



# **OLDL Reference**

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# Table of Contents

1 Preface.....	1
2 Element Reference.....	2
2.1 Current Elements.....	2
2.2 Reserved Elements.....	10
3 Element-Compatibility-Table.....	11
4 Attribute-Reference.....	12
4.1 OLDL.....	12
4.2 STATUS.....	12
4.3 ITEM.....	13
4.4 ITEMI.....	15
4.5 TYPE.....	15
4.6 CATEGORY.....	16
4.7 CLASS.....	16
4.8 INFORMATION.....	16
4.9 EXTENSION.....	17
4.10 FILTER.....	17
5 Inheritance of Items.....	18
5.1 Access on all Items.....	18
5.2 Access on defined Items.....	18
5.3 Access on defined Items of another Status.....	19
6 Appendix A – Examples.....	20
7 Appendix B – Document Type Definition.....	23

## **Open-LIMS Description Language – Reference**

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## 1 Preface

This document describes the elements and their attributes of the XML-based “Open-LIMS Description Language” (OLDL). The OLDL are used by some Open-LIMS modules to define their structure, e.g. which “Items” should be added. The modules Project, Sample and Material<sup>1</sup> uses OLDL at the moment. Some elements are not available in some modules, see the Element-Compatibility-Table (chapter 3). See “Introduction to the Item-Concept” to get an overview about the Item organization concept in Open-LIMS an how it stores data.

The referred Open-LIMS version is 0.3.9.9-6 alpha (0.3.9.9-76-dev alpha).

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<sup>1</sup> This module is not published yet

## 2 Element Reference

### 2.1 Current Elements

#### OLDL

OLDL is the root element of each OLDL Template. There are no elements outside OLDL except the doctype and the XML-definition.

<b>Appearance</b>	Once
<b>Parent Elements</b>	<i>none</i>
<b>Child Element</b>	HEAD, REQUIRED, BODY
<b>Attributes</b>	TYPE

#### HEAD

Defines the meta-information-area of a template.

<b>Appearance</b>	Once
<b>Parent Elements</b>	OLDL
<b>Child Element</b>	ID, TITLE, DESCRIPTION, VERISON, AUTHOR, LOCATION, EXPIRY, MANUFACTURER
<b>Attributes</b>	<i>none</i>

## REQUIRED

Defines Items or Classes which must be added while create a project, sample or material.

**Notice:** Only “value” is a valid Item. All others are forbidden, except “sample” in a Sample template.

<b>Appearance</b>	Once or not once
<b>Parent Elements</b>	OLDL
<b>Child Element</b>	ITEM
<b>Attributes</b>	<i>none</i>

## BODY

Defines items or classes which be added during the work. If it is a Project-Template, Items and Classes are defined in status-elements.

<b>Appearance</b>	Once
<b>Parent Elements</b>	OLDL
<b>Child Element</b>	STATUS, ITEM, CLASS, EXTENSION
<b>Attributes</b>	<i>none</i>

## STATUS

Defines a status in a Project-Template. In this element, Items and Classes are defined.

Notice: This element can be used in a Project-Template only.

<b>Appearance</b>	Multiple or once in projects, not once in samples
<b>Parent Elements</b>	BODY
<b>Child Element</b>	ITEM, ITEMI, CLASS, EXTENSION
<b>Attributes</b>	id, requirement

## ITEM

Defines an Item. Items are Files, Values, Samples or Equipment<sup>2</sup>.

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	REQUIRED, BODY, STATUS
<b>Child Element</b>	INFORMATION, TYPE, CATEGORY, ITEMI
<b>Attributes</b>	type, classify, occurrence, requirement, name, pos_id, class, folder, inherit, dialog

## ITEMI

Defines an inherited Item.

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	BODY, STATUS
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	pos_id, parent_pos_id, parent_status, takeover, dialog

## TYPE

Restricts the Item to a set of specific types.

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	ITEM
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	id

---

<sup>2</sup> Depends on your Open-LIMS installation. More or less Item-Types are possible.

## CATEGORY

Restricts the Item to a set of specific categories.

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	ITEM
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	id

## CLASS

Defines a Class to group Items. Classes are a kind of a group, to organise your items.

Notice of Name: The word “class” was chosen to avoid confusion with the word “group”.



### Warning

It is not safe to use CLASS in the current version. It could cause unexpected behaviour.

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	STATUS, BODY
<b>Child Element</b>	INFORMATION
<b>Attributes</b>	name



## INFORMATION

Defines additional information for an Item or a Class. If it is set, the user must enter a description and/or keywords. If you define information in a class, the user will enter the information by adding the first item.



### Warning

It is not safe to use INFORMATION in the current version. It versions could cause unexpected behaviour.

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	ITEM, CLASS
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	keywords, description

## EXTENSION

Defines an extension, e.g. for external analysis

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	BODY, STATUS
<b>Child Element</b>	FILTER
<b>Attributes</b>	Identifier, requirement, occurrence

## **FILTER**

Defines a filter for external analysis

<b>Appearance</b>	Multiple
<b>Parent Elements</b>	EXTENSION
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	status, type

## **TITLE**

Defines the title of a template. This information is required for the import of the template.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	<i>none</i>

## **ID**

Defines the ID of a Template. This information is required for the import of the template.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	<i>none</i>

## DESCRIPTION

Defines the description of a template.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	<i>none</i>

## VERSION

Defines the version of a template.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	<i>none</i>

## AUTHOR

Defines the author(s) of a template.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	<i>none</i>

## LOCATION

Defines that location data is required.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	requirement

## EXPIRY

Defines that the date of expiry is required.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	requirement

## MANUFACUTRER

Defines that the manufacturer is required.

<b>Appearance</b>	Once
<b>Parent Elements</b>	HEAD
<b>Child Element</b>	<i>none</i>
<b>Attributes</b>	requirement



### Notice

LOCATION, EXPIRY and MANUFACTURER could be used in “sample” and “material”-template only. This elements will be replaced with an abstract element soon.

## **2.2 Reserved Elements**

The following elements will be used in further versions for new features.

### **for workflows**

DECISION

GOTO

### **for quality-assurance**

QUALITY

QITEM

IQITEM

QITEMI

IQITEMI

### **for validation and comparison**

COMPARE

AUTOCOMPARE

VALIDATE

### **for result analysis**

ANALYSIS

### 3 Element-Compatibility-Table

This table shows the compatibility of the elements to the Item-Holders

	Project	Sample	Material
<b>OLDL</b>	Yes	Yes	Yes
<b>HEAD</b>	Yes	Yes	Yes
<b>BODY</b>	Yes	Yes	Yes
<b>REQUIRED</b>	Yes	Yes	Yes
<b>STATUS</b>	Yes	No	No
<b>ITEM</b>	Yes	Yes	Yes
<b>ITEMI</b>	Yes	Yes	Yes
<b>TYPE</b>	Yes	Yes	Yes
<b>CATEGORY</b>	Yes	Yes	Yes
<b>CLASS</b>	Yes	Yes	Yes
<b>INFORMATION</b>	Yes	Yes	Yes
<b>EXTENSION</b>	Yes	No (Later)	No
<b>FILTER</b>	Yes	No (Later)	No
<b>TITLE</b>	Yes	Yes	Yes
<b>ID</b>	Yes	Yes	Yes
<b>DESCRIPTION</b>	Yes	Yes	Yes
<b>VERSION</b>	Yes	Yes	Yes
<b>AUTHOR</b>	Yes	Yes	Yes
<b>LOCATION</b>	No	Yes	Yes
<b>EXPIRY</b>	No	Yes	Yes
<b>MANUFACTURER</b>	No	Yes	Yes

## 4 Attribute-Reference

### 4.1 OLDL

Attribute	Values	Default	Required
type	project, sample, material, component <sup>3</sup>	project	No

Attribute	Description
type	Sets the type of a template, e.g. to a project or sample

### 4.2 STATUS

Attribute	Values	Default	Required
id	#INT	#INT	Yes
requirement	force, optional	force	No

Attribute	Description
id	Sets the status-ID of an status
requirement	Defines the requirement of a status. This attribute overrides the requirement attributes of all related items.

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<sup>3</sup> Depends on your Open-LIMS installation. More or less values are possible.

### 4.3 ITEM

Attribute	Values	Default	Required
type	value, file, equipment, sample, parentsample		Yes
class	#CHAR	#CHAR	No
classify	force, optional, forbidden	optional	No
occurrence	once, multiple	multiple	No
requirement	force, optional	force	No
name	#CHAR	#CHAR	No
pos_id	#INT	#INT	No
folder	#CHAR	#CHAR	No
inherit	none, all	none	No
dialog	window, page	Depends on Item	No

Attribute	Description
type	Defines the type of an Item.
classify	Sets the requirement of classification of an Item
class	Sets the name of a defined Class
occurrence	Defines the occurrence of an Item
requirement	Defines the requirement of an Item
name	Defines an optional name of an Item
pos_id	Individual identifier of an Item. If "pos_id" is not manually set, "pos_id" will be set automatically by the system, as an ascending number in the order of the Items. (pos_id = Position-ID)



Attribute	Description
folder	Defines a sub-folder for uploaded files to separate the uploaded files of a status or a Sample
inherit	If the Item-type is an Item-Holder, it is possible to inherit the required Items of this Item. (see Chapter 5 – Inheritance of Items)
dialog	Defines the dialog-type. Possible types are “window” and “page”. “window” opens the dialog in a new window and the current page does not disappear. “page” opens the dialog by loading of a new page. Some modules (item-types) does not support all kind of dialogs. The standard-dialog will appear in this case.

## Type-Matrix

	Value	File	Equipment	Sample	Parentsample
<b>type</b>	Required	Required	Required	Required	Required
<b>classify</b>	Optional	Optional	Optional	Optional	Forbidden
<b>class</b>	Optional	Optional	Optional	Optional	Forbidden
<b>occurrence</b>	Optional	Optional	Optional	Optional	Forbidden
<b>requirement</b>	Optional	Optional	Optional	Optional	Forbidden
<b>name</b>	Optional	Optional	Optional	Optional	Forbidden
<b>pos_id</b>	Optional	Optional	Optional	Optional	Forbidden
<b>folder</b>	Optional	Optional	Forbidden	Forbidden	Forbidden
<b>inherit</b>	Forbidden	Forbidden	Forbidden	Optional	Optional



### Notice

If you will use the element “item” in a *Component* template, only “value” and “file” are allowed. “equipment”, “sample” and “parentsamle” are forbidden.

#### 4.4 ITEMI

Attribute	Values	Default	Required
pos_id	#INT	#INT	Yes
parent_pos_id	#INT	#INT	No
parent_status	#INT	#INT	No
takeover	true, false	false	No
dialog	window, page	depends on the Module	No

Attribute	Description
pos_id	Defines the position ID of the Item in Item-Holder-Item
parent_pos_id	Defines the position ID in referred the status (in Project only)
parent_status	Defines the referred status (in Project only)
takeover	Defines, that an Item will be taken over for all Sub-Items
dialog	see ITEM

#### 4.5 TYPE

Attribute	Values	Default	Required
id	#INT	#INT	Yes

Attribute	Description
id	Defines the type-id of the requested item

#### 4.6 CATEGORY

Attribute	Values	Default	Required
id	#INT	#INT	Yes

Attribute	Description
id	Defines the category-id of the requested item

#### 4.7 CLASS

Attribute	Values	Default	Required
name	#CHAR	#CHAR	Yes

Attribute	Description
name	Defines the name of a class. If this class exists, items will be added to the existing class

#### 4.8 INFORMATION

Attribute	Values	Default	Required
keywords	keywords	<i>none</i>	No
description	description	<i>none</i>	No

Attribute	Description
keywords	If "keywords" are set, the user will be requested to enter the keywords for this item or class
description	If "description" is set, the user will be requested to enter a description for this item or class

## 4.9 EXTENSION

Attribute	Values	Default	Required
identifier	#CHAR	<i>none</i>	Yes
requirement	force, optional	force	No
occurrence	once, multiple	multiple	No

Attribute	Description
identifier	Defines the internal name of the extension
requirement	Defines the requirement of the extension
occurrence	Defines the occurrence of the extension

## 4.10 FILTER

Attribute	Values	Default	Required
status	#INT	<i>none</i>	No
type	#ITEMTYPES	<i>none</i>	No

Attribute	Description
status	Defines the id of the Project-Status which should be filtered
type	Defines the Item-Type which should be filtered

## 5 Inheritance of Items

The document “Introduction to the Item-Concept” describes, that it is possible to access to the Items (Sub-Items) of an added Item. For this purpose, the ITEMI element and the “inherit”-attribute of the ITEM element exists. There are three methods to define access to Sub-Items.

### 5.1 Access on all Items

To access all Items of an added Item, add the attribute “inherit” with the option “all” to the Item-Element which defines the Item-Holder-Item. Be sure, that the type of the Item is an Item-Holder-Item (e.g. Sample). By this method, it is possible to access Sub-Items of different Item-Holder-Items in one defined Item (e.g access to a RNA-Sample and a DNA-Sample).

```
<ITEM type="sample" inherit="all" />
```

### 5.2 Access on defined Items

This method allows to access on a defined Sub-Item. Keep in mind, that the added Item-Holder-Item has this Item (e.g. with a TYPE-element). It is not possible to access on pos\_id = 4, if the Item-Holder-Item has no Item with this pos\_id.

```
<ITEM type="sample">
  <ITEMI pos_id="0" />
  <TYPE id="10000" />
</ITEM>
```

Moreover, it is possible to define a Sub-Item which should be included in all Sub-Items. Use the “takeover”-attribute for this purpose.

```
<ITEM type="sample">
  <ITEMI pos_id="0" takeover="true" />
  <TYPE id="10000" />
</ITEM>
```

### 5.3 Access on defined Items of another Status

Notice: This method is possible in a Project-Template only.

To access on Sub-Items of an Item which was added in a previous Project-Status, you can use the ITEMI-Element as a child of the STATUS-element directly. You have to define the the attributes "parent\_status", "parent\_pos\_id" and "pos\_id".

```
<STATUS id="10006">  
  <ITEMI parent_status="10002" parent_pos_id="0" pos_id="0" />  
</STATUS>
```

The "takeover"-attribute is also possible by the following method.

```
<STATUS id="10006">  
  <ITEMI parent_status="10002" parent_pos_id="0" pos_id="0"  
    takeover="true" />  
</STATUS>
```

## 6 Appendix A – Examples

### Structure of an OLDL document (project)

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE OLDL PUBLIC "-//OLDL 0.6//EN"
"http://doctype.open-lims.org/oldl.dtd" >
<OLDL>
  <HEAD>
    <ID>999999000</ID>
    <TITLE>Template Title</TITLE>
    <DESC>Lorem Ipsum Dolor Sit Amet</DESC>
    <VERSION>1.0</VERSION>
    <AUTHOR>John Doe</AUTHOR>
  </HEAD>
  <REQUIRED>
    {...}
  </REQUIRED>
  <BODY>
    <STATUS id="10000">
      <ITEM {...} >
        {...}
      </STATUS>
      {...}
      <STATUS id="10009">
        <ITEM {...} >
          {...}
        </STATUS>
      </BODY>
</OLDL>
```

### Structure of an OLDL document (sample)

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE OLDL PUBLIC "-//OLDL 0.6//EN"
"http://doctype.open-lims.org/oldl.dtd" >
<OLDL type="sample">
  <HEAD>
    <ID>999999000</ID>
    <TITLE>Template Title</TITLE>
    <DESC>Lorem Ipsum Dolor Sit Amet</DESC>
    <VERSION>1.0</VERSION>
    <AUTHOR>John Doe</AUTHOR>
  </HEAD>
  <REQUIRED>
    {...}
  </REQUIRED>
  <BODY>
    <ITEM {...} >
      {...}
    </BODY>
</OLDL>
```

## Adds items to a project-status

```
{...}
<STATUS id="10000">
  <ITEM type="file"></ITEM>
  <ITEM type="value"></ITEM>
  <ITEM type="equipment"></ITEM>
  <ITEM type="sample"></ITEM>
</STATUS>
{...}
```

## Define a set of types for an item

```
{...}
<STATUS id="10000">
  <ITEM type="value">
    <TYPE id="101" />
    <TYPE id="102" />
  </ITEM>
</STATUS>
{...}
```

## Classify Items in Status

```
{...}
<STATUS id="10000">
  <CLASS name="anyclass" />
  <ITEM type="file" class="anyclass" classify="force" />
</STATUS>
{...}
```

## Request information for a class

```
{...}
<STATUS id="10000">
  <CLASS name="anyclass">
    <INFORMATION keywords="keywords"
                  description="description"></INFORMATION>
  </CLASS>
  {...}
</STATUS>
{...}
```



## Request information for an item

```
{...}  
<STATUS id="10000">  
  <ITEM type="file">  
    <INFORMATION keywords="keywords"  
      description="description"></INFORMATION>  
  </ITEM>  
</STATUS>  
{...}
```

## 7 Appendix B – Document Type Definition

```
<?xml version="1.0" encoding="UTF-8"?>

<!ELEMENT OLDL (HEAD?,REQUIRED?,BODY?)>

<!ELEMENT HEAD (ID|TITLE|VERSION?|AUTHOR?|DESC?|LOCATION?|
MANUFACTURER?|EXPIRY?)*>
<!ELEMENT REQUIRED (ITEM*,CLASS*)>
<!ELEMENT BODY (ITEM|CLASS|STATUS|EXTENSION)*>

<!ELEMENT STATUS (ITEM|ITEMI|CLASS|EXTENSION)*>

<!ELEMENT ITEM (TYPE|INFORMATION|CATEGORY|ITEMI)*>
<!ELEMENT ITEMI EMPTY>

<!ELEMENT CLASS (INFORMATION)*>

<!ELEMENT INFORMATION EMPTY>

<!ELEMENT TYPE EMPTY>
<!ELEMENT CATEGORY EMPTY>

<!ELEMENT EXTENSION (FILTER)>

<!ELEMENT FILTER EMPTY>

<!ELEMENT ID (#PCDATA)>
<!ELEMENT TITLE (#PCDATA)>
<!ELEMENT VERSION (#PCDATA)>
<!ELEMENT AUTHOR (#PCDATA)>
<!ELEMENT DESC (#PCDATA)>
<!ELEMENT LOCATION EMPTY>
<!ELEMENT MANUFACTURER EMPTY>
<!ELEMENT EXPIRY EMPTY>

<!ATTLIST OLDL
    type                CDATA                #IMPLIED
>

<!ATTLIST STATUS
    id                  CDATA                #REQUIRED
    requirement         (force|optional)     #IMPLIED
>

<!ATTLIST ITEM
    type                CDATA                #IMPLIED
    classify             (force|optional|forbidden) #IMPLIED
    occurrence          (once|multiple)      #IMPLIED
    requirement         (force|optional)     #IMPLIED
    class               CDATA                #IMPLIED
    name                CDATA                #IMPLIED
    pos_id              CDATA                #IMPLIED
    folder              CDATA                #IMPLIED
    inherit             (all|none)           #IMPLIED
    dialog              (window|page)       #IMPLIED
>
```

```

<!ATTLIST ITEMI
    pos_id          CDATA          #REQUIRED
    parent_pos_id  CDATA          #IMPLIED
    parent_status  CDATA          #IMPLIED
    parent_status  (true|false)  #IMPLIED
    dialog         (window|page)  #IMPLIED
>

<!ATTLIST TYPE
    id              CDATA          #REQUIRED
>

<!ATTLIST CATEGORY
    id              CDATA          #REQUIRED
>

<!ATTLIST CLASS
    name            CDATA          #REQUIRED
>

<!ATTLIST INFORMATION
    keywords        (keywords)    #IMPLIED
    description     (description)  #IMPLIED
>

<!ATTLIST EXTENSION
    identifier       CDATA          #REQUIRED
    requirement     (force|optional) #IMPLIED
    occurrence       (once|multiple) #IMPLIED
>

<!ATTLIST FILTER
    status          CDATA          #REQUIRED
    type            CDATA          #IMPLIED
>

<!ATTLIST LOCATION
    requirement     (force|optional) #IMPLIED
>

<!ATTLIST MANUFACTURER
    requirement     (force|optional) #IMPLIED
>

<!ATTLIST EXPIRY
    requirement     (force|optional) #IMPLIED
>

```