Abstract

Agrega is a federation of Scorm 2004 learning object repositories, with nodes situated in each of the Autonomous Regions of Spain. Each repository offers a group of services for managing and using the learning objects that it stores. The operations performed on the objects are based on the metadata described in an xml document called imsmanifest which every object has. Together with Agrega, a set of tools has been developed aimed at the end user, for use outside the repositories. One of these is the Agrega offline tool. It consists of a group of utilities integrated under a single tool which enables you to perform editing and management operations similar to those which can be performed on the learning objects from this node. This article describes the functionalities offered by Agrega Offline and how they are applied in different use scenarios.

Keywords: Learning Objects, Metadata, SCORM 2004, LOM-ES, Agrega

1. Introduction

The Public Corporate Entity Red.es[2], attached to the Ministry of Industry, Tourism and Trade, through the State Secretariat for Telecommunications and the Information Society, has general legal responsibility for carrying out certain functions that are designed to contribute to the promotion and development of the Information Society in Spain. A series of measures are being developed in the area of Education whose purpose is: a) To define a cataloguing reference standard, digital educational content package and publication, b) To generate a core group of digital learning objects, in some cases based on existing content, which serve to promote the technological environment created and c) To create a technological environment that will house content which adheres to the aforementioned standard, and which is accessible to the educational community under different modes of use. To meet this latter objective a federation of digital repositories, called Agrega [1,6], has been implemented with nodes installed in each one of Spain's Autonomous Regions. Each node enables the storage of SCORM 2004[7] learning objects labelled with LOM-ES[6] metadata (application profile of the LOM[3] metadata specification), and the performance of a set of operations on these in accordance with the profile defined by the user, such as search, display and the creation of new material. Together with the development of the nodes, a set of complementary tools has been created that serve a number of purposes and which are aimed at end users for use in a private context. The functionalities of these tools are an adapted version of the equivalent functionalities found in each repository of the Agrega[4,5] network, to be executed offline as a desktop tool. The adaptation consists of integrating the functionalities, which in the context of a node are dispersed, under a user friendly interface and of reducing the software and hardware required for its execution. In the following sections we present the main features and functionalities of Agrega offline. Following this is a description of some of the future milestones in the development of Agrega Offline, and lastly, we present some of the conclusions.

2. Agrega Offline.

This is a web application that is executed locally which, under a user friendly interface, offers a set of functionalities for managing and editing learning objects packaged in accordance with SCORM 2004 and labelled in accordance with the LOM-ES metadata specification.

2.1. The main interface of Agrega Offline.

- Personal folder. This link provides access to the learning object package and label editing tools.
- Mass modification tools. With this option you can perform modification operations or repetitive queries on a large number of learning objects.
- User Data Configuration. This is a set of attributes that can be personalised for each user.
2.2. The personal folder

This link gives you access to a page in which users can store any objects they are creating or modifying. There is a row for each of the stored objects, with four fields: name of object, modify link, download link and validate link. If you click on the name link, this enables the object to be displayed in an LMS (Learning Management Systems) simulator, where you can try out the content of the learning object, although not any of the other features, such as simulation or navigability.

2.2.1 SCORM 2004 package editor

You access this editor when you are modifying an already existing object or when you are creating a new one. There are two different versions of the packager, a basic version aimed at users who are not experts in standards, and an advanced version, aimed at users with knowledge of standards, and specifically SCORM 2004 (It can be configured to use one or other version). The basic version hides the SCORM 2004 terminology and features and through a metaphor for the creation of a file folder hierarchy and the addition of files to these folders, the learning object is constructed. The advanced version of the packager is a complete SCORM 2004 editor in the style of editors such as Reload Editor. It enables the display of tabs so that the elements that make up the learning object can be edited separately: files, resources, organizations and submanifest.

2.2.2 The LOM-ES metadata editor

The editor is accessed from the SCORM 2004 package editor, on the upper left hand side of all pages there is a link termed “Cataloguer”, which provides access to the editor. As with the packager, there are two versions available: basic and advanced. The basic version is aimed at new users with no knowledge of the LOM-ES specification. This version consists of a form which asks the user for the minimum amount of information needed in order to index the learning object which is being edited: name of the object, language, description, type of resource, target language and curricular classification. Using this data, the manifest metadata instance is filled in transparently, using the values provided; some labels are filled in with default values. The advanced version of the editor consists of an interface which enables all the metadata defined by the LOM-ES specification to be edited.

2.3. The mass Modifier

This is a tool that enables editing operations to be performed on the metadata of a set of learning objects, in accordance with an xml file in which said operations are configured. You can configure the operations add, modify, delete or check terms of the LOM-ES metadata instances, as well as validating them. It is possible to specify the manifest environment in which said tasks must be performed, either at the level of the main metadata instance, the metadata of the submanifests or even specify the categories. Operations are configured using forms that enable you to browse the structure of LOM-ES labels and enable you to associate a restriction to certain metadata which is the one that must be checked. Once the configuration is complete, you have a set of restrictions associated with the metadata and you can specify the directories in which the objects to which specified operations are to be applied are to be found. You can indicate as many directories as required. These configurations are saved in a reusable xml file and are stored in the form of tasks that can be performed from a page in which all pending tasks are listed.

3. Conclusions and future work.

Currently, Agrega Offline is at version 1.1 stage and new versions are being prepared. These versions are aimed, on the one hand, at facilitating the integration of the tool with the federation nodes, if an Internet connection is available. On the other hand, there are plans to add new functionalities that have been found to be necessary.

4. Acknowledgements

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5. References