



Introduction to the Item-Concept

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1 Preface

This document describes the organization of Items in Open-LIMS (Version \geq 0.3.9.9-6). It is important to get a detailed introduction in this concept to understand how Open-LIMS stores data. Especially in creating Templates for Open-LIMS or in administrating an Open-LIMS environment.

2 Definitions

The following terms will be used in the document. The document describes the dependencies between these terms.

Item

An Item is every data stored in Open-LIMS, which belongs to an Item-Holder.

Item Holder

An Item Holder is an entity which stores data. While working with Open-LIMS, the user adds data to an Item-Holder. Current Item-Holders are Projects and Samples. An Item-Holder could be an Item too. It is referred to as "Item-Holder-Item".

Sub-Item/Inherited-Item (ITEMI)

A Sub-Item or an Inherited-Item is an Item which belongs to an "Item-Holder-Item" which is added to an another Item-Holder.

3 Basic Concept

While working with experimental data which should be stored in a Laboratory Information Management System, a data storage concept is obligatory. The concept in Open-LIMS based on Items. This concept is the result of an abstraction of data storage. It allows an easy extensibility and maintainability of Open-LIMS. Due to this concept, it is possible to develop new features for Open-LIMS fast and easily.

The Basic concept is, that the users stores the data as an Item in an Item-Holder (figure 1). Each experimental data, like files, values or other information will be linked to the Item-Holder.

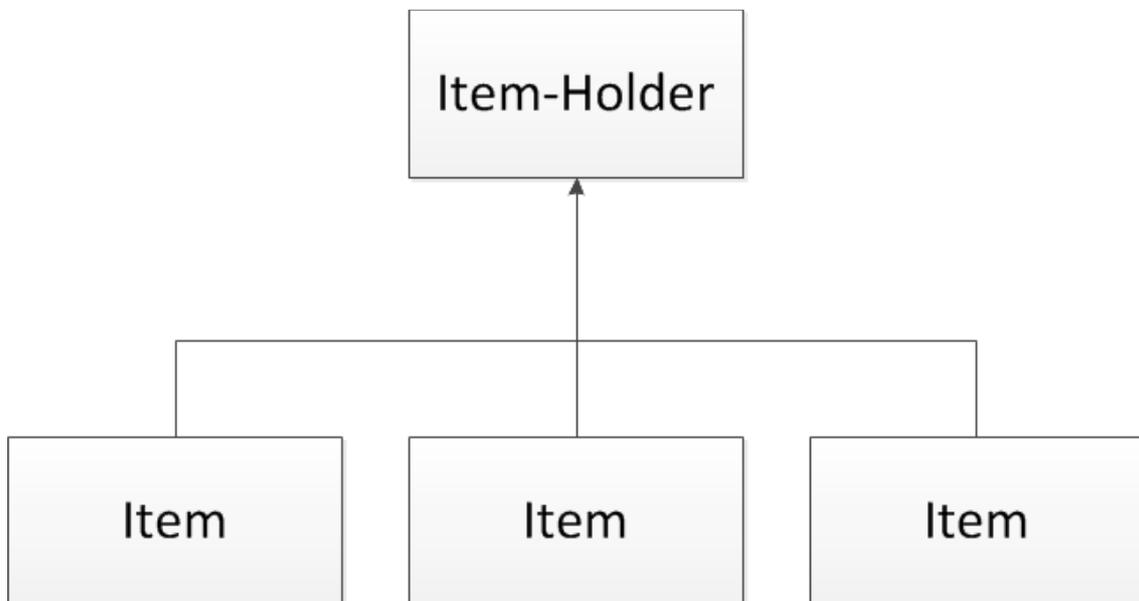


Figure 1

In a Project-Example, the Project is the Item-Holder. While working with the Project, the user adds different data to the Project (figure 2). Every added data is an Item. Their concrete type (File, Value, Equipment, Sample) don't mater.

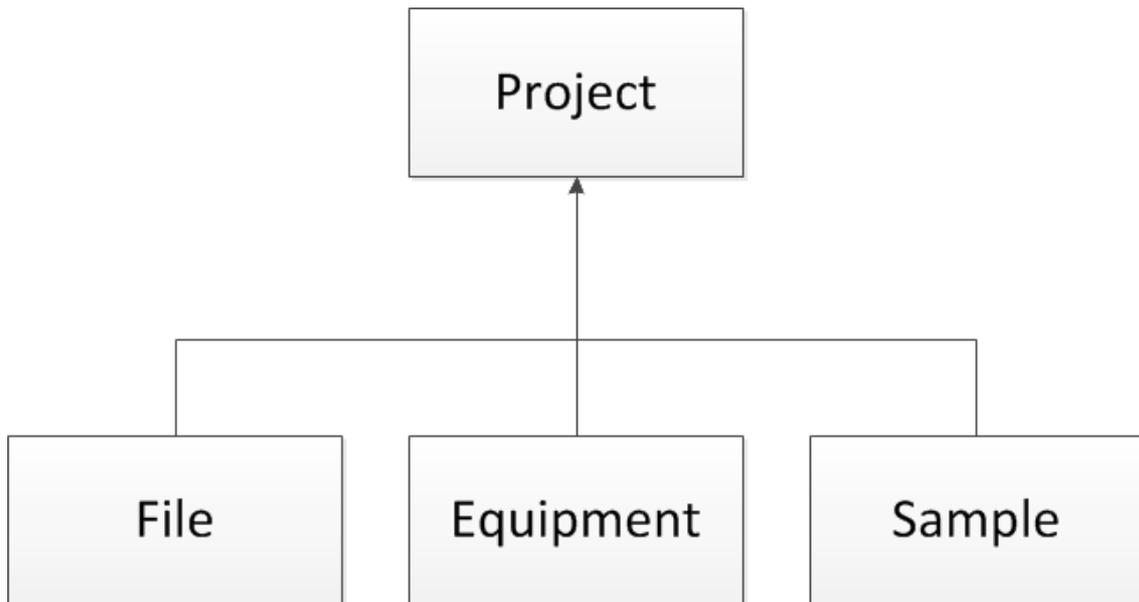


Figure 2

The administrator defines via an XML-Template the content of an Item-Holder, which are Items that are required and Items that are alternatively. This templates controls the adding process to an Item-Holder, but the detailed structure of the template depends on the concrete Item Holder (e.g. a Project template is different to a Sample template).

4 Advanced Features

Besides of the normal data storage, a more complex approach is necessary to map complex experiment structures.

If the user wants to store data of a Sample, which is an Item of a Project (figure 3), it is inconvenient to switch between the Project- and the Sample-View to manage the Sample. For this purpose, it is possible to control the Items of the Sample from the Project-View via Sub-Items.

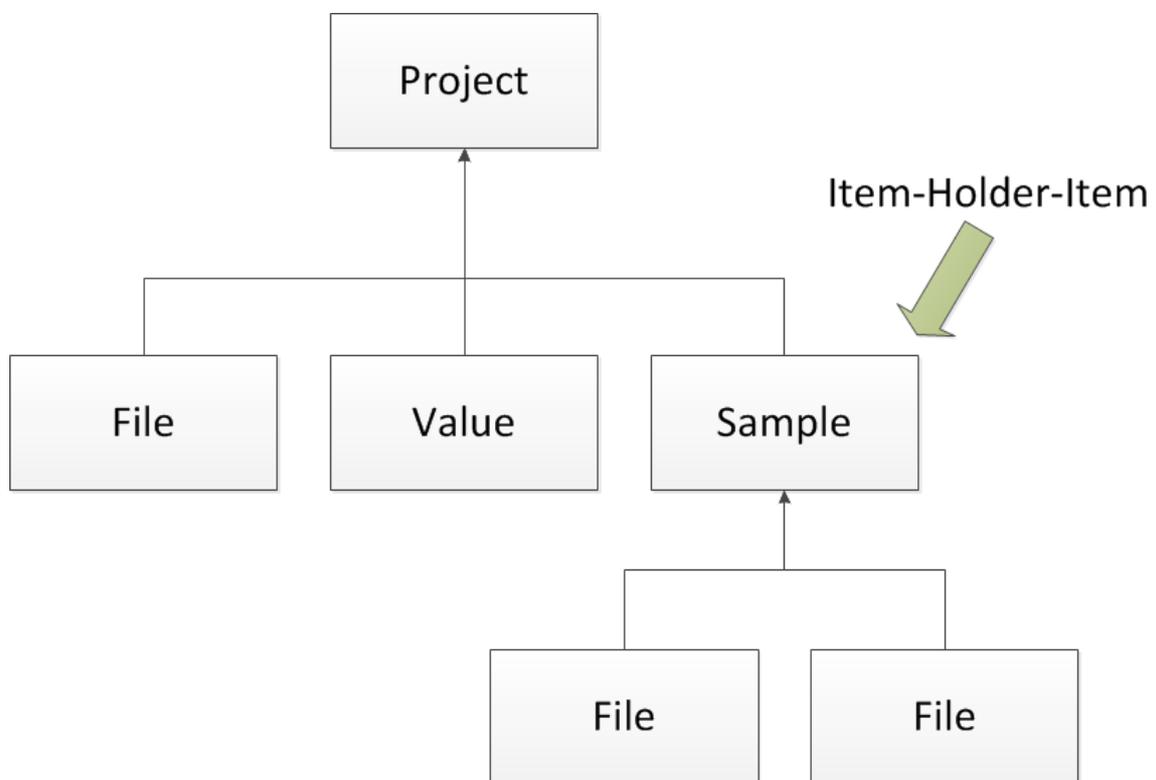


Figure 3

In an abstract concept, this means, that it is possible to control the Items (Sub-Items) of an added Item, from the original Item-Holder (figure 4). This is possible, if the Item is an Item-Holder too.

This Item is referred to as Item-Holder-Items. The Items of the Item-Holder-Item are referred to as Sub-Items or Inherited-Items (ITEMI).

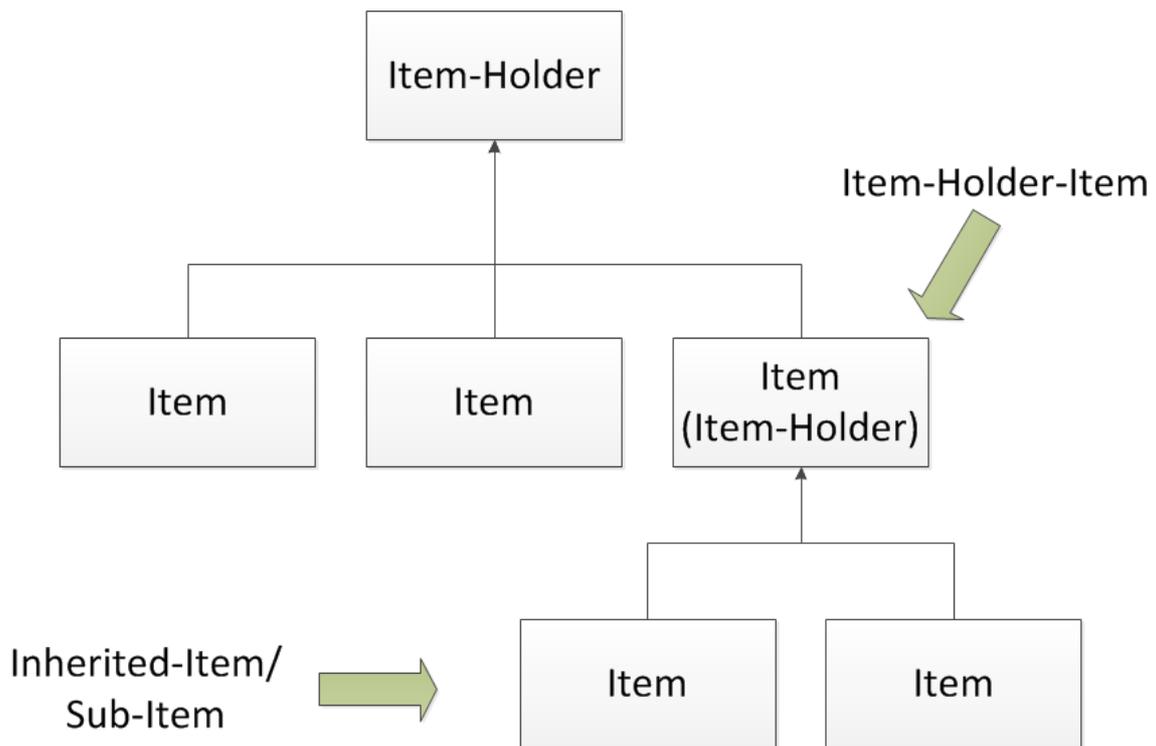


Figure 4

5 Outlook

We endeavor to add more features to the Item-Concept of Open-LIMS.

A new approach to manage Items are Item-Groups. This concept will allow the user to group the Items of an Item-Holder via the template, without the given storage structure. E.g. store Files of different Project-Status in a Project in one Item-Group.

Moreover it will be possible to group different kinds of Items (e.g. group a File with Equipment).

Also a next feature is a link to manual or automatic control, compare and validation mechanisms for Quality-Management and Quality-Assurance.