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Designing for Scope, Embracing Drift: Customizing Metadata with Open-source Software and Grassroots Efforts

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Designing for Scope, Embracing Drift: Customizing Metadata with Open-source Software and Grassroots Efforts

Abstract

Digital asset management (DAM) refers to the process of collecting, cataloging, delivering, and preserving digital assets, while digital asset management systems (DAMS) provide users with a central location to search, locate, access, and share those assets in an easy and efficient way. DAM is now an established technology category and a rapidly growing field within the corporate sector, however, the nonprofit sector is dealing with similar issues and challenges in their efforts to effectively and efficiently store, manage, preserve, and distribute digital content for their organizations. Many nonprofit institutions, such as those in higher education, have limited resources with fewer staff and lower budgets, making the establishment of a DAMS challenging. This article focuses on the implementation of a photo archive management system for The Pennsylvania State University's College of Arts and Architecture by a small dedicated team using open-source software. The team's approach to technical and staff resources, budgeting, and metadata are outlined.

Keywords

digital asset management, DAM, image management, metadata, taxonomy, photo archive, communications, collaboration, open-source, ResourceSpace

Author Bio & Acknowledgements

Carolyn Lucarelli has worked as a visual resources curator in the Department of Art History Visual Resources Centre (VRC) at The Pennsylvania State University since 1998. Before coming to Penn State, she was assistant museum librarian in the Photograph and Slide Library at The Metropolitan Museum of Art, and assistant curator of visual resources in the Department of Art History at Dartmouth College. In addition to her role as a co-creator of the Arts and Architecture Resource Collaborative (AARC) at Penn State, she leads the VRC, which manages the Art History Department digital image collection and the Palmer Museum of Art public online collection. Recently, she has also been instrumental in developing new initiatives in Digital Art History. She holds a B.A. in Art History from Columbia University and an M.A. in Art History from Dartmouth College.

Stephanie Swindle Thomas is the Public Relations Coordinator for the College of Arts and Architecture at The Pennsylvania State University and co-creator of the Arts and Architecture Resource Collaborative (AARC). She is also a photographer and major content contributor to AARC. Prior to working at Penn State, she created Rhodes College's photo archive using CONTENTdm and worked as the Marketing and Exhibitions Coordinator at the National Ornamental Metal Museum in Memphis, TN. In May 2017, her photographs were featured in a solo exhibition, "Give Me Your Portrait," at Penn State. In February, she had a photograph in the Art Alliance of Central Pennsylvania's photography show, "Art at the End of the Lens."

The DAM system recently developed for Penn State's College of Arts and Architecture, titled the *Arts and Architecture Resource Collaborative* (AARC),¹ is a public, searchable photo archive of images designed in part and managed by the Visual Resources Centre (VRC) in the college's Department of Art History. AARC began in 2014 as an attempt to provide a shared space and backup archive for the college's Communications Office image collection. Although initially a collaboration between a photographer/public relations specialist and a curator of visual resources, the project grew considerably in scope to meet the number and needs of new internal and external constituents. This article will address the drift in content and responsibilities of visual resources professionals at Penn State as well as the changing scope of project management in order to accommodate an evolving visual landscape.

AARC's value as an internal access point supports the integration of content into social media marketing, digital signage, calendaring systems, and print publication materials. Externally, AARC is the venue for local news media to retrieve images for news stories and events listings. The key to creating a system that would meet the needs of a diverse constituency required collaboration and a committed group of developers. Team members include Stephanie Swindle Thomas, public relations specialist and primary photographer for the College of Arts and Architecture; Carolyn Lucarelli, curator of visual resources for the VRC; Catherine Adams, assistant curator of visual resources for the VRC; and Yadin Flammer, Arts and Architecture Information Technology (AAIT) systems administrator.

Although the college hosts a server for the sharing and storage of data, it was not equipped for the volume in quantity and size quality that years of high-resolution photography by freelancers, departmental staff, and students require. To remedy that fact, AAIT purchased personal RAID devices for college communicators with substantial image collections; however, this did not solve the issue of creating a common space for image storage and sharing, and it did not include a viable backup option.

Constituents seemed enthusiastic about the possibility of an archive, but time and money constraints were challenging. As a partially state-funded institution, one concern was the fate of the images if housed offsite on a service provider's proprietary servers, with whom a contract would be dependent upon an uncertain funding stream. The strong relationship between AAIT and the VRC was the key to overcoming this obstacle and finding the right balance between time and money. Weekly meetings included best practices research, brainstorming sessions, and funding discussions. The challenge then became finding and choosing the right software. After several trial periods with various software products and researching a range of options, Flammer and Lucarelli decided to test ResourceSpace, Open Source Digital Asset Management (DAM) software² that could host the images onsite on a college-owned server, customize metadata, and save money by investing staff time.

Once the AARC development team selected ResourceSpace, Thomas, Lucarelli, and Adams hosted focus groups with users and uploaders throughout the course of the design process to ensure that AARC would meet the criteria of their needs. Flammer created a test environment for users to access and report on how the system functioned for them. Focus groups also

¹ Arts and Architecture Resource Collaborative (AARC). Accessed May 2, 2018. <https://aarc.arts.psu.edu>.

² ResourceSpace. Accessed May 2, 2018. <https://www.resourcespace.com/>.

provided useful feedback on keywords, locations, and search criteria, which helped in creating a style sheet and design for the metadata template. The reduction of human error via checkbox options simplified and standardized language for best practices.

Another benefit of ResourceSpace is the ability to customize metadata fields for uploading and searching in a way other software could not offer. Searchability was the most important aspect of making the archive successful because Penn State already provides access to a file-sharing storage system called Box. The difference between what has become AARC and Box was the most common question during focus groups. Box is not an ideal photo repository, not only because of its function as a general file share server (such as Dropbox) but also because of poor design.

As with all good design, form must follow function. In a college with designers, architects, and artists, design matters. During the planning and testing phases, the team met with entities from across the college to determine the range of needs.³ In total, there were eight focus group meetings with sixteen constituents from eight units within the college. Another meeting included members of Penn State Strategic Communications, who were working on a similar project with very different software and results, further supporting the argument to invest time and effort into using open-source software rather than subscribing to a top-down provider.

The college's resources and the team's expertise and willingness to lead the project allowed them to forego an external customer service provider and the need for offsite file storage. Lucarelli's prior experience with The Metropolitan Museum of Art along with her and Adams' day-to-day management of the Department of Art History's visual resources, made the VRC the logical space to manage AARC. Having created a physical photo archive for The Blues Foundation and a digital photo archive for Rhodes College's Communications Office using CONTENTdm software, Thomas understood the basics for initiating such a project and the value of its results.

Once the test site was live, users were granted access and trained by team members as both uploaders and searchers. While the team instructed individuals on how to negotiate the site, they garnered significant information by observing how the users preferred to utilize it. The test period ran for almost six months. As Thomas and others added images to the site, they continued to tweak it, identify bugs, test keywords, and evaluate everything, from which acronyms and special characters were allowed, to how to edit in bulk or fix mistakes. Lucarelli and Adams managed and monitored the assets being added to the test environment by ten authorized uploaders representing the various units from throughout the college.

A user-friendly and eye-catching design begins at the home page, where one can either log in (primarily uploaders) or begin searching either on the right-hand "Simple Search" column or on the top tab labeled "Public Collections" or "Recent Uploads" (Figure 1). Although the only currently available resource type is "photo," ResourceSpace provides the option to expand the archive into other types of assets from which one could search from the homepage. The keyword option is a fast way to search for items by words listed in the image or collection title,

³ The AARC implementation team considered the needs of the museum staff, the performing arts venues, the architecture accreditation committee, departmental administrative assistants, and the Communications office.

or in the caption. However, dropdown search menus allow users to be less specific and search within different toggled results that help narrow the major search criteria to those suggested by individuals in the focus groups. The first-tier search criteria, labeled “unit,” is comprised of departmental categories. The second-tier search category is “subject,” which yields results that range in options from performance to different research centers within the college that are not categorized as top-tier units. The third-tier search category is labeled “people” and allows users to find images of alumni, students, faculty, staff, and other individuals throughout the archive. All of the tiers and categories within them were created with the understanding that “a good taxonomy is one that provides a *reasonable* number of options and satisfies a *reasonable* number of situations, all in a way that makes sense to a high percentage of users.”⁴

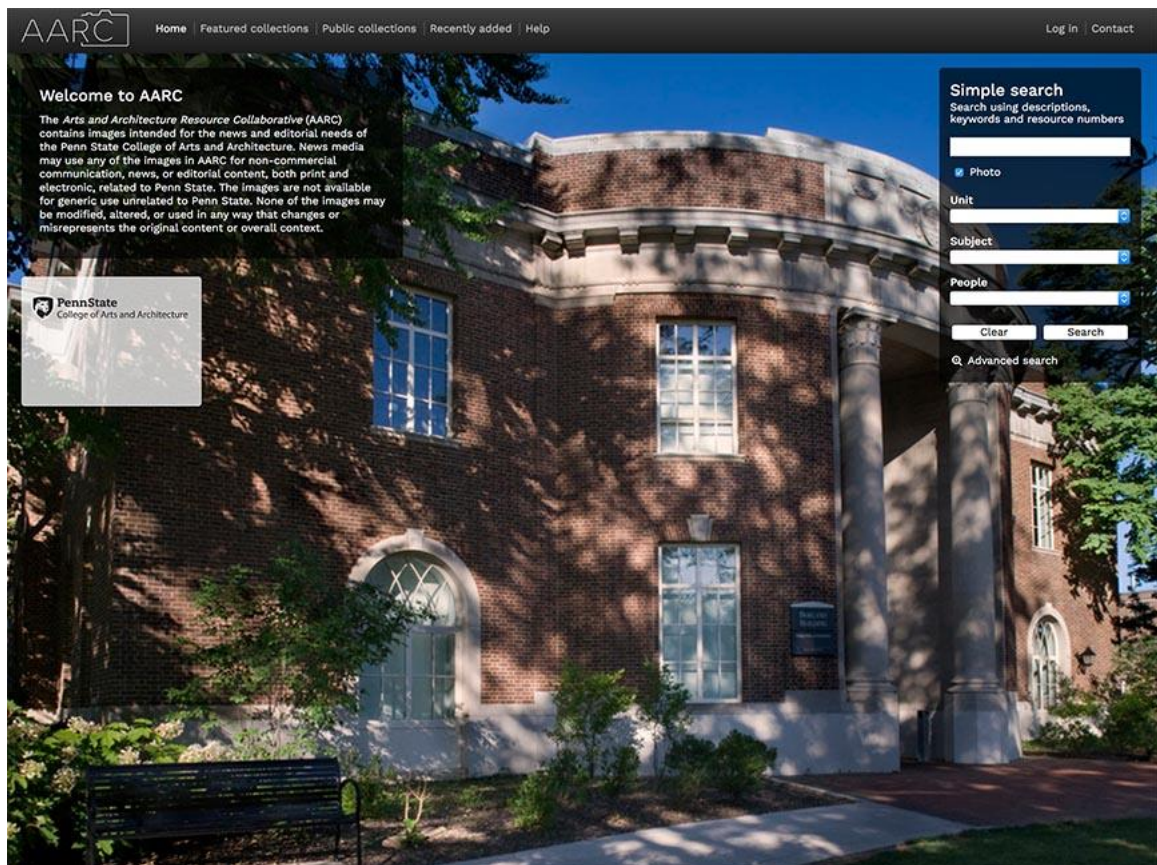


Figure 1: Arts and Architecture Resource Collaborative (AARC) home page.

If a user prefers to venture away from the simple search criteria and browse, rather than find a specific set of images or collection, AARC provides an advanced search option page allowing users to search all of the options given to the uploader at the time of upload. This means it is possible to search by photographer, date, season, original file name, even metadata brought into ResourceSpace through Adobe Lightroom, which is helpful for photographers who keep their catalogs in Lightroom and have specific metadata tagging systems. It basically eliminates the duplication of work for those categories that get imported automatically upon upload. The

⁴ Diamond, David. *Metadata for Content Management: designing taxonomy, metadata, policy and workflow to make digital content systems better for users* (Seattle: CreateSpace, 2016), 34.

more specific one gets, the faster it is to find and narrow down the wealth of images in AARC. The design of the advanced search page allows AARC’s functionality to resemble that of any other search engine, making the interface familiar and accessible (Figure 2).

Figure 2: Advanced search page in AARC.

Another option is to search the public collections alphabetically or by keyword searches, but results vary depending on the names given to each collection and is more useful for the photographers and uploaders who already know what is in the system or have their own naming conventions for finding their work. It is important that AARC does not require uploaders to follow any particular file naming conventions because changing a photographer’s naming convention or workflow would hinder the accessibility, ease of use, and ultimate success of the archive.⁵

Once any of the searches produces images, the user can preview the images in a larger viewing box and move forward and backward between the photos (Figure 3). In order to download them, there are three options that download at the click of a button (original JPG file, low-resolution print, and screen sized). At this point, all of the resource details are visible as well, meaning the viewer can see the ways in which this resource was toggled, keyworded, and/or captioned, etc., at upload or during a later editing round, which is possible either individually or in bulk.

The screenshot shows a resource preview interface. At the top, there is a title bar 'Trouble in Tahiti Media Day' and navigation controls. Below the title bar is a large image of a man in a suit performing on a stage. To the right of the image is a 'Resource tools' panel with a table of file information and a list of actions. Below the image and tools is a 'Resource details' section with a table of metadata. At the bottom, there are sections for 'Caption', 'Metadata report', and 'Related featured and public collections'.

File information	File size	Options
Original JPG File 4851 × 3539 pixels (17.17 MP) 41.1 cm × 30 cm @ 300 PPI	3.2 MB	Download
Low resolution print 2000 × 1459 pixels (2.92 MP) 16.9 cm × 12.4 cm @ 300 PPI	749 KB	Download
Screen 1097 × 800 pixels (0.88 MP) 9.3 cm × 6.8 cm @ 300 PPI	245 KB	Download

Resource ID	Access	Contributed by	Title	Unit	Subject
12736	Open	Stephanie Swindle	Trouble in Tahiti Media Day	School of Theatre	Musical Theatre, Performance - theatre
People Student - Graduate, Student - Undergraduate	Permissions 1. General Use Approved	Location Indoors	Image Attribute Color	Season Fall	Credit Stephanie Swindle Thomas
	Date Added 03 January 18 @ 10:26	Date Taken 20 October 16	Original filename 889A7984.jpg		

Resource details

Caption
The Penn State School of Theatre hosts media day for Trouble in Tahiti at Penn State Downtown Theatre Center.

Metadata report
View report

Related featured and public collections
Public : Trouble in Tahiti Media Day

Figure 3: Resource preview in AARC.

⁵ Diamond, David. *DAM Survival Guide: things to know (and avoid) when designing, promoting and maintaining the perfect digital asset management initiative*, (Seattle: CreateSpace, 2012), 171.

When deciding how to handle permissions and rights and reproduction, the option to restrict access to the high-resolution versions seemed appropriate; however, requiring a login for users to download the large files (particularly for external constituents) appeared to be an impediment for users and was an issue with other types of file sharing sites that the team wanted to avoid. The compromise was to require an image credit and the selection of the appropriate permissions level upon upload (those two fields and image title being the only required fields). At the time of download, there is a statement requiring published images to be properly credited as well as a copyright disclaimer (Figure 4). The team also decided to use the “notes” field to further elucidate any rights and reproduction concerns.

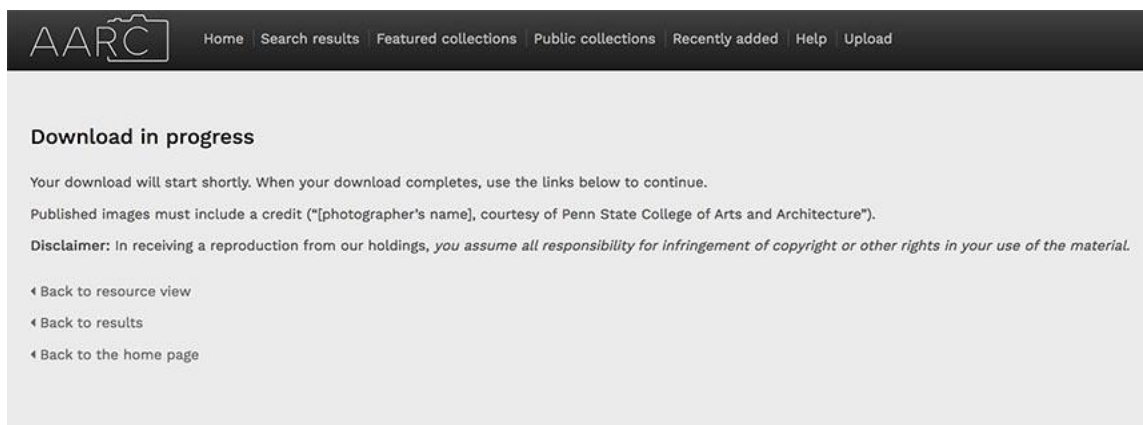


Figure 4: Copyright information and disclaimer that accompanies the download of a resource in AARC.

Another resource option is sharing an image or collection. Using the familiar share icon, clicking brings up the “Share Resource” page for an individual to share an image or collection for which the site generates a URL. Access can be either open or restricted, the link can either never expire or have an expiration date (which is important for external performer publicity contracts because certain artists only provide image rights for the duration of a show’s promotion). There is also a permissions level of access that ranges from “View Only” to “Super Admin.” By choosing to generate a URL, two links are created, one for internal and the other for external users. The “Email Resource” also brings up similar categories for permissions, access, and expiration.

The most important part of AARC is the uploading of resources page because it is necessary to the search functionality of the archive (Figure 5). Uploaders are vital in regard to the quantity of items uploaded as well as the quality of the information provided at upload or a later editing round. In digital asset management, an archive is only as good as its metadata. The more specific an uploader is at upload, the better the results. It is significant to encourage metadata entry at upload, rather than at a later editing round, because images are time sensitive, since most of their purpose is associated with events publicity. Best practices for uploading images and adding proper names in keywording or captions suggest that sooner is better due to relevancy and institutional memory. Once all of the upload information is added, AARC provides a page for uploading images. The upload interface is drag and drop functional, and the upload time depends upon how many images are being processed.

AARC
Home | Search results | Featured collections | Public collections | Recently added | Help | Upload
Stephanie Swindle | Admin | Log out

Upload resources

Please specify the default upload settings and the default values for the metadata of the resources you are about to upload.

* This is a required field

Clear
Next

Resource type: Photo

Copy the data below from resource with ID
 Copy Save

▼ Resource metadata

Title *

Unit

<input type="checkbox"/> A&A General (buildings/stock photos/etc.)	<input type="checkbox"/> Palmer Museum of Art
<input type="checkbox"/> AAIT (Arts and Architecture Information Technology)	<input type="checkbox"/> School of Music
<input type="checkbox"/> Art History	<input type="checkbox"/> School of Theatre
<input type="checkbox"/> CPA (Center for the Performing Arts)	<input type="checkbox"/> SoVA (School of Visual Arts)
<input type="checkbox"/> Integrative Arts	<input type="checkbox"/> Stuckeman School - Architecture
<input type="checkbox"/> Office of Digital Learning	<input type="checkbox"/> Stuckeman School - Graphic Design
<input type="checkbox"/> Office of Research	<input type="checkbox"/> Stuckeman School - Landscape Architecture

Subject

<input type="checkbox"/> ADRI (Arts and Design Research Incubator)	<input type="checkbox"/> Design and Technology	<input type="checkbox"/> Performance - voice
<input type="checkbox"/> Accreditation	<input type="checkbox"/> Diversity	<input type="checkbox"/> Portrait
<input type="checkbox"/> All College	<input type="checkbox"/> Exhibition	<input type="checkbox"/> Recital
<input type="checkbox"/> Art Education	<input type="checkbox"/> Graphics	<input type="checkbox"/> Research
<input type="checkbox"/> Arts Entrepreneurship	<input type="checkbox"/> Harner Center for Community Design	<input type="checkbox"/> SCDC (Stuckeman Center for Design Computing)
<input type="checkbox"/> Blue Band	<input type="checkbox"/> IDS (Interdisciplinary Design Studio)	<input type="checkbox"/> Site visit
<input type="checkbox"/> Borland Project Space	<input type="checkbox"/> Lecture	<input type="checkbox"/> Stage Management
<input type="checkbox"/> C-PAD (Center for Arts and Design Pedagogy)	<input type="checkbox"/> Music Education	<input type="checkbox"/> Student Group (official student club)
<input type="checkbox"/> Ceremonial (awards/graduation)	<input type="checkbox"/> Musical Theatre	<input type="checkbox"/> Studio
<input type="checkbox"/> Classroom	<input type="checkbox"/> Performance - dance	<input type="checkbox"/> Study Abroad
<input type="checkbox"/> Community	<input type="checkbox"/> Performance - instrumental	<input type="checkbox"/> Woskob Gallery
<input type="checkbox"/> Competition	<input type="checkbox"/> Performance - theatre	<input type="checkbox"/> Zoller Gallery

People

<input type="checkbox"/> Alumni	<input type="checkbox"/> Faculty	<input type="checkbox"/> Staff	<input type="checkbox"/> Student - Undergraduate
<input type="checkbox"/> Donor	<input type="checkbox"/> Public	<input type="checkbox"/> Student - Graduate	<input type="checkbox"/> Visitor/ Guest

Keywords - Other:

Caption:

Permissions *: [Dropdown]

Notes:

Orientation: Horizontal Panorama Square Vertical

Location: Indoors Outdoors

Image Attribute: Black-and-white Color

Predominant Color: Black Blue Gray Green Orange Pink Purple Red White Yellow

Season: Fall Spring Summer Winter

Credit *:

Date Added: 04 May 2018 06 58

Date Taken: Day Month HH MM

Simple search

Search using descriptions, keywords and resource numbers

Photo

Unit: [Dropdown]

Subject: [Dropdown]

People: [Dropdown]

Clear Search

[Q Advanced search](#)

My collections Current collection: Kossman Arch 269 items
Actions: [Dropdown] Show thumbs

Figure 5: Upload resources page in AARC.

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Combining IT expertise with visual resources experience proved successful. After a soft launch in the summer of 2017, the team created training manuals for uploading and searching and worked with a graphic designer to create a logo and marketing materials. In September 2017, after a three-year period of software trials, focus groups, budget discussions, design meetings, and test sites, AARC officially launched with a public reception boasting demonstrations and test-drive stations staffed by team members. AARC received a positive response from college leadership, faculty, staff, and students.

In January 2018, Thomas officially incorporated AARC into the college Communications Department photography workflow, uploading photos immediately after editing and exporting them from Lightroom. This implementation has not only made AARC the primary repository for the college's Communications photos, it has also made it the primary destination for internal and external individuals seeking access for personal and professional reasons. On average, Thomas uploads at least five to seven collections each week. As of May 1, 2018, AARC houses 329 public collections with more than 27,000 images. Database statistics show that more than 7,800 resources have been downloaded, indicating the significance of the system in less than a year since its official launch. Use among uploaders and downloaders is gradually expanding with the increase in familiarity and available content. Due to ease of access and retrieval, image quality for publicity purposes has also improved. Lucarelli and Adams have begun adding uploaders to the system, training them, and monitoring AARC for consistency and proper use.

The college's visual resources professionals have not only grown in their responsibilities, but also in their visibility and leadership roles within the college and university community as experts in data asset management and implementation. In addition to AARC's primary purpose as a photo repository, the team is investigating its potential for expansion to accommodate documents and short-form video footage and support other college initiatives. While priority has been given to uploading current photos, the VRC staff and departmental users are now in the process of uploading archival images from the past several years and in the near future will address lacunae and add more keywords in order to fine-tune the database. Thomas, the college social media manager, is pursuing the possibility of uploading from iOS devices and working with other communicators to do the same. Lucarelli and Thomas have also presented ResourceSpace to another group on campus which is looking for a low-cost solution for their cataloging needs. While AARC is in itself a final product of years of planning, design, and work, it is an example of the future of visual resources management.