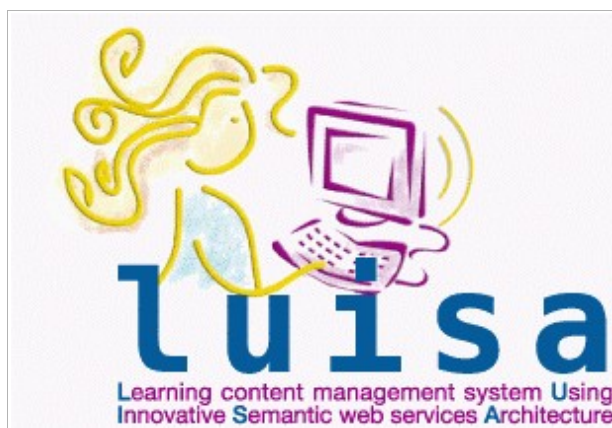


LUISA

Learning Content Management System Using Innovative Semantic Web Services Architecture

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Deliverable 3.4v1 Annotation Tool Documentation

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EXECUTIVE SUMMARY

This deliverable describes how to use the Annotation Tool developed in this workpackage (WP3). The Annotation Tool is configurable with Annotation Profiles, which means that the set of metadata possible to edit is configurable. Therefore three different roles have been foreseen to be involved in the Annotation Process (1) the *Annotation Profile Author*, constructs or modifies Annotation Profiles, (2) the *Annotation Profile Facilitator*, selects the Annotation Profiles to be used and (3) the *end user*, who uses the Annotation Tool. This document is aimed to be useful primarily for the *end user*. This by necessity includes describing the different parts of the user interface and how to interact with it. The document also briefly describes different aspects of choosing the set of Annotation Profiles to be used as a help for the *Annotation Profile Facilitator*.

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Abstract (for dissemination)	This deliverable is aimed at describing how the annotation tool should be used. First, it describes the different user roles involved in the process of annotating metadata around a resource such as a learning object. Second, it gives some hints on how suitable annotation profiles are chosen for the domain and intended end users. Third, and most importantly, it describes how end users can use the graphical user interface of the Annotation Tool to edit metadata.			
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1 INTRODUCTION

This document is the draft version on how to use the Annotation Tool (AT) developed in work package 3. The document is focused on describing how to use the tool for annotation including the end users annotation process as well as the application facilitators selection of suitable annotation profiles. For documentation of the code and how to develop and integrate the AT into other applications look at the Deliverable 3.3 – Annotation Tool. For help with developing or modifying annotation profiles look at the Deliverable 3.2 – Annotation Profile Specification.

1.1 Background

In deliverable 3.2, three approaches are described for building annotation tools, *fixed*, *configurable*, and *generic* editors. In deliverable 3.1 – State of the art the requirements on modern annotation tools can be summarized as increasingly interoperable, standards compliant, and at the same time user friendly. It is also acknowledged that the complexity of the editing task increases, hence, treating the annotation tool as an independent and reusable component is preferred. Consequently, the configurable approach is acknowledged as the best fit.

1.2 How the Annotation Tool is Designed

The intention of the AT is to be a configurable form-based metadata editor and support editing of metadata records, expressed in RDF, in an end-user friendly manner. The end user is required to have knowledge of the domain but the encoding in RDF or the syntax chosen should be transparent.

The AT follows the approach of Annotation Profiles that expresses how the RDF-structure should look like and how it should be presented and edited. The APs are defined in advance and act as input to the tool, and the AT is designed to touch only data that the AP is constructed for.

For a more lengthy discussion on the design, see deliverable 3.3.

1.3 User Roles in the Annotation Process

As described above the Annotation Tool needs to be configured with one or more Annotation Profile. So, in order to use the Annotation Tool a set of APs has to be created. This is preferably done by a person with knowledge about the metadata domain to be used knowledgeable in Annotation Profile creation. Given that sufficient APs have been created an facilitator may make a selection of APs available within an editing environment, i.e. an annotation tool. An end user may then edit according to a few recommended annotation profiles rather than having to first locate, assess, and choose an appropriate annotation profile before starting to input metadata. To summarize, the foreseen roles, as introduced in D3.2, are:

- **Annotation profile author** - This role involves responsibility for creating new APs and requires knowledge about the metadata-domain to be edited as well as how to author annotation profiles.
- **Annotation profile facilitator** – This role involves to decide what APs that is allowed to be used depending on application and end-user role. It is also the responsibility of this role to ask the AP author when new APs need to be authored.
- **End user** – People in this role annotates resources within a domain and consequently requires knowledge of the domain including such things as terminology and controlled vocabularies. But no knowledge of metadata format/syntax or details about how AP work are required.

1.4 Scope of this Document

This document is focused on providing instructions for annotation tool facilitators and end users. For annotation profile facilitators that need more documentation it is also recommended to read deliverable 3.6 – *Documentation on the Use of Annotation Profiles*. For annotation profile authors the recommendation is to read deliverable 3.2 – the *Annotation Profile Specification* and deliverable 3.5 – *Useful Annotation Profiles* for practical examples.

This document currently lacks details on how the annotation tool is used in typical settings, for example in an LMS, since this integration is yet to be finalized.

1.5 List of Abbreviation Used in the Document

GUI – Graphical User Interface

AT – Annotation Tool

AP – Annotation Profile

2 BACKGROUND

2.1 What is Metadata

Metadata is commonly translated to data about data, but, in the world of semantic web it should probably be rephrased to data about resources. A resource is basically anything that can be identified, including both physical objects like books, philosophical ideas, and retrievable digital objects like webpages. In the general case, the resource itself cannot be edited, hence, when using an annotation tool the intention is to support the editing of data about resources, not the resources themselves (even if they are digital objects).

Metadata, data around resources, can broadly be seen as descriptive information that are intended to be used by humans or machines. For the data to be useful there need to be agreements on what to express and what the interpretation is. Such agreements are often summarized into metadata standards or metadata schemas depending on the amount of consensus and formal endorsement strived for. Semantic web provides a framework for expressing agreements on interpretation in a formalized and standardized manner. This allows machines to process metadata by drawing conclusions from the formal definitions and relating various agreements to each other.

2.2 What are Annotation Profiles

An annotation profile is a configuration file for an annotation tool so that it is useful for providing a specific set of metadata. The profile may coincide with the intention of a specific metadata standard or schema, but it might also combine metadata elements from different sources.

In the annotation profile specification, D3.2, the annotation profile is described on a more technical level. Here we will be satisfied by acknowledging that it consists two parts: First, the *graph pattern*, which describes the exact form of the metadata expressed in RDF. Second, the *form template*, which describes how the form based graphical user interface should look like. This includes how to render or manipulate different kinds of metadata, e.g. via text-fields, selectable from lists, and also cardinality restrictions.

3 ANNOTATION PROCESS DOCUMENTATION

3.1 Finding Suitable Annotation Profiles

When the Annotation Tool facilitator have to find the right Annotation Profiles to use, there are several aspects to take into consideration, among them:

- **Standard / Schema compliance** – In order to be interoperable with others it is a good choice to choose APs that produces RDF that is compliant with standards.
- **Domain specific needs** – If domain specific metadata elements or perhaps whole domain specific vocabularies exists (complemented or restricted) they should be used.
- **Single Generic Catch all AP or several specific APs** – Do the organization need specifically constructed AP for their own usage. Is a single generic AP enough or should there be several slightly different APs to cover for different needs?
- **Provide instructions for the users on how to use the AP** – Is the label and the description of the AP understandable for the end user and do they exist for the suspected end user?
- **Whether an AP is multilingual or not** – Is it of importance to present the form, i.e. the labels and descriptions in multiple languages?

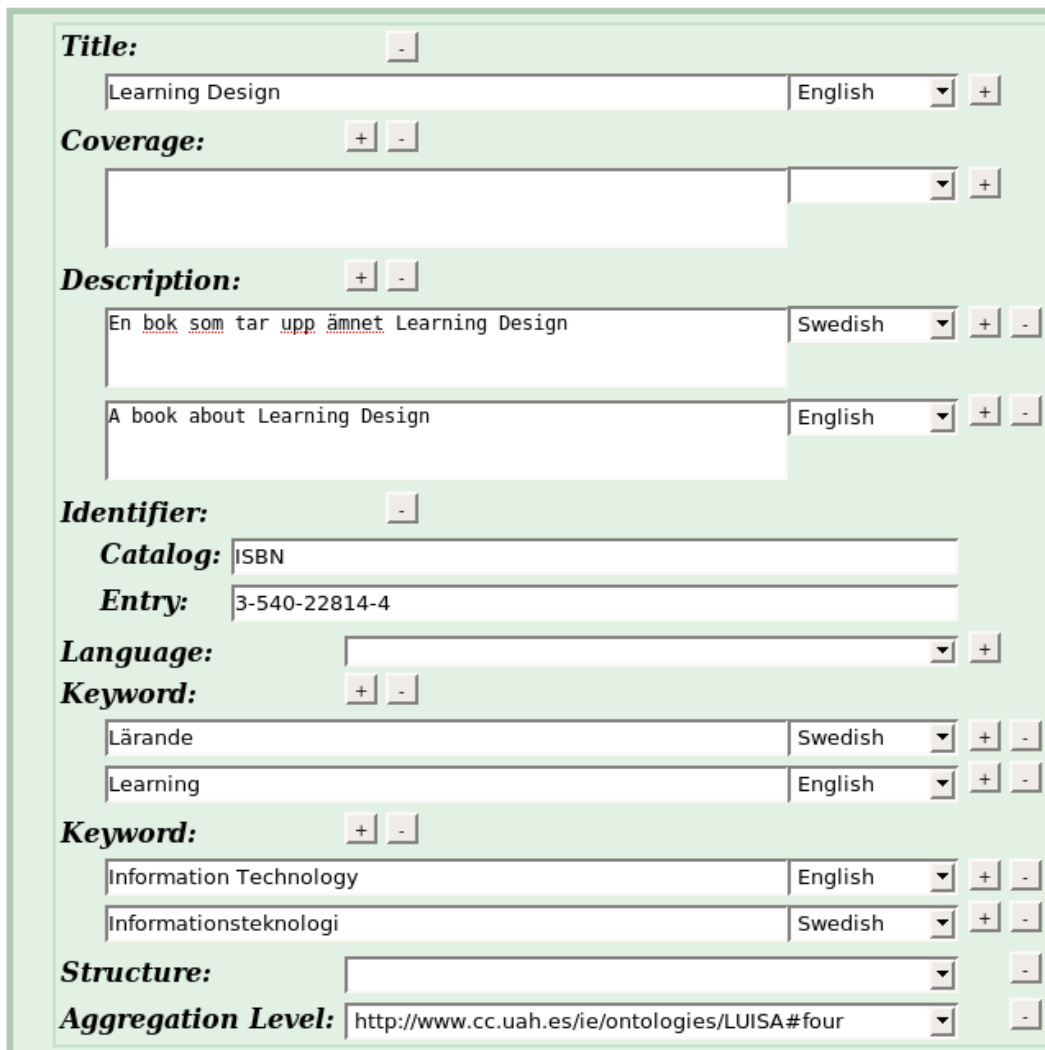
Note that these issues for the facilitator is still tentative and may need further refinement depending on the situation. For example, the facilitator might need a substantially different approaches if there is already a lot of metadata available for the end users to work with. In that case, there is less freedom in choosing an AP since the need to be compatible with existing metadata expressions.

3.2 Using the Annotation Tool as an end user

Since the AT has a form-based interface there are basically two ways to interact with the user interface, either through filling in a text-field or by choosing a value. There are many ways to choose a value in a form, for example by a drop down-menu, a set of buttons and more. In this draft version only drop down-menus are available. Figure 1 illustrates all the important parts of the Graphical User Interface of the AT.

3.2.1 Labels and descriptions

The example screenshot in figure 1 shows several text-fields and drop-down menus. To the left of them is a text string referred to as a label. This gives the



The screenshot shows a form with the following sections:

- Title:** A text field containing "Learning Design" and a language dropdown menu set to "English".
- Coverage:** An empty text field and a language dropdown menu.
- Description:** Two text fields. The first contains "En bok som tar upp ämnet Learning Design" with a language dropdown set to "Swedish". The second contains "A book about Learning Design" with a language dropdown set to "English".
- Identifier:** A section with two text fields: "Catalog" containing "ISBN" and "Entry" containing "3-540-22814-4".
- Language:** A language dropdown menu.
- Keyword:** Two text fields. The first contains "Lärande" with a language dropdown set to "Swedish". The second contains "Learning" with a language dropdown set to "English".
- Keyword:** Two text fields. The first contains "Information Technology" with a language dropdown set to "English". The second contains "Informationsteknologi" with a language dropdown set to "Swedish".
- Structure:** A language dropdown menu.
- Aggregation Level:** A text field containing the URL "http://www.cc.uah.es/ie/ontologies/LUISA#four".

Figure 1: A screenshot of the annotation tool

user a hint on what to edit. A longer description can be accessed as a tool-tip on the label, i.e. when placing the mouse cursor over the label the description will appear in a pop-up window.

3.2.2 The Textfield

The text-fields can be of two kinds, either a single line or multiple lines. This is decided by the creator of the AP to choose the most suitable for each situation, but it is generally used to indicate how much input is expected from the user. For some textfield a dropdown-menu of languages are provided to the right. Choose a language for the text if appropriate. Observe that there are situations

when specifying a language is not suitable, e.g. for dates and names, in those situations the author of the AP have already or should have disabled the language choice per default.

3.2.3 Choices

As said earlier, to make choices in a form based interface can be done in several ways. However, one of the most used one is the dropdown-menu and it is also rather intuitive, just pick a value in the list. Other possible choices here can be a set of buttons, a list where it is possible to choose more than one item in the list, to mention a few.

3.2.4 Groupings

The text-fields and the choices can also be grouped as seen in the example under *Identifier* there is a grouping with the labels identifier and catalogue. The choice to do so may reflect the structure in the metadata and / or to show that a set of metadata are closely related.

3.2.5 Multiplicity

The only parts not discussed yet are the '+' and '-' signs appearing in the form. They make it possible to add for example more then one title to the resource that is being edited. Where they are placed in the form are of importance, for example the textfield with the label *keyword* in figure 1 is edited with the two keywords *Learning* and *Information Technology* in English and Swedish. If we want to add the keyword *Learning* in yet one more language the '+'-sign right of the dropdown menus for the languages for that keyword, then a new text-field should appear. If we instead want to add another keyword the '+'-sign above the uppermost textfields should be pressed instead and a new textfield should appear.

When it is possible to add or remove a textfield or a choice is decided by the AP author. For this person it is possible to specify the maximum and the minimum numbers of entries possible and if the maximum of numbers is exceeded the form should not render any more '+'-signs. With the '-' is of course if the number is below the required amount of entries. As a further possibility for the AP author it is also possible to state the preferred numbers of fields, which just gives a hint to the application of how many fields to initially render. The most usual settings are restricting to zero or one value or no limitation whatsoever, i.e. from zero up to an unlimited amount of values are allowed.



4 CONCLUSION

This document has focused on the annotation profile facilitator and end user roles in the annotation process and describes the important parts of the GUI of the annotation tool. The annotation tool provides a form based user interface where the user edits metadata either by filling in textfields or by making choices via drop-down menus, buttons etc. The metadata edited is in the form of RDF, but this is transparent for the end user.

A few things still remains to be worked out in more detail in order to give the end user a more complete description on how to use the annotation tool in a specific LUISA setting. This includes starting the tool, choosing which resource to edit and also how to save and load. How the tool is embedded into a specific setting, for example a LMS, will also be addressed.