

## **Digital Asset Management for the Rest of Us: Enabling Access to Digital Archives Using Open Source Tools**

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The proliferation of digital assets in archives and streaming media collections emphasizes the need for improved preservation, organization, and access to these institutional resources. Researchers, librarians, photographers, and archivists charged with preservation have legitimate concerns about long-term access to physical objects and their availability in digital form. And now, as end user publishers become active participants in developing archives of their own digital information, they are beginning to play a major role in their preservation and description.

User-friendly and simplified Digital Asset Management (DAM) tools are needed, not just for archivists and librarians, but for faculty, staff, and students to preserve, organize, and access their digital assets – for research and teaching collections, for image archives, for streaming media, for digital portfolio artifacts, and for a variety of other needs. At Pacific Lutheran University, we wanted to take small, but systematic and incremental steps toward addressing these diverse needs.

### **Criteria & Specifications**

We wanted objects to be accessible via a standard web browser rather than with a specific client application. Any object would be addressable via a static URL and could be wrapped in descriptive metadata as well as the look and feel of the pages in which objects were located.

Pages containing metadata about objects would use Cascading Style Sheets (CSS) and be structurally adjustable for integration with other campus websites and style templates. Users needed to search by a variety of data fields and be able to limit results to specific collections. And objects such as images would include iterations for a variety of uses such as print, Powerpoint, web, and thumbnail display.

The data schema required conformity with Dublin Core standards and the ability to handle a number of different object types and formats. Administrative authentication and authorization would use LDAP with PLU ePass usernames and passwords. We preferred an open source platform for integration with other campus systems: Linux, Apache, MySQL, and PHP (LAMP). The DAMS would be scalable and migratory across storage arrays and systems, all while remaining budget neutral and sustainable.

### **Solutions**

We examined alternatives such as CONTENTdm®, Endeavor ENCompass, Fedora™, and a variety of smaller open source PHP/MySQL systems. None would meet all our needs and specifications with the resources and funding we had available. We decided to develop a local solution based on Dublin Core standards, CSS style sheets, and running on a LAMP platform. From the start of the project we viewed this as a short-term and experimental step toward a more robust, mature, and sustainable system.

The Digital Asset Manager application provides a solution for publishers at Pacific Lutheran University to preserve their digital assets, and as importantly, provide access to those materials via searchable metadata. PLU DAM stores objects in a flexible, migration-enabled structure that can quickly adapt to collection moves and changing server technology.

## Standards

Our basic data schema utilizes the Dublin Core Metadata Element Set including Title, Description, Coverage, Original Date, Contributor, and Relation as the initial points of reference for describing and searching digital objects. Subjects and Categories are then assigned to define relationships among objects across collections.

To compensate for potential migration, a Uniform Resource Name (URN) directory structure is built from variables directly pertaining to the user's university department, the collection code associated with the object and department, and a profile code directly associated with a user's unique collection. Regardless of what server the objects reside on, directory path structure will not be compromised after migration of objects.

In [RFC 1737](#): K. Sollins and L. Masinter note URN requirements of: global scope; global uniqueness; persistence; scalability; legacy support; extensibility; independence; resolution. These requirements were taken into consideration when designing the PLU DAM. Portability of the real object path structure ensures negligible server down time for storage upgrades without affecting the public interface, publishing, or administration. By incorporating unique object identifier metadata variables to build file directory paths, the PLU DAM will offer a sustainable long-term storage solution.

## Publisher Workflow

The production cycle for preparing digital objects from campus publishers had to be simple and short, yet adaptable to high resolution scans, digital camera images, and streaming media data files. The key to simplifying metadata entry was to develop profiles for batch loading objects – profiles containing data for batch-populating metadata about the repository, collection, object, creator, etc.

DAM department administrators are able to edit and refine the profile information that individual contributors can submit objects to, thus providing a fail safe for objects being moved into storage and database metadata surrounding those objects. Digital objects must conform to some basic criteria to ensure that objects added are viewable via standards relating to server MIME types and universal browser capability. This limits image objects to JPG, PNG and GIF formats; other image formats such as TIFF are not accepted into the system.

Once a profile is selected, objects can be loaded en-mass from a remote server directory or from a local hard disk. These objects reside in a departmental working directory in the DAM and can be selected for moving into the digital archives. With .jpg images, for example, a move involves populating the object metadata with profile settings as well as scaling the original image to 950, 550, and 150 pixel iterations, naming the new files, and placing them in appropriate directories.

Newly added objects are set to a “not visible” status. Object metadata can then be edited and subjects or categories assigned to each object. When editing and quality control is complete, objects can be switched to the “visible” status for public use.

## Public Interface

<http://chili.plu.edu/pluindex> in default skin

<http://www.plu.edu/~wangctr/happenings/photo-gallery> in Wang Center skin

Users can search by title, description, creator, contributor, or location and results can be filtered by collection. Brief results, including thumbnails, are available on summary pages, and a details page provides an object view wrapped in descriptive metadata. Export options include objects formatted for

print or Powerpoint, use on the web, and smaller thumbnails. Higher resolution versions can be ordered via email with a dynamically generated link referencing the object.

### **Customizations & Enhancements**

Public skins are customizable for both style and content. Every skin has a unique CSS style sheet. For each of the main page types (search, summary, and detail), scripts use a variety of PHP "include" scripts for headers, footers, and navigation that are skinned to the particular department or collection. Department-specific content scripts allow adjustment of the presence or absence of data fields in the display as well as field order and formatting.

Recent work with the Wang Center for International Studies suggested a need for more functionality such as forms for describing and uploading user-submitted photos, the ability to create slide shows, and the ability to comment and provide feedback on an object. Such functionality was relatively easy to integrate with the existing schema.

We recognize the limitations of what we have accomplished to date and the need for a more robust, mature, and sustainable system in the future. But in the meantime, end users have simplified tools for preserving, organizing, and providing web access to their digital objects.

### **Speaker Biographies**

**Layne Nordgren** is Director of Instructional Technologies/Library Systems for Information Resources. He has worked at PLU in a variety of positions in Circulation, Media Services, Library Automation, and Instructional Technology. He currently directs the Digital Media Center and is System Administrator for automated library systems. He provides leadership, development, and technical support for the Voyager system, resource authentication, Blackboard, and PHP/MySQL applications.

**J.D. Hauger** is the digital media developer for Information Resources. Before working at PLU, J.D. was the multimedia producer for the International Contemporary Center for Glass Art in Tacoma, WA. His work experience and personal interests center on video and multimedia delivery on the World Wide Web.