Wisconsin Heritage Online Digital Imaging Guidelines

QUICK GUIDE TO SCANNING

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This Scanning "Quick Guide" is a summary of the recommended scanning standards for WHO Content Providers. It is intended for digitizers contributing to digital collections hosted in CONTENTdm by the Milwaukee Public Library.

Minimum Specifications and Resolution Chart

Original material	Scanning resolution	Bit depth	Approximate scanned dimensions	Approx. size of preview image
Photographs				
16" x 20" +	200 ppi	24-bit color	6400 x 8000 pixels	146 MB
8 ½" x 11"–16" x 20"	300 ppi	24-bit color	3200 x 4000 pixels	36 MB
8" x 10"	400 ppi	24-bit color	3200 x 4000 pixels	36 MB
5" x 7"	625 ppi	24-bit color	3200 x 4000 pixels	36 MB
4" x 5"	800 ppi	24-bit color	3200 x 4000 pixels	36 MB
4" x 2 ½"	1200 ppi	24-bit color	3200 x 4000 pixels	36 MB
Text				
Print—no images	600 ppi	1-bit bitonal	Varies	Varies
Print—with images	300 ppi	8-bit grayscale or 24-bit color	Varies	Varies
Manuscript	400 ppi	8-bit grayscale or 24-bit color	Varies	Varies

Scanning notes

- Save all scans as TIFFs with NO compression.
- Preview scanned image before adding calibration chart to see if pixel dimensions and file size are within recommended ranges. Then open up scanning selection to include calibration chart.
- If you wish to reduce file size, you can convert from color to grayscale or from grayscale to bitonal after scanning.

Scanning chart rationale
Scans that meet these recommendations will produce a print of reasonable quality up to 20" x 24" and should be sufficient for most publishing requirements. However, they are NOT intended to serve as preservation files to replace the original material.

Image Capture Guidelines

The examples and screen shots used in these guidelines have been prepared using Adobe Photoshop. Your image editing software may not use exactly the same steps or words, but most have the same functionality.

Photoshop Configurations

The digital master should represent as accurately as possible the visual information contained in the original object. Before doing any image editing, check the Color Settings menu (*Figure 1*) and verify that Working Space and Color Management Policies are correct according to these guidelines or to specific instructions you have received from a Project Manager. The Color Settings dialog may be under the Edit or Photoshop menus, depending on the software version.
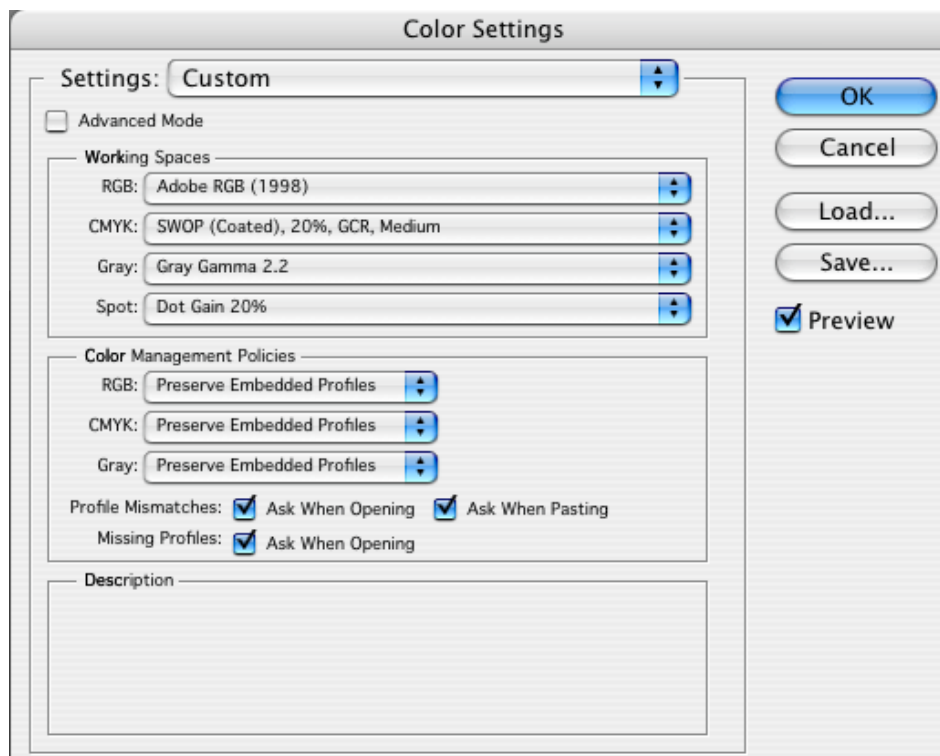
Figure 1. Color Settings in Photoshop

Choose a wide gamut
Use a wide-gamut RGB color space for capturing and editing RGB master files. Scanning software allows a choice of color space for the resulting files. A wide-gamut space for print (such as Adobe RGB) and the smaller sRGB color space for web are the standards. sRGB is the default color space of Windows XP, Web browsers, numerous image browsers, image editors and other software on the Windows platform. If your camera doesn't include an option for choosing a color space, it's almost certainly sRGB. sRGB is a small gamut color space and you will shortchange your images where a wider gamut is supported. **Use Adobe RGB, not sRGB.**

Embedded profiles

All digital files should have embedded profiles (should be "tagged"), unless otherwise noted. Photoshop's Color Management should be set to "always preserve embedded profiles," and the "ask when opening" boxes should be checked to alert you to profile mismatches and missing profiles. When profile mismatches occur, you should elect to preserve the embedded profile.

Use standard targets

A reasonably well-calibrated grayscale target should be used for measuring and adjusting the capture metric of a scanner or digital camera. For capturing reflective copy, we recommend that a standard target consisting of grayscale, centimeter scale (useful for end users to make sure that they are printing or displaying an image at the right size), and standard color patches be included along one edge of every image captured, to provide an internal reference within the image for linear scale and capture metric information. Kodak makes a set consisting of grayscale (with approximate densities), color patches, and linear scale which is available in two sizes: 8 inches long (Q-13, CAT 152 7654) and 14 inches long (Q14, CAT 152 7662). An excellent grayscale target, consisting of a neutral black, midtone, and highlight patches, is available from QPCard *(http://www.qpcard.se/)*. See *Figure 3*, an illustration of a scanned image with targets.

Scan preparation

The scanning hardware and software must be configured to ensure optimal image capture and image processing. Digital files should be evaluated by reviewing the image's histogram, which illustrates how pixels in an image are distributed by graphing the number of pixels at each color intensity level rather than by relying on how the image looks on a monitor. In a histogram, each pixel in an image file is assigned a numeric value between 0 and 255, with 0 representing black and 255 representing white. Do NOT use the default automatic settings when scanning, which will set the lightest area to 255 and the darkest area to a value of 0. This eliminates information in the highlights and shadow areas.

- Clean the scanner bed (the glass).
- Place the image and calibration chart on the scanner.
- Prescan.
- Fit the marquee (box) around the image and the calibration chart. Do not include the background color at this point to avoid reading a large white or black background value.
- Select the Histogram function.
- Adjust the levels by moving the sliders to each end point of the histogram (*Figure 5*). This sets the highlights and the shadows of the scan. It is a redistribution of the pixels, which can improve the image quality.
  - Do not move the left-hand and right sliders into the histogram. This will cause 'clipping', which takes pixels away, and is therefore a deterioration of the scan. You risk losing valuable digital information in your highlights and shadows.
- The left-hand slider moves to the black point. The right-hand slider moves to the white point. Moving the middle slider to the right makes the mid-range lighter, and moving it to the left makes the mid-range darker.
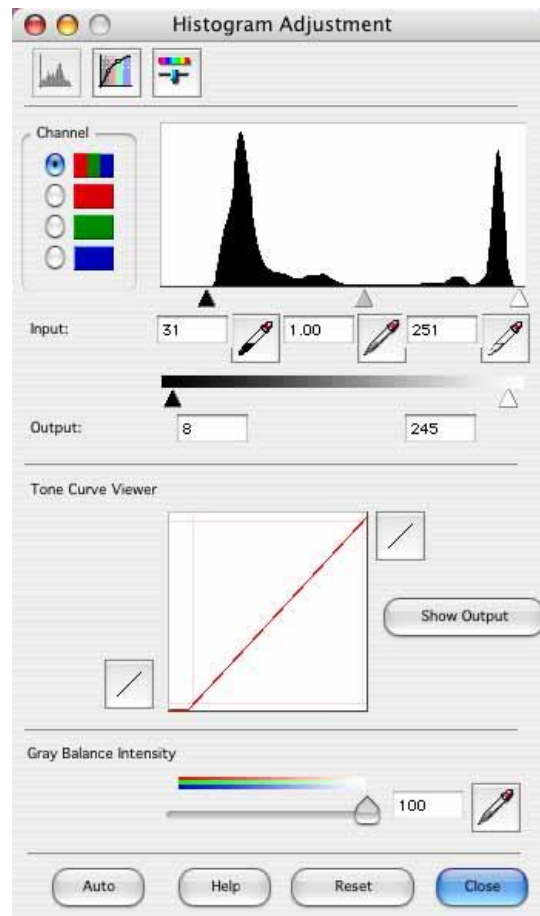
Figure 2. Setting the Histogram in the Scanning Interface

Scan the image
- Before scanning, set resolution in scanning software according to Minimum Specifications and Resolution Chart (see above).
- Scan the image.
- Verify file size according to Minimum Specifications and Resolution Chart.
- Save two copies of the scan. One will serve as the archival master file. The other is the service master, which can be enhanced and used for web delivery.
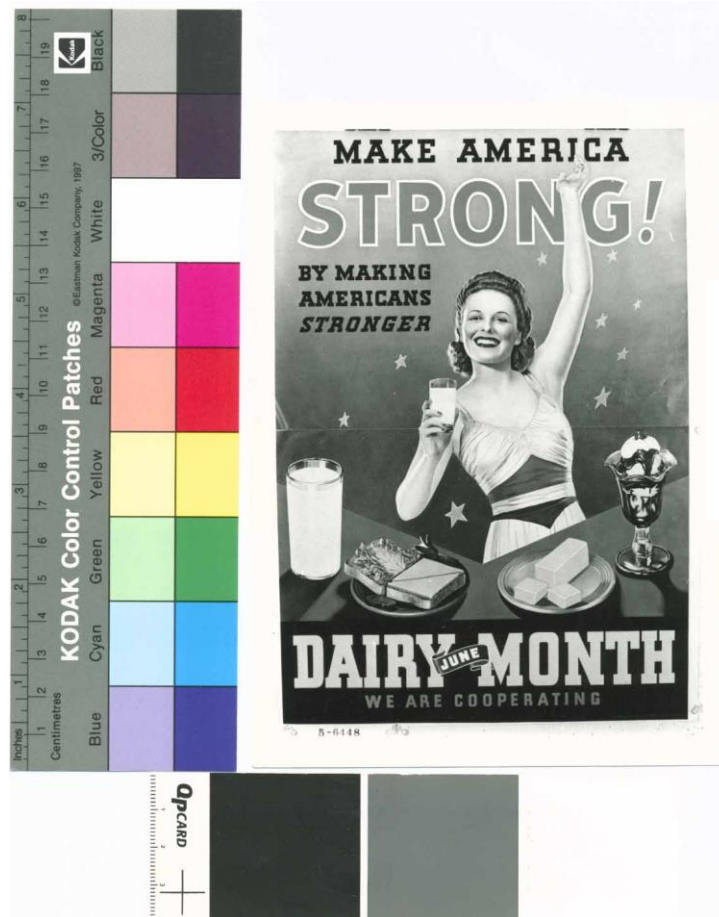
Figure 3. Scanned poster with calibration charts.