DCPAPERS

Generation of XML Records Across Multiple Metadata Standards

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Abstract

This poster describes the processes and products related to the ENC development of crosswalks between metadata based on three different standards and the generation of a variety of XML records.
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1. Background Information

The Eisenhower National Clearinghouse (ENC), begun in 1992, was required to plan, develop, organize, and implement a national clearinghouse for K-12 science and mathematics resources. To accomplish these objectives, ENC created an online database containing searchable bibliographic catalog records that included detailed descriptions of nondigital and digital K-12 science and mathematics curriculum resources. Underlying the ENC records is a standard library framework for indexing and storing documents (USMARC) with required fields from accepted cataloging standards such as the Anglo-American Cataloging Rules [1]. The MARC schema with local extensions provides a description of resources that combines standard and nontraditional, value-added features [2].

ENC has been involved in the development of the following NSDL collections: Learning Matrix (http://thelearningmatrix.enc.org, Gender and Science Digital Library (GSDL) (http://www.gsdl.org), and ICON (http://icontechlit.enc.org), which are all accessible through the NSDL portal (www.nsdl.org). Another ENC collection, the Federal Education Digital Resources Library (FEDRL), has its resources accessible through both ENC Online and the NSDL portal. The resources in these NSF-funded digital library collections are cataloged with a schema based on the IEEE Learning Object Metadata (LOM) standard [3]. Additional metadata elements have been added based on the collection's content and audience needs.

All the catalog records for digital resources, including those described by the modified MARC schema and those described with a modified LOM standard, are made available for harvest by the NSDL Metadata Repository. The NSDL OAI Metadata Repository follows the Dublin Core metadata standard [4, 5].

2. Problem Statement

Because the native metadata for the ENC collections follow different metadata standards --USMARC and IEEE 1484.12.1-2002 Learning Object Metadata (LOM) Standard -- and the metadata to be harvested via the NSDL OAI repository follows the Dublin Core metadata standard [4, 5], ENC needed to develop crosswalks between these three standard metadata schemas. The main goal was to preserve as much of the data as possible as the data were crosswalked from one schema to another. ENC also needed to generate customized versions of XML records so that the metadata would be searched and displayed correctly in catalog records generated through different digital library interfaces.

Crosswalk development required the collaboration of the database developers and technical specialists who had insight into the indexing, search, and display of the data as well as a content specialist, who had understanding of the nature and content of the data. Data were preserved by implementing vocabularies with ENC as the source and adding new ENC extensions. This poster illustrates the amount of overlap between the different schemas and the data loss as the records were translated from one schema to another. Sample OAI and IEEE LOM XML records are also included as part of the poster.

3. Conclusion

ENC is not unique in its need to produce different flavors of XML records to conform to multiple schemas. Just as ENC chose the IEEE LOM schema, digital libraries should choose a schema that best embodies the nature of their resources and their cataloging goals. Crosswalks that extend interoperability are essential so that the digital library collections can be accessible through a variety of portals and search interfaces.

References

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