

Guidance on Using Scanning Software: Part 3. SilverFast

Version of 4/29/2012

SilverFast SE and SE Plus are the entry level scanning software, and SilverFast Ai and SilverFast Ai Studio are the more advanced versions. Each of these versions has a special version for each brand and model of scanner. [SilverFast](#) software often comes bundled with scanners but can be purchased separately. Purchasing the separate software for each scanner can be expensive, as are the upgrades. For example, at the time of writing, the SilverFast website page for the Epson V750 scanner states that the costs are \$49 for SilverFast SE, \$119 for SilverFast SE Plus, and \$299 for SilverFast Ai Studio. SilverFast Ai that came bundled with the scanner is apparently not available separately. The web page also states that the cost to upgrade SilverFast Ai Studio from version 6 to the new version 8 is \$250. However, a different part of the SilverFast website indicates that the cost to upgrade to SilverFast Ai Studio version 8 would be about \$150 for the Epson V750.

SilverFast software generally has many complex interacting options that are not well documented. The company does not attempt to develop detailed documentation for each version. For the SilverFast Ai version 6 that came with my Epson V750 scanner, the help information in the program consists of opening either a short Quick Start guide or another document describing the new features in version 6.6 that were not in previous versions. Some basic video tutorials are also available that supplement the quick start guide.

More detailed information about the software is provided in a separate 494-page manual that attempts to cover all the different versions of software for all the different scanners and also has some errors on key points. A separate 48-page addendum describes additional updates after the main manual was written. These manuals cover not only Silverfast SE, SE Plus, Ai and Ai Studio but several other software products that are used for image processing not tied to a scanner. These other products include SilverFast DC VLT, DC Pro, DC Pro Studio, DC SE, HDR, and HDR Studio. All of these products have different features and in some cases different terminology for the same features. Virtually every page of the manual has various notices and warnings about the applicability for different software products and versions. In addition, there are many notices about variations with different models of scanners, but no attempt to specify what applies with any particular model of scanner. For some key points, the information in screen shots is inconsistent with the text descriptions, which significantly increases the difficulty in understanding the complex options and interactions.

I have spent much time working with SilverFast software, manuals, and videos with two different scanners but am not confident that I correctly understand the operation of some of the

complex options. The descriptions in this guidance are my understanding of SilverFast software after much effort, but should be taken with the caution that some points may be incorrect. And, of course the features will be different with different versions of SilverFast.

The complex interacting options in SilverFast reduce my sense of confidence and reliability in using the software. Others may have more confidence in their understanding of SilverFast. The description below attempts to consider both perspectives.

The information here focuses on SilverFast Ai version 6.6 that came with an Epson V750 scanner and was updated to the most recent release. Many of the functions are the same or similar for other versions of SilverFast. However, there are also differences among versions and no attempt is made here to describe the differences. Similarly, the many options with SilverFast that are not relevant for archival scanning are not mentioned unless they get in the way when doing archival scanning. The primary focus of SilverFast is preparing an image for printing.

3.1 Workspace and Layout

As shown in Figure 3.1 SilverFast opens with two windows displayed, one with the main scanning controls and the other with the image being scanned. The controls window has tabs and buttons for controlling the scanning process. Other control buttons are located on the left side of the image window. The edges of the image window can be dragged to size the image independently from the controls window.

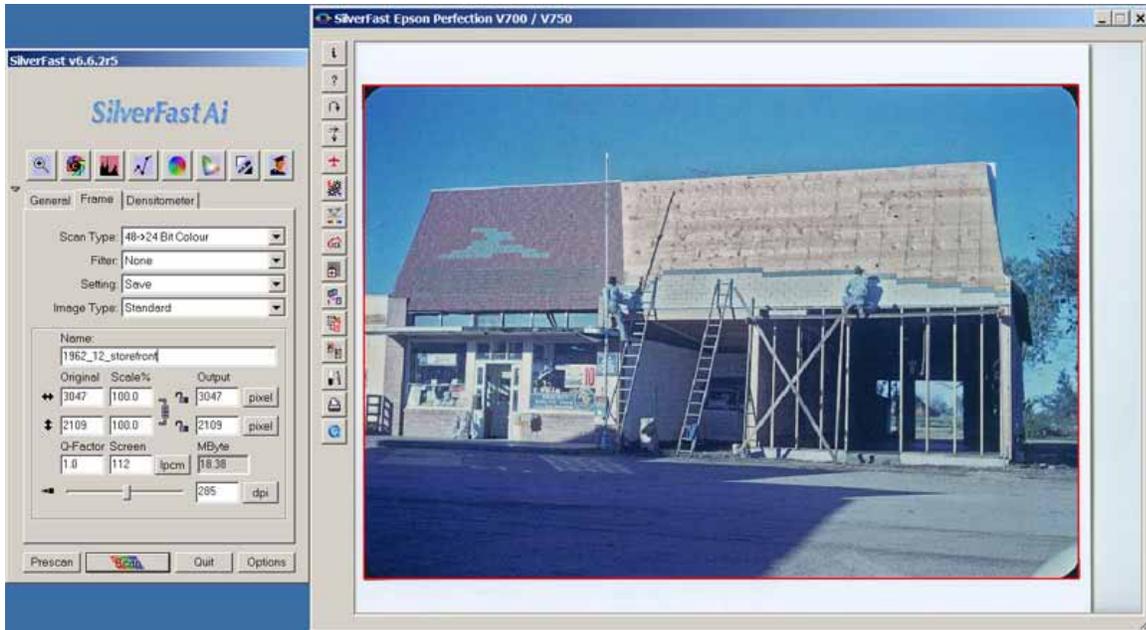


Figure 3.1. The main workspace for SilverFast Ai. The window on the right has the image and some tools. The window on the left has the main scanning controls.

An orange rectangle on the image is the scan *frame* that defines the area included in the final scan. Like most scanning software (except VueScan), SilverFast uses a low-resolution preview or *prescan* to set scanning adjustments and then applies the settings in a final high-resolution scan. Any changes to the settings require that the high-resolution scan be redone.

3.2 Standard Option Settings

This section describes settings that will be used for most archival scans. The general options for scanning are set by clicking the Options button on the lower right corner of the SilverFast scanning controls window. The options screen brings up four tabs with numerous items under each tab. The settings are identified here by the tab and item label. For example, *Auto>Auto Threshold Highlight*: indicates the item or field labeled Auto Threshold Highlight under the Auto tab.

General Tab

General> Color Model: should be set to RGB for archival scanning.

General > *Units of Measure*: should be set to Pixel for archival scanning based on the criteria in Chapter 2 for the total pixels on the longest dimension.

General > *High resolution prescan*: sets the resolution of the prescan or preview scan. If this is set high the prescan can be zoomed without requiring another prescan. However, a higher value makes the prescan step take a little longer. A value of about 4x is a useful compromise for archival scanning. For 35 mm film 6x or 8x may be better.

General > *Gamma Gradation*: determines the gamma or brightness of mid-tones for scanning. A value of 1.8 is commonly recommended, including in the SilverFast manual (even though that is not the default value shipped with the software). Note that this is a different function than the gamma for the monitor.

General > *Q-Factor*: relates to setting scanning resolution for printing and is an unnecessary complication for archival scanning. Setting the value to 1.0 reduces the complications.

General > *Show image after scan*: is a checkbox that will cause an image to be opened with the default operating system image browser after the image has been scanned. This can be useful if output images are always checked by viewing. Checking the final image is recommended because SilverFast does not display the final high-resolution scan. However, this can also be a nuisance if the image is not checked immediately. Clearing the checkbox will prevent the image from being automatically opened after scanning.

Auto Tab

Auto: *Auto Threshold Highlight*: basically sets the amount of clipping when automatically setting the white point on the histogram, but with some complications that are described in the section on workflow and adjustments below. The default value should be zero for archival scanning.

Auto: *Auto Threshold Shadow*: basically sets the amount of clipping when automatically setting the black point on the histogram, but with some complications that are described in the section on workflow and adjustments below. The default value should be zero for archival scanning.

Auto > *Highlight Offset*: is a complicating factor for working with the histogram and is described in the section on workflow and adjustments below. A default value of zero is probably best for archival scanning. Note that the tone in the histogram for the RGB color model ranges from 0 for pure black to 255 for pure white. The highlight offset field is based on a percent of the total tonal range and is reversed when actually applied. Thus a value of 2 is 98% of the range 0 to 255, which displays as 250 in a field described later.

Auto> Shadow Offset: is a complicating factor for working with the histogram and is described in the section on workflow and adjustments below. A default value of 100 is probably best for archival scanning. The note for highlight offset above applies to this field also and a value of 98 in this field displays as 5 when applied later.

Auto> Color Cast Removal: determines whether and how individual color channels are adjusted in the histogram when the auto adjustments process is applied. The color cast removal option can easily be applied later and often causes clipping of the histogram. The safest practice for archival scanning is to leave the “active” checkbox blank so the default is left at zero.

Auto>Auto Frame Inset: specifies the percent of the area selected for scanning that is excluded when the values for auto adjustments are determined. After the values have been determined, the adjustments are applied to the entire selected frame. This option is intended to reduce the effects of borders, rounded corners, and edge damage on an image. The default setting of 10% can sometimes produce confusing results as described in the section on adjust tone and color below. Setting this value to zero and manually selecting the reduced area for setting auto adjustment values is the most reliable strategy with SilverFast, but requires more time and effort.

Auto> Auto Contrast: is a checkbox that should be left blank for archival scanning.

On the options dialog boxes, click the Apply button on the lower right and then the Ok button to set the options. Various options related to color management are described in a later section. A set of option settings can be saved and recalled using *General> Default Setting:* and *General> Option Parameter:*, but that is generally not needed because these setting are used for all scans and are retained after first use.

3.3 Workflow and Adjustments

A basic workflow for creating archival images with SilverFast is:

- Set the type of source material.
- Create the preview image and select the area for scanning.
- Set the bit depth, resolution, and the output file name.
- Adjust tone and color.
- Apply infrared dust and scratch correction if it is being used.
- Apply noise reduction if it is being used.
- Set the output file name and format and create the high-resolution scanned image.
- Check the final image.

Set the Type of Source Material

The type of scan is set from the General tab on the main scanning controls window.

General> *Scan Mode*: is set to “Normal (File)” for most archival scanning.

General> *Original*: is set to “Reflective” for scanning paper items and “Transparency” for slides or negatives.

General> *Pos/Neg*: is set to “Positive” for paper items and slides, and to “Negative” for negative film. Some scanners such as the Epson V750 have a special option for Kodachrome slides.

Create the Preview Image and Select the Area for Scanning

Click the Prescan button to create the prescan or preview image. If needed, the image can be rotated by clicking the rotate button with a curved arrow in the tool bar on the left side of the image display. The frame defining the final scanned image is set by dragging the edges of the orange rectangle on the image. The image can be zoomed to focus on an area somewhat larger than the selected frame by clicking on the plus icon in the upper left corner of the main scanning controls window. Clicking the button again toggles back to displaying the full scanning bed. This button is particularly useful when scanning negatives or slides.

Set the Bit Depth, Resolution, and the Output File Name

The bit depth, resolution, and output file name are set under the Frame tab on the main scanning controls window. The raw scan is always made with 16 bits per channel or as close to 16 bits as the scanner can do.

Frame> *Scan Type*: is set to “16-> 8 Bit Grayscale” for a grayscale output file with a bit depth of 8 bits. “48 -> 24 Bit Colour” is for a color output file with a bit depth of 8 bits per channel. “16 Bit Grayscale” is for a grayscale output file with a bit depth of 16 bits. “48 Bit Color” is for a color output file with a bit depth of 16 bits per channel.

Frame> *Filter*: is set to “None” at this stage.

Frame> *Image Type*: allows automatic adjustment for certain types of scenes such as landscape. This may be useful to explore, although the default of Standard will usually be most appropriate for archival scanning.

Frame> *Name*: specifies the name of the output file. This field is optional. A dialog box to enter the folder and file name for the output image comes up when the scan is actually made.

The size and resolution of the output image are set with the lower fields under the Frame tab. For archival scanning the two fields for Scale% should both be set to 100%, which makes the

output image the same size as the original item. The dimensions of the image in pixels will be displayed if the default units of measure have been set to pixels as described earlier. The lower slider for resolution in dpi can be adjusted until appropriate dimensions in pixels are obtained. Alternatively, a specific resolution can be typed in the unlabelled field for resolution in dpi. Attempting to type the needed number of pixels directly into the fields for Output or Original size has undesired effects such as changing the size of the output image. If the dimensions in inches are needed, one of the buttons labeled Pixel can be clicked to change the units to inches.

Adjust Tone and Color

As noted in the [Introduction](#) to this scanning guidance, adjustments to tone and color are described for three different conditions: (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. First, the general operation of adjustments and the settings to handle negatives are described.

The basic tone and color adjustments for an image are made using the square icons at the top of the main scan controls window. The icon toward the left that looks like the aperture of a camera is the Image Auto-adjust button that makes automatic tone and color adjustments using the settings described for the Auto tab in the standard option settings section above. Holding the Alt key down when clicking this icon resets or removes the auto-adjustment. In general, tapping Ctrl-Z will undo the most recent action and tapping Ctrl-Z again will re-apply the action.

The adjustment settings from the previous scan are retained and often need to be cleared when preparing to scan a new item. Using the Alt key and Image Auto-adjust button as described above will clear the previous settings. Another option is to name and save a Frame-Set for initializing each type of original. The Frame-Sets are handled under the General tab and separate frame-sets are kept for the various combinations of reflective, transparency, positive, and negative. After the type of original has been manually set to reflective or transparency and positive or negative, the appropriate frame-set can be selected.

Options for Negatives

When scanning negatives the *NegaFix* dialog box appears for specifying information about the film. Pick-lists are provided for three fields to select film brand, type, and speed. For historical negatives this information will often not be available and different options can be tried until a useful result is found. An exposure slider is present that can be used to adjust the brightness of the image. A checkbox labeled CCR is for color cast removal and a slider labeled Auto-Tolerance

is also involved with color cast removal in the lighter areas of the image. The manual does not describe how CCR operates, but Karl-Heinz Zahorsky, the CEO and inventor of SilverFast, said in an email that “CCR is a simple kind of white balance averaging the 3 color channels for white balance. This is more effective for negatives than just taking the highlight-shadow points adjustments for color cast.”

NegaFix also has an expert mode that apparently is primarily intended to create or modify the profiles for different brands, types, and speeds of film. Clicking the icon for the man in a graduation hat toggles on and off additional controls, including histograms and curves. These additional controls are highly interacting in ways that I find unpredictable. This histogram reveals that the Auto-Tolerance slider apparently operates by clipping pixels on the highlight end of the histogram. The curves display reveals that the exposure slider operates by shifting the mid-tones for the curves without shifting the black and white points. The histogram and curves do not show any changes for the CCR checkbox.

The safest strategy may be to select a film brand, type, and speed that give useful results, adjust the exposure slider, and try the CCR checkbox. Additional adjustments can be made outside of NegaFix with the usual tone and color controls that can be more reliably understood.

The SilverFast manual states that it is important to exclude film borders when applying NegaFix. This can be done by reducing the size of the scanning selection frame while the settings for NegaFix are being determined, and then expanding the selection frame for the actual scan. However, the adjustments with NegaFix are automatic by default and will change if the selection frame is changed. The automatic NegaFix processes are turned off by clicking on the icon for the expert mode and then clearing the checkbox at the bottom by the Auto button. A warning icon appears on the main NegaFix dialog box to indicate that the auto processes are turned off, but the settings will be maintained when the selection frame is changed.

Condition 1. Scan Not Adjusted for Tone and Color

Two different strategies can be used to obtain output images without tone and color adjustments. Infrared dust and scratch correction can be applied with the option for converted output. For at least some versions of SilverFast infrared dust and scratch correction can be applied to the option for raw output, but that may not be true for all versions of SilverFast.

Converted Output. SilverFast can apply the scanner color profile and convert the image to a working color space but not do any other adjustments to tone or color. Color Management is turned on in SilverFast for this output, but the other tone and color adjustments are not applied. The safest practice is to hold down the Alt key and click the Image Auto-adjust button to remove any adjustments that may remain from a previous image. The Scan Type would typically be set to “48 Bit Color” or “16 Bit Grayscale”.

Raw Output. The raw image from the scanner can be output without application of a color profile for the scanner and without conversion to a working color space. Image-editing software would be used to apply a scanner profile and to convert the image to a working color space, as well as to make all needed adjustments to tone and color. This unconverted output image is created by turning off color management and all tone and color adjustments.

The settings for raw file output are:

General > *Gamma Gradation*: should be set consistent with the color profile that will be applied in the image-editing software. Typical values would be 1.8 and the check box “for HDR output” would be checked.

CMS > *Input-> Internal*: should be set to “<None>”.

CMS > *Internal->Monitor*: should be set to “<None>”.

CMS > *Scanner (Reflective)*: should be set to “<None>”.

CMS > *Scanner (Transparency)*: should be set to “<None>”.

CMS > *Internal*: should be set to “<None>”.

CMS > *Grey*: should be set to “<None>”.

The Scan Type under the Frame tab is set to “48 Bit HDR Color” or “16 Bit HDR Grayscale.” HDR is the SilverFast code for raw output. The options for “64 Bit HDRi Color” and “32 Bit HDRi Grayscale” include an infrared channel in the output file if the scanner has capability for infrared dust and scratch correction. The infrared channel is not standard for image files and is not recommended for archival scanning intended for many different purposes over 50 years or more.

SilverFast turns off the options for tone and color adjustments for HDR output files. My limited experiments with HDR output suggest that setting the profiles to None may not always be necessary. However, setting the profiles to None is a recommended practice by those working with SilverFast and is the safest practice given the uncertainties with SilverFast.

Condition 2. Scan Adjusted for Fading and Exposure

Set the Black and White Points and Minimize Distortion. The histogram in SilverFast can sometimes produce confusing results. Clicking the Image Auto-adjust button in the row of buttons at the top of the main scanner controls window sets the black and white points for overall tone on the histogram based on the default auto threshold settings that determine the amount of clipping. However, even when the auto threshold settings have been set to zero, the black and white sliders are sometimes set in positions that appear to show significant clipping. The SilverFast manual did not address this issue.

Based on my explorations of SilverFast, I believe this discrepancy occurs because the black and white sliders are set based on the reduced area determined by the option *Auto* > *Auto Frame Inset*:, but the histogram actually displays all the pixels in the selection frame, not just the pixels

in the reduced area. This can result in the histogram showing pixels that are outside the black and white sliders and can be expected when an image has borders, rounded corners, or edge damage. Unfortunately, SilverFast does not have an option to display which pixels are being clipped. Exploring different selection frame sizes and different settings for *Auto>Auto Frame Inset*: can produce some confidence in how the sliders are set.

The strategy for the most confident use of the histogram may be to set the option *Auto>Auto Frame Inset*: to zero. Then manually set the optimal frame selection for setting the black and white points. Borders and rounded corners would be excluded. Click the Image Auto-adjust button to set the black and white sliders. Verify with the histogram that the sliders are set as expected. Then expand the selection frame to the area for the scanned image. Checking the histogram again may now show some pixels outside the black and white sliders, which is to be expected.

In most cases, I feel reasonably confident about the black and white point settings, but in some cases SilverFast has done things that I do not understand. The safest practice in such cases is to set the black and white sliders cautiously with SilverFast and make the final settings with image-editing software that allows more reliable handling of clipping. Others may have had a different experience with SilverFast and feel more confident in using SilverFast's more automated capabilities.

The histogram display is opened by clicking the Histogram button to the immediate right of the Image Auto-adjust button. The initial display is the input histogram before the adjustments have been applied. The usual three triangle shaped sliders are present at the bottom of the histogram and can manually adjust the black and white points and the mid-tones. These are labeled Shadow on the left for the black point and Highlight in the right for the white point. Colored square icons above the histogram can be used to view and adjust the histograms for the different color channels. The icon on the far right can be clicked to toggle through different histogram displays, including one with all three color channels at once.

Holding down the Alt key makes the histogram display change to show the output histogram after adjustments have been applied. Adjustments are made with the initial input histogram and then the Alt key can be held down to see the final results of the adjustments.

The slider labeled Colour Cast Removal on the histogram display adjusts the black and white points for each color channel individually, but also often introduces additional clipping of the histogram. When the slider is on zero on the left no adjustment is applied. The adjustment increases as the slider is moved to the right and the effects can be seen in the image display.

If the individual color channels are manually adjusted, the option to display all three color channels together as separate rows is useful. The vertical bars on the ends of each histogram row can be dragged to set the black and white points for each color channel.

For images without a full range of color, such as documents or photographs in snow or during sunset, the Auto-adjust button is usually not appropriate and manual setting of the black and white points is needed based on visual evaluation of the preview image.

Another feature that is sometimes useful is to identify and mark the darkest or lightest spots in the selection frame (as reduced by the *Auto>Auto Frame Inset:* option). On the vertical tool bar on the left side of the image display, there is a button near the bottom with an icon that is a vertical bar white on top and black on the bottom. Clicking the white part of the bar shows the lightest point in the selected part of the image. Clicking the black part of the bar shows the darkest point. If the Shift key is held down when the bar is clicked, a marker is placed at the spot on the image and a small floating “Fixed Pipette” box displays the color values at the marked spot or spots. The color tones at the spot are also identified on the histogram and curves displays. Only one marked spot can be displayed on the histogram or curve. Which marker is displayed is selected by clicking on the # and number for the marker in the Fixed Pipette box. A marker can be deleted by holding down the Shift key and clicking once on the marker in the image.

Set Output Tones for Black and White. As discussed in Chapters 2 and 3, it is good practice to make the darkest and lightest tones in the output image not be pure black and pure white. Chapter 3 noted that the optimal method for achieving this with software that does not provide precise tracking of clipping with the histogram is to set the black and white points on the histogram a short distance away from the darkest and lightest tones in the image. This method is appropriate with SilverFast if there is uncertainty about what is being clipped. The output histogram after adjustments have been applied should show that the darkest and lightest tones in the image do not extend completely to the ends of the histogram horizontal axis. If specific values are wanted for the darkest and lightest points, they can be set with image-editing software that provides greater control of clipping.

The SilverFast options to set the darkest and lightest output tones to specific values may be appropriate if the user is confident that clipping is handled properly. The histogram display in SilverFast has two additional interacting sliders. The sliders are on the top and bottom of a bar with tone gradation from black on the left to white on the right. The bottom sliders are labeled Colour Space Compression and can be used to set the numeric values for the darkest and lightest possible tones in the output image. The slider on the left sets the darkest output value and the slider on the right sets the lightest value. Numbers can be typed into fields instead of using the sliders. There are no options to set default values for the Colour Space Compression sliders. These sliders are similar to the common options with other scanning and image-editing software. However, the process is complicated by the other sliders on top of the bar.

My understanding is that if the sliders on the top of the bar have the same values as the Colour Space Compression sliders on the bottom of the bar, the effect will be the usual expected

adjustment to the darkest and lightest values in the output image. For the version of SilverFast for my Epson V750 scanner, the upper sliders sometimes track the movement of the lower sliders and sometimes not.

The results become more complicated if the top and bottom sliders have different values. The top two sliders have labels of Min and Max that are somewhat misleading. This pair of sliders can be used to expand the middle part of the histogram and compress the ends when clipping would otherwise occur. For example, if the slider for Min is set to 5, any pixels that are to the left of the Shadow slider on the histogram would be distributed in the range of 0 to 5 rather than clipped. If the slider for Max is set to 250 any pixels to the right of the Highlight slider on the histogram would be distributed in the range of 250 to 255. The pixels between the Shadow and Highlight sliders on the histogram would be distributed throughout the range of 5 to 250. This can expand the middle of the histogram and compress the ends. The default values for the Min and Max sliders are set with the options for *Auto > Highlight Offset:* and *Auto > Shadow Offset:* described in the section on standard option settings above. As noted above, a value of 2 entered for Highlight Offset becomes 250 in the Max field here and a value of 98 for Shadow Offset becomes 5 in the Min field here. For archival scanning I do not see this complicated compression of the ends of the histogram as a useful tool.

Adjust the Mid-Tone Slider if Needed. The middle slider below the histogram is a mid-tones slider and is normally applied after the black and white points have been set. As described in Chapter 2, this slider adjusts tone without changing the black and white points. The mid-tones slider has a blue icon label that is either L or N depending on whether the scale for the histogram is set to logarithmic or normal. The logarithmic setting produces slightly stronger effects but the results are similar with either setting.

Gray Eyedropper and Color Adjustments. In SilverFast the gray eyedropper tool is activated with an icon on the main scan controls window rather than on the histogram. The icon is toward the right and has an eyedropper between white and black triangles. Moving the mouse pointer over the eyedropper on the icon will change the pointer to a gray triangle. Click the icon to activate the gray eyedropper. The mouse pointer stays as the gray triangle. Move the tip of the triangle over a spot on the image that should be a shade of gray and click the mouse. This adjusts colors to make the spot gray with the same overall tone. A numbered plus sign is left at the location of gray selection point and the gray eyedropper is no longer active. This process can be repeated to add other gray adjustment points.

A gray selection point can be moved or deleted by clicking the eyedropper icon on the main scan control window to activate the eyedropper function, moving the gray triangle mouse pointer to the location of a previously set gray point, and holding down the Alt key while clicking that

point. The previous gray point is deleted and the mouse point remains the gray triangle that can be clicked on a different point for gray color conversion.

SilverFast has two other tools for color correction on the main scanning tools window but these are less useful for archival scanning. The button with the round color icon for “Global colour correction” on the main scanning controls window is intended to make additional slight color adjustments in the mid-range of tones after color adjustments with the histogram and curves. I have not found global color corrections useful for archival scanning. The other button for “Selective colour correction” is more appropriate for altering colors for artistic expression rather than for archival scanning.

Adjust Contrast. The curves adjustment in SilverFast is called the *gradation curve* and is initiated by clicking the icon with a graph on the main scanner controls window. The square buttons at the top of the curves dialog box select whether the curve is for overall tone or for red, blue, or green color.

The five sliders are the easiest way to make adjustments in the curves dialog box. The top four sliders make adjustments without changing the white and dark points on the curve. The top slider has an N (normal) or L (logarithmic) label and makes the mid-tones lighter or darker. The next slider increases or decreases contrast by changing both the light and dark halves of the curve. The third slider changes the light half of the curve without changing the dark half and the fourth slider changes the dark half without changing the light half. The bottom slider makes the overall image lighter or darker, including changing the white and black points, and would rarely be used for archival scanning.

The seven points on the curve can also be changed directly by clicking and dragging, but the sliders are usually easier to work with. The seven points can be relocated on the curve but more points cannot be added. A point can be deactivated or reactivated by holding down the Alt key and clicking on the point.

Condition 3. Scan Adjusted for a Reference Target

The black and white triangles close to the gray eyedropper icon activate the black and white eyedroppers that can be used to set the black and white points when a reference target is included in the image. Clicking on the black or white triangle activates the corresponding eyedropper. The mouse pointer becomes a triangle, which is placed over the appropriate color patch on the reference target and then clicked. The specific tone values for black and white in the output image can be set with the sliders as described earlier for avoiding extreme black and white in the output image. The gray eyedropper can be applied to a gray patch to remove color casts. After the eyedroppers have been applied, the mid-tone slider on the histogram is adjusted to set the needed tone value for the mid-gray patch on the reference target.

The numeric color values can be checked using the Densitometer, which is a tab on the main scanner control window. This shows the numeric color values at the location of the mouse pointer on the image. The Densitometer display can be dragged away from the main scanner control window and displayed as a separate window.

Apply Infrared Dust and Scratch Correction if It is Being Used

As described in Chapter 2, infrared dust and scratch correction can be very useful for color negatives and slide but is not applicable for most black and white film. SilverFast has options for infrared dust and scratch correction for scanners that have that capability. The button to initiate infrared dust and scratch correction is near the middle of the vertical tool bar on the left side of the image display window. The specific icon and settings depend on the scanner and version of SilverFast. For an Epson V750 the icon says “Ice” for Digital Ice and the settings are “Off,” “Standard,” and “Fine.” The dust and scratch correction is applied during the high-resolution scan and the corrections are not shown on the preview display or considered in the tone and color adjustments. Infrared dust and scratch correction appears to vary greatly for different versions of SilverFast.

Apply Noise Reduction if It is Being Used

A light degree of the SilverFast noise reduction may be useful for archival scanning for certain scanners and types of source items. This will normally be the last step before doing the high-resolution scan and output. Noise reduction is set from the Frame tab on the main scanner controls window. The Filter options include GANE, which is the SilverFast noise reduction. The noise reduction dialog box includes two display windows for a close-up of a particular area of the image displayed before and after applying noise reduction. These displays are generated by clicking the Prescan button in the GANE dialog box and then moving the small square to the point on the image to be compared and clicking the mouse.

The Preset field determines the degree of noise reduction. The options are “Low GANE,” “Medium GANE,” “High GANE,” and “<Custom>.” I find the “Low GANE” setting to often be too much for archival scanning and prefer the Custom setting. Click the button on the left with the man icon to display sliders to make the custom settings. Setting the Intensity to 20 and Threshold to 15 are often useful starting points.

Set the Output File Name and Format and Create the High-Resolution Scanned Image

Clicking the Scan button on the main scan settings window initiates the final high-resolution scan and output file. A typical Save As dialog box comes up to set the folder and filename for the output file. The dropdown pick list for the output file type allows selection of TIFF or JPEG. When the Save button is clicked the scan is made and written to the output file.

Check the Final Image

The image from the high-resolution scan is not displayed by SilverFast and is viewed by looking at the output file using other image processing software. It is good practice to examine the final output image. This is particularly important if infrared dust and scratch correction has been applied. If the results are not optimal, the scan may need to be redone. The SilverFast option described earlier to open the folder that has the output file after each scan is helpful in examining the final scan.

3.4 Scanning Multiple Frames

Scanning multiple frames is easy with SilverFast. Clicking and dragging the mouse pointer creates a scanning frame. Clicking and dragging a different area of the scanning bed produces another scanning frame. Any number of frames can be defined using any area of the scanning bed. Scanning frames can overlap, but a new frame cannot start within an existing frame. Clicking inside a scanning frame makes it the active frame. A scanning frame can be deleted by making it active and then tapping the Delete key. The zoom button described earlier on the main scanning controls window can be used to toggle the display between one enlarged frame and the full scanning bed.

The usual settings and adjustments can be applied to each scanning frame individually, including scanning resolution. The settings apply to the frame that is active. Each frame should have its own name specified in the *Frame> Name:* field. The output file for each frame has the name specified in this field.

If *General> Scan Mode:* is set to “Normal (File)” then clicking the Scan button creates the scanned image and makes the output file for only the currently active scanning frame. However, if *General> Scan Mode:* is set to “Batch Mode (File)” then clicking the Scan button creates the output files for all currently defined frames.

3.5 Color Management

Using Profiles

The focus on printing for SilverFast introduces some unexpected complications for color management. The color management settings that seem intuitively obvious result in the printer profile being embedded in an output file rather than the expected profile for the working color space. The working color space profile is needed for archival scanning. Among the disadvantages with embedding the printer profile is that it substantially increases file size. The custom profile for my printer is about 1.2 megabytes as compared to about 550 bytes for the profile for Adobe RG

The settings that allow the profile for the working color space to be embedded in the output file apparently turn off color management for printing with SilverFast. Fortunately printing with SilverFast is not needed for archival scanning.

Color management is implemented by clicking the Options button on the main scanning controls window and then clicking the CMS tab.

CMS> Input-> Internal: is set to “Image Colour Matching (ICM)” to indicate that a profile is used for the scanner.

CMS> Internal->Monitor: is set to “Image Colour Matching (ICM)” to use the default monitor profile defined for the operating system. SilverFast reads the system information to determine the current default color profile for the monitor. A custom profile will be used if that is the default. The option “Automatic” is for when SilverFast is run from within Photoshop and is not available for SilverFast running stand-alone.

CMS> Internal->Output: must be set to “<RGB>” for the profile for the working color space to be embedded in the output file. With this setting, any printing from SilverFast will not have color management applied. If this field is set to “Image Colour Matching (ICM)” the color profile selected for the printer is embedded in the output file and printing from SilverFast applies color management.

CMS> Scanner (Reflective): specifies the name of the color profile file for reflective scanning. SilverFast provides a default profile that is used unless an alternative scanner profile is specified.

CMS> Scanner (Transparency): specifies the name of the color profile file for scanning slides. SilverFast provides a default profile that is used unless an alternative scanner profile is specified. The scanner profile and associated color management are not used when scanning negatives.

CMS> Internal: specifies the name of the color profile file for the working color space for a color image. For archival scanning a profile for sRGB or Adobe RGB will normally be selected from the pick-list.

CMS> Grey: specifies the name of the color profile file for the working color space for grayscale images. For archival scanning a profile for Gray Gamma 2.2 will normally be selected from the pick-list if available.

CMS> Output/Printer: specifies the name of the color profile file for the printer. This field is made inactive if *CMS> Internal-> Output:* is set to “<RGB>”.

CMS> Rendering Intent: specifies the rendering intent for color space conversions. As described in Appendix A, relative colorimetric or perceptual will normally be used for scanning photographs.

Making a Scanner Profile

Some versions of SilverFast include a process to make a scanner profile. An IT8 target is placed on the scanning bed and the Prescan button clicked. After the prescan, click the Calibration button near the middle of the vertical toolbar on the left side of the image display window. If the IT8 target is not from LaserSoft, the makers of SilverFast, a dialog box will appear to locate the reference file for the target. The SilverFast manual describes several steps in making the profile; however, my version of SilverFast proceeded automatically with no further intervention. Contrary to the manual, there was not an option to name the profile. SilverFast named the new profile and put it in the system folder for color profiles (see Appendix A to find this folder). The relevant field *CMS> Scanner (Reflective):* or *CMS> Scanner (Transparency):* was set to the name of the new profile.

When making profiles, problems can occur such as that the selection area for scanning is not properly aligned with the target. In these cases SilverFast will not make the profile and either gives an uninformative error message or no error message.

The profile that SilverFast created for my Epson V750 scanner included lookup tables for perceptual and colorimetric rendering intents as well as a matrix. However, images created with perceptual and relative colorimetric rendering intents were not different when evaluated with the methods for comparing rendering intents described in Appendix A. When a scanner profile created with Monaco EZcolor was used with SilverFast, a comparison of images with perceptual and relative colorimetric rendering intents did find the expected differences.

When scanning an IT8 target with SilverFast to create an image for use by other profiling software, the option for *General> Gamma Gradation:* should be set to 1.8 and the *General> Gamma Gradation:* check box “for HDR output” should be checked. The usual recommendation is

to set the output image to “48 Bit HDR Color” when creating an image for profiling. Color management is also turned off by setting the options *CMS> Input-> Internal;*, *CMS> Internal->Monitor;*, *CMS> Scanner (Reflective);*, *CMS> Scanner (Transparency);*, *CMS> Internal;*, and *CMS> Grey:* to “<None>.”

Extraneous Profiles

Even though a SilverFast version applies for only one scanner, SilverFast put several dozen profiles for different scanners in the main system folder for profiles on my computer. The unused SilverFast profiles dominated any list of profiles that was generated to assign a profile with image processing software. I moved the unneeded profiles to a separate folder to get them out of the way. The profiles for the scanner that was actually being used with this version of SilverFast had file names that were obvious.

Output Files

CMS> Embed ICC profile: is a checkbox to include an embedded profile in the output file. The name of the profile that will be embedded is displayed on the next line and needs to be carefully monitored. The embedded profile depends on the interaction of settings in several different fields and unexpected results can easily occur. One of the fields that affect the embedded profile is the Scan Type field. If the wrong profile is being embedded, the problem can be due to one of the CMS option settings or to the Scan Type field. An unexpected change in embedded profile can occur even when the CMS settings are not changed. SilverFast does not write the EXIF field for color space to output files.

3.6 Additional Information

Many dialog boxes in SilverFast have a save option to store and reuse settings. However, there is no way to save all the relevant settings for scanning a certain type of original. The type of original must be manually set to reflective or transparency and positive or negative.

References

LaserSoft Imaging, 2010. *SilverFast Manual*. The best way to obtain the manual is to do an internet search for SilverFast manual. The URL for the manual is too complex to put here and will likely change. Also, at the time of this writing, the download and view buttons for the

manual on the SilverFast website cause my computer to hang up. However, the manual can be downloaded by placing the mouse pointer over the download button, right-clicking the mouse, and selecting Save Target As.

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