Iraq’s Digital Library Dilemma:
OpenSource Digital Objects Repository architecture, tools, and interfaces

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Statement of the Problem

The loss of Iraq libraries and the dispersion of their contents call for digital library solutions that encompass many organization, access and preservation needs, among them the technical, staffing and language encoding needs for record production, and user needs to search and annotate in multiple scripts and languages. Such digital assets management (DAM) system must be able to handle multiple languages, flexibly integrate professional and local standards to ensure continued integration of the records and digital objects, and should facilitate record production and using digital materials in cultural preservation and education. To these ends, we describe only part of a larger solution - the architecture of a DAM system, the auroraDL, and propose how the structure will enable us to study the redevelopment of Iraq information infrastructure.

Objectives

Iraq’s technical infrastructure and regional differences affect the creation and use of digital libraries in Iraq. There is a great interest (Yale, AATA) and various perspectives were considered. The project is the aim of this project, the Digital Object Repository project, the Iraq Virtual Science Library, and Arabic and Middle Eastern Electronic Library (Ameel), among others. Ultimately, the political infrastructure, staff needs, and end-user needs argued for developing a new system, because the otherwise popular Greenstone, which is dependent upon the MS Windows Arabic operating system, did not address the various needs.

While digital object records need to conform to several professional and industrial standards in developing areas especially sought to be flexible enough to support non-standard local customs, such as local descriptors, agents without name authority records, etc. A second issue we addressed is how to handle historical and current administrative and object metadata in multiple languages and scripts for Arabic, Syriac, Chaldean, Kurdish languages, Turkmen, and Armenian.

We considered too a system for librarians, educators, and experts to increase the value of these records with scholarly annotations in any UTF-8 or UTF-16 supported language, which are searchable.

Methodology

A literature review of digital library projects focused on end-user concerns (technical issues, ease-of-use, maintenance of standards) integration with existing CMS and LMS, and semantic interoperability encouraged the project to use a data-driven approach. End-user administrators require no programming tools to affect record creation by library staff and collection-building by end-users to run on using the open source

Objectives

• Share expert- and user-created collections for education by facilitating annotating records and building theme-specific or learning-outcome specific collections.

• Tailorable resource files that populate interface tools, such as dropdown boxes, with subject headings, local descriptors, etc.) to enforce various ISO standards, VRA4 and DC-compliant cataloguing records, work and image XML records, automatic thumbnail generation, and image metadata. End user collection building was tested with several types of interactivity (drag-and-drop interface, form-filling, among others). Java servlets and php scripts were used for experts and end-users to annotate records with full-text de-

Research Opportunities

1. Would facilitating record creation affect the creation of preservation and educational materials in Iraq?

2. Would facilitating expert annotations contribute to preserving digital objects?

3. Would facilitating expert annotations contribute to preserving digital objects?

4. Will full-text annotations combined with standard and local descriptors increase the usefulness of these records?

5. Will full-text annotations combined with standard and local descriptors improve automatic classification of new record, suitable to any information context, but possibly facilitating Iraqi digital library collections.

6. How can digital libraries be made easier to use and easier to integrate in K-20 education?

Architecture and Demonstration user site:

Information about the project in Arabic is at http://gslis.simmons.edu:8080/auroraDL/about.html

Project software and documentation: http://gslis.simmons.edu:8080/auroraDL/about.html

Proof of Concept

The project was developed using digital objects created by the Boston Public Library [Tom Blake, tblake@pl.org] and Simmons College-Man Library to create VIAF and DC-compliant cataloguing records, work and image XML records, automatic thumbnail generation, and image metadata. The results of concept testing brought about revised data models, additional tools for interacting with MySQL, conversion tools for UTF-8 and UTF-16 user files, automatic mapping of terms extracted for annotations to controlled vocabulary terms.

Testing by Sunny and Sh’s users exposed the need to add culturally-sensitive tools to limit searching by various groups and ma-

User-System Diagram: simplified system architecture

Record Creation

Resource Files

Retrieval Set Display Options

Hierarchical Lists

Hyperlinks, in browsers:

Farsi [pes]
Domari [rmt]
Bajelani [bjm]
Azerbaijani [aze]
Mesopotamian Arabic [acm]
Turkmen [tuk]
Turkish [tur]
Kurdish (Northern [kur], Southern [sro], Central [mas], etc.)
Gurani [hac]
Arabic [ara]
As PDF (XML-FO)
As XML file; XSLT
As text
Temp Files: