Operating Instructions for the Flatbed Scanner Expression 10000XL

Hardware

Computer: HP Compaq dc5750
AMD Athlon 64 X2 Dual Core Processor 4400+
2.29 GHz, 1.87 GB RAM
Windows XP Professional

Monitor: 17 inch flat panel

Scanner: Epson Expression 10000XL

Software

Photoshop CS3 in the Adobe Web Premium CS3 Suite

Getting Started

1. Click on the Adobe Photoshop CS3 icon on the desktop or select 'Adobe Web Premium CS3' → 'Photoshop CS3' from the 'All Programs' menu option under 'Start'.
2. Under 'File' menu, choose 'Import' and 'Epson Expression 10000XL'.
3. The Epson scan main window and the preview window will appear.
4. Confirm that 'Professional Mode' is selected in the Mode drop-down menu. The 'Professional Mode' provides maximum ability to adjust scanning settings. 'Home Mode' offers limited adjustment options, and 'Office Mode' is designed for batch scanning using a document feeder.
5. Lift the scanner cover and place the object to be scanned in the upper left corner of the bed.

Previewing the Scan

1. Click the 'Preview' button to pre-scan the object. The pre-scan is a view of the digital image at current or default settings. Preview the image to determine what adjustments, if any, need to be made.
2. Once the pre-scan is complete, the image will be visible in the preview window.

3. A dotted line, called the marquee, will appear in the preview window, framing the scan area. If not, you can create it manually by clicking and dragging over the image to be scanned.
4. The marquee may need to be resized or repositioned. Position the cursor over the dotted line until the cursor changes to a double-sided arrow. Then, click and drag the dotted line to resize the marquee. Position the cursor inside the marquee and the cursor will turn into a hand. Then, click and drag to reposition the marquee.
5. Preview Window Options:

Delete Marquee
Deletes the currently selected marquee.

Duplicate Marquee
Creates another marquee of the same size and shape as the currently selected marquee.

Auto Locate
Attempts to position the marquee over the image in the preview window. This tool is not always accurate. Check that the entire image is properly selected.

All
Selects all marquees.

Auto Focus
Adjusts the focus based on internal calculations. Most projects won't require focus adjustments.

Manual Focus
Adjust the focus within a range of -2.0 and 6.0. Most projects won't require focus adjustments.

Dual Focus
Toggles between a depth of 0.0 or 2.5. Most projects won't require focus adjustments.

Densitometer
Measures values for luminosity. To use the densitometer, move the cursor over the image to select pixels. The 'Before' column contains values for the pixels prior to any adjustments. The 'After' column contains values after any adjustments.

Scanning Settings

1. The Epson Scan window has 4 parts: 'Settings', 'Original', 'Destination', and 'Adjustments'.
2. The Settings drop-down menu allows the operator to save currently selected settings in a profile. Click on the 'Save' button to save settings. Settings are named '*Setting* + next consecutive number'. Settings may be deleted by choosing the setting and then clicking on the 'Delete' button.
3. 'Document Source' indicates whether the original object is on the bed of the scanner (Document Table) or fitted on an attachment, such as the slide tray.
4. 'Auto Exposure Type' option optimizes the scan for a photo or a document. Select the appropriate choice.
5. 'Image Type' drop-down menu contains values for the bit depth, the number of possible tones available to represent the image. For example, 16-bit grayscale provides a range of 65,536 tones and 24-bit color provides a range of 16.7 million tones. Select bit-depth based on guidelines provided by
   a. NARA's *Technical Guidelines for Digitizing Archival Materials for Electronic Access*, available at http://www.archives.gov/research/arc/digitizing-archival-materials.html OR
   b. the *Western States Digital Imaging Best Practices*, available at http://www.cdpheritage.org/resource/scanning/documents/WSDIBP_v1.pdf.

   The following chart offers a few suggested settings for common image types based on the Western States Digital Imaging Best Practices:

TEXT	PHOTOGRAPHS	MAPS
Black and White (1-bit bitonal) 8-bit grayscale 24-bit color	8-bit grayscale 24-bit color	8-bit grayscale 24-bit color

6. 'Scanning Quality' options are 'Best' for high-quality scans and 'Draft' for a faster scan with some loss of quality.
7. When 'Image Type' is 'Black and White', an additional drop-down menu appears. Select 'Text Enhancement Technology' for text documents that will be OCR'ed. Select 'Auto Area Segmentation' for documents that contain both text and graphics to make grayscale images clearer and text recognition more accurate.

8. Resolution is a measurement of the number of pixels sampled when scanning the image and is measured in pixels per inch or ppi (may also be referred to as dpi). Size, quality, and intended use should be considered when selecting a resolution.
   a. The Western States Digital Imaging Best Practices (http://www.cdpheritage.org/resource/scanning/documents/WSDIBP_v1.pdf) recommend scanning at a resolution of 3,000 to 5,000 pixels on the long edge for archival quality images. To translate this recommendation into a ppi value, divide 5,000 by longest dimension of the image in inches. For example, a 5x7 inch photograph would be 5,000 pixels / 7 inches = 714 ppi. In the Epson Scan window, select the resolution from the drop down menu or type it in.
   b. NARA's *Technical Guidelines for Digitizing Archival Materials for Electronic Access*, available at http://www.archives.gov/research/arc/digitizing-archival-materials.html provides more detailed recommendations based on material type and condition.
9. 'Document Size' reflects the dimensions of the image within the boundaries of the marquee. To change the dimensions, readjust the marquee or type in new values in the width and height text boxes. The document size can be measured in inches or millimeters.
10. Target size reflects the size of the scanned image. Use the default setting, Original.
11. The scale is the percentage of enlargement or reduction. Leave this value at 100%.

Making Adjustments

1. After previewing the image at the appropriate resolution and bit-depth, examine the scanned image against the original.
   - Evaluate the highlights, mid-tones, and shadows. Are the details in these different areas captured accurately?
   - Is the image too light or dark overall?
   - For color images, do you observe a color shift?
   - Has the image or document been cropped or skewed?
   - Are there any unwanted artifacts?
   - For text or line art, is the stroke adequately reproduced?
   - For text, is the text legible?
   - For text, is there sufficient contrast between the text and background, without gray tint or streaking?

2. If the scanned image is unacceptable, use the following tools to make adjustments.
3. Histograms graph the distribution of light, medium, and dark tones in an image. The histogram tool includes three ways to adjust values. Triangles under the histogram can be moved to adjust shadows, mid-tones, or highlights. Values ranging from 0 to 255 can be entered directly into the text boxes. Finally, the operator can click on the eyedropper tool to select pixels in the image to serve as reference points for the darkest dark, lightest light, or mid-tone value. Note: The histogram tool also includes 'Tone Curve Viewer' and 'Gray Balance Intensity' monitors. Use these displays as reference points. Do not attempt to use them for major corrections.
4. The Tone Correction tool provides another way to correct tonal imbalances. The scanning software provides several preset correction options:

Linear	Makes no adjustments
Lighten	Brightens underexposed images
Darken	Makes overexposed images darker
Flat Contrast	Flattens high contrast images
High Contrast	Increases contrast
Open Shadow	Improves details in the dark areas of images

5. The Image Adjustment Tool is an easy way to make changes to all aspects of the image's appearance. Use the slider or enter values in the text boxes to make adjustments to brightness, contrast, saturation, and color balance.
6. If adjustments are unsatisfactory, use the 'Reset' button to return to original settings.
7. Some additional options:

Unsharp Mask Filter	Improves image sharpness
Descreening	Removes moire patterns
Color Restoration	Adjusts color for faded images

8. When the image is satisfactory, click 'Scan'.

Saving the Scanned File

1. The scanned image will appear behind the Epson Scan window and the Preview window. Close out the Epson Scan window to work with the scanned image.
2. Under the 'File' menu, choose 'Save'.

3. Save the image as a TIFF in your project folder. A dialog box will appear. Leave the image compression option at the default value, 'None'. Click OK.
4. Using a naming convention to keep files organized.

See Also

Millennium Media Guidelines
http://ucblibraries.colorado.edu/systems/digitalinitiatives/Millennium_Media_Guidelines.pdf

NARA's Technical Guidelines for Digitizing Archival Materials for Electronic Access
http://www.archives.gov/research/arc/digitizing-archival-materials.html

Western States Digital Imaging Best Practices http://www.cdpheritage.org/resource/scanning/documents/WSDIBP_v1.pdf

Additional Resources

Epson Expression 10000XL- Photo Documents and Manuals
http://www.epson.com/cgi-bin/Store/support/supDetail.jsp?BV_UseBVCookie=yes&infoType=Doc&oid=48201&prodoid=46048262&category=Products

Epson Expression 10000XL Reference Guide
http://files.support.epson.com/htmldocs/ex10kg/ex10kgrf/index.htm