

Preserving Cultural Heritage Using Open Source Collection Management Tools

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Abstract. Open source software (OSS) popularity is growing steadily and many OSS systems could be used to preserve cultural heritage objects. Such solutions give the opportunity to organizations to afford the development of a digital collection. This paper focuses on reviewing two OSS tools, CollectionSpace and the Open Video Digital Library Toolkit and discuss on how these could be used for organizing digital replicas of cultural objects. The features of the software are presented and some examples are given.

Keywords: Heritage Management, Open Source Software, CollectionSpace, OVDLT, Digital Library.

1 Introduction

During the last decade, software development is undergoing a major change from a fully closed software development process towards a more community driven open source software (OSS) development process. These tools cover a wide range of computing categories and in terms of their functionality are comparable or even supersede proprietary software of similar aims. Popular OSS like Apache, MySQL, Mozilla Firefox, Joomla, OpenOffice, etc. are used extensively in everyday or specialized tasks. All these applications are free and are released under a free software license or open source license such as GPL, Apache License, BSD and MIT.

Several open source collection management applications have been developed, having preservation of cultural heritage as one of their aims. These tools allow are used in organizations instead of using a traditional propriety software and they have in addition the opportunity to participate in their development and finally integrate their expertise or needs to the tools. This paper presents CollectionSpace and the Open Video Digital Library Toolkit (OVDLT). Both can be used to preserve cultural heritage as we will see next.

This study aspires to bring to the attention of a broader audience the features of OSS for cultural preservation. This is accomplished by highlighting the features, functions and usability of the reviewed software. In the end we discuss two settings to help different organizations to choose a system meeting their specific needs for cultural data preservation.

2 Related Work

The Arches OSS project is designed to address challenges faced by heritage institutions struggling to establish and sustain heritage information systems by relieving them of the need to invest in creating individual systems [1].

Greenstone is an OSS used for Malay manuscripts repositories since it is free, multi-platform, metadata-driven, extensible and has flexible searching and browsing features [2]. Also, Greenstone, has been used in a wide variety of digital libraries (DL) to create collections with features such as optimized for viewing on small-screen handheld devices to a huge ancillary effort in digitizing thousands of books for inclusion on CD-ROMs [3].

The developments in DL present an opportunity to explore the use of DLs as tools for building and facilitating access to digital cultural resources [4]. Using Greenstone this study describes a 10-step approach in converting an out-of-print book “Costumes through Times” and constructing a DL creation of costumes. Dspace serves as a useful basis for developing and deploying solutions of long-term preservation and access of digital material, though some issues still need to be addressed [5].

A report discussing the implementation of an open source digital archival and preservation system [6], providing actionable recommendations to UNESCO for the encouragement and facilitation of the development of a small-scale open-source digital preservation systems, such as DSpace, Fedora and Greenstone.

This short review shows that a growing body of researchers focuses on using or extending DL tools to accommodate the needs of preserving information of cultural importance. However, more specialized tools like the CollectionSpace and the Open Video Digital Library Toolkit, which are the focus of our study, have not been reviewed in previous studies.

3 Collection Management Tools

3.1 CollectionSpace

CollectionSpace is an open-source collections management application that meets the needs of museums, historical societies, and other collection-holding organizations [7]. The application was created in accordance with the SPECTRUM documentation standard (<http://www.collectionslink.org.uk/spectrum-standard>). It is directed and administered by Museum of the Moving Image and it is released under the Educational Community License v. 2.0.

The design of the web-based interface facilitates procedures such as the description, management, and dissemination of museum collections information. An active community composed of Museum professionals, software engineers, and interaction designers constitutes the project team.

The main features are: acquisition, cataloging, authority control, repeatability, object entry and exit, loans, location and storage, keyword search, sidebar view of related records, user roles and permissions. The latest version 3.2 of the software was

released in December 2012, and includes functionality such as: autocomplete, upload media assets, calculating current location and complex date handling.

3.2 Open Video Digital Library Toolkit

The Open Video Digital Library Toolkit (OVDLT) provides to museums, libraries and other institutions holding moving image collections, the means to create digital video libraries for the web. It is funded by the Institute of Museum and Library Services (IMLS, <http://www.imls.gov>) and it is released under the MIT License [8]. The main features are:

- Rich end-user features: favorites, user-generated playlists, playlist annotations, tagging, saved searches
- Easy library administration: site-integrated form-based library configuration, user management, easily configurable metadata schema
- Quick, intuitive cataloging: integrated forms, easy control over public/private videos and featured videos, one-click posterframe selection
- Automatic video preview generation: storyboards, fastforwards, and excerpts.

4 Managing Cultural Heritage Collections

This section, presents the basic interface of CollectionSpace and OVDLT and simple examples of how to create a digital collection with each of them. CollectionSpace supports Linux, Mac OSX, Windows 7/XP with SP3 and its installation requirements are Apache Tomcat Server and PostgreSQL. OVDLT supports Linux, Mac OSX and its requirements are MySQL, Ruby on Rails and Apache Web Server.

4.1 CollectionSpace: Brief Description and an Example

The interface is divided in the main working area (using a simple to use tab menu) and the sidebar view of related records. Every record regardless if it is related to cataloging, acquisition, loan or a vocabulary term, it shares the same basic set-up and characteristics (see Fig. 1). These data are for the organization's internal use and not available through an online public access catalog.

The creation of a new record is achieved through the Create New Record menu, which has three main sub-options: Cataloging Records (from scratch or template), Vocabulary Terms (Person, Storage Location, Organization) and Procedural Records (Loan In/Out, Acquisition, Location and Movement, Object Exit, Intake, Group and Media Handling).

To enter a new cataloging record we chose Cataloging, From Scratch. In the next screen, a variety of different data can be stored, organized in the following category tabs: Object Identification Information, Description Information, Object Production Information, Object History and Association Information, Owner's Contribution Information, Viewer's Contribution Information, Reference Information and Object

Collection Information. The crucial tab that must be filled is the first (Object Identification Information), each item must have a unique Identification Number (manually or automatically).

The screenshot shows the 'Object Identification Information' form for record IN2013.50. The form includes the following fields and sections:

- Identification Number:** IN2013.50
- Number of Objects:** 1
- Number:** (empty field)
- Responsible Department:** Paintings and Sculpture
- Collection:** Please select a value
- Record Status:** New
- Title:** Detail of the east frieze (Block VI)
- Title Language:** English
- Title Type:** Collection
- Brief Description:** Detail of the east frieze (Block VI), 442-438 BC, Pheidias Workshop
- Comments:** A depiction of the gods Poseidon, Apollo and Aphrodite, on whose knees is perched a winged Eros. Two fragments are located in the British Museum and one fragment in Palermo. Εικονίζονται οι θεοί Ποσειδώνας, Απόλλωνας και Αφροδίτη, στα γόνατά της οποίας ακουμπά ένας φτερωτός Έρως. 442-438 π.Χ. (Ακρ. 856 και θραύσματα Ακρ. 1226+ Δύο θραύσματα στο ΒΜ. Ένα θραύσμα στο
- Media Snapshot:** Includes a thumbnail image of the frieze.
- Terms Used:** No records yet.
- Cataloging:** No records yet.
- Procedures:** Table with columns: Number, Title, Last Edit Date. Row: MR2013.1.22, 2013-05-29T15:21:36Z.

The screenshot shows the 'Loans Out Information' form for record LO2012.1.1. The form includes the following fields and sections:

- Loan Out Number:** LO2012.1.1
- Loan Purpose:** Exhibition
- Lender's Information:** Lender's Authorizer, Lender's Contact, Lender's Authorization Date.
- Borrower Information:** Borrower (Κρατικό Μουσείο Σύγχρονης Τέχνης), Borrower's Contact, Borrower's Authorizer (ΣΥΡΑΦΩ ΤΣΙΑΠΑ), Borrower's Authorization Date (2012-03-29T00:00:00Z).
- Loan Out Conditions:** Να γίνει προβολή σε αίθουσα με χαμηλό φωτισμό.
- Loan Out Note:** (empty field)
- Loan Status:** Agreed
- Loan Status Date:** (empty field)
- Loan Status Note:** (empty field)
- Media Snapshot:** Includes a logo for 'collection space'.
- Terms Used (1):** Table with columns: Term, Type, Field. Row: Κρατικό Μουσείο..., organization, borrower.
- Cataloging (0):** No related records yet.
- Procedures (1):** Table with columns: Number, Type, Last Edit Date.

Fig. 1. CollectionSpace's create new catalog record screenshots

Then we enter information for locating and describing the object such as brief description, number of objects, title, collection, dimensions, etc. CollectionSpace enables users to duplicate forms to enter extra information such as to provide an English and then a Greek title for the object.

Through the tabs in the top (Cataloging, Loan In, Loan Out, Acquisition, Location and Movement, Object Exit, Intake, Group, Media Handling) we can add related information. For example, in the Media Handling, we can upload an image file or provide a link from the web (Fig. 1 shows information and a photo of Block VI from the east frieze, taken from the Acropolis Museum Collection).

4.2 Open Video Digital Library Toolkit: Brief Description and an Example

The administrator can create one or more collections for the digital library that share a common subject, by selecting the menu tab My and then Create New Playlist (see Fig. 2). In the next screen information for the name and description of the collection are entered. Furthermore, it can be specified if it is a public or private collection.

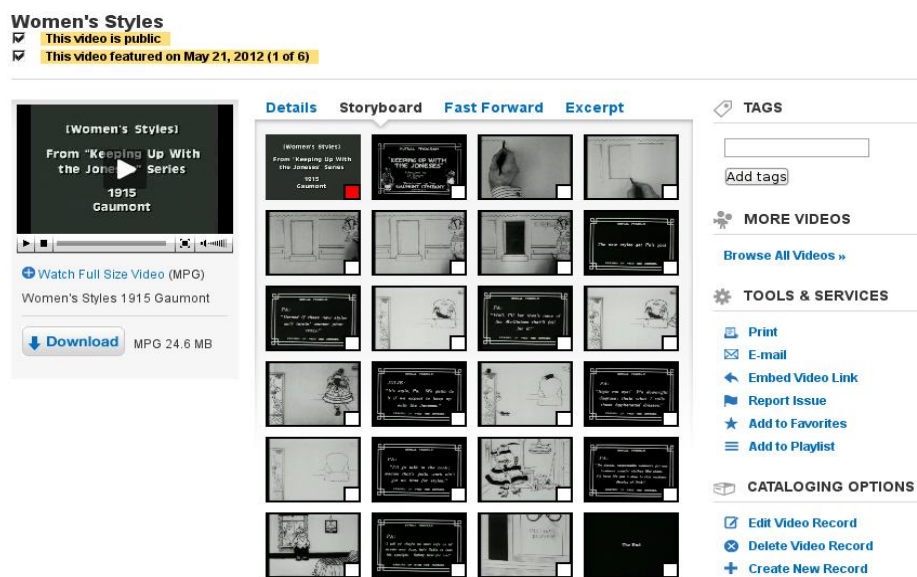


Fig. 2. Selection of video image from Storyboard in OVDLT

Each existing collection may contain as many videos as desired. First we select the Videos tab at the top of the home page and then click on the desired video to add to the collection. In the bottom right corner, under Tools and Services, click on Add to Playlist and then select the appropriate playlist. Creating a new video record is achieved by clicking on any existing video to go to the Video Details page. In the bottom right of the page, under Cataloging Options, click Create New Record. In the next screen we can enter the video's data. In the General Information section, the user

can specify data such as the title information, alternative title, participants, creation credits, content abstract, rights holder, etc. The Digital Files section allows you to add a video to the collection, by searching with a keyword or browsing through the list of available videos. It must be noted that you can't upload a video file through the web interface. All the video files must be placed in the application's public/assets folder (in the test system the full path was /var/www/localhost/htdocs/library/assets) to appear in the Digital Files section. Once a video has been and catalogued, it is possible to select the image that best represents the video. Visit the video's homepage and click Storyboard, which displays a grid of different frames from the video, and select the desired screen to set it as the default image for the video (Fig. 2 displays the storyboard of the film Keeping up with the Joneses [Women's styles], produced by the Gaumont Company in 1915, available from the Library of Congress, <http://hdl.loc.gov/loc.mbrsmi/animp.4065>).

5 Conclusions

The CollectionSpace platform delivers a set of modular solutions and services that match functional requirements for managing museum collections for a variety of domains. One of its strongest advantages is the user interface design, which uses a consistent style guide throughout all forms, pages, widgets, and element groups.

Considering the case of a museum (archeological, technological, film, contemporary art, etc.) or a gallery, that wants to manage the exhibits. Additionally, it must support the ability to lend artifacts to other organizations and to borrow from others, to determine the locations (permanent and temporary) of exhibits and to attach pictures. Furthermore, it is important to provide detailed descriptions of exhibits in multiple languages, dimensions and a variety of characteristics. For such a case, CollectionSpace is an ideal solution, which offers built-in functions for all those conditions. The learning curve is quite short, as the interface is quite simple, all the functions are organized in a way that are easily accessible, and provide easy addition and selection of user terms such as names of authors and organizations. The OVDLT project provides a solution for libraries, archives, museums, and other institutions who want to make available their digital video resources through their own Web-based digital library.

Considering the case of an organization or a company engaged in film or animation production that decided to present a collection of their work by streaming their digital video resources through their own Web-based digital library. The Open Video Digital Library Toolkit was designed exactly for this purpose. Its use is simple and a large list of film-production related information can be submitted. Also, it can convert automatically the digital video files in an appropriate format for the web, so visitors can view the videos directly through their browser.

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