Section G: Photograph Digitization

Digitization Workflow

Overview

Digital Preservation

"Digitization must strive to preserve to the greatest extent possible the authenticity and integrity of the original information. Digital enhancements may be performed on copies to improve access, but an "authentic" unaltered version (the original analog document or a digital version) must always be kept."

For preservation of 'at risk' or delicate material, capture the highest quality digital image technically possible and economically feasible for large-scale production, while optimizing the potential for longevity to support the reproduction, at a minimum, of a high-quality 8"x10" print.

Digital Masters – Uncorrected Scan

These guidelines provide technical benchmarks for the creation of "digital master" raster image (pixel-based) files. The primary objective is to produce digital images that look like the original records (photograph, negative, slide, etc.) and are a "reasonable reproduction" without enhancement. Digital masters are files used for the creation of additional derivative files for access, distribution and/or display via a monitor and for reproduction purposes via hardcopy output at a range of sizes using a variety of printing devices.

Digital master image files capture the image at the time of scanning, not what it may once have looked like if restored to its original condition.

Access Version – Corrected Copy of Scan

Additional derivative versions of the image can be produced for other purposes with different reproduction renderings. These versions include any adjusted and touched images.

Archives Scanning

File Naming

Single digitized images

File names for the **TIFF files of the original scans** will be a 7-character string of one letter + 6 numbers. (i.e. a000001.tif) Please use lower case for all letters in the file names.

File names for the **corrected Photo shopped TIFF files** will be an 8-character string consisting of the original file name plus "c" to indicate that the image has been corrected. (i.e. a000001c.tif)

The file names will also be used as the unique item-level identifier where 1 image = 1 item. (A single sheet of negatives with 24 images will be considered 24 items with 24 unique identifiers.)

Some scanning software will automatically number your files in increments of one. It will also allow you to put a set prefix. In this case, you will need to pay attention and change the set prefix every thousand images (i.e. at image a001000, a002000, etc.) You may also need to pay attention every new time you open up the software – it remembers the prefixes and destination drive from the last time it was used, so if someone else has used the scanner in the interim, you will need to re-set this information to carry on from the file name where you last left off.

MAKING A CONTACT SHEET (FROM NEGATIVE STRIPS)

1. Use a the flatbed scanners

Remove the padded insert from the inside top cover of the scanner

Place the "film area guide" onto the scanner bed, matching up the white triangle with the top right corner of the scanner bed.

Check that the negatives are all the correct orientation in the archival negative sleeves

Place the negative sheet (still in archival negative sleeves) face down on the scanner bed, centered within the film area guide as much as possible. For sheets with a lot of negatives– this is OK, as long as each negative can be fit into the film area guide. For archival negative sleeves with 6 rows of strips of 6 negatives, scan the sheet in two separate scans, scanning the first 4 rows of negatives on one scan, and the second 2 rows (plus extra sheet) scanned on a second scan.

Open scanning software from the Programs menu on the computer. An scan window will appear. Change settings, then scan and save as indicated in the diagram on the following pages (5-6).

Save contact sheet to appropriate folder (using naming determined convention. Showing the number range assigned to these images.

Print out a copy of the contact sheet for next steps

File with negatives after scanning and numbering.

METADATA: CREATING AND APPLYING METADATA TO THE DIGITAL MASTER IMAGE

GENERAL RULES FOR ADDING TEXT TO METADATA TEMPLATES

Avoid using grammatical markings that may be translated by different programs. For example, avoid backslash (/) , colons (:) , and semicolons (;) as they may cause problems if merged into another database. Replace them with spaces or safe markings, such as a dash. In file naming, insure that file extensions are included with a preceding period (.). Avoid periods in other positions in the file name.

In addition to the unchangeable embedded technical metadata, it is possible to append additional metadata that is embedded in the image file. This additional metadata is editable. Using Adobe Bridge, it is possible to create individualized templates and apply them to batches of images.

CREATE A METADATA TEMPLATE

1. Start Photoshop from the Applications on the desktop.

Adobe Bridge will open with an image browser window. Or, open Photoshop directly.

Navigate to the folder that contains the images to which you want to append metadata (see Directory section following). Previews of the images/files will appear in the "Content" column. If you select one particular image, a larger thumbnail and its metadata will appear on the right.

Open the Create Metadata Template dialog box from the menu bar.

   a.   Choose Tools -> Create Metadata Template...

b. The Create Metadata Template dialog box will appear.

Enter the appropriate metadata to the fields into the **IPTC Core** section.

ator:	ne of Photographer (if known – in natural order, otherwise leave blank)
ator : Job Title	tographer (leave blank if no name in "Creator")
rce:	Museum of Anthropology
yright Notice:	yright held by *Owner of material or Photographers Name(leave blank if not known)if his/her copyright still applies*
yright Status	ere copyright is indicated above select "Copyrighted" from the drop down list or leave default "Unknown". This should be determined in advance for collections, fonds, or individual iamges as required.
ts Usage Terms:	ntents dependent on project; leave blank if unknown or undecided at point of scanning)

Click the Save button to save the Template. Check to make sure the template is saving to the Templates folder.

APPLY METADATA TO DIGITAL MASTER IMAGE

Apply metadata to the Digital Master image.

Later, when you use the Digital Master to create any corrected versions, all derivative copies will inherit the metadata intact. This way the Digital Master and subsequent access images, or any derivatives, will have consistent metadata.

Use Adobe Bridge to apply metadata to the Digital Master image.

USE ADOBE BRIDGE TO APPLY METADATA TO DIGITAL MASTER USING A METADATA TEMPLATE

1. Select all of the images to which you want to append a particular metadata template.
From the menu bar, under "Tools", choose the arrow next to "Append Metadata" and choose the appropriate metadata template. If you are appending metadata to a large number of files, it could take a few minutes to write to the server.
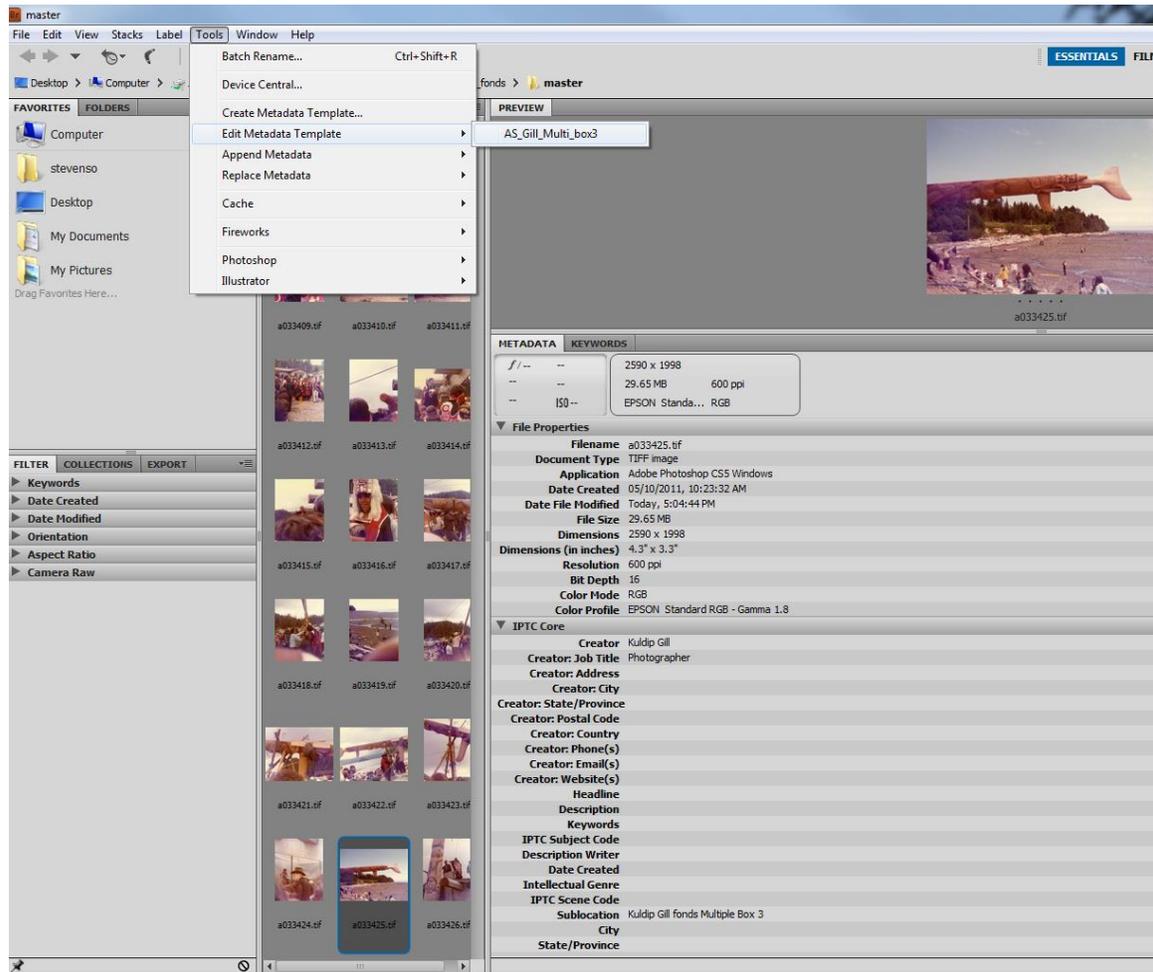
You can edit metadata for a single file in the Metadata tab on the bottom right, but the changes will only be made to the single file you are working in.

    a. Any edits you make to the template later will not be applied to all the previous image files that used the template – to apply the edited template, you would have to re-append the metadata template to all the relevant files.

TECHNICAL OVERVIEW

HANDLING FILM
Always use cotton gloves when handling film or prints.

Work in a clean, dust free environment. Do not leave negatives in direct sunlight.

Clean dust off negatives using compressed air or a clean, dry lens brush.
If dust persists, use a soft cloth for negatives (or a PEC*PADs wipe), or negative/film cleaning solution (PEC-12).

COLOUR PROFILE (ALSO COLOUR MODE OR COLOUR SPACE)
Setting the color profile is critical to digital capture and can be set within the scan software prior to digital scanning.

A color profile simply describes the range of colors, or gamut, that a camera can see, a printer can print or a monitor can display. Color profiles, such as Adobe RGB, are device-independent and determine a color range you can work in. Their design allows you to edit images in a controlled, consistent manner. Adobe RGB has a wide gamut space, which allows for greater color information to be captured about the original item and allows for conversion or downsizing to a narrow space later.

Not all hardware and software combinations produce the same color and tonal conversion, and even this workflow will not always produce the same results across all output devices. Colour Profiles are used so that we can get as close to some proximity of a colour standard across monitors and printers.

RECOMMENDED COLOR PROFILE FOR COLOUR IMAGES
Adobe RGB 1998 is recommended for colour images.

RECOMMENDED BLACK-AND-WHITE PROFILE FOR BLACK-AND-WHITE IMAGES
Gray Gamma 2.2 is recommended for grayscale images.

Avoid saving files in CMYK mode. I you need to supply a CMYK file to a publisher or printer, convert to CMYK or LAB profile from an Adobe RGB tiff.

SETTING THE COLOR PROFILE
See ***Scanner Instructions***

BIT DEPTH OR COLOUR DEPTH
In computer graphics, **bit depth** is the number of bits used to represent the color of a single pixel in a bitmapped image. Higher the number of color bit depth produces a broader range of distinct colors available in the image file.

BLACK-AND WHITE
Grayscale image files consist of a single channel, commonly either 8-bits (256 levels) or 16-bits (65,536 levels) per pixel with the tonal values ranging from black to white.
16-bit depth is recommended for scanning black-and-white images.

COLOUR

Color images consist of three or more grayscale channels that represent color (R,G,B) and brightness information: 3 channels x 16-bits = 48-bit color.

48-bit depth is recommended for scanning colour images.

SCANNING BLACK-AND-WHITE IMAGES IN COLOUR OR GRAYSCALE?

16-bit Grayscale is usually sufficient to capture black-and-white tones from a black-and-white image source that is preserved well or unstained.

If the black-and-white film or print source is very old, has faded significantly or is stained, then it might be better to scan to colour and produce an RGB scan image. Black-and-white negatives or prints which have staining, discoloured film base, retouching, intensification, or other discolourations (both intentional and the result of deterioration) can be optimized by scanning in colour, then adjusting the colour image and finally performing an appropriate conversion to grayscale.

Each colour channel will have to be evaluated individually to determine the adjustment needed in order to minimize the appearance of any deterioration and optimizes the monochrome image quality. The correction can then be used for the conversion to a grayscale image.

See the section in _Post-Scanning Image Adjustments and Corrections_ to get more information on correcting scanned images.

RESOLUTION GUIDELINES

DPI or PPI is the resolution, in pixels, of an image to be printed within a specified space. For instance, a 100 x 100 pixel image that is printed in a 1-inch square could be said to have 100 dots per inch (DPI) or 100 pixels per inch (PPI). Used in this way, the measurement is meaningful when printing an image. Good quality photographs usually require a minimum of 300 dots per inch when printed.

DETERMINING RESOLUTION SIZE

In order to produce an archival quality image file that will print at good quality up to 12 inches at the longest side, use the following table to determine the scan dpi or ppi resolution size:

RESOLUTION TABLE

Original Format	Original Longest Side	To Print Longest Side to 12" at 300 dpi,	To Print Longest Side to 12" at 600 dpi	Use Scanner	Use Scanner Mode	
		Scan at dpi/ppi	Scan at dpi/ppi		Document	Transparency
Photograph	1" inch	3600	7200	Epson	Flat bed	
	2" inches	1800	3600	Epson	Flat bed	
	3" inches	1200	2400	Epson	Flat bed	
	4" inches	900	1800	Epson	Flat bed	
	5" inches	720	1440	Epson	Flat bed	
	6" inches	600	1200	Epson	Flat bed	
	7" inches	514	1028	Epson	Flat bed	
	8" inches	450	900	Epson	Flat bed	

	9" inches	400	800	Epson	Flat bed	
	10" inches	360	720	Epson	Flat bed	
	11" inches	327	654	Epson	Flat bed	
	12" inches	300	600	Epson	Flat bed	
FILM SIZES						
35mm slide	36 x 24 mm	2700	5400	Epson & Nikon		Use Holder
35mm film	36 x 24 mm	2700	5400	Epson & Nikon		Use Holder
120 Frames						
6 x 4.5	56 x 41.5 mm	2203	4406	Epson & Nikon		Use Holder
6 x 6	56 x 56 mm	1632	3264	Epson & Nikon		Use Holder
6 x 7	56 x 70 mm	1306	2612	Epson & Nikon		Use Holder
6 x 8	56 x 77 mm	1187	2374	Epson & Nikon		Use Holder
6 x 9	56 x 84 mm	1088	2176	Epson & Nikon		Use Holder
6 x 12	56 x 118 mm	775	1550	Epson & Nikon		Use Holder
6 x 17	56 x 168 mm	544	1088	Epson & Nikon		Use Holder
6 x 24	56 x 224 mm	408	816	Epson		Flat bed
6 x 6 Slide	56 x 56 mm	1632	3264	Epson		Flat bed
4" x 5"	4" x 5"	800	1600	Epson		Use Holder
Larger, or Odd-sized Negatives	measure longest side	Use size for Photograph	Use size for Photograph	Epson		Flat bed
Document	measure longest side	Use size for Photograph	Use size for Photograph	Epson	Flat bed	