

# Guidance on Using Scanning Software: Part 1. Introduction

Version of 4/17/2012

This document describes how to use scanning software to create archival digital images consistent with the criteria described in Chapter 2 of the book and website *Preserving History: How to Archive and Share Historical Photographs, Documents, and Audio Recordings*. The assumption here is that decisions about the specific scanning criteria for an archive project have been made using Chapter 2 as guidance. The master archival images are intended to be suitable for many purposes over a period of decades and must be in a format that will be reliably accessible for at least 50 years in the future. Images optimized for specific purposes will be developed as working copies of the master image using image-editing software such as Photoshop as described in Chapter 5.

As described in Chapter 3, adjustments to tone and color for the master images can be done with the scanning software or made later with image-editing software. Either way, the scanning software needs to be operating at 16 bits per channel, or as close to 16 bits as a scanner can perform.

Appendix B of the book and website provides an overview of the strengths and weaknesses of the scanning software discussed in this guidance. The descriptions in the current guidance document provide much more detail about the points in the overview.

## 1.2 Typical Scanning Process and Options

### Scanning Process

The typical process for using scanning software is:

1. A preview image is made and displayed from a relatively quick low-resolution scan.
2. Using the preview image, settings are specified for cropping, scanning resolution, tone and color adjustments, and any other adjustments.
3. The final high-resolution scanned image is made and output using the settings from step 2.

With this process the time-consuming step of making the final high-resolution scan (step 3) must be repeated if any changes are made to the settings (step 2). VueScan and to lesser degree Nikon Scan have been developed with the recognition that tone and color adjustments and most other adjustments are made by the software after the raw high-resolution scanned image has

been created. With proper software design, changes to tone and color adjustments can be made without requiring that the high-resolution scan be redone.

## Color Processing Options

Color can be handled in three different ways in the output images from scanning software.

**Raw Images.** The raw image from the scanner can be output without applying a color profile for the scanner and without converting to a working color space. This image typically is far from normal and the first step in later processing the image is to apply a color profile appropriate for the scanner. All the scanning software described here except Canon ScanGear can produce this type of output.

**Image with Generic Color Profile.** A generic color profile for the scanner is applied to the raw scanned image. The image is usually but not always converted to a working color space. This is the typical process when a custom scanner profile is not used and the output is not a raw image. The scanning software may or may not describe this process as color management. All the scanning software described here can produce this type of output.

**Image with Custom Color Profile.** A custom color profile for the particular scanner is applied to the raw scanned image and the image is virtually always converted to a working color space. The scanning software allows the custom profile and working color space to be selected. This process is always described as color management. All the scanning software described here can produce this type of output.

## Input and Output Histograms

When working with histogram adjustments it is important to distinguish whether the histogram represents the input image before adjustments are applied or the output image after adjustments have been applied. Both representations can be useful, and either can be used, but the methods are different.

When a histogram represents an input image, the black and white point sliders are set to be near the darkest and lightest tones that actually occur in the image. This method focuses on the relationship between the black and white point sliders and the vertical lines that indicate actual pixels in the image.

When a histogram represents the output image after adjustments have been applied, the histogram is expected to nearly cover the full tonal range of the histogram axis. This method focuses on the darkest and lightest tones in the adjusted image being near the ends of the

histogram axis. The darkest and lightest tones in the histogram for the output image typically extend beyond the positions of the black and white point sliders.

## 1.2 Information Provided for Each Scanning Program

For each scanning program the methods for tone and color adjustments are described for three different conditions. As discussed in Chapters 2 and 3, the tone and color for the master images can be adjusted for fading and exposure or to represent the current condition of the item at the time of scanning without adjusting for fading and exposure. Also, the adjustments for tone and color can be made during the scan or in a later step using image-editing software. These factors result in three different conditions that need to be considered: (1) the scan is not adjusted for tone and color because those adjustments are made later with image-editing software, (2) the scan is adjusted for fading and exposure, and (3) the scan is adjusted for a reference target that is included to represent the current condition of the item. These three conditions are described in separate sections for each scanning program.

Information is provided for the following topics or sections for each scanning program:

1. Workspace Layout
2. Standard Option Settings
3. Workflow and Adjustments

Create the Preview Image and Select the Area and Resolution for Scanning

Adjust Tone and Color

*Options for Negatives*

*Scan Not Adjusted for Tone or Color*

*Scan Adjusted for Fading and Exposure*

*Scan Adjusted for a Reference Target*

4. Scanning Multiple Frames
5. Color Management
6. Additional Information

Additional topics are added to the Workflow and Adjustments sections as needed for the different scanning programs. The sections for Scan Adjusted for Fading and Exposure are organized by the topics discussed in Chapter 3, which include: set the black and white points, adjust the mid-tone slider, adjust color with the gray eyedropper, and adjust contrast.

### 1.3. Limitations of this Document

The information in this document is intended to guide a person in getting started using the software for historical scanning. This is not a comprehensive manual for using the software. Only options and workflow that are relevant for historical scanning are described. More detail is provided here for points that are not described well in the software manuals.

The techniques for using multiple readings from a scanner are not described here. As noted in Chapter 2 of the book and website, these methods normally do not produce noticeable benefits. However, readers may want to explore the value of these options for themselves for their particular scanners, software, and types of original materials.

The reader should also be aware that I have little to offer in terms of lessons learned from personal experience for projects that have the goal of representing the current condition of an item. The historical archive projects that I have worked on have all adjusted the master images for fading and exposure. The suggestions in this document for handling tone and color adjustments for projects that have the goal of representing the current condition of an item are based on my understanding of the 2010 best practices document described in Chapter 2 and my very limited efforts to explore implementation of those practices.

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