Theses and dissertations

1-1-2009

A DAM Alternative : Increasing Access To The Image Permanence Institute's Photograph Collection Using Adobe Bridge

Melissa C. Reamer
Ryerson University

Follow this and additional works at: http://digitalcommons.ryerson.ca/dissertations

Part of the Photography Commons

Recommended Citation

A DAM ALTERNATIVE: Increasing access to the Image Permanence Institute's
photograph collection using Adobe Bridge

by

Melissa Carol Reamer
Bachelor of Science in Photography
University of Central Florida in Daytona Beach, Florida, 2005

A thesis project presented to Ryerson University
and George Eastman House International Museum of Photography and Film

in partial fulfillment of the
requirements for the degree of

Master of Arts
in the program of Photographic Preservation and Collections Management

Toronto, Ontario, Canada, 2009
© Melissa Carol Reamer

AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis project.

I authorize Ryerson University and George Eastman House. International Museum of Photography and Film, to lend this thesis project to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University and George Eastman House, International Museum of Photography and Film, to reproduce this thesis project by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

MA Program in Photographic Preservation & Collections Management
Ryerson University in association with George Eastman House – International Museum of Photography & Film

Professional Practice Project - Supervisor's and Second Reader's Report

Student's Name: Melissa Carol Reamer   Student's ID Number: 500181302

Project Title: *A DAM ALTERNATIVE: Increasing access to the Image Permanence Institute's photograph collection using Adobe Bridge*

Assessment:
We endorse the acceptance of this thesis -- a practical and useful document tracing development of an economical approach to managing a unique collection of images.

Transcript entry for PPP (PP8000):   Pass ☑   Fail ☐

Supervisor _____   Date July 28, 2009

Second Reader _____   Date July 30, 2009

APPROVED: _____   Date _____

Program Director Signature
Either Ryerson or GEH

A DAM ALTERNATIVE: Increasing access to the Image Permanence Institute's
photograph collection using Adobe Bridge

Melissa Carol Reamer
Master of Arts - Photographic Preservation and Collections Management
Ryerson University and George Eastman House International Museum of Photography
and Film

ABSTRACT

Implementing a digital asset management (DAM) system can be an expensive and

complicated endeavor, especially for non-profit organizations with limited budgets and

technical staff. This applied thesis project presents an alternative to traditional DAM

systems by utilizing the browsing and searching capabilities of Adobe Photoshop Bridge.

For this project, hundreds of photographs were digitized and assigned keywords. By

applying descriptive keywords to the digital images and using a file naming structure that

references the physical location of the original objects, the objects in the Image

Permanence Institute's photograph collection become more accessible to researchers and

staff. In addition to providing a workflow, this thesis provides information of digitization

techniques and standards.

ACKNOWLEDGMENTS

I would like to express my appreciation to the helpful, talented professors and staff at Ryerson University and the George Eastman House. Their guidance and expertise have inspired me to no end. I would like to thank Roger Bruce and Ralph Wiegandt, my thesis advisors, for their recommendations and enthusiasm.

I would also like to thank my classmates, each unique in their own way, who share my love and dedication to photography.

This thesis would not have been possible without the staff at the Image Permanence Institute, particularly Jim Reilly and Ryan Boatright, two of the most knowledgeable, influential people in the field of photographic preservation.

DEDICATION

This thesis project is dedicated to Walter and Daphne Reamer, the best dad and mom in the whole, wide world.

To Ashley, my beautiful sister.

And to Jesse Denison, whose love, support, and humor I could not have lived without.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

During the summer of 2008, I worked as an intern at the Image Permanence Institute (IPI) at Rochester Institute of Technology (RIT) on various characterization projects, where much of my attention focused on Kodak chromogenic color materials. I noticed early on that the materials in the collection were difficult to access because of a lack of finding aid or catalog of any kind. Photographs are housed in boxes which are labeled fairly accurately with the process type, or in some cases the format (e.g. cartes-de-visite and cabinet cards). To find a specific type of object, staff must pull the boxes with the appropriate label, then look at all of the photographs in the box until the best example is found. This method of searching is not only time consuming, but also increases handling of the often fragile objects. Therefore, I decided to create some sort of method for searching the IPI collection.

Determining the type of searching method that would best suit the IPI collection took quite a bit of time. I researched various types of collections management software only to find that most were expensive and would require more time to implement than I had to devote to the project. I ended up settling on Adobe Bridge, a file browsing software included in the Adobe Photoshop software package version CS2 or later. Many organizations already use Adobe Photoshop and already have Bridge available to them, although they may not utilize it. Not only was this the best option for IPI's budget, it also best accommodated the staff as many of them were already familiar with Bridge. I will later discuss what Bridge is capable of from a collections management point of view in more detail.

Digital asset management (DAM) can be a complex, frustrating, and expensive undertaking for a new or modestly budgeted organization. DAM is essentially a protocol

1

for the process that occurs after capturing the digital photograph and includes the downloading, renaming, backing up, archiving, optimizing, maintaining, and exporting of the file. It is a technology tool that normally requires management by a technical staff. Although Adobe Bridge is not a complete DAM substitution, I will explain how it can be a sufficient alternative until an organization obtains the resources necessary to implement a DAM system.

A DAM Alternative: Increasing Access to the Image Permanence Institute's photograph collection using Adobe Bridge, although originally intended specifically for IPI, has been written primarily for small institutions that lack the funding and staff to implement a DAM system. Throughout this thesis, I will describe how to digitize a small collection of photographs and apply searchable metadata and keywords in order to then physically locate them within the collection. The step-by-step guide will include illustrations that will better explain the tasks and, hopefully, make this a painless process for those less technically inclined. A workflow is included in Appendix A to illustrate a simplified view of the process. A Resource Table is also included to help the user locate additional information to aid in trouble shooting or for further reading.

THE IMAGE PERMANENCE INSTITUTE'S PHOTOGRAPH COLLECTION

The Image Permanence Institute, founded in 1985 by James Reilly through the combined efforts and sponsorship of the Rochester Institute of Technology and the Society for Imaging Science and Technology, is now approaching its 25th year as a major contributor to the photographic preservation industry. It is a university-based, nonprofit research laboratory devoted to scientific research in the preservation of visual and other

forms of recorded information.[1] A major part of IPI's mission is to promote research and

technical support of preservation efforts in libraries, archives, and museums worldwide through providing information, consulting services, practical tools, and preservation technology.

IPI has built a substantial study and research collection with the intention of promoting its mission of preservation research and education. The collection encompasses the entire history of photography ranging from daguerreotypes to digital prints. It also contains pre-photographic processes,

Figure 1. The IPI study and research collection

including intaglio and stone lithography. The materials have been collected over the last

Figure 2. IPI's Microscopy Laboratory

25 years by Reilly and other staff members. The objects' trajectories are largely unknown, as many of them have come from antique stores, flea markets, and garage sales in various locations worldwide.

I have been fortunate to have access to IPI's state of the art

---

[1]Image Permanence Institute. "About IPI." Image Permanence Institute, Rochester Institute of Technology. http://www.imagepermanenceinstitute.org/shtml_sub/aboutipi.asp

3

facilities and equipment for this project. They have one of the best equipped centers in the world for testing imaging materials and for conducting preservation research. The majority of my work is done in the Microscopy Laboratory, which contains equipment for the scanning, imaging, and cross-sectioning of traditional and digital prints and negatives. IPI uses these images for creating educational publications, lectures, and didactic materials in various formats, including *Graphics Atlas*, an online tool for the identification and characterization of print processes.[2] The objects that are imaged come from IPI's collection and, as I stated earlier, the only way to access these objects is to physically search the boxes and hope to find what you are looking for.

In early 2009, the Image Permanence Institute and George Eastman House International Museum of Photography and Film officially launched the Center for the Legacy of Photography (CLP). The goals of the CLP are to articulate the importance of understanding silver halide photography and to document its technology and material nature. The CLP will also offer workshops covering characterization methods, issues in photograph authentication, print appreciation, and historic processes. I believe that creating a tool that increases access to the IPI collection will not only benefit the staff at IPI, but will also aid the CLP in achieving its goals.

DIGITAL ASSET MANAGEMENT

DAM systems, also referred to as digital archives or digital repositories, are organizational systems for managing and accessing digital files. Peter Krogh, who writes

---

[2] Graphics Atlas. "Object Explorer." Image Permanence Institute, Rochester Institute of Technology, Digital Sample Book, Center for the Legacy of Photography. http://www.graphicsatlas.org/

extensively about this topic, explains very simply that, "Digital asset management is a term that refers to everything one does with image files from the point of capture onward."[3] This includes downloading, renaming, backing up, grouping, archiving, optimizing, maintaining, and exporting files. DAM allows users to know what the digitized photograph represents, where it can be found, and what its physical properties are.[4]

Before beginning a digitization or DAM implementation project, it is important to think about the following issues: the organization's mission and values, digitization standards, budget for initial set-up and future maintenance, metadata standards, and dealing with possible changes in technology obsolescence.[5]

If money permits, organizations will sometimes work with professional individuals or corporations that specialize in digital asset management and preservation. They monitor technology changes, store digitized photographs, and track and inventory control of the images.[6] Another option is to implement a DAM system in-house using technical staff and cataloging software. For some organizations, funding may prohibit them from implementing these DAM tools. Luckily, there is another option, but before I go into great detail, it is important to understand, on a basic level, a little more about digital asset management options.

There are basically two types of software for digital asset management, cataloging software and browsers. Browsers are a type of software that enable you visually search

[3] Carr, Susan and American Society of Media Photographers, ed. *ASMP Professional Business Practices in Photography*. 7th ed. (New York: Allworth Pres, 2008), 273.

[4] Ritzenthaler, MaryLynn and Diane Vogt-O'Conner. *Photographs: Archival Care and Management.* (Chicago: Society of American Archivists, 2006), 400.

[5] Ibid.

[6] Ibid., 384.

through folders of images. Examples include *Adobe Bridge*, *Photo Mechanic*, *Google Picasa*, and *BreezeBrowser*. Cataloging software keeps a database record of all the images and you can access them even when not connected to the storage device. This makes cataloging software smarter and faster than browsers. Current examples of relatively inexpensive cataloging software include *Microsoft Expression Media*, *idImager, iMatch*, and *ACDSee*.

So why not use cataloging software over a browser for this project? As I stated earlier, IPI already utilizes Photoshop and Bridge for other projects. This Bridge workflow is very effective and relatively easy to use.

PART I. THE PREPARATORY WORK

First, I had to do a bit of planning before I could start the digitizing. After deciding to stick with Bridge, I needed to think about how I would store the digitized images. IPI has a server that the entire staff has access to, but I also wanted to have a backup option. I bought a portable 160 gigabyte (GB) external hard drive for about $70. This allowed me to save my files in two locations for added security and to attach keywords to images from my computer at home. The recommended method to ensure digital image preservation, though impossible for my budget, is to save the file to three different devices, on two different media types (e.g. hard drive and DVD), and one should be stored off site.[7]

---

[7] Carr, Susan and American Society of Media Photographers, ed. *ASMP Professional Business Practices in Photography.* 7th ed. (New York: Allworth Pres, 2008), 274.

One of the advantages of using Bridge is that it has a user-friendly interface, called the workstation. Although the workstation can be customized, I recommend the "Essentials" interface option because it is easy to navigate in. Figure 3 is a screenshot of the Bridge "Essentials" workstation. I will now highlight the important elements used in this project.

Figure 3. The Adobe Bridge workstation

The upper left part of the workstation contains a list of file sources on the computer (e.g. hard drive and server). The keywords and metadata tabs are in the lower left portion of the screen. The middle contains the thumbnails and names of the files in the chosen folder. The search tool is located in the upper right corner. The majority of the right side of the screen is occupied by a preview of the selected thumbnail. All of these

sections, with the exception of the search tool, can be adjusted in size to suit the user's preference.

The next preliminary step before digitizing was to assess the collection and develop a list of keywords based on its content. Because IPI's collection is organized by process, I determined what processes actually existed in the collection, then added formats and types of deterioration and characteristics to the list. Assigning keywords to images allows you to search and retrieve them easily. Choosing an established controlled vocabulary is recommended because there are many ways of saying one thing, and this makes it easier to search. After I developed the working list of keywords, I compared my terms to two different controlled vocabularies commonly used when describing visual materials: the Thesaurus for Graphic Materials (TGM), which is used by the Library of Congress and contains over 7,000 subject terms and 650 genre/format terms to index photographs, prints, and other graphic materials;[8] and the Art and Architecture Thesaurus (AAT), developed by the Getty Art History Information Program, which contains a vocabulary of terms and descriptions that relate to fine art, architecture, decorative arts, archival materials, and material culture.[9] I finally decided to use the AAT because it contained more terms than the TGM.

---

[8] Thesaurus for Graphic Materials. "About the Thesaurus for Graphic Materials." Library of Congress, Prints and Photographs Division. http://lcweb2.loc.gov/pp/tgmhtml/tgmabt.html
[9] Art and Architecture Thesaurus Online. "About the AAT." The J. Paul Getty Trust. http://www.getty.edu/research/conducting_research/vocabularies/aat/about.html

| Format	Deterioration/ Characteristics	Process Name	
albums	abrasion	albumen	Gum bichromate
cabinet photographs	catalytic paper decay	ambrotypes	lantern slides
cartes-de-visite	cracking	aquatints	mezzotints
celluloid	fading	autochromes	Offset lithographs
folders	ferrotyping	calotypes	palladium prints
glass	foxing	carbon	photogravures
negatives	gilding	carbro	photomechanical
postcards	hand coloring	chromogenic color	platinum
stereographs	handwriting	chromolithographs	printing-out paper
transparencies	insect damage	collodion	relief halftones
	mold	collotypes	resin-coated paper
	redox	cyanotypes	rotogravure
	reticulation	daguerreotypes	salted paper
	retouching	digital prints	screen prints
	silver mirroring	developing-out paper	Steel engravings
	staining	dry plate	Stone lithographs
	sulfiding	dye sublimation	tintypes
	tarnish	dye transfer	wet plate
	transfer image	engravings	Wood engravings
	Union stamp	etchings	woodburytypes
	vinegar syndrome	fiber-based paper	woodcuts
	water damage	gelatin silver	
	yellowing		

Figure 4. Lists of keywords
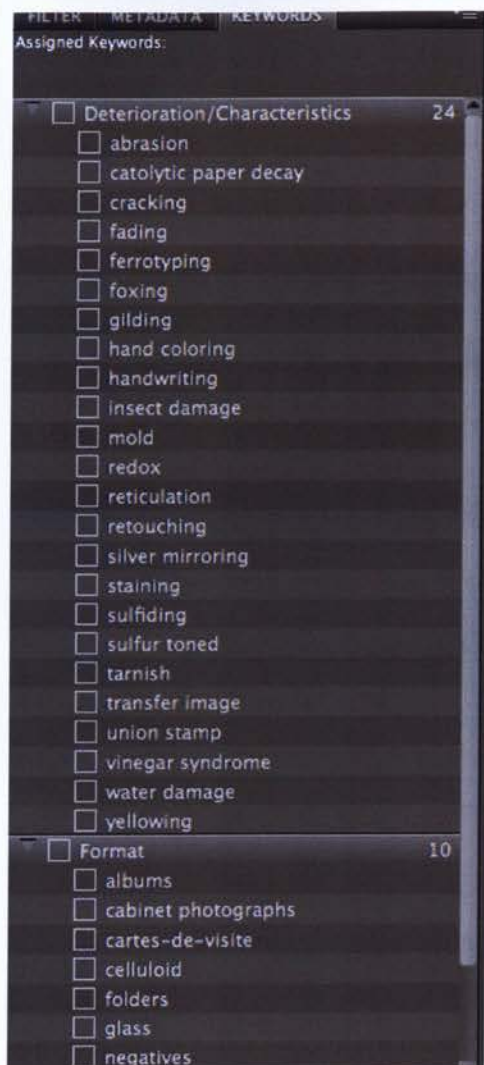
9
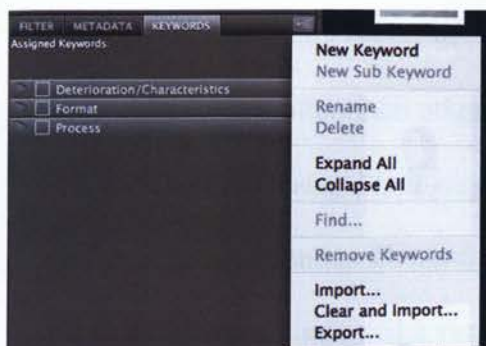
Figure 5. Importing keywords into Bridge

Figure 6. Imported list of keywords

Importing the keywords into Bridge is an alternative to manually entering them, a potentially time consuming task. To import the keywords, they must first be typed into a word processor and saved as a plain text document (.txt). On the right hand side of the Keyword tab in Bridge, click the dropdown menu button and choose Import. Select the text file and Bridge will generate a list in the Keywords tab.

Another important part of assessing the collection involved choosing what objects to digitize. There are a number of factors that can contribute to the selection on objects, including the collection's content and audience, the object's physical characteristics and condition, whether or not the objects have already been arranged and described, and whether or not the objects are rights-free.[10]

IPI is different from many organizations that collect photographs. This collection is accessed by staff for teaching process identification and preservation, while other photograph collections are accessed by researchers based on the image content or photographer. Because I could not

---

[10] Ritzenthaler, MaryLynn and Diane Vogt-O'Conner. *Photographs: Archival Care and Management.* (Chicago: Society of American Archivists, 2006), 381.

possibly digitize every object in the collection, I chose to focus on objects I thought may be accessed more often than others for particular workshops and seminars conducted by IPI, such as *Preserving Photographs in a Digital World*, an annual seminar offered by IPI and the George Eastman House that teaches how to identify materials typically found in photo collections. I selected a variety of processes from at least 30 different boxes, and made note of all of the boxes I wanted to digitize while leaving it open for change as the project progressed.

Upon time to start digitizing, I separated the objects by approximate size. I made one pile each of roughly 4 x 6 in., 5 x 7 in., and 8 x 10 in. Due to time and equipment limitations, I decided not to image anything larger than 8 x 10 in. By separating the objects and

Figure 7. Objects separated into piles by approximate size.

working with one size at a time, I saved time by not having to make as many adjustments to cropping and white balance during my workflow.

PART II. THE DIGITIZATION PROCESS

The next issue I needed to confront was deciding what method I would use to digitize the objects: scanner or camera? This took a bit of research as well as trial and error. Currently, IPI practices standardized imaging techniques using a Canon 5D on a

11

copy stand, but because there was a lot of imaging being done for the *Graphics Atlas* website, I started with scanning and later switched to camera imaging (in the non-profit world, we work with what we have even with limited resources, which is why I wanted experience using both methods).

There are important questions that should be addressed before beginning the digitization process. These include: What should be captured? Does the digital image need to serve as a surrogate and limit the access to the original, or will it serve as an example to aid in locating the original for further examination? Is it necessary to capture the entire object including the edge or mount? For albums with multiple images on the pages, should the entire page be captured, or the photographs individually? Is there information that should be captured on the verso? Should the actual object or an idealized version be represented?[11]

Digitization standards should be followed in order for the images to be durable, and by establishing digital master specifications you enable the files to adapt to future changes in software, hardware, and file format technology.[12] The problem lies in figuring out what standards to follow and how we establish digital master file specifications. I consulted many sources, but ultimately, I opted to follow IPI's standards. IPI recommends master image files be a minimum of 4,000 pixels across the long dimension, TIFF or RAW file format, have a bit-depth of at least 8-bits per channel, and Adobe RGB (1998) color space. Throughout the explanation of my process, I will briefly discuss each one of these topics.

---

[11] Ritzenthaler, MaryLynn and Diane Vogt-O'Conner. *Photographs: Archival Care and Management.* (Chicago: Society of American Archivists, 2006), 389.
[12] Ibid., 384.

Different organizations will have different imaging standards. While I have found

some commonalities, these standards are dependent on the organization's existing

equipment and space, their digitization budget and staff, and the time that can be

allocated to the project. It should also be noted that digitization projects are not normally

accomplished by one person, but require a team of professionals, including an imaging

person, IT person, conservator, collection manager, and cataloger.

I used my Epson Perfection 4180 Photo scanner for the scanning portion of the

project. Although this scanner is an older model and has been discontinued, I find that

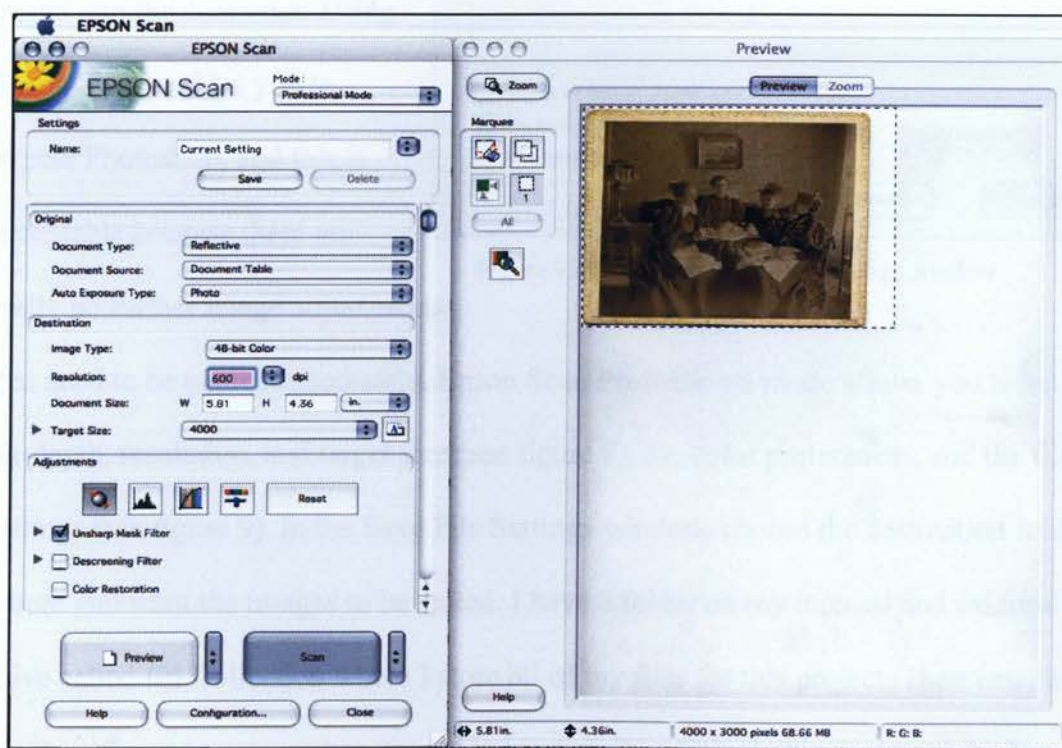most Epson photo scanners deliver high quality and are adequate for digitizing

Figure 8. Epson Scan software interface

photographs for archival purposes. The Epson Scan software that accompanies the
scanners is easy to use and offers a professional setting so that the user can manually
adjust the settings to fit his or her needs. The Epson 4180 also has a built in adapter for
scanning negatives, slides, and transparencies.

I utilized the Epson Scan
software instead of Adobe
Photoshop, but either one will
accomplish the same goal,
which is to get the digitized
image into the computer. Using
Epson Scan enables you to
bypass Photoshop, and this is
acceptable because there are
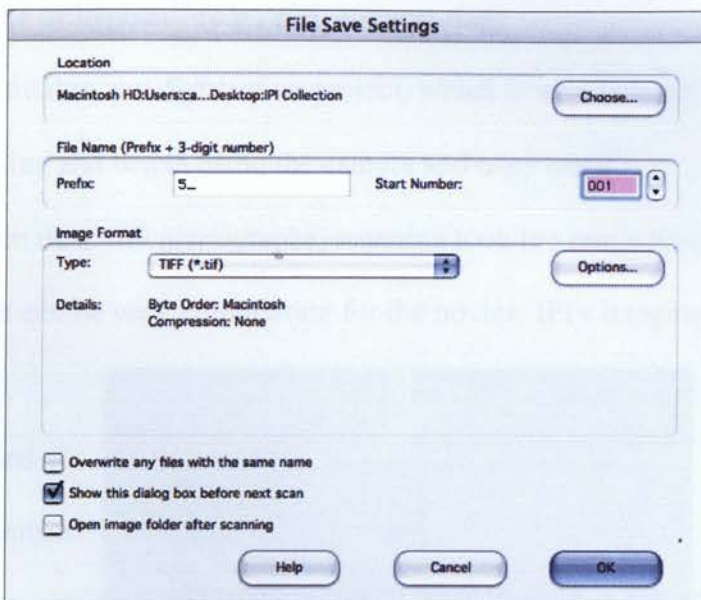really no further image adjustments

Figure 9. Epson Scan File Save Settings window

that need to be made immediately. Epson Scan Professional mode allows you to set the
bit-depth, resolution, and target size (see figure 8), the color preferences, and the file save
settings (see figure 9). In the Save File Settings window, choose the destination folder
where you want the images to be stored. I have a folder on my internal and external hard
drive called IPI Collection where I store all of my files for this project. Then enter a file
name prefix and start number. To aid in locating the original objects, I used the box
number followed by an underscore for the prefix, and 001 for the start number. This
number will simply represent the order in which the files were scanned. Finally, select
TIFF as the file type.

The file naming convention is an important element in digital image preservation. A few basic conventions should be followed to ensure compatibility across operating systems: Only use lowercase alphanumeric characters in the file name; end file names with an established three character file format; and do not use spaces, tabs, slashes, or asterisks - instead use an underscore or hyphen[13] (e.g., 125_10verso.dng).

A speedy workflow is essential to any digitization project, which is why I almost immediately decided to stop scanning and began using the camera and copy stand method. While I did manage to scan over 100 photographs, scanning took too much time. Digital camera imaging techniques can be very intimidating for the novice. IPI's imaging staff assisted me in the initial equipment set up and process. I used a Canon EOS 5D, but there are a number of acceptable cameras that may be used for this type of work. A digital single-lens reflex (DSLR) is preferred over a point-and-shoot digital camera because they do not offer the same high level of
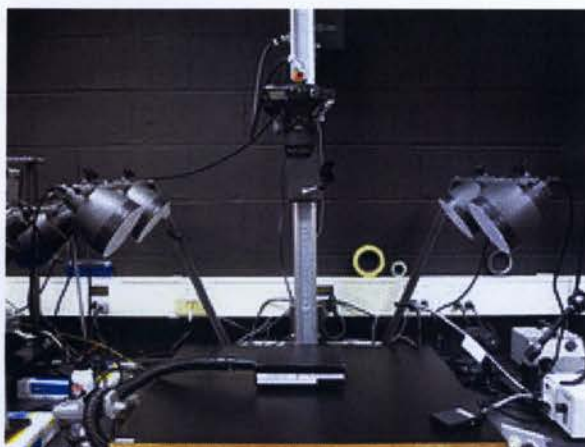
Figure 10. Lighting and camera set up.

image quality as a DSLR. Some organizations use medium format and scanning back cameras, but most do not have the budgets for these. When considering which DSLR to use, the American Institute for Conservation (AIC) recommends selecting a camera with at least 6 megapixel (MP) minimum native sensor resolution, the ability to shoot RAW and TIFF file formats, the ability to accept interchangeable lenses, a sensor size of 23x15

[13] Ritzenthaler, MaryLynn and Diane Vogt-O'Conner. *Photographs: Archival Care and Management.* (Chicago: Society of American Archivists, 2006), 388.

mm or greater, ability to tether to a computer, and support for Adobe RGB (1998) color space.[14]

The AIC recommends using a prime lens, which has a single focal length, over a zoom lens because they are usually faster and sharper. I used a Canon EF 100mm f/2.8 macro lens. Lenses generally yield higher quality images when the aperture is closed down 2-3 stops from the widest opening[15] (in my case, the widest setting is f/2.8). The f-stop I used depended on the size of my objects because, as I mentioned earlier, IPI already incorporates their own imaging standards. For objects approximately 4 x 6 in. and 5 x 7 in., I shot at f/16, and for objects approximately 8 x 10 in., I shot at f/18.

All exposure times were 1/60 second because strobe lights sync to this speed. Strobe lights provide a daylight color temperature and high lumen output without heat. Tungsten lights can also be used, but they produce a significant heat.[16] I used 45 watts/second Morris AC strobes mounted to a Polaroid MP-4XL at an approximately 45-degree angle to the object.

A standardized color target should be included with the objects in the capture because they act as

Figure 11. Color target and object on vacuum easel

[14] Frey, F., Heller, D., Kushel, D., Vitale, T., Weaver, G. *The AIC Guide to Digital Photography and Conservation Documentation*. Edited by Jeffrey Warda. (Washington D.C.: American Institute for Conservation of Historic and Artistic Works, 2008), 15

[15] Ibid., 18.

[16] Ibid., 19.

metadata and are used to check exposure and white balance by providing known RGB values within the image.[17] I used the X-Rite 24 Patch Mini ColorChecker (see figure 11). Professional photographers often use this target to ensure accurate color reproduction when working in a digital workflow.
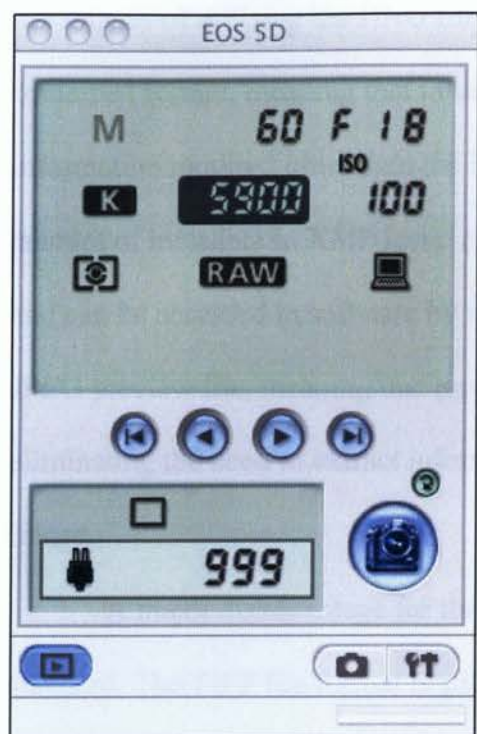

Figure 12. Canon EOS 5D software

Tethered shooting allows the images to be directly transferred to the computer immediately after capture. It was essential to my workflow because I was able to see the images on the computer screen as I took them and did not have to transfer the images to the computer from a memory card. By using the Canon EOS software, included with the camera, I was able to adjust all the camera settings from the computer (see figure 12).

The camera should be set to shoot in RAW format. RAW capture is considered to be the best way to preserve all of the bits captured in the image, and offers richer data depth and file stability during conversion and editing.[18] It is possible to process RAW file formats with a variety of proprietary software depending on the manufacturer, but I used Adobe Photoshop Camera Raw, a plug-in to Photoshop. Camera Raw will read and process RAW files from different camera manufacturers. My workflow involved

---

[17] Frey, F., Heller, D., Kushel, D., Vitale, T., Weaver, G. *The AIC Guide to Digital Photography and Conservation Documentation*. Edited by Jeffrey Warda. (Washington D.C.: American Institute for Conservation of Historic and Artistic Works, 2008), 20.

[18] Lowrie, Charlotte K. *Adobe Camera Raw Studio Skills*. (Hoboken N.J.: Wiley Publishing, 2006), 5.

shooting the objects, one approximate size at a time, then opening them in as a batch in Camera Raw. I was able to crop them, adjust white balance, and convert the RAW files to Digital Negative (DNG) files, using Camera Raw in a matter of minutes.

DNG files formats are still a relatively new technology. There are several advantages of utilizing the DNG file format are. First, it is an openly-documented self-contained format, meaning that in order to open the image, there is a minimum amount of information required other than the DNG file itself. Second, it can hold a substantial amount of metadata in XMP form (eXtensible Metadata Platform) within the DNG file, and can be accessed in software by a variety of different companies. Finally, it can store a JPEG preview file, meaning that programs such as Adobe Bridge will run faster by eliminating the need to extract information from the RAW file to display a preview image.

A major disadvantage for the DNG file format is that it is not yet an established standard. The TIFF file format is still the standard for many organizations because it is recognized by the International Organization for Standardization (ISO),[19] In 2008, Adobe submitted the proprietary DNG RAW file format to the (ISO) as a proposed new standard,[20] and it will be interesting to watch where the technology is headed. If the DNG file format is not approved by the ISO, DNG files are at risk of becoming obsolete; however Adobe claims that because DNG is an extension of the TIFF format, "It is possible (but not required) for a DNG file to simultaneously comply with both the Digital

[19] International Standards for Business, Government and Society. "ISO 12639:2004." International Organization for Standardization. http://www.iso.org/iso/catalogue_detail.htm?csnumber=34342

[20] Adobe. "Digital Negative (DNG) Specification." Adobe Systems Incorporated. http://www.adobe.com/products/dng/pdfs/dng_spec_1_2_0_0.pdf

Negative specification and the TIFF-EP standard."[21] The conservative approach for many institutions when digitizing objects for archival purposes is to shoot in 16 Bit TIFF format.

CONCLUSION

Recently IPI was awarded the funding to employ an Information Technology major at RIT to implement a DAM system. Although the purpose of the DAM, as of now, is to organize and keep track of the images for the *Graphics Atlas* website, it could eventually evolve to contain images from the entire IPI collection, including the images I created for this project. This is why it was important that I employ IPI's imaging techniques and standards, so that the quality of the images is consistent throughout the entire DAM/digitization process. One of the software options currently being considered for IPI is Adobe Version Cue CS4, a server-based file management system that is included with the Adobe Creative Suite 4 software. According to Adobe's website, with Version Cue CS4 and Adobe Drive, users can centrally manage shared project files, track file status with comments, and use Adobe Bridge to find files visually.[22]

The end product for this project is a method in which objects in the collection can be searched for and displayed through a user-friendly program, resulting in the ability for the user to easily access the physical object. This is made possible via the search tool in Bridge after the RAW images are processed and tagged with keywords.

---

[21] Adobe. "Digital Negative (DNG) Specification." Adobe Systems Incorporated. http://www.adobe.com/products/dng/pdfs/dng_spec_1_2_0_0.pdf
[22] Adobe Version Cue CS4. "Streamline File Management for Creative Projects." Adobe Systems Incorporated. http://www.adobe.com/products/creatibesuite/versioncue/

There are two ways to search for images. The first is by typing a keyword into the search toolbar located in the upper right of the Bridge workstation. For example, if I wanted

Figure 13. The Bridge search tool

to find all of the gelatin silver prints that exist in my collection, all I have to do is simply enter "gelatin silver" in the space provided, and Bridge will search whatever folder I am currently viewing and display all of the images that have been tagged with the gelatin silver keyword (see figure 13). The other option is to choose Edit > Find and the Find window will appear. This method of searching enables the user
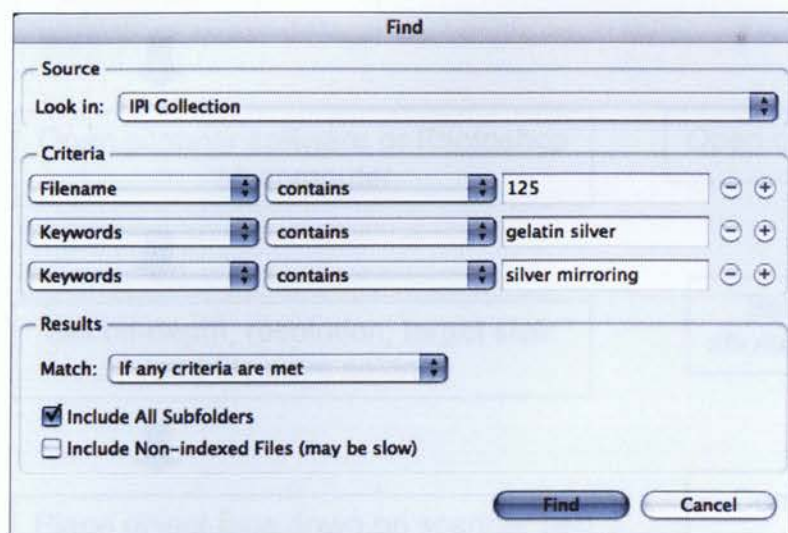

Figure 14. The Find window enables the user to enter multiple search criteria.

to enter multiple search criteria. For example, I could search for gelatin silver images that are affected by silver mirroring located in box 125 (see figure 14).

In closing I would like to reemphasize the importance of organizing and maintaining digital assets for all organizations small and large. This project presented one of many solutions for the small organizations, but the solution will ultimately be determined by the organization's needs, budget, staff, and available resources.

APPENDIX A. WORKFLOW

```
                    ┌──────────────────────────┐
                    │  Select objects to digitize │
                    └──────────────────────────┘
                                 │
                    ┌──────────────────────────┐
                    │   Separate objects by size  │
                    └──────────────────────────┘
                                 │
┌──────────┐      ┌──────────────────────────┐      ┌──────────┐
│ Scanner  │ ◄──  │ Choose digitization method │  ──► │  Camera  │
└──────────┘      └──────────────────────────┘      └──────────┘
```

Scanner

Open scanner software or Photoshop on computer

Set bit-depth, resolution, target size, and file save settings

Place object face down on scanner bed

Click "Scan"

Camera

Open camera software on computer

Set color temperature, f-stop, shutter speed, file format, and ISO

Center object on vacuum easel with color target

Make exposure

Open Adobe Bridge

Covert RAW files to DNG using Camera Raw software

Attach keywords and metadata

21

PRINT AND WEB RESOURCE TABLE	Digital Asset Management	Adobe Bridge	Camera RAW	File Formats	Digitization Standards	Digitization Techniques
Adobe Photoshop CS4 Classroom in a Book: The Official Training Workbook from Adobe Systems. Indianapolis: Adobe Press, 2009.		✓	✓			
ASMP Professional Business Practices in Photography. Edited by Susan Carr and American Society of Media Photographers. 7th ed. New York: Allworth Pres, 2008.		✓	✓	✓		✓
Austerberry, David. *Digital Asset Management*. 2nd ed. Oxford: Focal, 2006.	✓			✓		
Creating and Managing Digital Content. Canadian Heritage Information Network. http://www.chin.gc.ca/	✓			✓	✓	✓
Digital Heritage: Applying Digital Imaging to Cultural Heritage. Edited by L. W. MacDonald. London: Elsevier, 2006.	✓			✓	✓	✓
Frey, Franziska. *Digital Imaging for Photographic Collections: Foundations for Technical Standards*. Rochester, N.Y.: Image Permanence Institute, 1999.				✓	✓	✓
Frey, F., Heller, D., Kushel, D., Vitale, T., Weaver, G. *The AIC Guide to Digital Photography and Conservation Documentation*. Edited by Jeffrey Warda. Washington D.C.: American Institute for Conservation of Historic and Artistic Works, 2008.	✓	✓	✓	✓	✓	✓
Getty Introduction to Imaging. http://www.getty.edu/research/conducting_research/standards/introimages/	✓			✓	✓	✓
Grey, Tim. *Photoshop CS4 Workflow: The Digital Photographer's Guide*. Indianapolis, IN: Wiley Pub., 2009.		✓	✓			
Handbook for Digital Projects: A Management Tool for Preservation and Access. Edited by Maxine K. Sitts. Andover, MA.: Northeast Document Conservation Center, 2000	✓			✓	✓	✓
JSTOR Digitization Standards and Processes. http://www.jstor.org/page/info/about/archives/process.jsp. 2009				✓		✓
Krogh, Peter. *The DAM Book: Digital Asset Management for Photographers*. Sebastopol, CA: O'Reilly Media, Inc., 2006	✓	✓	✓	✓	✓	✓
Lowrie, Charlotte K. *Adobe Camera Raw Studio Skills*. Hoboken N.J.: Wiley Publishing, 2006		✓	✓	✓	✓	✓
Ritzenthaler, MaryLynn and Diane Vogt-O'Conner. *Photographs: Archival Care and Management*. Chicago: Society of American Archivists, 2006.	✓			✓	✓	✓
The Library of Congress Technical Standards for Digital Conversion of Text and Graphic Materials. http://memory.loc.gov/ammem/about/techStandards.pdf				✓	✓	✓

BIBLIOGRAPHY

Print Resources:

Carr, Susan and American Society of Media Photographers, ed. *ASMP Professional Business Practices in Photography.* 7th ed. New York: Allworth Pres, 2008.

Frey, F., Heller, D., Kushel, D., Vitale, T., Weaver, G. *The AIC Guide to Digital Photography and Conservation Documentation.* Edited by Jeffrey Warda. Washington D.C.: American Institute for Conservation of Historic and Artistic Works, 2008.

Lowrie, Charlotte K. *Adobe Camera Raw Studio Skills.* Hoboken N.J.: Wiley Publishing, 2006

Ritzenthaler, MaryLynn and Diane Vogt-O'Conner. *Photographs: Archival Care and Management.* Chicago: Society of American Archivists, 2006.

Web Resources:

Adobe. "Digital Negative (DNG) Specification." Adobe Systems Incorporated. http://www.adobe.com/products/dng/pdfs/dng_spec_1_2_0_0.pdf

Adobe Version Cue CS4. "Streamline File Management for Creative Projects." Adobe Systems Incorporated. http://www.adobe.com/products/creatibesuite/versioncue/

Art and Architecture Thesaurus Online. "About the AAT." The J. Paul Getty Trust. http://www.getty.edu/research/conducting_research/vocabularies/aat/about.html

Graphics Atlas. "Object Explorer." Image Permanence Institute, Rochester Institute of Technology, Digital Sample Book, Center for the Legacy of Photography. http://www.graphicsatlas.org/

Image Permanence Institute. "About IPI." Image Permanence Institute, Rochester Institute of Technology. http://www.imagepermanenceinstitute.org/shtml_sub/aboutipi.asp

International Standards for Business, Government and Society. "ISO 12639:2004." International Organization for Standardization. http://www.iso.org/iso/catalogue_detail.htm?csnumber=34342

Thesaurus for Graphic Materials. "About the Thesaurus for Graphic Materials." Library of Congress, Prints and Photographs Division. http://lcweb2.loc.gov/pp/tgmhtml/tgmabt.html