Field	Mandatory	Explanation
category	X	Contains the identifier of the provided category (page 4) Both predefined categories and custom categories are possible. Please make sure that each category only occurs once within the whole response.
name		Only for own categories: Display name of the category in the same language as the requested article. The field is not required for the predefined categories.
contentTypes	X	Must be an array of media types (see page 7) for which product information in that category are provided

Error cases

Error	Http status code to be returned	Returned content
Missing or invalid information in request (for example missing required fields)	400 (Bad request)	(Optional) An error message that indicates detailed error information.
No product information available for the specified article	200 (OK)	An empty result list (Empty list within `categories`)

In case of an invalid or non-existent article number or a manufacturer code that is not supported, both is permissible: Returning status code 200 with an empty category list or returning status code 400.

8 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 returned in order of relevance. Text-type product information 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.

8.1 Query

```
POST /v3/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",
        "finalArtNo":"5000251",
        "varCode":"c1.p1=0;c2.p1=23",
        "longText":"Chair 13, four-legged",
        "shortText":"Chair 13",
        "language":"en"
    },
    "filters":
    {
        "categories":["*"],
        "contentTypes":["*"],
        "imageMinWidth":80,
        "imageMinHeight":80
    },
    "user":
    {
        "type":"hasCatalogApproval",
        "zipcode":"11011",
        "country":"DE"
    },
    "preferences":
    {
        "currency":"EUR"
        "lengthUnit":"m"
    }
    "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. Which fields are achtually used is up to the provider of the product information.

Field	Guaranteed[5]	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`[L]	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`[L]	X	Display name of the series
`distributionRegion`		Identifier of the sales area (This is in the DSR key `distribution_region`.) If provided, it may be used to provide more specific results.
`catalogPath`[L]		Path in the catalog If provided, it may be used to provide more specific results.
`artNo`	X	(Base) article number
`finalArtNo`	X	Final article number
`varCode`	X	Variant code
`longText`[L]	X	Long text of the article
`shortText`[L]	X	Short text of the article
`language`	X	Language of identifiers/texts in the request, if language-dependent

---

[5] Fields with an X in this column are always provided. The others may be provided or not depending of the context in which the interface is called.
[L] 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	Guaranteed	Explanation
categories		Filter for the categories Must be an array of categories (page 5). 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 Must be an array of media types (page 7). 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 Only Images with a width ≥ minWidth should be returned. The evaluation of this parameter is obligatory for images for performance reasons. This filter should only be considered for images. 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 Only Images with a height ≥ minHeight should be returned. The evaluation of this parameter is obligatory for images for performance reasons. This filter should only be considered for images.

Fields in section `user`

This section contains information about the requesting user. This makes it possible to provide different product information for certain user groups.
Users with a catalog approval may be provided with full product information and public users only with limited product information. Country and zip code of the user allow to provide different contact data depending on the location of the user.

Field	Guaranteed	Explanation
type	X	Type of the user. Only the following two values can occur:

	hasCatalogApproval	Registered pCon user who has manufacturer approval to use the respective OFML catalog.
	public	Unregistered user without a catalog approval.
zipcode		Zip code of the requesting user. Not available for public users. The value is taken from the user's pCon.login user account and its correctness cannot be guaranteed.
country		ISO 3166-1 alpha -2 Country of the user, e.g. DE. Not available for public users. The value is taken from the user's pCon.login user account and its correctness cannot be guaranteed.

Fields in section `preferences`

This section contains information about user preferences. This allows to consider these preferences when responding to requests. For example, length information in embedded text can be provided in the user's preferred unit of length.

Field	Guaranteed	Explanation
currency		Currency of the user (ISO 4217 code). Examples: EUR, USD.
lengthUnit		Length unit of the user. Currently, the following values may occur: mm, cm, m, km, ft, in

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	Guaranteed	Explanation
start	X	Position of the result to be returned first. The first result has the position 0. If the given value is greater than the total number of results, an empty list has to be returned.
count	X	Number of results to be returned at most. The last result is reached if fewer results are returned. Not more than 100 results will be requested in one call. If more than 100 results are requested, the provider is entitled to return error 400 (Bad Request).

8.2 Response

```
Content-type: application/json

{
    "resultInfo":
    {
        "total":2956
    },
    "results":
    [
        {
            "category":"PRODUCT_IMAGE",
            "contentType":"image/jpeg",
            "name":"Front view",
            "language":"en",
            "size":12728,
            "imageWidth":750,
            "imageHeight":500,
            "uri":"https://www.example.com/chair4711_frontview.jpg"
        },
        {
            "category":"PRODUCT_IMAGE",
            "contentType":"image/jpeg",
            "name":"Sideview",
            "language":"en",
            "size":12728,
            "imageWidth":750,
            "imageHeight":500,
            "uri":"https://www.example.com/chair4711_sideview.jpg"
        },
        {
            "category":"PRODUCT_VIDEO",
            "contentType":"video/x-egr-youtube",
            "name":"Chair 4711",
            "language":"en",
            "data":"k-W5A-mvphg"
        },
        {
            "category":"ASSEMBLY_INSTRUCTIONS",
            "contentType":"application/pdf",
            "name":"Assembly instructions for armrests",
            "thumbnailUri":"https://www.example.com/chair4711-AI-armrests_thumbnail.png",
            "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/markdown",
            "language":"en",
```

```
            "data":"Our products are sustainable and climate-friendly:\n* wood
from sustainable forestry\n* short transport routes of raw materials\n* long prod-
uct life"    },
        {
            "category":"CONTACT",
            "contentType":"application/json",
            "data":
            {
                "name":"John Doe",
                "photo":
                {
                    "uri":"https://www.example.com/john_doe.jpg",
                    "type":"portrait"
                },
                "department":"Sales",
                "email":"john.doe@company.com",
                "phone":"+49 30 1234567890",
                "web":"https://www.example.com"
            }
        },
        {
            "category":"CUSTOM_DATA_SHEET",
            "contentType":["application/pdf"],
            "name":"Product data sheet",
            "thumbnailUri":"https://www.example.com/chair4711-data-sheet_thumbnail.png",
            "language":"en",
            "size":345869,
            "uri":"https://www.example.com/chair4711-data-sheet.pdf"
        }
    ]
}
```

Fields in section `resultInfo`

Field	Mandatory	Explanation
total		The total number of available results for the given request, considering the filters, but **disregarding** the specified result range of the request.
		For example: 34 results are available for given request considering the given filters. The caller requests 10 results starting at 0. Then, for total, 34 should be returned.
		With this information, the caller can, for example, display the number of result pages or (de-)activate a button "Continue" for further search results.
		If the value can only be determined with considerable effort, it can be omitted.

Fields in section `results`

Field	Mandatory	Explanation
category	X	Category of the respective product information (See page 6)

`contentType`	X	Media type of the product information (See page 7)
`name`		Name of product information If this field is not provided, the file name will be used. **Please note:** This is not the file name, but the name under which the document is displayed in the pCon application. Examples: "Home Office Furnishing Solutions", "Color overview" If you want to provide a file name under which the document will be saved during a download, please use the respective part of the URI or the HTTP header Content-Disposition.
`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 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) 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) 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 (all types, except text/markdown) • One of the two fields `uri` and `data` is obligatory. The use of both fields at the same time is not allowed.
`data`	(X)	The product information (embedded, only for text/markdown information) • One of the two fields `uri` or `data` is obligatory. The use of both fields at the same time is not allowed. • Please remember that the product information is often used on smartphones and should therefore not be too long. • The size of the embedded information must not exceed 10 KiB per entry, otherwise external files in other media types than text must be used. • Some characters (for example line breaks) must be replaced with escape sequences according to the JSON standard. • Text data must be provided in the character set UTF-8.

Error cases

Error	Http status code to be returned	Returned content
Missing or invalid information in request (for example missing required fields)	400 (Bad request)	(Optional) An error message that indicates detailed error information.
No product information available for the specified article	200 (OK)	An empty result list (Empty list within `categories`)

In case of an invalid or non-existent article number or a manufacturer code that is not supported, both is permissible: Returning status code 200 with an empty category list or returning status code 400.

8.3   External files

By means of the field `uri` external files are referenced. For these files, please note the following:
- All files must be provided via https.
- The web server providing the file must indicate the correct file type (e.g. `image/jpeg`) in the HTTP Header `Content-Type` of the file.
- Please keep in mind that your files are directly used on smartphones, tablets, notebooks and desktop computers. Please provide the files in an appropriate compression to achieve optimal quality with reasonable loading times.
- We recommend to allow caching the files several days by providing appropriate caching headers. We advise against using filenames or URL parameters that are regenerated on every call as this will not allow caching the files.
- Please ensure that the URIs are correctly encoded, e.g. Germanic umlauts.

8.4   Videos

Videos can be used in any category except `CONTACT` and `DESIGNER`. Currently, only videos on the YouTube platform are supported. Videos are used from the YouTube platform instead of using plain video files to ensure an adequate scaling of the video adapted to the users data transfer rate.

A video entry must be structured as follows.

```
{
    "category":"PRODUCT_VIDEO",
    "contentType":"video/x-egr-youtube",
    "name":"Chair 4711",
    "language":"en",
    "data":"k-W5A-mvphg"
}
```

Fields

Field	Mandatory	Explanation
Category	X	May be any category except `CONTACT`, including custom categories.

contentType		X	Must contain `video/x-egr-youtube`
Name		X	Name of the video
Language			Language of the video
Data		X	YouTube Video ID. The video ID can be taken from the video's URL. For example, if your video's URL is `https://www.youtube.com/watch?v=k-W5A-mvphg`, the video ID is the value of the parameter `v`, that is here `k-W5A-mvphg`.

8.5 Category CONTACT

The content of the category `CONTACT` must be structured as follows. Please note that some pCon applications 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.

```
    {
        "category":"CONTACT",
        "contentType":"application/json",
         "data":
        {
            "name":"John Doe",
            "photo":
            {
                "uri":"https://www.example.com/john_doe.jpg",
                "type":"portrait"
            },
            "department":"Sales",
            "email":"john.doe@example.com",
            "phone":"+49 69 123456789-123",
            "web":"https://www.example.com"
        }
    },
    {
        "category":"CONTACT",
        "contentType":"application/json",
         "data":
        {
            "name":"Richard Miles",
            "photo":
            {
                "uri":"https://www.example.com/richard_miles.jpg",
                "type":"portrait"
            },
            "department":"Support",
            "email":"jane.doe@company.com",
            "phone":"+49 69 123456789-123",
            "web":"https://www.example.com"
        }
    },
```

Fields

Field	Mandatory	Explanation
Name		Name of the contact person/team
Photo		Photo of the contact person/team
Uri	X[6]	URI of the photo
Type	X[6]	Type of the photo. Only the following values are allowed:

	portrait	Portrait photo, may be shown rounded in some applications
	other	Other photo, will be shown as is in all applications

Field	Mandatory	Explanation
department[L]		Department; serves to differentiate the responsibility for several contacts, e. g. `sales`, `customer service`, `spare parts` The value is language dependent. We recommend providing it in the language stated in the language attribute of the query.
email	(X)	E-mail address of the contact person/team
phone	(X)	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	(X)	Website URL

At least one of the fields email, phone or web is mandatory.

8.6   Category DESIGNER

The content of the category `DESIGNER` must be structured as follows. If you provide personal data, you agree that this information will be published within the pCon Community. Please note that some pCon applications will only show one entry per article.

---

[6] Required only if the parent field `photo` exists
[L] Language dependent

```
        {
            "category":"DESIGNER",
            "contentType":"application/json",
            "data":
            {
                "name":"John Doe",
                "photo":
                {
                    "uri":"https://www.example.com/john_doe.jpg",
                    "type":"portrait"
                },
                "text":
                {
                    "contentType":"text/plain",
                    "data":"John Doe's products are characterized by a high level
of practicality paired with timeless elegance."
                },
            }
        },
```

Fields

Field	Mandatory	Explanation
name	X	Name of the designer(s)
photo		Photo of the designer(s)
uri	X[7]	URI of the photo
type	X[7]	Type of the photo. Only the following values are allowed:
		portrait Portrait photo, may be shown rounded in some applications
		other Other photo, will be shown as is in all applications
text[L]		Further information about the designer(s), e.g. their specialties, motivations, intentions. The text is language dependent. We recommend providing it in the language stated in the language attribute of the query.
contentType	X[8]	Media type of the text (See page 7) Only text/plain and text/markdown are supported.
data	X[8]	The actual text. The text should not exceed 200 words.

---

[7] Required only if the parent field photo exists
[L] Language dependent
[8] Required only if the parent field text exists

9 History

Version	Date	Amendments
3.2	2022-06-10	- Tables in Markdown - User preferences are provided in the product information query - Updated URLs of pCon - Added information about a tool for automated testing of PI-APIs - Added information about automated testing by pCon team
3.1.1	2021-10-30	- For file types not specifically listed under media types, the API now accepts arbitrary content-types appropriate for the specific file - Added clarification on markdown text, that features not listed are not supported - Added remark, that markdown and plaintext information may only be provided embedded in JSON and not as files
3.1	2021-01-15	- New media type: Markdown - New category: DESIGNER - Category CONTACT extended: photo, department - List of supported pCon applications updated - Added notes on the individual behavior of the pCon applications at various places - Added notes on the display order of the categories in the pCon applications - Added information about the intended files for the media type `application/octet-stream` - Added further hints in several places to ensure a high data quality, e.g. on the name of the product information
3.0.1	2019-03-25	Proofreading
3.0	2019-03-18	- Support for providing product information to unregistered pCon users - Category and product query now provide type, country and zip code of the requesting user - New categories: `SPECIFICATIONS`, `OPERATING_INSTRUCTIONS`, `PRODUCT_VIDEO` - Support for other files to be handled by the operating system - Support for YouTube videos - Recommendations for the resolutions of images - Changes the returned http status codes in error cases to be closer to the standard of similar interfaces - Clarified some details, e.g. guaranteed parameters
2.1.3	2018-10-15	Both queries (Category query and Product information query) may also provide the fields final article number and variant code. These fields may be used to provide more specific product information.
2.1.2	2018-07-23	- New category `MATERIAL_INFORMATION` replaces `MATERIAL_IMAGES` and provides broader content - New media type `text/markdown` allows formatted text that is displayed inline in the pCon.facts app. The support for text/html is omitted. - Authentication: The PI-API may be protected by username/password via

Version	Date	Amendments
		HTTP basic authentication instead of using a HTTP client certificate, because this is easier to implement and more flexible.
		• Text-type product information not larger than 10 KiB (up to now 2 KiB) may be embedded directly in the API response.
2.1.1	2018-06-25	• Contact data: Renamed field `e-mail` into `email`. • Minor improvements
2.1	2018-06-19	• Added the chapter Overview that explains the use of the interface.
2.0.2	2018-05-29	• Added category `CERTIFICATE` • Added category `CONTACT` • Added port 443 as general requirement
2.0.1	2018-05-14	• The properties `manufacturerId` and `programId` were added to both queries.
2.0.0	2018-04-23	• Introduced version 2 of the interface. Version 2 should clarify and simplify the whole API. • 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. • The specification has been clarified in many details.

Legal remarks