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Internet Offer Format (IOF) version 2.1

Technical Specification

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Language used in this document: English (en-GB)

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Table of contents

Content of this document

The scope of this document

The scope of this document deals with the product offer description format – **Internet Offer Format (IOF)** – available as version **2.1**. This format was developed by IAI S.A. and is a sole property of this company.

It is to notify that a use of the **IOF version 1.0 is unadvisable** and should be considered obsolete. **We strongly recommend using IOF version 2.0 or later.**

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2. You may not alter, transform, or use it in any modified form with any other purposes.
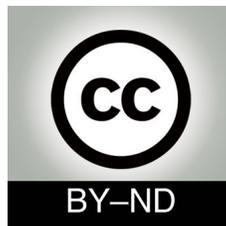
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What has changed since 2.0

IOF version 2.1 released

The IOF version 2.1 is currently available version. We have extended functionality of full.xml and light.xml files – there is available a new feature – *product variants*. Following document concerns only the IOF version 2.1.

List of modifications from version 2.0

1. Product variants can be entered in files full.xml and light.xml as a completely new tag hierarchy. Manipulation of files is specified by following requirements.
2. Group of products defined as variant is specified by **offer.products.group** tag.
3. Every group of variants in light.xml have to be specified in exactly the same way as in full.xml.
4. The first product from group of variants is a main variant. If content of sub variant is missing some data, then sub variant inherits data from main variant, e.g. if any picture is assigned to main variant and sub variants do not have assigned pictures, then sub variants inherits those pictures from main variant.
5. Common data for all variants are those, which do not appear in any sub variants, but appear in main variant.
6. Every sub variant has to include the same number of common data, i.e. if it is required to share a tag between main product and sub variant, sub variant can not contain own tag (e.g. tag containing a description of product). Otherwise, an error occurs.
7. Every product from group of variants has the same measure unit inherited from full.xml. If value of size tag will be changed in one of product in light.xml, every product from this group will be modified in order to containing the same value for size.
8. Every group of variants in full.xml file includes text string information in tag.

offer.products.group.group_details@name. This information makes difference between particular variants, e.g. Colour.

9. Tag **offer.products.group.product.description.version@name** is the only one tag which is not inherited from main variant. This tag specify name of this variant, e.g. Green.

10. When using the IAI-Shop.com Downloader, it is worth mentioning, that attributes like **@id** can not contain '-' (minus) symbol. It is a restricted symbol for the IAI-Shop.com Downloader requirements.

Introduction

Internet Offer Format (IOF) version 2.1 is the product offer description format, based on XML. Thanks to this feature, the IOF is fully portable format and is easy to implement in any information system.

The IOF was developed for the **IAI-Shop.com Downloader** program. Although, it is possible to use this format in other system dedicated for processing data of products.

Learn more about the IAI-Shop.com Downloader and the IOF format

This document concerns the structure of files included in the IOF format and a client-oriented implementation procedures.

Attachments to this document:

- example XML files
- example XSD files (XML Schema)

Learn more about XML

Learn more about XML Schema

Documentation files

This technical specification is available to download in two separated packages:

- as a PDF file

- as a compressed ZIP archive including documentation in PDF file and also XML and XSD files. This ZIP archive should be unzipped (uncompressed) after download.

Download ZIP archive including documentation in PDF file, XML and XSD files

Philosophy of IOF format

The IOF format uses meta-data to describe products for the IAI-Shop.com Downloader program. It is not essential to use exactly this program. This format is ultra portable and can be used in any programs processing full data of products, for the needs of e-commerce.

The IOF format describes products in **integration process** between **supplier** and **seller** (distributor), who wishes for the widest assortment and the best conditions of sale (Fig. 1).
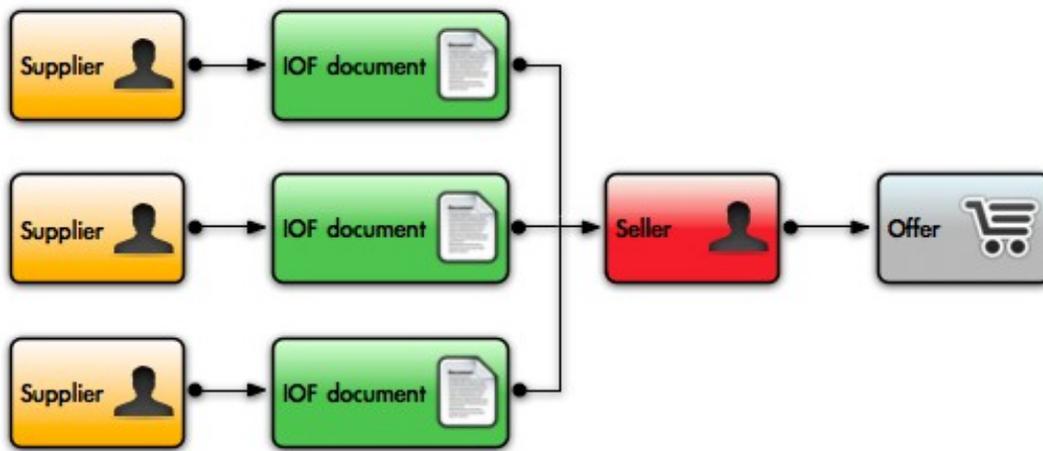
Figure 1, System based on the IOF format.

The **IOF document** has a modular structure referring to particular categories of information. Reference mechanism is performed via URL requests to files of those types. An integral part of this document is a **gateway.xml** file, so called **gateway.** This file is a main set prepared from following elements:

- Meta-data which identify a supplier
- URL request to a file including a list of categories (categories.xml)
- URL request to a file including a list of sizes (sizes.xml)

- URL request to a file including a full description of offer (pictures, descriptions – full.xml)
- URL request to a file including a short description of offer (sizes, stock level of particular sizes – light.xml)
- URL request to a file including a list of producers (producers.xml)
- URL request to a file including a list of product series (series.xml)
- URL request to a file including a list of product traits (traits.xml)
- URL request to a file including a list of extended traits compiled as dictionaries (dictionaries.xml)
- URL request to a file including a list of product measure units (units.xml)

All these elements are especially useful for those, who do not use the IAI-Shop.com Downloader. Why? Because it becomes easier to import and export product descriptions when you make use of the IOF format. So:

1. If you are a supplier (wholesaler), and you wish to integrate your warehouse with a retail stores, prepare an appropriate IOF document in accordance with recipe specified in this specification. Make familiar yourself with structure and requirements of each file requested by gateway.xml.
2. If you are a seller (offer receiver) prepare appropriate tools processing XML files. If you are not experienced in that kind of activities, you can use the IAI-Shop.com Downloader which is entirely integrated with the IAI-Shop.com system platform.

In order to prepare particular XML files, make familiar with following parts of this specification document.

Next section discusses cooperation between the IOF format and the IAI-Shop.com system platform. If you are not interested, leave next section and make familiar yourself with technical features of the IOF format.

Offer sharing via IAI-Shop.com system platform

This feature is free for every our client using the IAI-Shop.com system platform. To make your offer accessible for your partners, **log in to the Administrative Panel** of your online store. Now, you have to carry out a several straightforward operations.

[Learn more about offer sharing](#)

[Learn more about the Administrative Panel of the IAI-Shop.com system platfrom](#)

Already logged in? It is necessary to perform following operations now:

1. go to the **MARKETING** module,
2. select **Udostępnianie oferty do integracji**,
3. select an online store from which you wish to make an export.

After you select an online store, an appropriate form will appear. If this service have not been activated before, it is necessary to activate it, by clicking '**tak**' in section ***Aktywacja modułu udostępniania oferty do integracji***. Next, click '**Zapisz**'. Service will be activated within 12 hours.

If service have been already activated, follow steps listed below:

1. find a client in section ***Ustawienia konfiguracyjne wymagane do udostępniania oferty***,
2. in section ***Ustawienia eksportu oferty ze stanami magazynowymi*** mark '**URL z ofertą dla programu Downloader**' and '**Ilość w magazynie**'.

After clicking '**Dalej**', a system will generate an appropriate URL address you have to paste to window '**Dodaj dostawcę**' in the IAI-Shop.com Downloader.

Generated URL address need to be given to a target client.

Descriptive conventions and common issues

There are many common issues applied to all files of the IOF format. In order to do not duplicate them we introduce them in this section. It concerns tags and attributes.

To make code more simply, there are following descriptive conventions for tags and attributes for the IOF document and XSD files:

- **sizes.xml@id** - specifies 'size' tag and its attribute 'id'
- **@name** - specifies attribute 'name' for current tag
- **<product>** - specifies 'product' tag

Attributes such as **@id**, **@code**, **@code_producer** may contain symbols '**0-9**', '**a-z**', '**A-Z**', '**_**', '**-**'. Content of each attribute must be unique for each product, size, etc. It is not allowed to enter the same data to **@id**, **@code** and **@code_producer** tags.

Text placed inside tag field should be entered after **CDATA** indication:

```
<description>
<![CDATA[product description]]>
</description>
```

Every file must contain attributes of version and format (placed inside the main tag). For version 2.1 - **@file_format="IOF"** and **@version="2.1"**. In every files, except gateway.xml, in main tag in **@language** attribute, there is an information about current language of particular file, e.g. **en**. This attribute is required.

Client, for whom the IOF document is generated, is called as business client or target client.

Structure of gateway.xml file

It is a main file of the IOF format. This file contains data of supplier who share his offer to business client, and URL addresses to files of the IOF format, e.g. full.xml and light.xml.

meta – specifies supplier details

```
<meta>
        <long_name><![CDATA[John Smith]]></long_name>
        <short_name><![CDATA[test1]]></short_name>
        <showcase_image url="http://logo.png"/>
        <email><![CDATA[store@iai-shop.com]]></email>
        <tel><![CDATA[+44 7711771177]]></tel>
        <fax><![CDATA[7711 7711]]></fax>
        <www><![CDATA[test1.iai-shop.com]]></www>
        <address>
                <street><![CDATA[street name]]></street>
                <zipcode><![CDATA[zipcode]]></zipcode>
                <city><![CDATA[London]]></city>
                <country><![CDATA[UK]]></country>
        </address>
</meta>
```

The **<short_name>** tag can not contain white-spaces. Only permitted is using symbols such as '**0-9**', '**a-z**', '**A-Z**', '**_**'. This tag is used for describing each size of product, after its import to the online store.

Required tags:

- **full** – URL to full.xml file containing the most important information about products, i.e. name, price given by supplier, short description, long description, URL address to product tab, relations between categories, producers, picture information, and many others,
- **light** – URL to light.xml file containing information which are not included in full.xml file, i.e. prices and stock levels for particular size,
- **categories** – URL to categories.xml file containing products category tree,
- **sizes** – URL to sizes.xml file containing groups of sizes for particular products,
- **producers** – URL to producers.xml file containing information about producers.

Tags available only in the IOF 2.1 version:

- **units** – measure units (units.xml),
- **dictionaries** – products dictionaries (dictionaries.xml),
- **series** – series of product (series.xml),
- **traits** – product traits (traits.xml),
- **showcase_image** – URL to supplier's logo.

Structure of full.xml file

File full.xml contains all information about product, except prices for target client and stock levels for particular sizes.

Tag **<product>** includes all information about single product. Each product is related to category, producer, dictionary, measure unit, and group of traits and their values. Each product has an unique **@id** attribute and **@currency** attribute containing information about currency under the ISO-4217 standard. These attributes are required.

Tag **<images>** contains information about product pictures. Each picture may be described by optional attributes: **@date_changed** (las modified date in YYYY-MM-DD format) and **@hash** (MD5 value). These attributes are not required.

There are following relations between data:

- **producer@id** is related to **producers.producer@id** from producers.xml file,
- **category@id** is related to **categories.category@id** from categories.xml file,
- **unit@id** is related to **units.unit@id** from units.xml file,
- **group.product** tag (product variants) has exactly the same structure as main tag **product**,
- **products** tag includes product variants and products which are not variants.

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```xml
<?xml version="1.0" encoding="UTF-8"?>
<offer file_format="IOF" version="2.1">
    <products language="eng">
        <!-- Product without any variant -->
        <product id="1175008719" currency="GBP">
            <producer id="1214395222" name="Konemann"/>
            <category id="1222083615" name="albums"/>
            <unit id="0" name="item"/>
            <description>
                <name><![CDATA[product name]]></name>
                <short_description><![CDATA[short description, up to 255
                characters]]></short_description>
                <long_description><![CDATA[long
                description,unlimited]]></long_description>
            </description>
            <card url="http://test1.iai-shop.com/product-pol-1175008719_18th-
            centurytextile-painting-French-provincial.html"/>
            <price gross="18.14" net="17.19" vat="5.5"/>
            <images>
                <large>
                    <image url="http://test1.iai-
                    shop.com/data/gfx/pictures/large/9/1/1175008719_1.jpg"
                    date_changed="2008-10-09"
                    hash="720bdd767da0b11aa8fb17945ebd2976"/>
                </large>
                <icons>
                    <icon url="http://test1.iai-
                    shop.com/data/gfx/icons/large/9/1/1175008719.jpg"
                    date_changed="2008-10-09"
                    hash="3a4c8624e7dd0d6bd0d900415119ff1e"/>
                </icons>
            </images>
        </product>

<!-- Another products without any variant -->
```

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```xml
<!-- Group of products as variants -->

        <group type="versions">
                <group_details name="Colours"/>
                        <product id="3826331711" currency="GBP"
                        code_producer="9783826331718">
                                <description>
                                        <version name="Green"/>
                                        <name>Product name</name>
                                        <short_description>Short description</short_description>
                                        <long_description>Long description</long_description>
                                </description>
                                <producer id="1234" name="Company" />
                                <category id="22212334" name="Clothing" />
                                <price gross="199" net="199" vat="0" />
                                <images>
                                        <icons>
                                                <icon url="http://url.to.product.icon/icon.jpg" />
                                        </icons>
                                        <large>
                                                <image url="http://url.to.product.picture/picture.jpg" />
                                        </large>
                                </images>
                        </product>

<!-- Products listed below are variants of the main product. Common elements: description,
producer, category, dictionary, traits and pictures -->

                <product id="1560229112" currency="GBP" code_producer="9781560229117">
                        <description>
                                <version name="Blue"/>
                        </description>
                </product>
                <product id="0851994793" currency="GBP" code_producer="9780851994796">
                        <description>
```

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```xml
                    <version name="Red"/>
            </description>
        </product>
        </group>

<!-- Another products without variants -->

    </products>
</offer>
```

Structure of light.xml file

File light.xml contains all information about product, except information included in full.xml file: prices in currency requested by target client, and stock level of particular sizes.

Price of particular product is contained in **\<price\>** tag. Price is automatically calculated to currency requested by target client – in **@currency** tag.

Each size has following attributes: **@id**, **@code**, **@quantity**. These attributes are required. Information of price of particular size is an optional feature. An **@quantity** tag contains information about number of product items in stock (product in particular size). This tag may contain a fractional value.

There are following relations between data:

- **size@id** tag is related to **sizes.group.size@id** from sizes.xml file,
- **group.product** tag has the same structure as product tag,
- product price is assembled from following fields:
  - **offer.products.product.price@gross**
  - **offer.products.product.price@net**
  - **offer.products.product.price@vat**

In case when only **@net** price is specified, this price is set as retail price.

In both cases, **@vat** is not required.

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```xml
<?xml version="1.0" encoding="UTF-8"?>
<offer file_format="IOF" version="2.1">
      <products currency="GBP">

<!-- Products without variants -->

            <product id="1175022084">
                  <price net="360.66"/>
                  <sizes>
                        <size id="295" quantity="5" code="1175022084-295">
                              <price net="210.98"/>
                        </size>
                        <size id="296" quantity="15" code="1175022084-296"/>
                  </sizes>
            </product>

<!-- Group of products as variants -->

            <group type="versions">
                  <product id="3826331711">
                        <sizes>
                              <size id="0" code="3826331711-0" quantity="-1"
                              code_producer="9783826331718" />
                        </sizes>
                        <price gross="199" net="199" vat="0" />
                  </product>

<!-- Products listed below are variants of the main product. Common element: price-->

                  <product id="1560229112">
                        <sizes>
                              <size id="0" code="1560229112-0" quantity="-1"
                              code_producer="9781560229117" />
                        </sizes>
                  </product>
```

```
            <product id="0851994793">
                <sizes>
                    <size id="0" code="0851994793-0" quantity="-1"
                    code_producer="9780851994796" />
                </sizes>
            </product>
        </group>

<!-- Products without variants -->

        </products>
</offer>
```

Structure of categories.xml file

File categories.xml uses tree structure to contain data of product categories. Every category has an **@id** and **@name** attributes which have an unique content. These attributes are required. Each category may contain a subcategories.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<categories file_format="IOF" version="2.1" language="eng">
    <category id="1104142312" name="Accessories">
        <category id="1104142348" name="Headphones"/>
        <category id="1121343152" name="Cable"/>
        <category id="1141115410" name="Mouse">
            <category id="1141115500" name="Optical"/>
            <category id="1141115501" name="Laser"/>
        </category>
        <category id="1160558620" name="Keyboard">
            <category id="1104142328" name="Wireless"/>
        </category>
    </category>
    <category id="1104142358" name="Clothes">
        <category id="1104142366" name="T-Shirt"/>
        <category id="1126688523" name="Trousers"/>
    </category>
</categories>
```

Structure of sizes.xml

File sizes.xml defines groups of sizes and same sizes as well. Each product may be assigned to only one group of size. Similarly to product categories, groups and sizes require to be specified by **@id** and **@name** tags. Tags **@name** and **@id** should be unique for any group – as the same as for sizes in groups. Tags **@id** and **@name** of each size may be repeated, if particular sizes are in different groups.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<sizes file_format="IOF" version="2.1" language="eng">

    <group id="2" name="Shoes">
        <size id="18" name="35"/>
        <size id="95" name="37"/>
        <size id="19" name="36"/>
        <size id="21" name="37"/>
        <size id="71" name="49"/>
        <size id="93" name="50"/>
        <size id="96" name="36"/>
        <size id="97" name="36"/>
        <size id="99" name="48"/>
    </group>

    <group id="-1" name="univ">
        <size id="0" name="universal"/>
    </group>

    <group id="1098261179" name="Gloves">
        <size id="13" name="S"/>
        <size id="14" name="M"/>
        <size id="15" name="L"/>
```

```
            <size id="16" name="XL"/>
    </group>

    <group id="1" name="Clothes">
            <size id="1" name="XXS"/>
            <size id="2" name="XS"/>
            <size id="3" name="S"/>
            <size id="4" name="M"/>
            <size id="5" name="L"/>
            <size id="6" name="XL"/>
            <size id="7" name="XXL"/>
            <size id="8" name="XXXL"/>
            <size id="9" name="XXXXL"/>
    </group>
</sizes>
```

Structure of traits.xml

File traits.xml contains information about traits and groups of traits (analogically as sizes.xml). Each product may be assigned to many groups of traits. For example, group named 'Cover' may contain two traits: 'paperback' and 'hardcover'. One and more traits from particular group may be assigned to each product. Group of traits includes attributes **@id** and **@name**, which have to contain an unique content. Single trait includes attributes **@id** and **@name** – name of trait (**@name**) may be repeated.

```
<?xml version="1.0" encoding="UTF-8"?>
<traits file_format="IOF" version="2.1" language="eng">

    <group id="1226492327" name="Delivery time">
        <trait id="1226492467" name="1-2days"/>
        <trait id="1226492640" name="24h"/>
    </group>

    <group id="1230544692" name="Format">
        <trait id="1230544826" name="17.0x24.0cm"/>
        <trait id="1230544834" name="21.0x30.0cm"/>
        <trait id="1230544845" name="15.0x21.0cm"/>
        <trait id="1230544852" name="17.0x19.0cm"/>
        <trait id="1230544857" name="17.0x25.0cm"/>
    </group>

    <group id="1160474662" name="Cover">
        <trait id="1160474674" name="Hardcover"/>
        <trait id="1160474675" name="Paperback"/>
    </group>

    <group id="1238162251" name="Size">
```

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```xml
            <trait id="1233157676" name="100ml"/>
            <trait id="1233157681" name="80ml"/>
            <trait id="1233157684" name="50ml"/>
            <trait id="1233157690" name="30ml"/>
        </group>

        <group id="1172679108" name="Optical zoom">
            <trait id="1172679114" name="10x"/>
            <trait id="1172679136" name="5x"/>
            <trait id="1172679164" name="25x"/>
         </group>
</traits>
```

Structure of dictionaries.xml

File dictionaries.xml defines a dictionaries of products, which may be useful for price comparison websites. Dictionaries are extended version of traits. Main dictionary contains elements, from which other dictionaries are defined. Main dictionary defines elements and their values and types. There are three types of dictionary elements:

- **predefined** – many values for element, but only one value may be selected. Values are permanent – not subject to change,
- **multi-predefined** – many values, and many of them may be selected. Values are permanent – not subject to change,
- **text** – text may be value of dictionary element.

Type of dictionary element is defined by **@type** tag – but only in main dictionary.

Example shown below presents two dictionaries created on the basis of main dictionary. Tags **@id** and **@name** of dictionary element have to be the same as in main dictionary. Tags **@id** and **@name** of dictionary and its elements, have to be unique.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<dictionaries    file_format="IOF"version="2.1"    language="eng">

    <main_dictionary>
        <element id="1189689749" name="Number of pages" type="text"/>
        <element id="1189689741" name="Name" type="text"/>
        <element id="1189689615" name="ISBN     type="text" description="13"/>
        <element id="1189689538" name="Hardcover" type="predefined" description="(on both
        sides of the book)">
            <value id="1189690029" name="Paperback" description="(on both sides of the
            book)"/>
            <value id="1189690057" name="Hardcover" description="(on both sides)"/>
```

```
            </element>
            <element id="1220002390" name="Clock" type="predefined">
                  <value id="1220002633" name="2.6 GHz"/>
                  <value id="1220002733" name="3 GHz"/>
            </element>
      </main_dictionary>

      <dictionary id="1237989516" name="Parts">
            <element id="1220002390" required="false"/>
      </dictionary>

      <dictionary id="1220003795" name="Computers">
            <element id="1220002390" required="false"/>
            <element id="1189689741" required="false"/>
      </dictionary>

</dictionaries>
```

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Structure of series.xml, units.xml and producers.xml

Those files have a similarly defined structure, so all three of them are discussed in one section. Content of those files is limited to presence of main tag and sub-tags describing **@id** and **@name** of particular element.

Examples are included in files: **series.xml**, **units.xml** and **producers.xml**

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Document History

Specyfikacja Internet Offer Format (IOF) wersja 2.1

Language: pl-PL

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Technical specification of the Internet Offer Format (IOF) version 2.1

Language: en-GB

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