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Overview

- Planning
- Formats
- Photography key terms
- Scanning & Editing
- Demo

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Planning

Käsebier, Gertrude, Sieglitz, Alfred, Blessed Art Thou Among Women, um 1899, Museum für Kunst und Gewerbe Hamburg, Public Domain
Online: <https://www.mkg-hamburg.de/en/object/mkg-e00128735>

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Planning Your Project

1. Review your collection
2. Choose hardware: Scanners, cameras, and other accessories
3. Become familiar with file formats and image properties
4. Plan for metadata
5. Preserve your digital files



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Review Your Photographs



- What do you want to digitize and why?
- What do you plan to do with the images?
- How many documents do you have?
- What condition are they in?

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Selecting Hardware

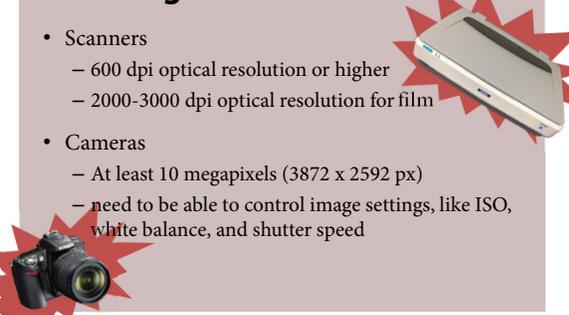
- Choose equipment that won't damage your documents
- The best options for home collections:
 - Flatbed scanner
 - Camera with a tripod or copy stand



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Choosing Scanners and Cameras

- Scanners
 - 600 dpi optical resolution or higher
 - 2000-3000 dpi optical resolution for film
- Cameras
 - At least 10 megapixels (3872 x 2592 px)
 - need to be able to control image settings, like ISO, white balance, and shutter speed



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Selecting Accessories



- Tripod
- Weights
- Pillows or book cradles
- Lightbox and/or lights

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Formats

- Prints
- Albums
- Negatives
- Framed

Käsebir, Gertrude, Sieglitz, Alfred, Happy Days, um 1900, Museum für Kunst und Gewerbe Hamburg, Public Domain, Online: <https://www.mkg-hamburg.de/en/object/mkg-e00128736>

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Digitizing Photographic Prints

- A flatbed scanner is a good choice, depending on the size and condition of original document or photograph.
- A camera with a tripod or copy stand is another option, especially for large items.



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Digitizing Photo Albums



- If the album opens flat, it can be digitized on a flatbed scanner.
- Albums with tight bindings should be digitized with a camera.

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Negatives and Transparencies

- Some flatbed scanners have transparency adapters for 35 mm film and slides, medium format, and 4 x 5 film.



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Negatives and Transparencies

- Cameras can also photograph film.
 - Use a lightbox to illuminate negatives and transparencies
- Specialized slide and negative scanners are also available.



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Cased and Framed Photographs

- Generally, camera is best
 - Experiment with lighting and angles
- If a fairly flat object, you can use a flatbed scanner
 - Experiment with background



An Indian woman with one of the Athabian babies

Unbekannt, Mädchen mit Kopftuch, 1855, Museum für Kunst und Gewerbe Hamburg
Public Domain, Online: <https://www.mkg-hamburg.de/en/object/d0004354>

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File Management



The Department of Preparation: Thomas Sime's Photographic Survey of the Smithsonian (1890-1913)
<https://publicdomainreview.org/collection/sime-smithsonian/>

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File Formats // Image Settings

- Save original images in a file format that uses little or no compression.
 - TIFF preferred
- If scanning:
 - 300 ppi or higher, in color, no masks or rendering
- If using a camera, select the highest image quality



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File Naming

- Should be relatively short
- Use alphanumeric characters, hyphens, and underscores
- Use meaningful names
- Write dates in yyyymmdd, so the filenames sort chronologically
- End with a 3-letter file extension (.tif, .jpg)

✗
 "Aunt With Our Puppy"

➔

✓
 "Brown_Mary_189407.tif"

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File Organization

- Keep original images in a master folder
- Put another copy in a working folder
 - Only edit the images in the working folder
- Photographs
 - Brown_family
 - master-images
 - working-copies
 - Gibson_family



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Metadata

- Describes your documents, making them easier to find.
 - Description, Creator (if known), Date, and Keywords
 - Technical metadata: describes the image file (camera settings)



Archival File Name	Archival File Format	Date of Digitization	Archival File Size	Archival File Location	Archival File Resolution	File Name
Misc4470-001.tif	image/tiff	2024-11-25	123294536 bytes	\\NETHS-FS\NETHS5_01a	600 dpi	Misc4470-001.jpg

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Metadata

- Save your metadata...
 - Embedded metadata
 - Separate files, like a spreadsheet or text file
 - Software, like an image browser or digital asset manager

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Embedded Metadata

- Embedded metadata stays with the file.
- Compatible with many different programs.

TRY!

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Metadata Examples

File Name	File Type	File Size	File Date	File Location	File Description	File Keywords	File Creator	File Date Created	File Date Modified	File Date Accessed	File Date Deleted	File Date Archived	File Date Deleted	File Date Archived	File Date Deleted	File Date Archived
1850s_0001.tif	Image	1000x1000	1850	Smithsonian	Portrait of a man in a military uniform, likely a soldier or officer.	Portrait of a man in a military uniform, likely a soldier or officer.	Smithsonian	1850	1850	1850	1850	1850	1850	1850	1850	1850

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Digital Preservation

- Follow the 3-2-1 rule:
 - 3 copies
 - on at least 2 types of media
 - 1 copy stored in a different location
- Check your images at least once a year
- Copy your files to new media every 5 years



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Key Terms in Photography

The Language of Flowers: An Alphabet of Floral Emblems (London: New York: T. Nelson and Sons, 1857)

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Definitions: Resolution

The density of elements, such as **pixels**, within a specific distance, most commonly an inch. Affects the amount of detail you can see in a digital image.



Source: <https://blogs.loc.gov/thesignal/2013/03/what-resolution-should-i-use-part-3/>

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Definitions: Pixel Dimensions

1116 × 746 pixels	>	400 × 278 pixels
300 pixels	=	300 pixels

3.72 in. x 2.49 in. 1.33 in. x 0.93 in.
maximum printable size maximum printable size

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Definitions: DPI and PPI

- ppi (pixels per inch)
- dpi (dots per inch)

Image Source:
<http://www.ala.org/diaets/resources/preserv/minimum-digitization-capture-recommendations>

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Top: Red boxes indicate edge features used to calculate maximum image information content.

Bottom: Enlarged detail version extracted from the circled area in the top image showing no difference in image information at 3000 ppi, 1500 ppi, and 1500 ppi interpolated up to 3000 ppi. From an 8x10-inch glass plate dating from 1906, in the collections of the Bancroft Library, University of California, Berkeley.

Source: Information or Artifact: Digitizing Photographic Negatives and Transparencies, Part 2.
<https://blogs.loc.gov/thissignal/2011/10/information-or-artifact-digitizing-photographic-negatives-and-transparencies-part-2/>

Resolution Example: Higher is not always better

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Definitions: Optical Resolution

The resolution at which a capture device, such as a scanner or digital camera, is capable of capturing pixel values based on actual samples taken from an original to construct an image.



Maximum optical resolution (300 ppi) Interpolated resolution (600 ppi)

Source: <https://www.scantips.com/interpol.html>

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Definitions: Bit Depth

The number of bits used to describe each pixel in an image.



1-bit = 2 shades 8-bit = 256 shades

Source: <https://archivesoutside.records.nsw.gov.au/digitising-your-collection-part-3-technical-specifications/>

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Definitions: RAW files

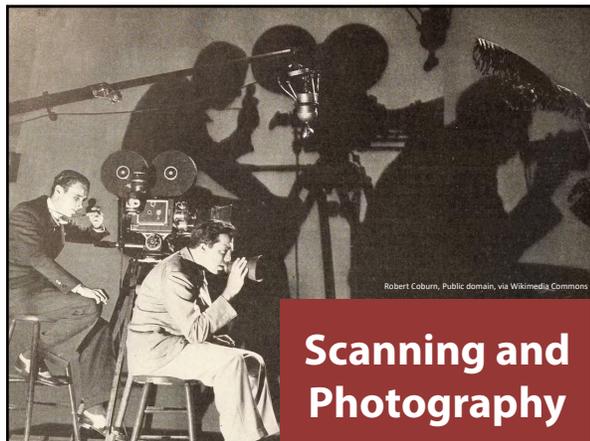
- The unprocessed file that is produced by a digital camera.
- The highest quality image that a camera can produce, with the greatest amount of data.
- Requires additional editing before it can be used.



RAW JPEG (processed)

Source: When to use raw vs. JPEG, Adobe, 2022 via <https://helpx.adobe.com/ps/j11/lightroom.html>

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Recommended Scanning Settings			
Document type	Minimum Resolution	Color Mode	Notes
Photographs (8 x 10 inches or less)	400 ppi	grayscale (8 bit) or color (24 bit)	Image should be 4000 pixels on long edge; adjust resolution accordingly.
Photographs (8 x 10 to 11 x 14 inches)	400-600 ppi	grayscale (8 bit) or color (24 bit)	Image should be 6000 pixels on long edge.
Photographs (over 11 x 14 inches)	600 ppi	grayscale (8 bit) or color (24 bit)	Image should be 8000 pixels on long edge.
Photo albums	400 ppi	color (24 bit)	Scan at higher resolution if editing or printing individual images on the album's page.

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Scanning Settings, continued			
Document type	Minimum Resolution	Color Mode	Notes
Photographic film, including negatives and slides (4 x 5 inches or less)	800-2800 ppi	grayscale (8 bit) or color (24 bit)	Image should be 4000 pixels on long edge.
Photographic film (4 x 5 to 8 x 10 inches)	800-1200 ppi	grayscale (8 bit) or color (24 bit)	Image should be 6000 pixels on long edge.
Photographic film (over 8 x 10 inches)	800 ppi	grayscale (8 bit) or color (24 bit)	Image should be 6000 pixels on long edge.

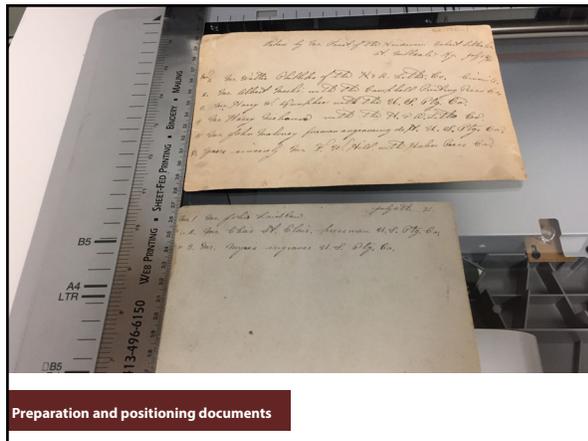
Based on: ALCTS Minimum Digitization Capture Recommendations, June 2013.
<http://www.ala.org/alcts/resources/preserv/minimum-digitization-capture-recommendations>

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Using a Flatbed Scanner

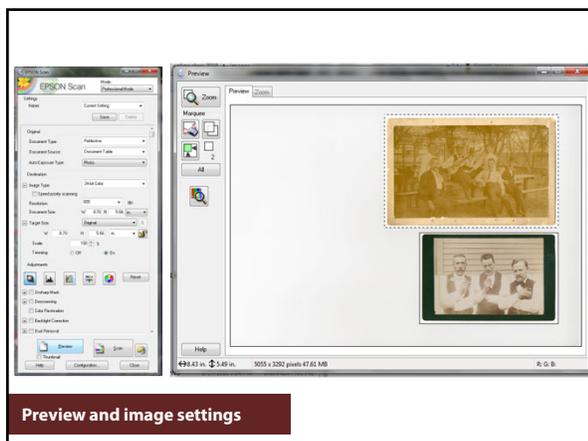
1. Clean scanner glass with a lint-free cloth, dampened with water.
2. Wipe photos with a dry, anti-static cloth.
3. Position photograph(s).
4. Select image settings.
5. Preview and scan.

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Preparation and positioning documents

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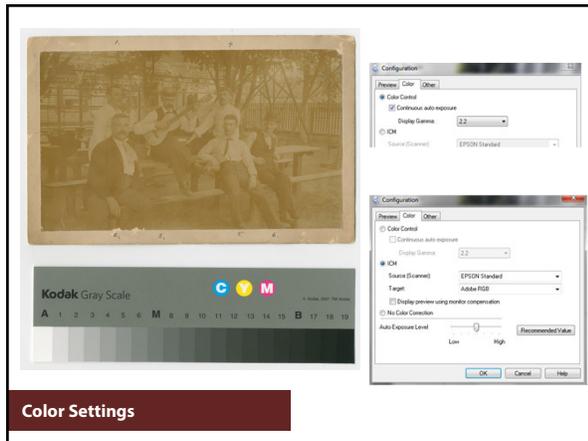


Preview and image settings

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Scanning Negatives and Film

1. Clean scanner and film.
2. Place film or slides in film holders and put on scanner.
3. Select image settings.
4. Preview.
5. Select each frame and adjust for color and exposure as necessary.
6. Scan final image(s).

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Preparing the Scanner and Film

- Wipe both top and bottom glass to remove dust and fingerprints.
- Handle film with gloves and hold by the edges.
- Use a brush or air blower to clean film before scanning.
- Follow scanner directions when placing film.



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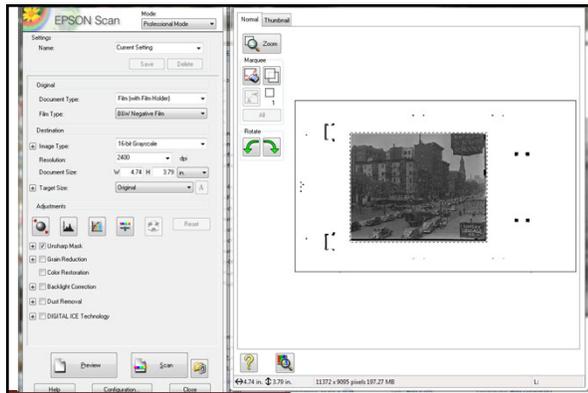
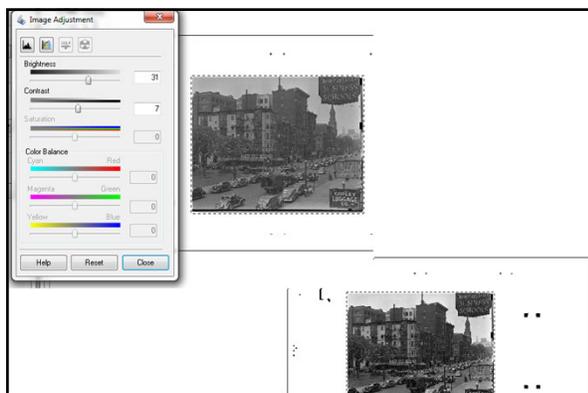


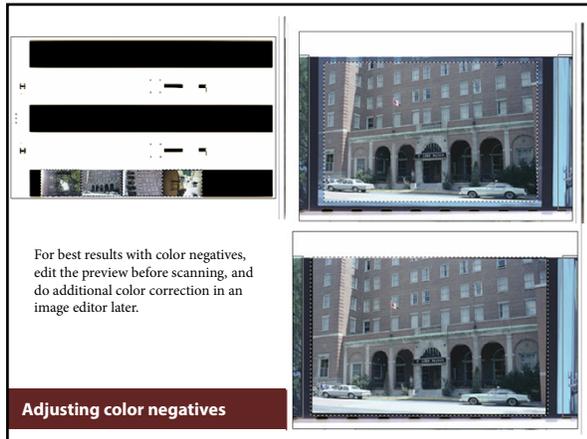
Image Settings and Preview

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Adjusting for exposure and color

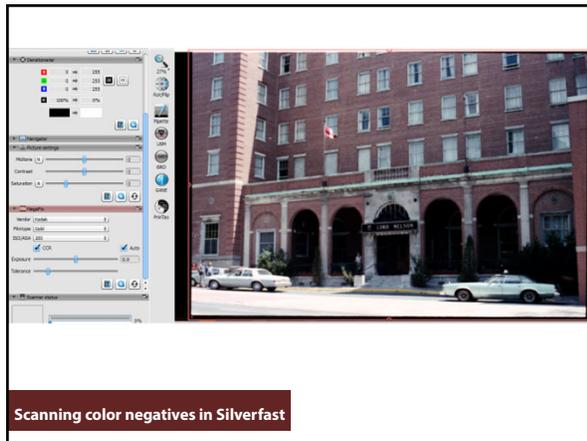
45



For best results with color negatives, edit the preview before scanning, and do additional color correction in an image editor later.

Adjusting color negatives

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Scanning color negatives in Silverfast

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Using a Camera

1. Set up background for photographs.
2. Set up and turn on lights.
3. Set up tripod or stand, and attach camera.
4. Adjust camera and tripod so that the document will fill most of the camera viewfinder.
5. Set up document.
6. Test focus and exposure.
7. Take photographs.

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Using a Camera



- Background color should be neutral
- Consider your lighting
- Recommended camera settings:
 - ISO 100-200
 - Aperture priority mode
 - f8-11
 - Highest image quality
 - Autofocus
 - Adjust white balance (if necessary)

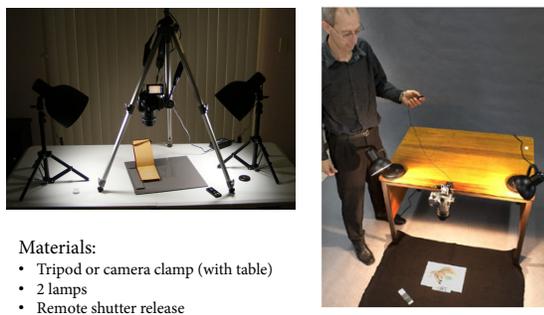
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Camera Basics



- Flash/no flash
- Exposure value (EV)
- Timer
- Camera scene modes

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Materials:

- Tripod or camera clamp (with table)
- 2 lamps
- Remote shutter release
- Background material

Camera Set-up

Source:
<https://archivehistory.eksite.org/chapters/appendixd.htm> (left); *Digitisation of Heritage Materials*, p. 129, <http://www.dohm.com.au/> (above)

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Setting Up Bound Albums

- Use a book pillow or book cradle to support albums that cannot open flat
- Use weights, spatulas, or pointers to hold pages down

Source:
<https://archivesoutside.records.nsw.gov.au/digitising-your-collection-part-4-scanning-and-handling-tips/>

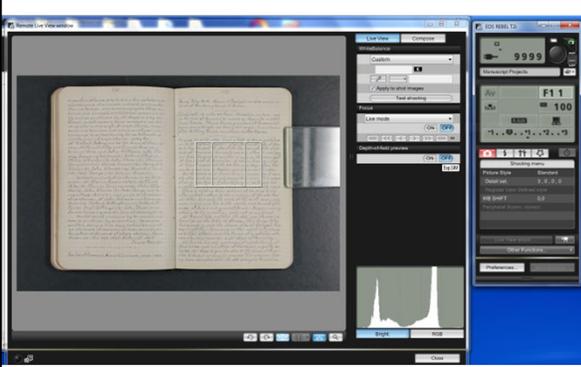


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Setting up document and camera

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Test exposure and focus

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Imaging Cased and Framed Photographs

- Lighting and camera set-up depend on the size and shape of the objects.
- Experiment for the best results.



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Editing Images

Source: Kodak No. 1 Circular Snapshots
<https://mc.kr/d/Saf532>

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Considerations

- Size
- Resolution
- Cropping
- Straightening
- Contrast
- Tone, color
- Brightness
- Red eye
- Retouching/repairs
- Text and graphics
- Effects



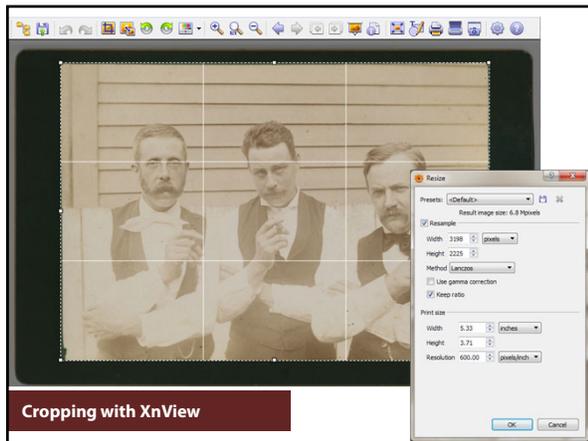
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	Cost	Resizing	Resolution	Adjustments	Red Eye/Repairs	Text & Effects	Comments
Adobe Photoshop	\$\$\$	✓	✓	✓	✓	✓	Best of the best; can be overwhelming
Adobe Photoshop Elements	\$\$	✓	✓	✓	✓	✓	Photoshop for nonprofessionals, bundled with some scanners
Corel PaintShop Pro	\$\$	✓	✓	✓	✓	✓	PC only; functionality of Photoshop at a lower price
ACDSee	\$\$	✓	✓	✓	✓	✓	Lower cost; not as robust as Photoshop or Elements
GIMP (GNU Image Manipulation Program)	free	✓	✓	✓	✓	✓	Open source (PC, Mac, and Linux); interface can be confusing
Paint.NET	free	✓	✓	✓	✓	✓	PC only; more robust than Microsoft Paint

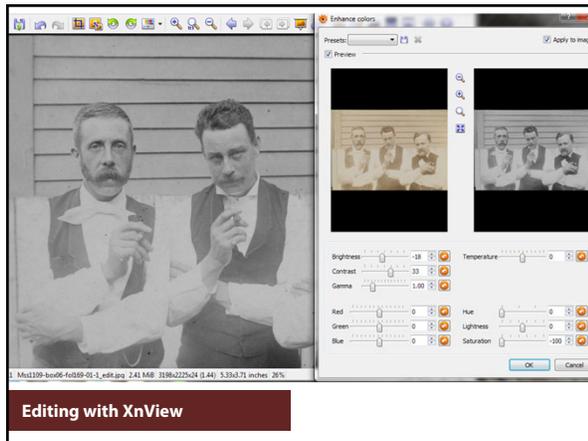
59

	Cost	Resizing	Resolution	Adjustments	Red Eye/Repairs	Text & Effects	Comments
Apple Photos	free	✓		✓	✓	✓	Mac only; limited options with built-in tools
PhotoScapeX	free	✓	✓	✓	✓	✓	Mac and Windows 10; More robust than Photos
Google Photos	free	✓		✓		✓	More of a photo organizer; limited editing capabilities
Affinity Photo	\$\$	✓	✓	✓	✓	✓	Mac and PC; functionality of Photoshop at a lower price
Skylum Luminar	\$\$	✓	✓	✓	✓		Mac and PC; functionality of Photoshop and Lightroom at a lower price
XnView MP	free	✓	✓	✓		✓	Mac and PC; image organizer with basic editing tools
For reviews, see cnet.com or PCMag.com							

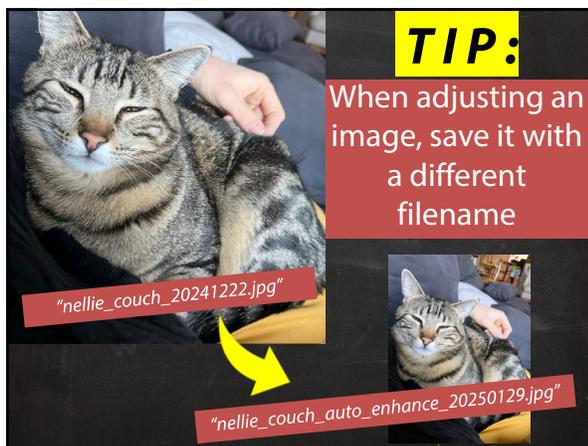
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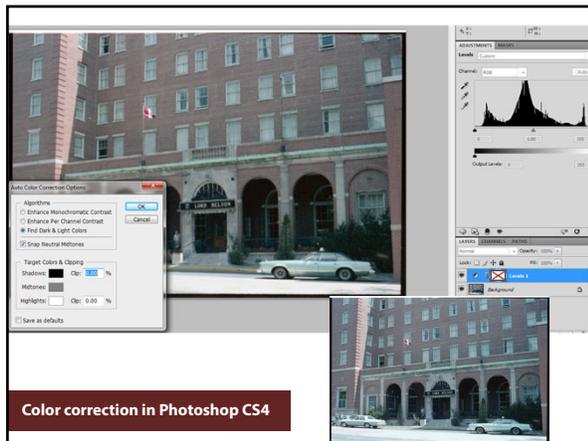
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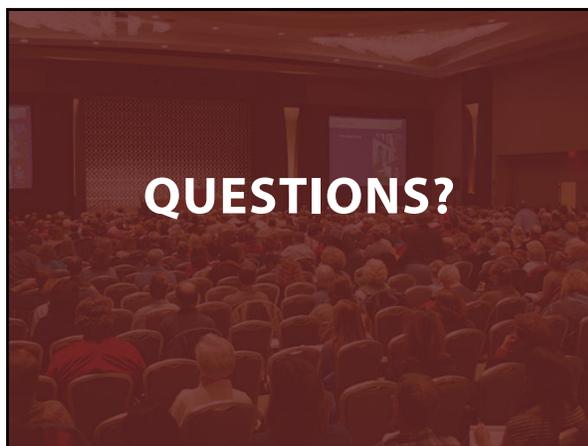
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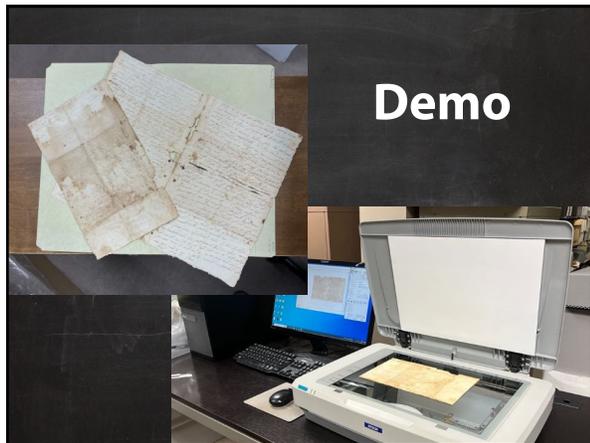
64



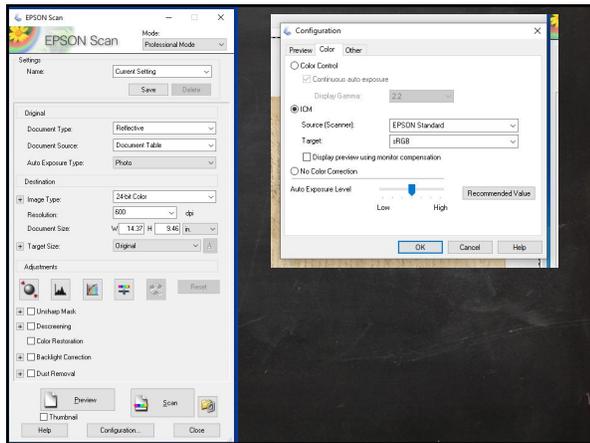
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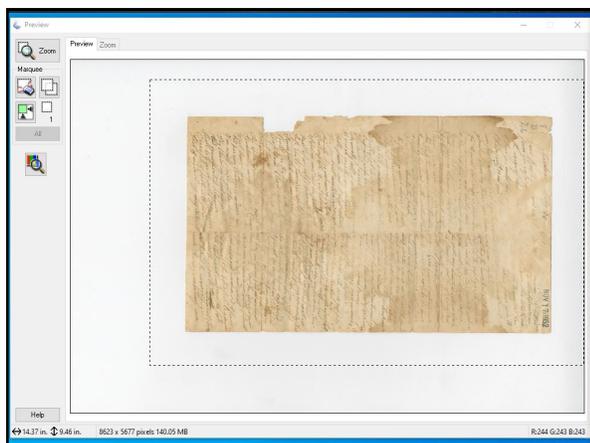
66



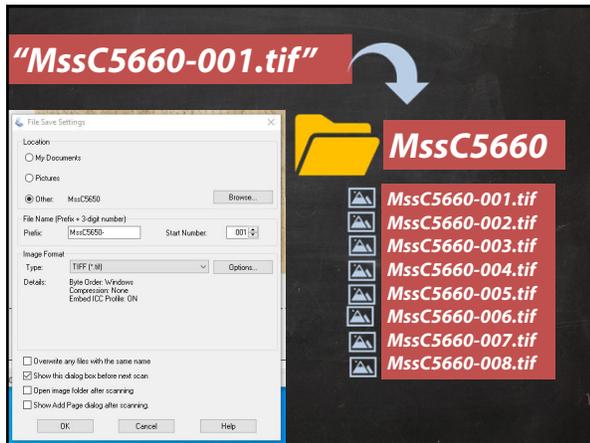
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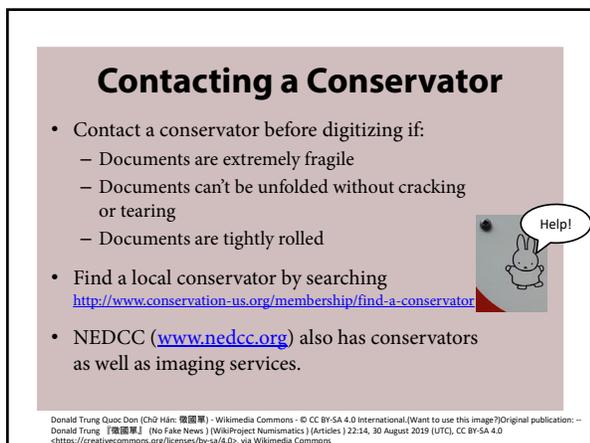
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