

PNRA Class - Slide/Negative Scanning with Dale Sanders

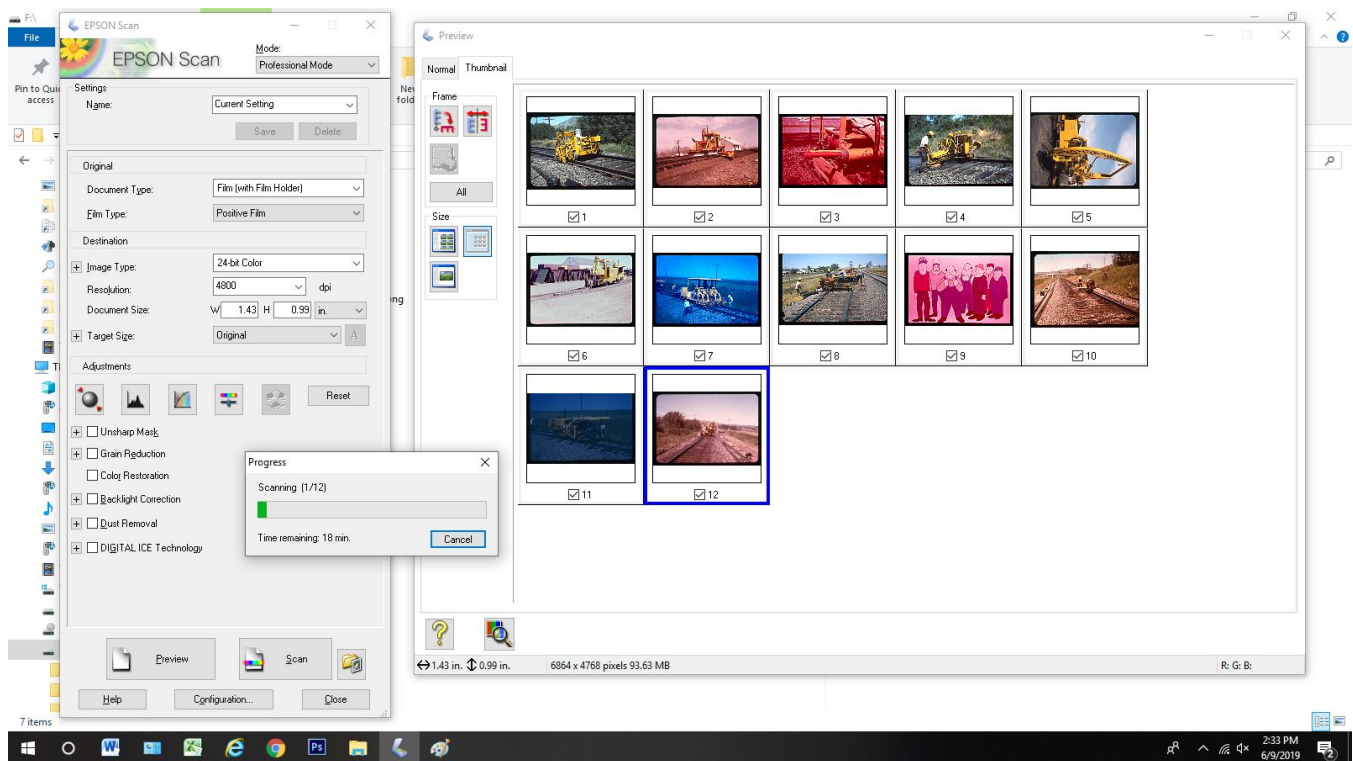
Overview

On Saturday, May 18th, 2019, Dale Sanders presented a two-hour class on slide and negative scanning at the Pacific Northwest Railroad Archive. This document compiles the key points and provides screen shots of important software settings. It also provides links to points in the video files to reference Dale's own dialog on various topics.

1. Slide/Negative Preparation
2. Tray Loading
3. General Software Settings – File Formats, Resolution, and Other Settings
4. Preview, Adjustments, and Final Scan

This guide uses the EPSON Scan software to convey key principles and settings, but if other software is used, it should allow for the same end results.

Here is a screen shot of the overall software user interface, during a scan of 12 slides.



Slide/Negative Preparation

Slide preparation is critical, because slides and negatives will attract dust and lint over the years and removing these artifacts after the scan is time consuming and inherently degrading. A quick 20 seconds of slide prep is certainly worth it!

Dale discusses physical slide preparation at the **31:55** mark of the video *PNRA Scanning with Dale Sanders - Tape 1*. There are two key activities recommended by Dale:

1. 1 or 2 strokes on each side with a camel-hair brush, at a 45 degree angle. Camel hair will not scratch the slide or negative, however plastic or other bristle types will. The PNRA has a large collection of these camel hair brushes.
2. A quick blow of air from bottle air cans like Dust Off. First, a quick blow from the can into space to clear it, then one or two quick puffs on each side of the slide or negative. Blow across the slide, not square at it, so the dust leaves the surface, not pushed onto the surface. The PNRA has cans of Dust Off from Costco.

Now the slide is ready to be placed in the scanning tray.

Tray Loading and Strategies

With the slide or negative prepared, its ready for the scanning tray. It is critical for negatives to be loaded in a tray, and not placed directly on the glass bed of the scanner. Prints or paper can be placed on the glass but film **MUST** be in some kind of tray.

At the beginning of your scanning session, you should clean the large glass surface of the scanner. For this, its best to use a lens cleaning cloth (like one from an optometrist). It's a best practice to clean it every hour or so, or whenever you see dust or miscellaneous debris on the surface.

Dale broadly discusses trays from the **22:12 mark to 30:40** mark of *PNRA Scanning with Dale Sanders - Tape 1*. And, he specifically shows some custom trays he made at the **28:01** mark.

For slides, use the 35mm trays provided with Epson scanners. The common trays for the Epson 750 holds 12 slides at a time. Most scanning stations will have two 35mm trays; one for scanning, and a second for loading. Since scanning a full tray of slides will take 20 minutes or more, it greatly increases efficiency if you can be preparing slides and loading the next tray while the current tray is being scanned.

As mentioned by Dale, you can load slides emulsion up or emulsion down. It does not matter because the photo can be easily flipped in Photoshop or other photo manipulation programs after the scanning is done.

General Software Settings – File Formats, Resolution, and Other Settings

File Formats and Resolution

Cutting right to the point, slides or negatives scanned at the PNRA should be saved to the TIFF format. Here is a short discussion on the topic of file formats.

Scanning images and sharing them as part of the archives mission can be thought of as a workflow. Consider these workflow steps – Capture, Working, Delivery, and Archive. Only Capture and Archive are required steps, but many images also get enhanced and cleaned-up during a Working phase after initial Capture.

This table provides PNRA guidance, based on standards from the federal government digital archive guidelines. For further research, see <http://www.digitizationguidelines.gov/>

<i>Format/Use</i>	Capture	Working	Electronic Delivery	Print Delivery	Archive
TIFF	Yes	Yes	Maybe	Yes	Yes
JPEG	No	No	Yes	No	No
PSD	No	Yes	No	Maybe	No

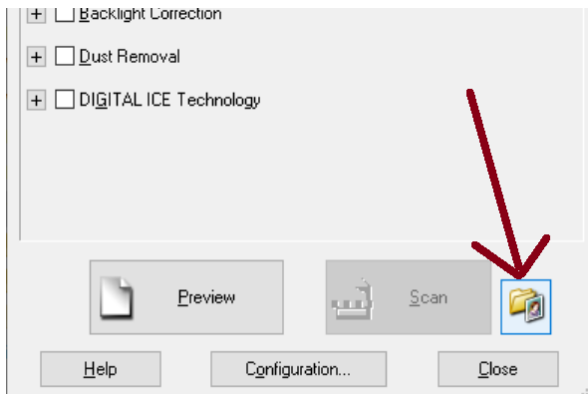
For scanning resolution, Dale's presentation is in alignment with PNRA guidelines for slides and negatives – the smaller the size the negative, the higher the resolution. The larger, the lower the resolution. **A general target for films and slides is a TIFF with a file size 50MB (uncompressed).**

<i>Film Formats</i>	Examples	Resolution/DPI
35mm format	35mm slide, 110	4800
Medium format	616, 645, 6X6, 6x7	2400
Large format	4x5, 5x7	1200
Very large format	8x10	600

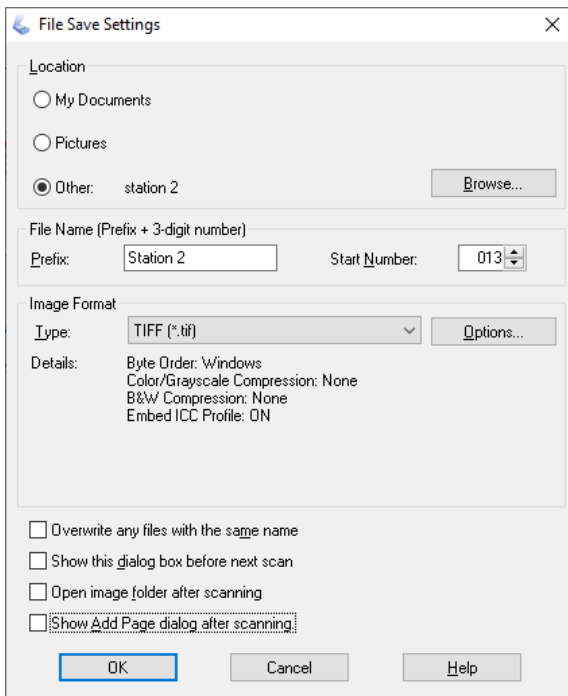
<i>Printed/Reflective Formats</i>	Resolution/DPI
8x10 print, other printed photos	600
Documents, 8.5 x 11 pages, drawings	300
Postcards, forms, etc.	300

Setting the File Format, File Name, and Location in EPSON Scan

The various options that dictate how your file is saved are set in File Save Settings dialog box. You access this dialog box by clicking this little folder icon in the main EPSON Scan interface.



You will be presented with this dialog box:



Click the Browse button to choose the location you wish to save your file.

You can optionally use file prefixes to automatically number files.

Most importantly, you use Image Format to set the Type of file you want to save, which if doing initial scans (Capture phase), choose TIFF.

Generally, the Details/Options should match the dialog box above.

EPSON Scan – Main Settings Dialog

The screen capture below shows the settings that should be use for PNRA scanning of 35mm slides or negatives.

Document Type:

If you are using an Epson provided Film Holder for slides/negatives (for instance the common trays that hold 12 slides), set the Document Type to **Film (with Film Holder)**.

If you are using a custom tray for slides/negatives, you will need to choose **Film (with Film Area Guide)**.

If you are scanning prints or documents, choose **Reflective**.

The Film Holder selection automatically picks the areas to scan, up to all 12 of the slides. The Film Area Guide counts on YOU to pick the exact location to scan the image, using the Marquee selection tool in the Preview dialog box.

File Type:

If you are scanning a Slide, set to Positive Film. If you are scanning a negative, set to either Color Negative or B&W Negative.

Image Type:

Should either be **8-Bit Grayscale** for black and white negatives or documents, or **24-Bit Color** for color negatives. If there is color on a document or postcard, use **24-bit Color**. When in doubt – always scan in color. Hard drive space is cheap, but re-scanning documents is wasteful and not cheap.

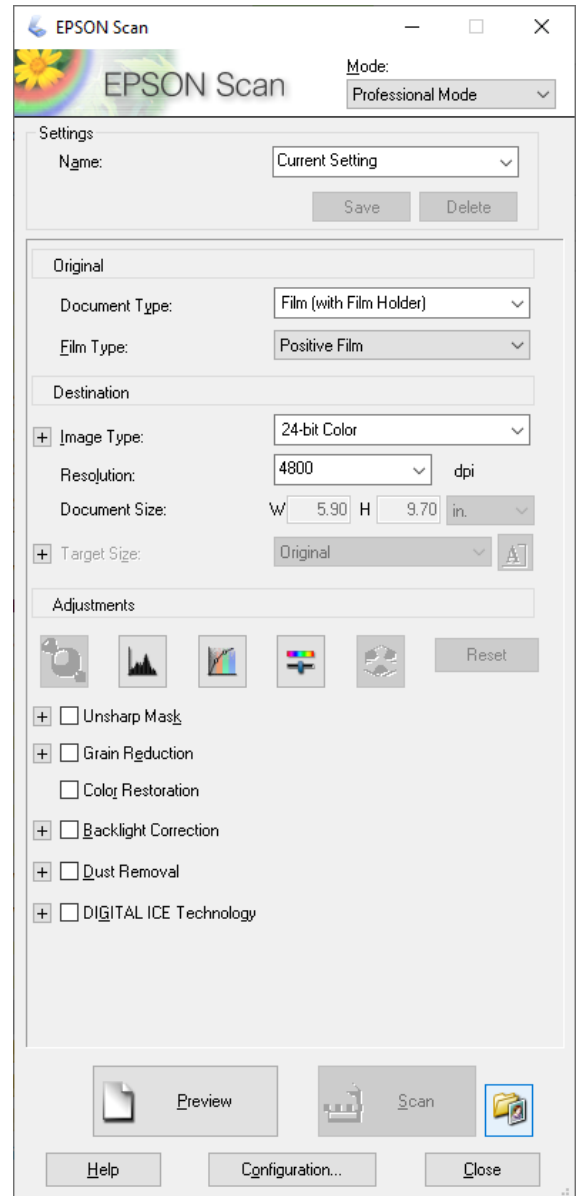
Note that all the Adjustments from Unsharp Mask to Digital Ice are turned OFF. However...

Color Restoration - Red shifted or discolored transparencies can benefit from using the Color Correction option (especially medium and large format E-6 processed films). Once a preview scan is captured, operators can click this option to evaluate its benefit, toggling back and forth between restoration and no restoration. Then, pick the best option prior to final scan for that image.

With our slides properly prepared, and EPSON Scan settings set to PNRA guidelines, we are now ready to Preview.

Preview, Adjustments, and Final Scan

Next, click the Preview button. This will make an initial scan of the full tray such that adjustments can be made before the final scan is done. Typically, this takes a minute or less.





Setting the Marquee

After the preview is completed, the next step is to set the marquee. The marquee tells the scanner precisely what scanned data to save to the file. Generally, the marquee is set just inside the extreme edges of the image and does not include the black edge around a negative.

Dale broadly discusses setting the marquee for **Black and White Images** at the **35:57 mark to 36:45** mark of *PNRA Scanning with Dale Sanders - Tape 1*.

Dale broadly discusses setting the marquee for **Prints** at the **1:43 mark to 3:20** mark of *PNRA Scanning with Dale Sanders - Tape 2*.

Dale broadly discusses setting the marquee for **Color Slides** at the **17:40 mark to 18:14** mark of *PNRA Scanning with Dale Sanders - Tape 2*.

Setting the Histogram – So Important!

After the marquee is set, it is time to adjust the Histogram. Using the Histogram Adjustment settings dialog box adjusts the light and dark areas of the image so that our final scan can pull out as much detail as possible from the slide or negative. This is essentially the most important step of the entire scanning process, so please do not skip this step.

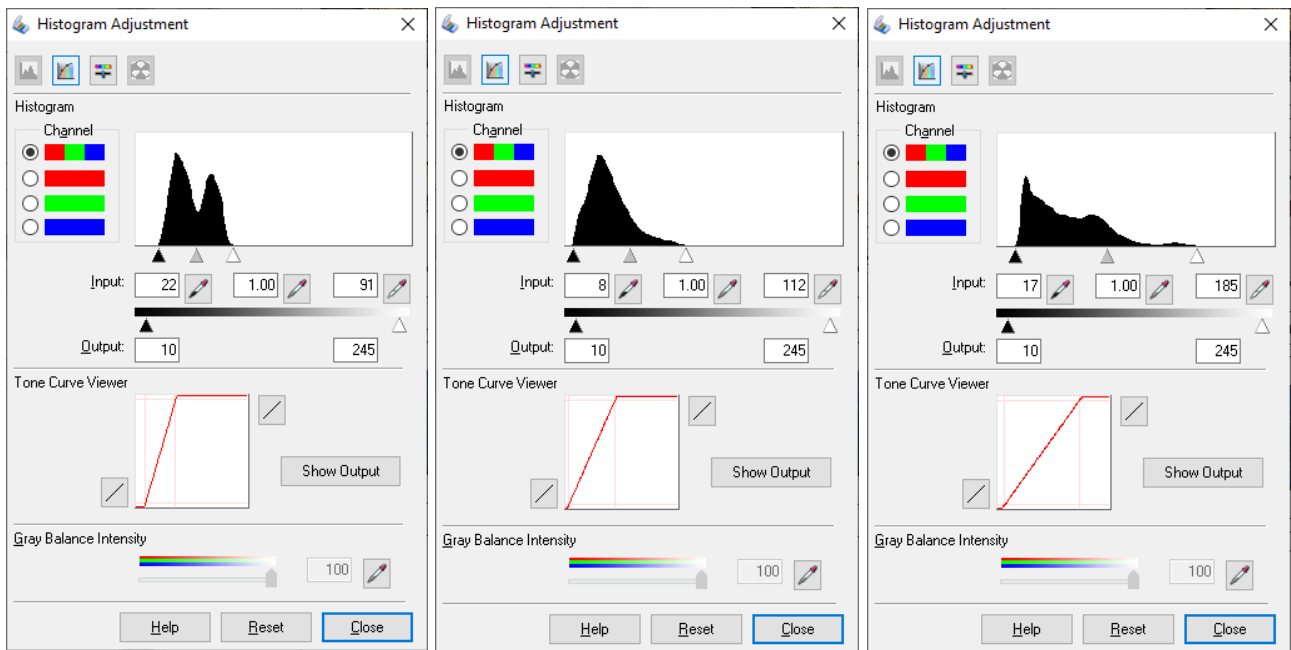
If you can only listen to one part of Dale's lecture, listen to his discussion of histogram setting for various types of images. It is critical for successful results.

Black and white slides: at the **37:00 to 51:00** mark of *PNRA Scanning with Dale Sanders - Tape 1*.

Black and white prints: at the **1:00 to 7:00** mark of *PNRA Scanning with Dale Sanders - Tape 2*.

Color slides: **15:45 to 24:00** mark of *PNRA Scanning with Dale Sanders - Tape 2*.

Here are some examples of Histogram Adjustment dialogs:



Again, go listen to Dale discuss these settings. They are critical.

Batch Scanning – Scanning Multiple Images

If you are scanning only one image or one slide, you only have one Marquee and one Histogram to set. If you are scanning 12 slides at a time, you need to set the Marquee and Histogram for all 12. The EPSON Scan program allows you to set a Marquee and Histogram for each image being scanned with one pass of the scanner.

To activate multiple marquees for batch scanning: Draw marquees around each image to be scanned. Then, after the last marquee is drawn (it will have the moving dashed border) simply hold down the shift key and click anywhere within successive marquees. The order in which the marquees are selected will be the order the scanner scans the images.

Once you have the Marquee and Histogram Adjustments correct, you are now ready to click Scan!

Click the Scan button in the Epson Scan main interface, and the scanner will make the final scan and write the file(s) to the location on the computer you specified. The scanner will still make multiple passes, one pass for each scan. However, operators need only sit back and watch (or load the next tray) as the scanner works its way through multiple scans.

You are now ready to move on to the next scan!

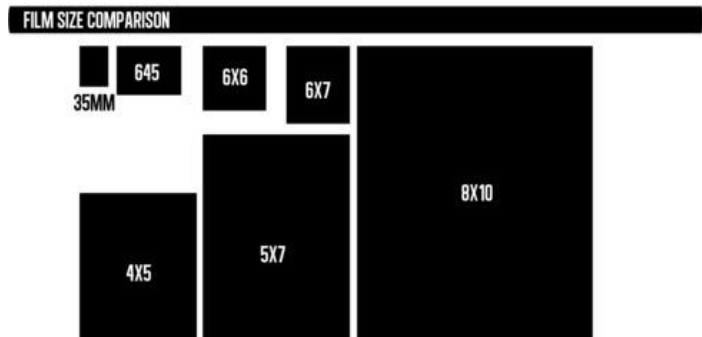
Bonus! – Image Cleanup Using Photoshop

In the final 30 minutes or so of *PNRA Scanning with Dale Sanders - Tape 2* (and some of the short *Tape 3*), Dale discusses some of the basics of “Working” stage of image scanning, in which tools like Photoshop are used to further refine the scanned image to prepare it for Delivery (such as online sharing).

These techniques will not be discussed in this document, but you can certainly leverage Dales advice to enhance the images you scan.

Appendix – Common Film Formats

FORMAT	SIZE	SHOTS/ROLL	CAMERAS
35MM	24 X 36MM	36, 24, 12	VARIOUS
MEDIUM FORMAT (ALSO KNOWN AS 120 OR 220 FILM)			
645	56 X 42MM	16	PENTAX 45, MAMIYA 45, HASSELBLAD H1, ETC.
6X6	56 X 56MM	12	HASSELBLAD 200/500, ROLLEI TLR, YASHICAMAT TLR, ETC.
6X7	56 X 67MM	10	PENTAX 67, MAMIYA RB67/RZ67, ETC.
LARGE FORMAT			
4X5	4" X 5"	SHEET FILM	VARIOUS
5X7	5" X 7"	SHEET FILM	CANHAM, REMBRANDT, ETC. VIEW CAMERAS
8X10	8" X 10"	SHEET FILM	DEARDORFF, SINAR, CALUMET C-1, TOYO, ETC. VIEW CAMERAS



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