How do Cultural Institutions Employ Rights Management Technologies and Policies ?

Digital Rights Management and Cultural Institutions

Case Study: Arizona State Museum

Project Description

The Arizona State Museum is one of the primary collections and sources of information on the cultural history of the southwest United States and northwest Mexico. Many of its collections relate to the various American Indian tribes local to the region. ASM's website displays selections from the museum's collections. The museum's target audiences include students, scholars, book publishers, and other museums as well as the general public. The importance of American Indian cultural materials within the ASM, and the troubled history of physical ownership of and access to American Indian cultural materials within the cultural institution community, makes ASM a useful case study for understanding how and why cultural institutions employ access and use controls.

Most of ASM's collections on their website are available freely. The items in these collections are usually visual in nature, ranging from images of traditional pottery to contemporary paintings by American Indians to a virtual paper doll of Frida Kahlo which can be dressed in a set of Indian huipils. Images tend to be photographed and prepared in-house from the physical items of the collection, whose copyright status varies. These images are limited to a maximum of 600 pixels in width.

Special points of interest:

- Address: http://www.statemuseum.arizona.edu/
- ASM controls access to some of its digital resources including selections from its pottery collection, a quilt exhibit, a series of scholarly monographs published by the museum, an online database of Arizona's archaeological sites, and a collections database currently under development. Low resolution copyrighted images on the museum's website are free for personal and educational use.
- ASM has used the following technological tools to control access and use: embedded QuickTime Virtual Reality files, Zoomify image viewing software, password protection, and separation of large images into multiple image files to prevent easy downloading.
- ASM uses the following policy tools to control access and use: posted terms of use and copyright statements on its website, copyright notices for individual items in the collection, and click-through copyright screens for purchased monographs.
- Recommendations from ASM include prioritizing communication between technical and curatorial staff and administration when crafting access policy, and having realistic expectations about the amount of access control possible.

Thumbnails and full-sized images are presented in JPEG format, but some of the galleries use other software viewers in order to accomplish various ends, including control of access and use.

Reasons for controlling access and use

According to Karen Lominac (Information Technology Manager and Principal Head of Information Systems) and Laura LePere (Senior Web Site Designer/Developer), ASM seeks to control access to and use of certain collection materials in order to prevent:

> "ASM takes pains to approach objects of cultural patrimony with care and sensitivity, and this concern is mirrored in the access controls in use on the museum's website."

- uses that slander or misrepresent the collection or its context,
- uses insensitive to the native cultures that produced the artifacts in the collection,
- inappropriate access to "objects of cultural patrimony" such as human remains, items of religious significance and items with restrictions on who is permitted to know about, see, or handle them.

These concerns apply equally to the physical and digitized collections.

Collections that limit access or use with technological or policy tools include the 3-D Pottery Storeroom, the Goldie Richmond quilt exhibit, the Archaeological Series Online, AZSITE, and the museums nascent collections information system. Importantly, in some cases, ASM has chosen to not digitize source material in order to protect it. For example, ASM's website includes a list of the subject cultures represented in sound recordings on its archive; but little, if any, of this material would ever be digitized due to cultural sensitivity concerns.

Technological controls employed

ASM employs a number of technological tools which limit reuse of collections material; however in many cases use control was not the primary motivator for adoption of the technological tool. For example, ASM's digital gallery of Southwest Indian pottery features thumbnail images which lead to embedded QuickTime Virtual Reality (QTVR) image files. This system allows the pieces to be viewed and manipulated in 3-D within the user's web browser through the common QuickTime browser plugin. It just so happens that QTVR files cannot be saved using the basic free QuickTime browser plug-in (see Figure 1). The Pro version of QuickTime, which costs $29.99 from Apple, would allow these files to be saved, but far fewer users have this program. While ASM's use of QuickTime to display these files was not designed specifically to control access, the museum considers the difficulty of downloading these files a "pleasant side effect" of the choice.

In another example of inadvertent use control, the Goldie Richmond quilt exhibit features images of three quilts sewn by Arizonian artist Goldie Richmond. They follow the familiar model of a small thumbnail image which can be clicked to bring up a larger image, but the nature of the artwork allows for use control. The thumbnail version of each quilt is actually a composite of many smaller thumbnails, one for each square of the quilt. This arrangement facilitates close reviewing of quilt squares, but it also means that only one or two rows can be viewed at a time. This prevents users from easily downloading a large version of the whole quilt image.

ASM uses the Zoomify viewer for some images, especially its maps. Zoomify lets a user zoom in on images but prevents a user from seeing an entire image at full resolution all at once (see Figure 3). As with the QuickTime viewer, this decision was initially based less on control and more on usability. However, staff expressed an interest in taking advantage of these proper-

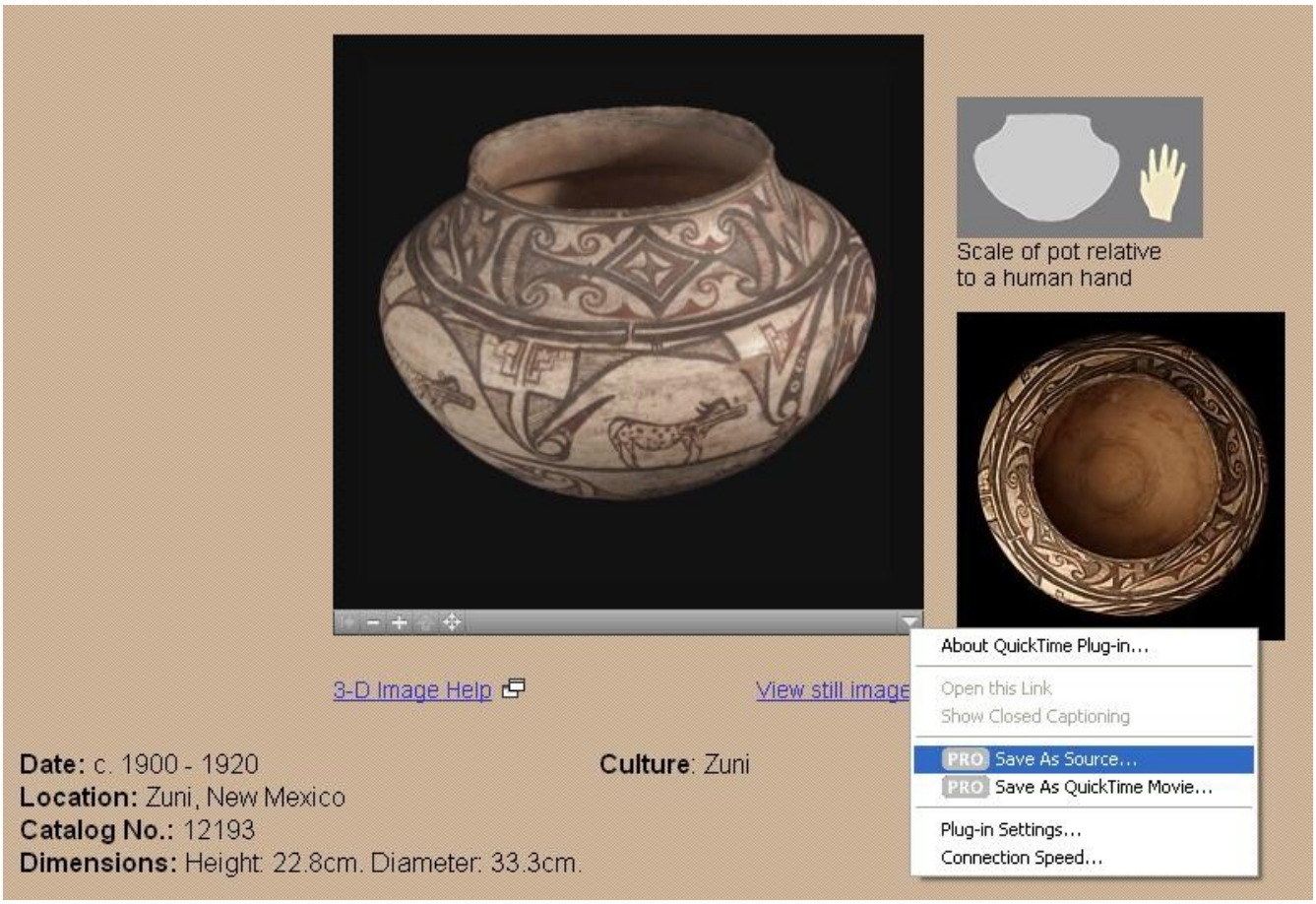
ties of Zoomify (specifically its ability to frustrate a user from saving images at full resolution) to protect access to other high resolution images, including studio photographs of material artifacts, in the future.

Zoomify and QTVR each offer their own strengths and weaknesses: for example, it is harder for a user to save a Zoomify image than a QTVR file, but QTVR can display three-dimensional objects and Zoomify cannot.

Some of ASM's access and use controls are intentional. ASM employs the common measure of limiting the resolution or size of accessible images. Because the museum store carries posters of some of its holdings, it is in the museum's best interests to prevent users from printing their own large high resolution reproductions of collection items. The bulk of ASM's digitized collections are JPG photographs of the museum's holdings, and while most of these images are saved at relatively low resolutions, some have higher pixels-per-inch count. Museum staff explained that in such cases the overall pixel dimensions are low enough that any user trying to make a high resolution print would end up with a very detailed but tiny picture.

While not strictly a part of the museum's collection, ASM's website also offers restricted access to the museum's Archaeological Series of scholarly monographs (see Figure 2). A small subset of the roughly 200-volume series is available for sale as downloadable PDF files. The museum uses a username/password system to control access to these files, although staff think of this as more of an ecommerce system than a user registration system. The museum provides users with the password to access the PDF they have purchased. In order to prevent users from browsing to other PDFs hosted on the server, the

Figure 1. Screenshot of an embedded QTVR file of a Zuni pot from ASM's 3-D online pottery collection. The common free QuickTime plugin is unable to save the file.



download site uses relatively simple obfuscation techniques to prevent users from seeing or guessing the actual URLs. Staff had originally intended to develop a more robust security system to control access to these files, but light sales and resource constraints do not justify a more expensive system.

In another example of intentional access and use control, ASM serves as the host for AZSITE, an official database of archaeological sites in the state of Arizona. The database incorporates a geospatial mapping data and is currently being expanded to include documents and drawings that relate to the archeological sites. Although AZSITE is not an ASM collection per se, much of the material found in AZSITE is part of the museum's holdings. ASM sees AZSITE as a "cross between an archive and a live management tool." It is an ongoing, growing project.

Because the location data about archeological sites can be misused by treasure hunters, the AZSITE data is considered sensitive, and access to the database is therefore split into two levels of content, one being open to the public and the other being strictly controlled. Both are SQL databases maintained jointly by ASM's system administrator and the AZSITE consortium partners. Public users are prompted to create a free account and cannot access the public database without being logged

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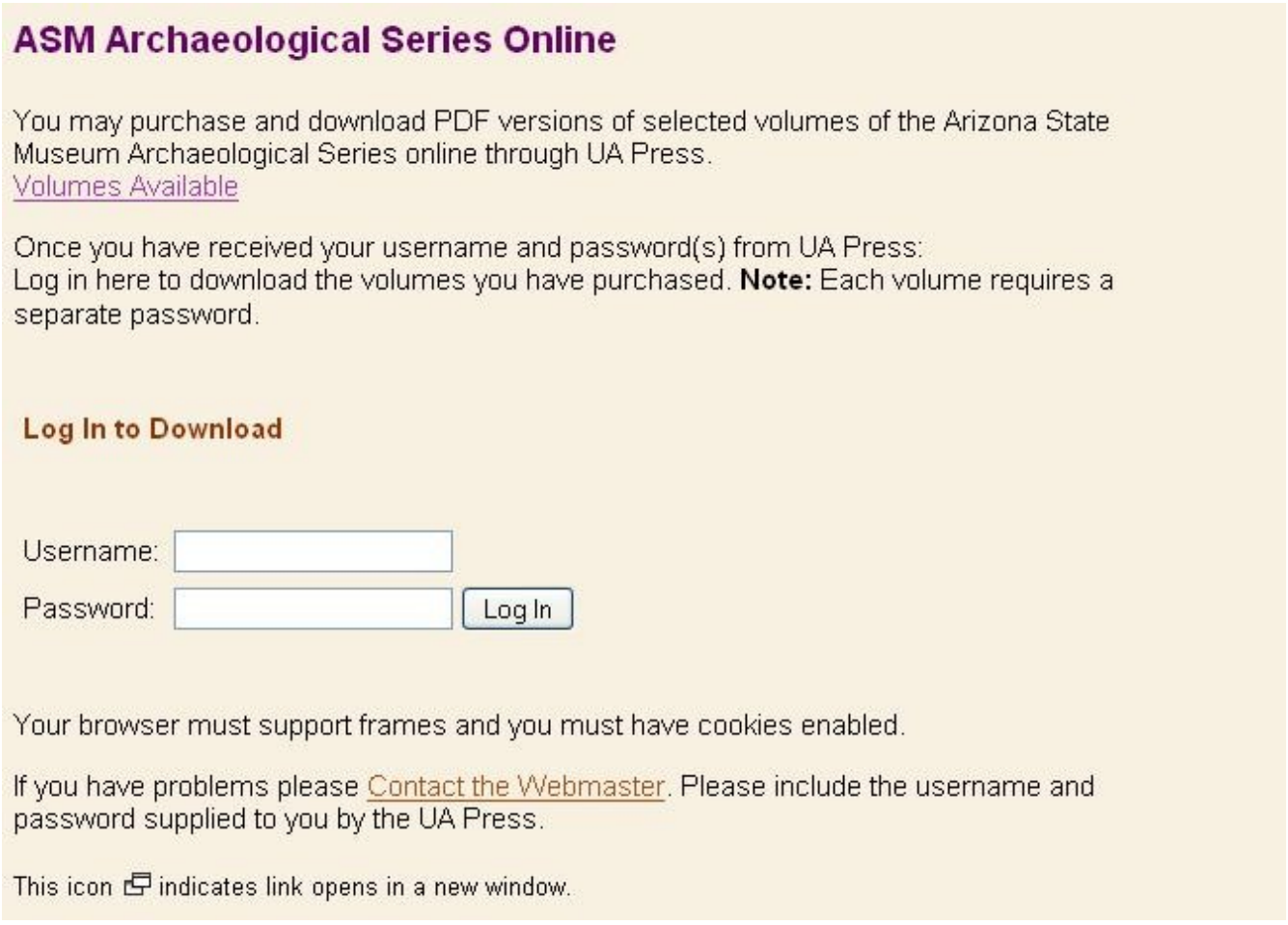
Figure 2. Screenshot of ASM Archaeological Series login page.



in. Researchers who wish to access the restricted database must pay a fee and apply for access, a process meant to verify that they hold the appropriate credentials, after which they can request a username and password. Potential users are vetted by an office staff using guidelines defined in the 1960 Arizona Antiquities Act.

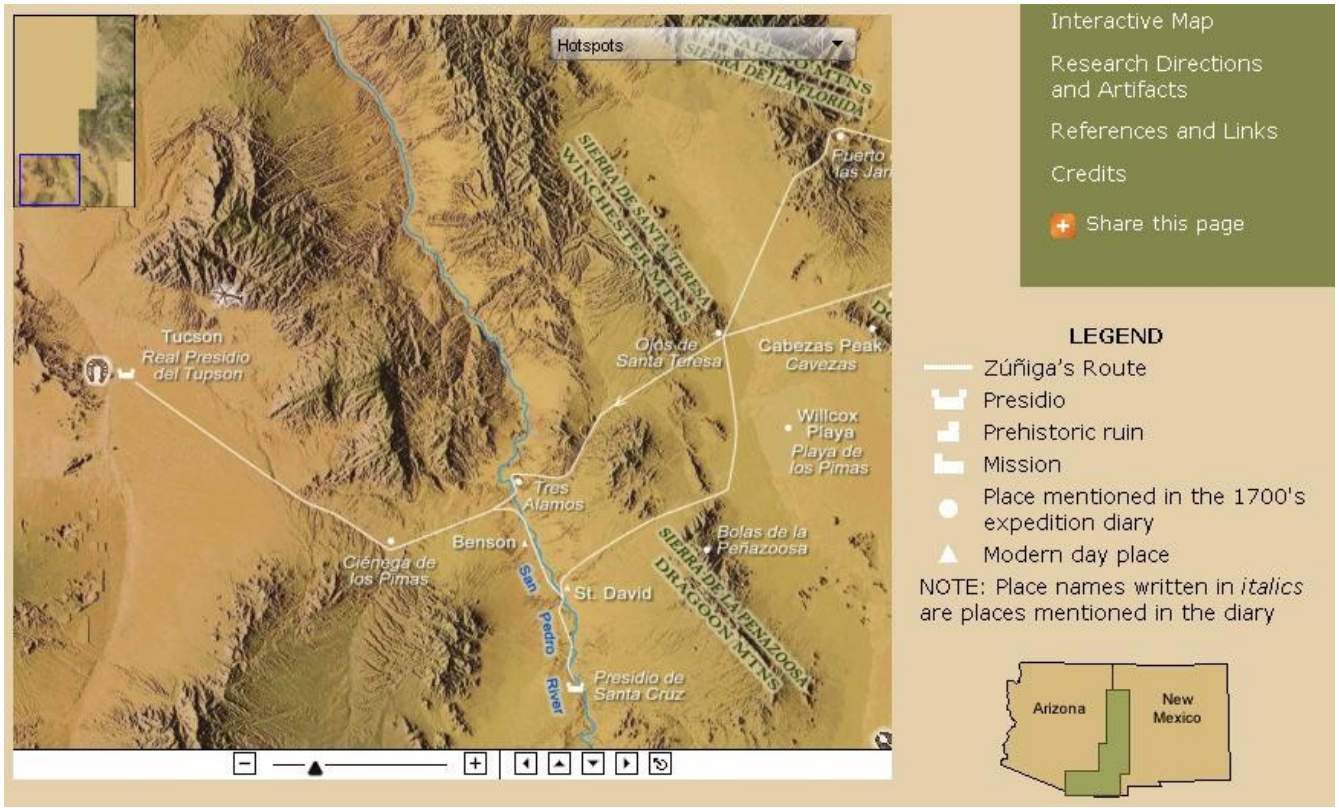
Issues of controlling access and use also have arisen in the ASM's development of an online collections information system. The system will function both as an internal curatorial tool and as a public interface. Typically collections information systems include images of collection items for internal staff use and sometimes for public display.

The high level of sensitivity of some of ASM's cultural patrimony collections complicates questions about inclusion of digital images of items even for internal collection management purposes. ASM restricts internal staff members' physical access to items such as human remains. There is continuing debate in the museum field on the need of photographic imagery for objects of cultural patrimony for internal documentation purposes. Some argue that images should be included—even if restricted to only certain staff members. But others argue that the recording of images of the items is disrespectful and should be avoided.

Currently ASM plans to flag records in its nascent online collections information system to control which types of login are permitted to view a certain item's record/image. Items with the "public" flag can be viewed by anyone, whereas items with the "curator" flag are only viewable to museum curators. ASM decided to include cultural patrimony items within the collection management system, but no public access will be provided, and ASM is taking pains to manage the internal use of metadata and images of these objects with care and sensitivity.

Recommendations for use of techno-

Figure 3. Screenshot of a Zoomify interactive map in ASM's online collection. Only small portions of the map can be viewed at full resolution at one time.



logical controls

ASM staff report that the creation of the pottery gallery QTVR files was a significant time investment, and they advise that institutions interested in undertaking similar projects should be aware of this labor cost. In contrast to QTVR files, they report that Zoomify required little time investment. However, overall the long-term maintenance of digital collections can be expensive and demanding. ASM keeps costs down by using student workers and unpaid volunteers for some of the routine scanning and image processing work, however that can introduce other quality control challenges.

In terms of controlling reuse, staff pointed out that even a viewer like Zoomify will not totally prevent a determined user from downloading high resolution content. As one staffer explained, "If someone really wants that content, there's a way for them to do it... It certainly wouldn't be as hard as a thousand piece jigsaw puzzle." Staff also acknowledged the problem of third-party software that allows a user to capture streaming video in downloadable form. Even less practical as a protection measure are digital watermarks, which require active policing to identify infringing use. ASM chooses not to use digital watermarks for this reason.

Policy controls employed

ASM also controls reuse through policy means, mostly with copyright notices. When a user purchases a PDF from the museum's Archaeological Series of monographs, they are presented with a copyright notice screen advising them of their right to download the file and make a single copy for their personal use. This notice is a simple click-through page and does not require the user to mark a checkbox indicating that they agree to any terms of use.

For images with copyrights owned by a third party, ASM lists copyright notices at the item level. ASM staff explained that while a policy tool like this may not stop all unauthorized reuse, the museum is serious about advising users of their rights and the legal status of the digitized materials. In addition, prominent displays of copyright information makes it easier for the museum to build a solid legal case in the event of copyright violation by a user.

The ASM allows personal and educational use without permission for images where it owns the copyright. This has been a long-standing policy, explained by staff as being "partly just acceptance of reality." The museum recognizes that perfect control is difficult or impossible, and staff are largely unconcerned about personal and educational use. Indeed, most permission requests that the museum receives are for educational uses in the first place. Others tend to be for things like community newsletters, and ASM is willing to approve such requests.

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Unauthorized reuse of images does occur. ASM deals with these instances of infringement on a case-by-case basis, assessing each situation before deciding how to proceed. In general ASM views reuse as good publicity, provided the images are properly attributed.

For example, a co-operative association website employed two ASM images of Tohono O'odham baskets in its collection without asking permission when describing a structure its members had built based on the "man in maze" motif found on the baskets. The site had provided credit to the museum with links , but the links were outdated. ASM's only action was to ask the co-op to update its credit links.

However not all reuses are seen as good publicity. One individual, considered "not reputable" by museum curators, was asked to remove copied ASM images from his personal website because the museum did not approve of the implied connection between the individual and the museum.

Recommendations for use of policy controls

The ASM staff emphasized the importance of good communication between policy makers and the technical staff and administrators with whom they work. For example, without the input of technical staff, curators may try to retrofit outdated policies originally designed for physical objects and apply them to the digital collection. Up-to-date, relevant policies should be a priority and require collaboration between the two groups.

ASM therefore holds monthly meetings of a committee comprised of both curatorial staff and technical staff. The meeting is an important venue for the work of creating policies and setting goals. They have been helpful for ironing out details of best practice, and provide a forum to address issues relevant to both groups. Other institutions wishing to undertake digital projects may find joint meetings of technical and curatorial staff to be useful.

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The case studies portion of the project identified six exemplary projects that employed a variety of rights management technologies and policies to serve as examples from which other institutions might learn.

Related study outputs include:

Eschenfelder, K.R. (2009). Controlling Access to and Use of Online Cultural Collections: A Survey of U.S. Archives, Libraries and Museums for IMLS. University of Wisconsin-Madison School of Library and Information Studies: Madison, Wisconsin. (http://minds.wisconsin.edu/handle/1793/38251)

Eschenfelder, K.R.; Agnew, G (2010) "Technologies Employed to Control Access to or Use of Digital Cultural Collections: Controlled Online Collections" D-Lib Magazine.