

Submission Tool for the DSpace-based Learning Object Repository

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Abstract

The poster briefly reports our experience with building Learning Object Repository based on DSpace and analyzes some problems we encountered with the submission system. The poster describes custom submission tool that can be used as an alternative to the DSpace submission system and provides useful extensions that allow connecting to the automatic keyword extraction services and generating of IMS and SCORM packages.

THECB Learning Object Repository

The Texas Higher Education Coordinating Board (THECB) initiated the Texas Course Redesign Project, which provides funding to redesign entry-level academic courses to improve student learning outcomes. To assist the THECB in encouraging widespread adoption of learning resources developed in the Texas Course Redesign Project, the Texas Center for Digital Knowledge (TxCDK) at the University of North Texas proposed the development of a learning object repository (LOR) to store, manage, and make accessible, content from the redesigned courses. For the repository, the project team used DSpace, an open source software repository platform developed by MIT Libraries and Hewlett-Packard Labs.

Problem statement

The proof-of-concept implementation of the repository used the basic submission workflow provided in DSpace. The project team configured the DSpace metadata registry to accommodate the elements needed, and customized the submission pages to assist in metadata creation. However, project team encountered several deficiencies of the standard DSpace submission system and proposed solutions and extensions.

System does not allow uploading multiple files at a time. Having items that consist of hundreds of files slows down submission process and makes it prone to errors.

Submitting items that share many metadata values without reentering these values requires setting per-collection item templates. This procedure requires administrative privileges and do not allow flexibility with changing default values within collection.

According to the developed functional requirements repository should store items in several formats: native DSpace (as is), IMS package, and SCORM package. DSpace does not allow generating IMS and SCORM packages.

Proposed Submission Tool

Project team has developed beta version of the web based submission tool. This tool uses distributed submission model. Submitters use web browser to upload items to a file system on a server, describe items, and generate items in three formats: DSpace's Simple Archive Format, IMS package, and SCORM package. SCORM package subsystem is under development in current version of the submission tool.

Items in Simple Archive Format are used to batch import items to DSpace repository using importer plugin. This procedure can be done by the administrator(s) of the repository. IMS and SCORM packages can be uploaded to the designated collections and linked to the items that are stored in regular DSpace format.

This tool allows generating values for subject related elements. Values can be generated using external keyword extraction service. Such service was developed by the team members. Content files of an item that is being described are sent to the service and service generates proposed keywords and provides them to the submitter in a separate window. Submitter may consider these keywords when assigning values to the subject related metadata elements.

Conclusion

Proposed submission tool allows:

- Uploading multiple files at a time
- Pausing, resuming and committing process of describing items
- Using metadata templates as well as using previously submitted items as metadata templates
- Generating IMS and SCORM packages
- Connecting to the keyword extraction service