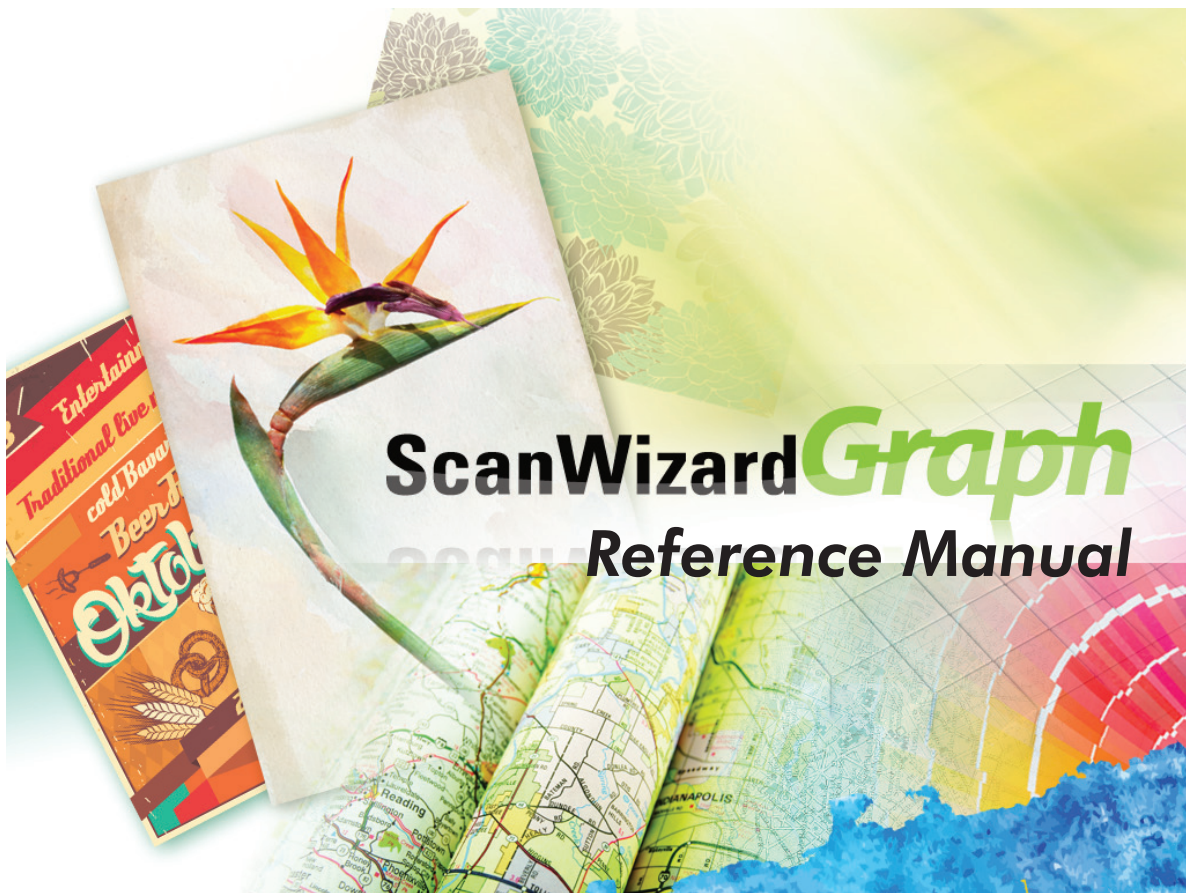


MICROTEK



ScanWizard**Graph**

Reference Manual

www.microtek.com

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Important

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To obtain optimal results from the Microtek scanning software and user's manual, you should be familiar with such Windows concepts as pointing, clicking, dragging, and selecting from menus and dialog boxes. If these things are new to you, refer to your Microsoft Windows User's Guide.

Software function or specifications are subject to change without notice. Not responsible for typographical errors.

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April 2016

Microtek International, Inc.
No. 6, Industry East Road 3, Science Based Industrial Park, Hsinchu, 30075, Taiwan
Tel: 886-3-5772155, Fax: 886-3-5772598, <http://www.microtek.com>

Contents

Introduction	1
The ScanWizard Graph Interface	2
Launching ScanWizard Graph	3
Exiting ScanWizard Graph.....	3
 The Preview Window.....	 4
Elements of the Preview window	4
The Menu Bar	6
The Scanner Menu.....	7
Scanner Model	7
Get Current Scanner Info	7
Scanner Probe.....	8
The View Menu	9
Overview Image and Prescan Image.....	10
Resize Window to Fit.....	12
Bring Settings Window to Front.....	13
Show/Hide... Windows commands	13
Show/Hide White/Black Markers	13
The Preferences Menu	14
Scan Material	15
Working Color Space.....	16
Color Matching Setup.....	17
White/Black Points Setup.....	21
Cursor Auxiliary Lines.....	23
Overview Setup	24
Prescan Setup	26
Monitor Gamma Setup	28
Invert.....	29
More command	30
Calibration Settings	33
Default command	35
The Correction Menu	36
The Help Menu	36

The Toolbar	37
Scan Frame tool	38
Magnify Glass tool	39
Pane tool	40
Dropper tool.....	41
Scan Material button.....	46
RAW button	46
Overview, Prescan, Batch/Scan buttons	47
Rulers, Unit of Measurement	50
Preview Area.....	51
Auxiliary Information	52

The Settings Window 53

Elements of the Settings window	53
Preset Setting	56
Scan Job	58
Image Types.....	59
Resolution Settings	61
Scan Frame and Related Settings.....	62
Scan Frame Settings.....	62
Keep Proportion	62
Image Size	62
Unit of Measurement	63
Transform	64
Scanner Profile.....	65
Image Category.....	66

Advanced Image Correction Tools.....68

The LCH Color Mode	69
AIC Tools in LCH vs. Native Color Mode	70
AIC Tools and your Image Type	71
Accessing the AIC Tools.....	72
Elements of the AIC Dialog Box.....	73
The Action Buttons.....	75
Custom Settings.....	76
The Reset button	78

Dynamic Range tool.....	79
White & Black Points tool	81
A. In Native color mode.....	81
B. In LCH color mode.....	83
Gradation Curve tool (LCH color mode only).....	84
Color Cast tool (LCH color mode only)	89
Saturation tool (LCH color mode only).....	91
Selective Color tool (LCH color mode only)	92
Tone Curve tool	99
Filter tool	101
Brightness & Contrast tool (Native color mode only)	106
Color Correction tool (Native color mode only).....	107
Threshold tool (Line Art images only)	109
Descreen (Reflective Scan Material only).....	110
Auto Corrections	111
Automatic Color Restoration.....	112

The Information Window 113

Elements of the Information window.....	113
Mouse Cursor Position	114
Color Input Meter.....	114
Color Output Meter.....	114
Sample Size Options.....	115
Sample Display Area	115

The Scan Job Queue Window 116

Elements of the Scan Job Queue window.....	116
Selecting Multiple Scan Jobs	118
Editing Multiple Scan Job	118
How to read the Scan Job Queue window.....	119
Adding a New Scan Job	120
Duplicating a Scan Job.....	120
Removing a Scan Job	120
Checking a Scan Job	121
The Up/Down Arrows.....	121
The Load/Save button.....	122

Appendix	124
Appendix A: Product and Technical Support	124
Appendix B: Microtek Color Management System	126
Appendix C: How to Create Scanner ICC Profiles with Your Calibration Kit	138

Introduction

ScanWizard Graph is a scanner controller program that provides many powerful, professional-level features for scanning large format documents with Microtek scanner. This manual covers the various commands and features found in the ScanWizard Graph scanning software for the Windows system.

The manual information is divided into four major sections, corresponding to the four major windows of the program:

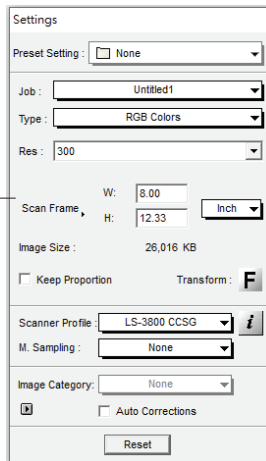
- Preview
- Settings
- Information
- Scan Job Queue

The ScanWizard Graph Interface

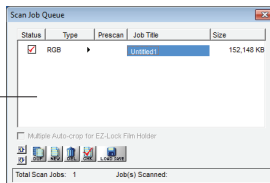
ScanWizard Graph consists of four major windows: Preview, Settings, Information, and Scan Job Queue.

All four windows appear automatically after ScanWizard Graph is started up the first time. You may hide or show the Scan Job Queue and Information windows by clicking on the *Hide/Show* toggle commands in the View menu of the Preview window.

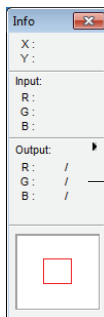
Settings window
contains scanning
parameters
for outputting
the image and
includes image
correction tools



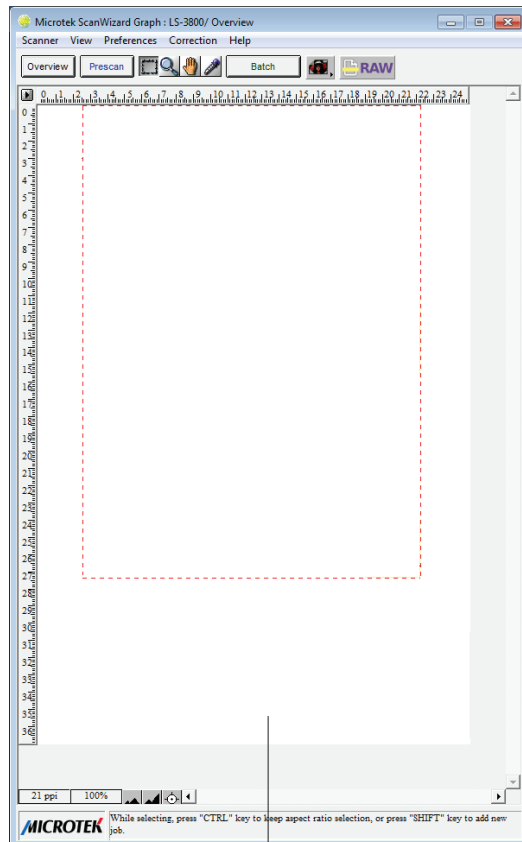
Scan Job Queue
provides key
functions in
managing scan
jobs



Information window
provides information on the
Preview image



Preview window
has commands and tools for
controlling the scanner



Launching ScanWizard Graph

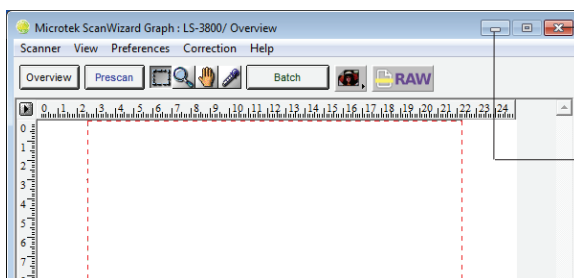
ScanWizard Graph can be launched in either Stand-alone or Plug-in mode.



- From Stand-alone mode: Double-click the *ScanWizard Graph* icon on the desktop, or choose *Start, Programs, Microtek ScanWizard Graph for Windows*, and then *Microtek ScanWizard Graph*.
- From Plug-in mode: Choose the *Import* or *Acquire* command from the File menu of your image-editing software, then select *Microtek ScanWizard Graph*.

Exiting ScanWizard Graph

To exit ScanWizard Graph, double click on the *Close* box on the upper left side of the Preview window.

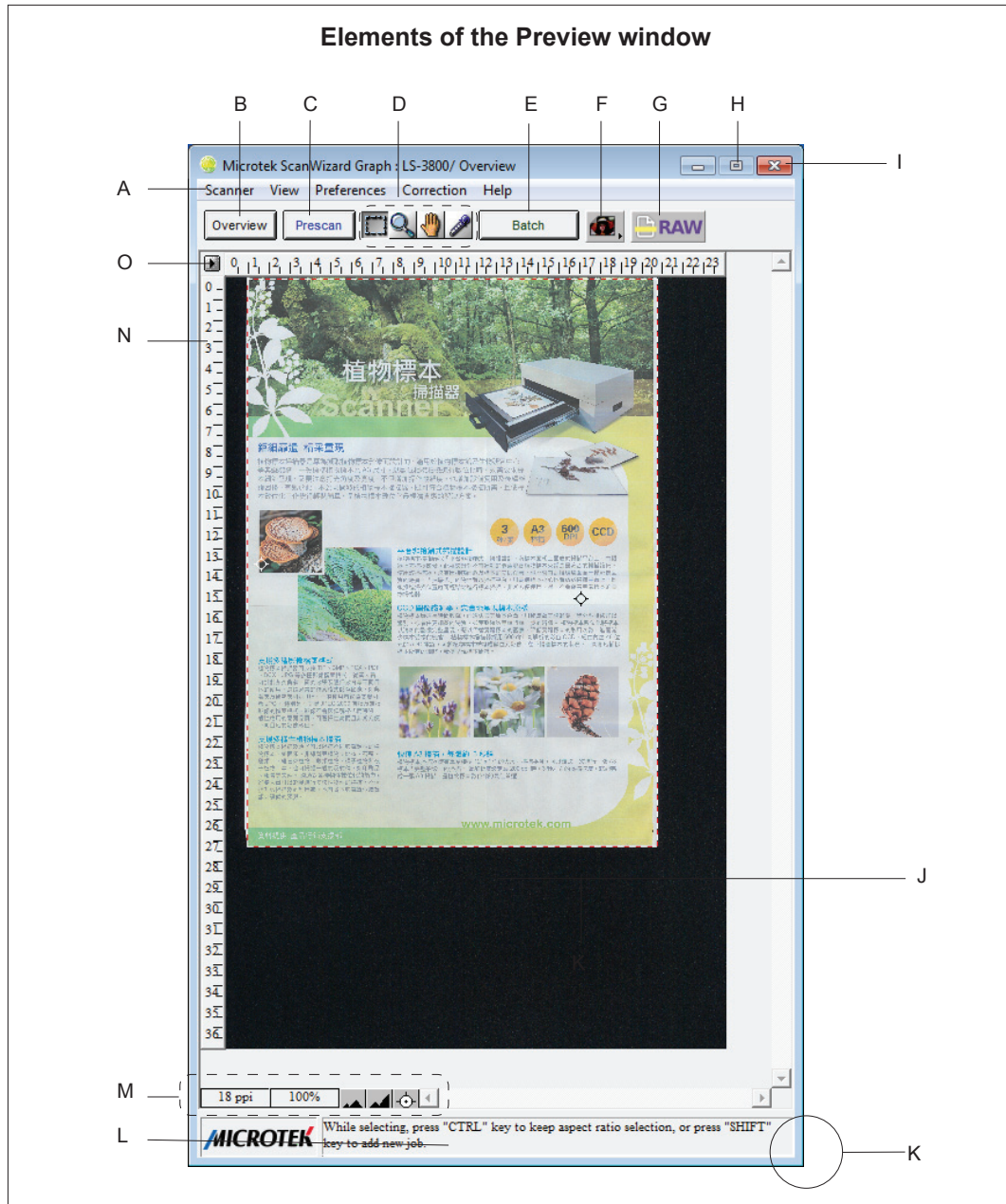



Exit button:
Click it to exit
ScanWizard Graph

Minimize button:
Click it to minimize
ScanWizard Graph

The Preview Window

The Preview window is the most prominent window of the four major windows, and it includes the various commands and tools for controlling the scanner.



- A. Menu bar: The Menu bar includes the different menus for setting up the scanner (Scanner menu), controlling view options (View menu), customizing the software (Preferences menu), Image Correction function (Correction menu), and accessing on-line help (Help menu).
- B. Overview button: This button previews the specified or entire scan bed.
- C. Prescan button: This button previews one or more detailed images of the area(s) selected by the Frame tool.
- D. Toolbar: The buttons in the Toolbar perform specific actions on the Overview or Prescan image. The Toolbar includes the *Frame* tool, *Magnify Glass tool*, *Pane* tool, and *Dropper* tool.
- E. Batch/Scan button: This button starts the final scanning process.
- F. Scan Material button: This shows the type of your scan material.
- G. RAW button: Click it to activate the raw file condition, which means the scanner will not apply any customized ICC profile to scan. This is only used when you want to create your own scanner ICC profiles.
- H. Minimize button: Click it to minimize ScanWizard Graph.
- I. Exit button: Click it to close and quite ScanWizard Graph.
- J. Preview area: This area in the Preview window shows the Overview or Prescan image.
- K. Resize: To increase or decrease the Preview window, drag the bottom right corner of the window to resize.
- L. Status bar: This area shows you information pertinent to the operation underway or being performed.
- M. Auxiliary bar: This area shows the scan resolution of the preview image and magnification scale for the image, also includes *Zoom In*, *Zoom Out*, and *Flash Markers* ((*White/Black Points*) handy buttons.
- N. Rulers: Rulers are located on top and left sides of the window to help you with measurement and alignment.
- O. Unit of Measurement: Select the unit of measurement for the rulers by clicking the *Ruler Unit* () button at the 0,0 point of the rulers and choosing from the drop-down menu.

The Menu Bar



Scanner	
WIN7x64-PC: LS-3800, ID=0	
TCP/IP Scanner Setup...	Ctrl+T
Get Current Scanner Info	Ctrl+I
Scanner Probe	
Scanner Control...	

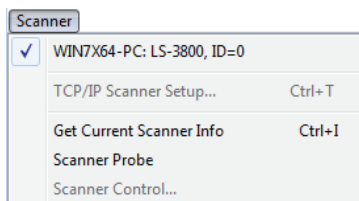
View	
Overview Image	Ctrl+O
Resize Window To Fit	Ctrl+R
Bring Settings Window To Front	Ctrl+Shift+S
Show Info Window	Ctrl+Shift+I
Hide Scan Job Window	Ctrl+Shift+J
Hide All Tag Windows	Ctrl+Shift+T
Hide White/Black Markers	Ctrl+Shift+B
Hide Status Bar	

Preferences	
Scan Material	
Working Color Space	
Color Matching Setup...	Ctrl+Shift+C
White/Black Points Setup...	Ctrl+Shift+W
Cursor Auxiliary Lines	
Overview Setup...	Ctrl+Shift+V
Prescan Setup...	Ctrl+Shift+P
Monitor Gamma Setup...	
Invert	
More...	Ctrl+Shift+M
Calibration Settings	
Default	

Correction	
Dynamic Range...	Ctrl+D
White & Black Points...	Ctrl+W
Brightness & Contrast...	Ctrl+B
Color Correction...	Ctrl+C
Tone Curve...	Ctrl+V
Filter...	Ctrl+F

Help	
ScanWizard Doc Reference	
Microtek Web Site...	
About	

The Scanner Menu



The Scanner Menu lets you:

- Show your scanner model or select a scanner if you have multiple scanners
- Get information about current scanner
- Probe the scanner information on your scanner chain

Scanner Model

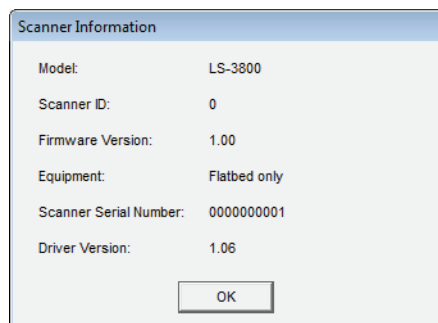
The scanner model is shown at the top of the Scanner menu. If multiple scanners were detected, all detected scanners are shown with their respective IDs; the current scanner is indicated by a check.

Only one scanner can be accessed at a time. To switch among various scanners, select the scanner to be used.

If you cannot locate a scanner for use, perform a new search for available scanners. The next time you launch ScanWizard Graph, the connected scanners will be available for choosing.

Get Current Scanner Info

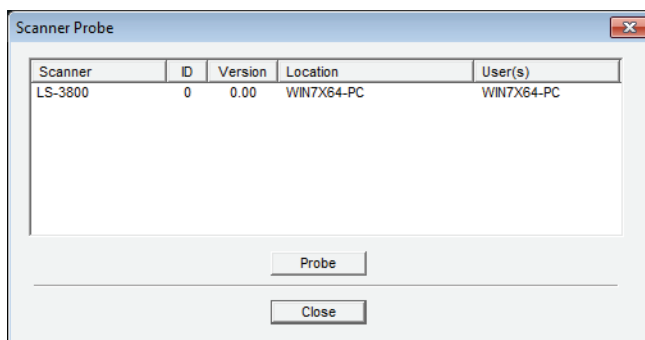
This command provides information about your current scanner. When you choose this command, a dialog box appears showing the scanner model, scanner ID number, firmware version, etc.



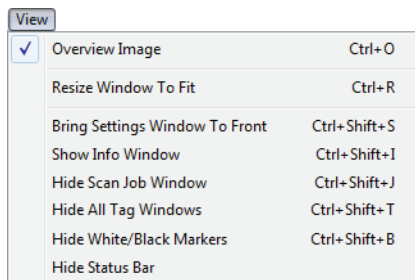
Scanner Probe

This command displays the detected scanner devices. If your scanner does not show in the dialog box, make sure your scanner is properly installed, connected, and turned on, and then click the *Probe* button in the dialog box. For details on connecting your scanner, refer to your scanner hardware installation guide.

If you have multiple scanners detected, to select a connected scanner for use, choose it from the Scanner menu . The selected scanner is shown with a check mark.



The View Menu

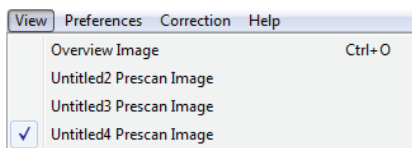


The View menu lets you:

- Select an overview or prescan view of an image
- Resize the Preview window to fit
- Bring the Settings window to the front
- Show/hide the Information, Scan Job Queue and Tag windows
- Show/hide the Flash Markers (White/Black Points)
- Show/hide Status Bar

Overview Image and Prescan Image

These commands allow you to switch between Overview or Prescan viewing modes.



- Overview image: This is an image obtained when you click the *Overview* button in the Preview window. The image shows you whatever is on your scan bed.

The Overview image is always checked automatically whenever you launch the ScanWizard Graph.

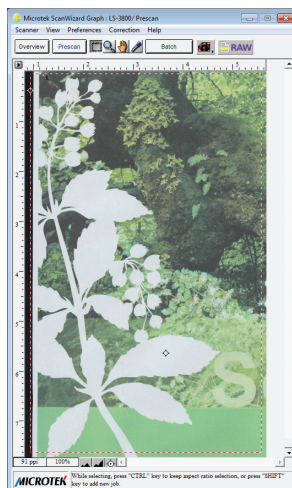
- Prescan image: This is a detailed image obtained from selecting an area in the Overview image and then clicking the *Prescan* button in the Preview window.

By default, the Prescan Image command does not exist, unless you press the Prescan button.

You can also change the size of the Overview or Prescan image. The size of the images is determined by the *Overview Setup* command and the *Prescan Setup* command, respectively. For more details, see these commands under the Preferences menu section.



Overview viewing mode



Prescan viewing mode

A. To obtain the Overview image:

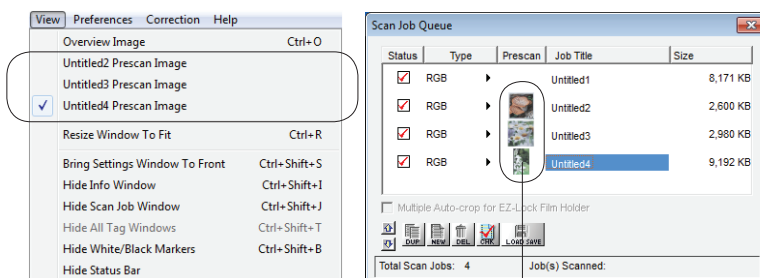
With the image(s) placed on your scanner, click the *Overview* button.

B. To obtain the Prescan image:

1. Click the *Frame* tool.
2. Select the area to be prescanned by drawing a frame around the area in the Overview image.
3. Click the *Prescan* button. The Prescan image will then be available for viewing in the View menu.

C. To obtain multiple Prescan images:

1. Define your scan jobs in the Scan Job Queue window (see the Scan Job Queue window section of the manual for more details).
2. To select multiple scan jobs, press the *Shift* or *Ctrl* key and click the jobs to be selected in the Scan Job Queue or Preview window.
3. Click the *Prescan* button. Multiple prescans are created in the process, corresponding to the number of scan jobs defined. You can then switch among the various prescan images for viewing.



Click the *Prescan* button. The Prescan image will then be available for viewing in the View menu, and a thumbnail will appear in the Scan Job Queue window.

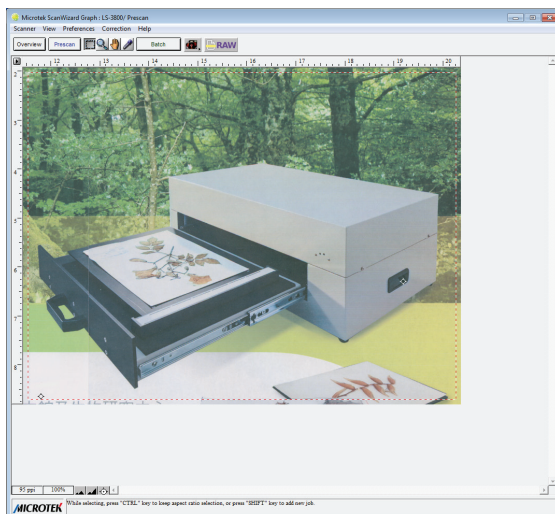
Resize Window to Fit

This command resizes the Preview window to fit the Overview area, which you may find helpful to do for conserving space on your desktop monitor (especially after you have enlarged the Preview window).

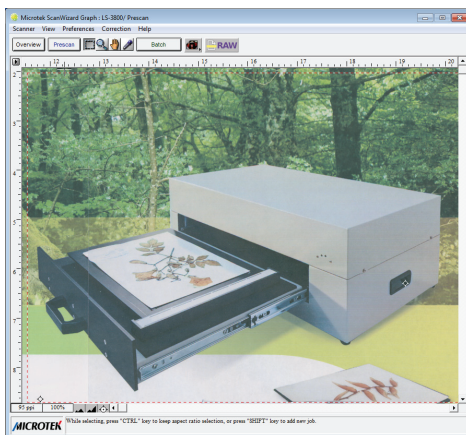
To use this feature:

Choose the command *Resize Window to Fit* in the View menu.

This command is available only if the current zoom level is 100%, and is disabled if zoom is set to other levels.



Before



After

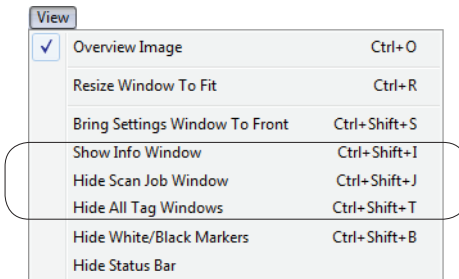
Bring Settings Window to Front

This command brings the Settings window to the forefront, which is useful if you have the Settings window hidden behind other windows or if you have a expanded your Preview window such that it covers the Settings window.

Show/Hide ...Window commands

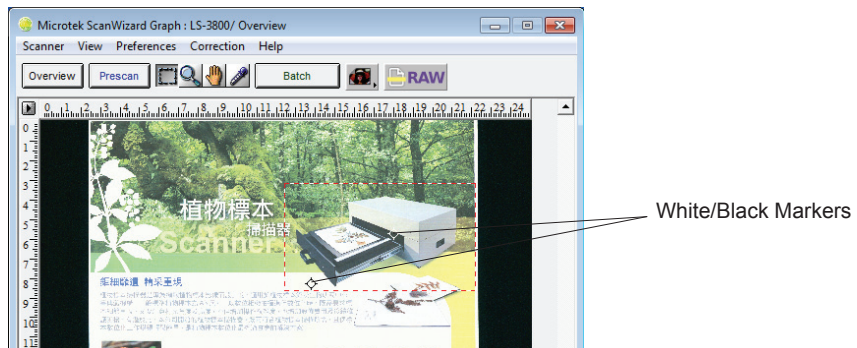
These commands allow you to switch between showing or hiding the Scan Job Queue window, Information window, and Tag windows on your screen.

To use this feature, choose the correct command from the View menu for viewing a window. When the window appears, you can hide it by choosing the particular *Hide* command for it.

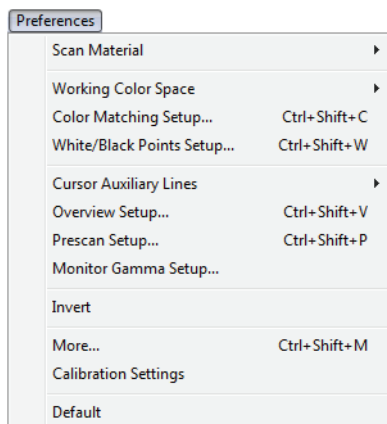


Show/Hide White/Black Markers

This command shows or hides the White & Black Markers in the Preview window. By default, the Markers are shown in the form of a circular crossbar. A *white circle* in the middle represents the black point (low value) marker, and a *black circle* in the middle represents the white point (high value) marker.



The Preferences Menu



The Preferences menu lets you:

- Choose the correct scan material
- Set up color matching system
- Set up white/black point parameters
- Show/hide auxiliary cursor lines
- Set up Overview mode parameters
- Set up Prescan mode parameters
- Fine-tune monitor gamma values
- Create the invert effect
- Activate the smoked glass effect and other preferences
- Choose scanner calibration mode
- Reset preferences back to their default values

Scan Material

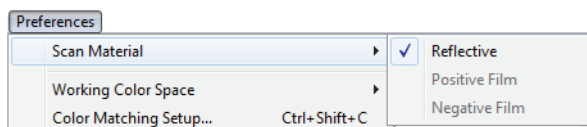
This command allows you to select the correct scan material. Scan materials can be classified into three types:

- Reflectives, such as maps, posters, drawings, fine arts, or other prints
- Positive transparencies
- Negative film

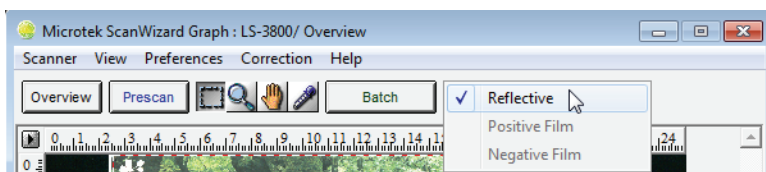
The default scan material depends upon the scanner you're using, and the choices available to you in the Scan Material drop-down menu will also depend on your scanner model. The *Reflective* choice is available only if you are using a large-format scanner, such as the LS-3800.

To choose your scan material:

1. Choose the *Scan Material* command in the Preferences menu. From the submenu that appears, select your scan material; a check will appear next to the selected option.



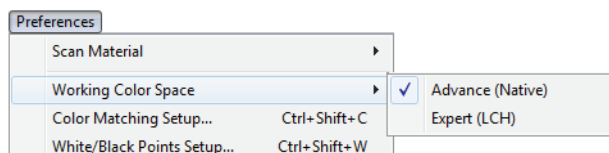
2. Alternatively, you can click the *Scan Material* button  () and then choose the correct scan material from its drop-down menu that appears.



Working Color Space

This command lets you select the color space of your choice from the default Advance (Native) color space and Expert (LCH) color space. If Expert (LCH) mode is selected, the color space is represented by Lightness, Chroma (saturation), and Hue. If Advance (Native) mode is selected, color enhancements are performed in RGB, CMYK or Lab.

For more information on how difference between Advance (Native) and Expert (LCH) color modes, see *The LCH Color Mode* section of the manual on Advanced Image Correction Tools.



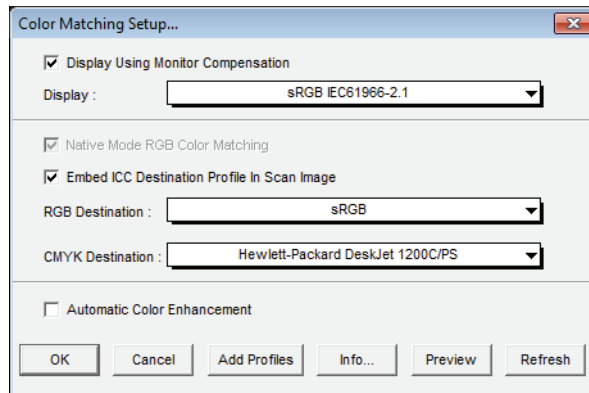
Color Matching Setup

Color Matching is an important feature of ScanWizard Graph that ensures consistent color — from the initial input stage when an image is captured by the scanner, to the final output stage when the image is output to your monitor or printer (through the Microtek CMS or other technology).

Color matching is a critical component in the imaging process, because the color space of your monitor is different from that of your printer (in terms of output devices), just as the color space for RGB mode is different from the color space for CMYK mode (in terms of image types). For this reason, color matching was developed to allow an equivalent “mapping” of colors from one device or from one color space to another, ensuring that no major color shifts occur in the transference process.

To use the ScanWizard Graph color matching function:

The first time you launch ScanWizard Graph, you will be prompted to set up color matching for your scanner. You may also access the color matching parameters for ScanWizard Graph at any time in the future by choosing the *Color Matching Setup* command in the Preferences menu.



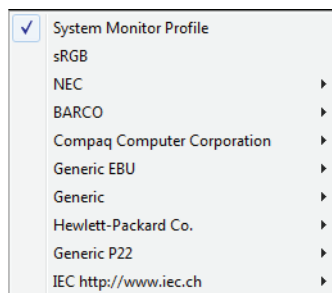
Display Using Monitor Compensation

This feature pertains to how your monitor displays color, relative to the RGB Destination color space. Checking this box ensures that there are no unexpected color shifts between your selected RGB Destination space and your monitor. Checking or unchecking this box affects only the way the image data is displayed and not the image data itself.

Display

This feature allows you select color monitor type that is used for displaying RGB data. The monitor profile will be applied only when “Display Using Monitor Compensation” option is checked. This setting only affects how the image is shown on the screen — not the final scanned image.

Note: If the available monitor types do not include the one you have, select sRGB. This profile is suitable for most of the monitors.



Native Mode RGB Color Matching

This feature is available only for Native color space mode. If unchecked, the ICC profile only applies to the RGB color for matching without applying to other output devices (e.g., printer). If checked, the ICC profile applies to both the color monitor and output devices.

This check box should generally be checked unless you want to scan raw color data, in which case you lose the compensatory effects of the Color Matching System. Take note that it is not desirable to scan in raw data and then perform data conversion, which will not generate the correct CMS effect.

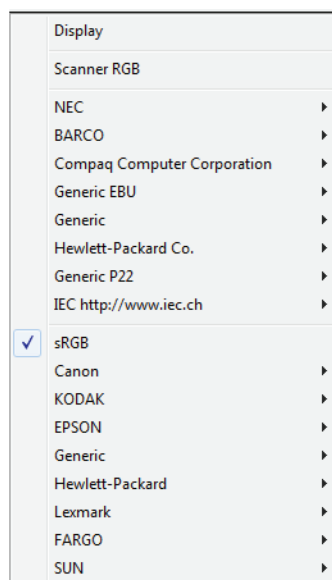
Embed ICC Destination Profile in Scan Image

This feature will enable ScanWizard Graph to embed the Destination ICC profile into the image data. If checked, the information will then be properly interpreted by Photoshop or any other applications. If unchecked, turning the application on may cause problems, such as weird color effects.

RGB Destination

This feature lets you select the ICC profile for outputting images to the RGB color space based on RGB output device. You may select from Scanner RGB, Monitor, a special color space, or the Adobe Photoshop internal color space profile. For Adobe Photoshop users, you may export its internal color space to an ICC profile. If you are not sure what to choose, select your current monitor profile.

A number of RGB profiles is supplied by ScanWizard Graph. If you do not see the ICC profile for your monitor or RGB output device, contact your device manufacturer. To load a specific ICC profile from a different folder, click the *Add Profiles* button in the dialog box, and select the RGB profile you need.

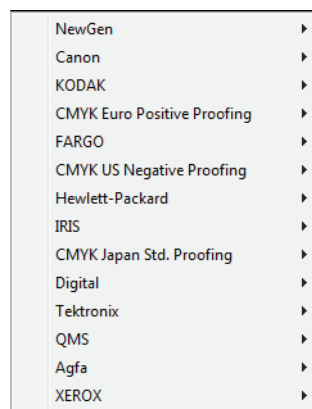


Some device suppliers (e.g., Kodak) have placed the ICC profiles in their websites. You may require to download the ICC profile from their websites.

CMYK Destination

This feature lets you select the ICC profile for outputting images to the CMYK color space based color printer or commercial offset printing standards.

A number of CMYK profiles is supplied by ScanWizard Graph. If you do not see the ICC profile for your printer, contact your printer manufacturer. To load a specific ICC profile from a different folder, click the *Add Profiles* button in the dialog box, and select the CMYK profile you need.



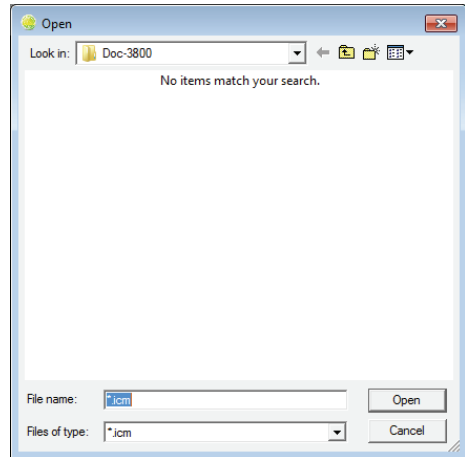
Automatic Color Enhancement

This feature improves the contrast and saturation of an image, resulting in more vibrant colors. If unchecked, the scanned image will appear like the original, with no image enhancement applied. If checked, the quality of the scanned image will be automatically enhanced after performing a final scan.

Add Profiles

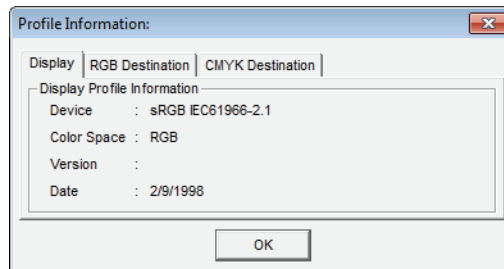
This feature allows you add additional ICC profiles normally came with your device (e.g., display monitor or printer). Select the profiles you need, then click on the *Open* button to load the profiles to ScanWizard Graph. This process takes a while for initialization.

Note: When you purchase color monitor or color printer, check to make sure your supplier provides the corresponding ICC profiles.



Info

This feature lets you review the information on the currently used ICC profiles.



Preview

This feature immediately updates the Preview window image when a new color profile is selected, so that the preview image reflects colors consistent with the newly selected color profiles.

Refresh

This feature updates the ICC profiles that have been stored in C:\Windows\system32\spool\drivers\color folder.

White/Black Points Setup

White point is a reference point that specifies the lightest area in an image, making other areas to be adjusted accordingly. Likewise, black point is the darkest reference area.

This command provides you with advanced controls for setting the clipping points for your white/black points, as well as determining the output levels for the white/black points on your printer.

To use this feature:

1. Choose the *White/Black Points Setup* command from the Preferences menu.
2. As an alternative, you can click this command from the Correction menu. This is also the same thing as clicking the *White/Black Points* tool in the Settings window and then clicking the *Setup* button from the dialog box that comes up. When the dialog box comes up, specify your preferences.

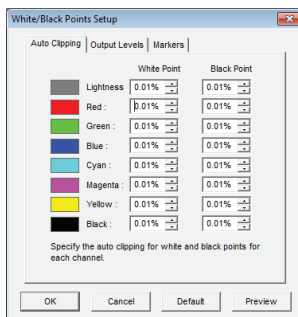
Auto Clipping

The Auto White Point Clipping and Auto Black Point Clipping fields allow you to specify the percentage by which the white and black points, respectively, can be clipped from the histogram. The clipping is done after you click the *Auto* button in the AIC White/Black Points dialog box.

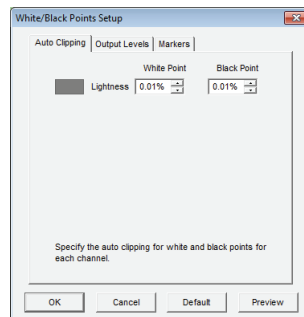
For example, if you specify 10 percent as your White Point clipping value and then click the *Auto* button, the white point on the histogram is adjusted so that 10 percent of the color information is “clipped” or ignored. The resulting 90 percent information leftover is then remapped, resulting in an image with less highlight detail.

The same principle above applies to the Auto Black Point Clipping feature, which governs the black point for shadows.

These fields are normally used by more advanced users, and the features are taken care of automatically if you have set up Color Matching correctly early on in ScanWizard Graph.



Native color mode

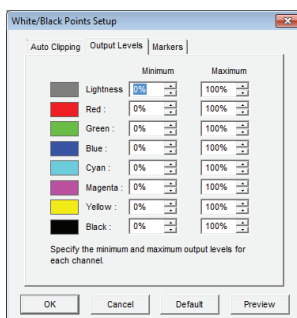


LCH color mode

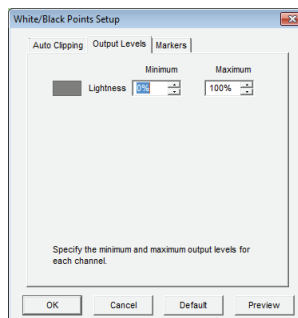
Output Levels

The Minimum Output Level lets you set the output level of the black point. The higher the percentage value, the lower the contrast will be.

The Maximum Output Level lets you set the output level of the white point. The lower the percentage value, the lower the contrast will be.



Native color mode

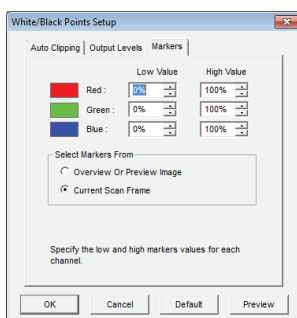


LCH color mode

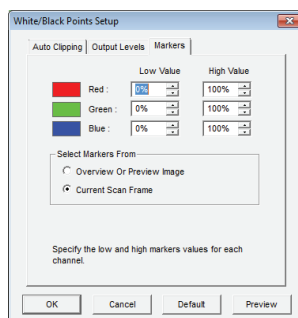
High and Low Value Markers

This lets you adjust the settings that define the High Value Marker and the Low Value Marker. The High Value Marker is shown as a black circle in your preview image, while the Low Value Marker is shown as a white circle. You can specify the range of the markers to either the entire preview (by selecting the "Overview or Preview image" option) or to only within the scan frame (by selecting the "Current Scan Frame").

In the White/Black Points Setup window, clicking the *Preview* button will obtain instant results; clicking the *OK* button lets you exit from the Setup window and applies the High and Low Value Markers settings you have made to the preview image.



Native color mode



LCH color mode

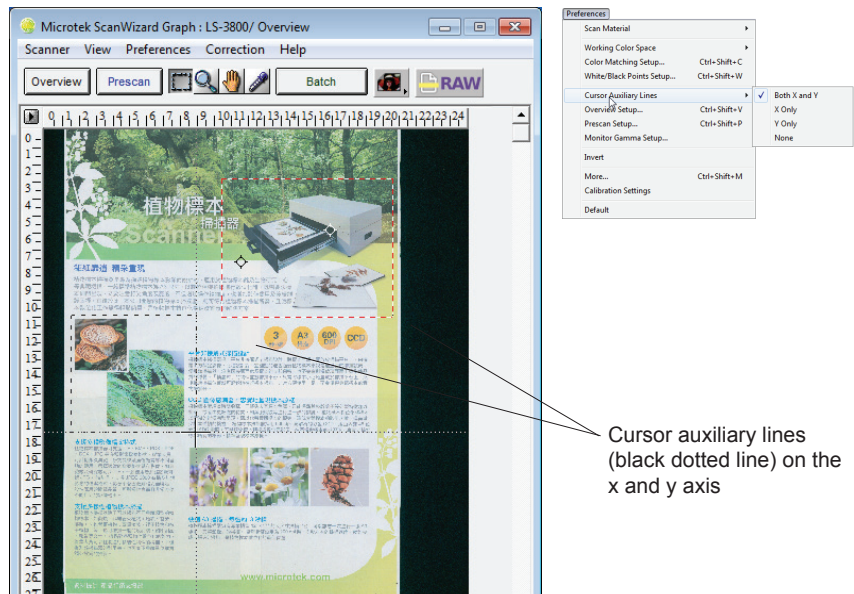
Cursor Auxiliary Lines

This command allows you to show or hide cursor auxiliary lines to help you define a scan frame or measurement off the rulers more precisely. Using the cursor auxiliary lines, you can also read the measurements of your ruler more easily.

To use this feature:

1. Choose the *Cursor Auxiliary Lines* command in the Preferences menu. From the submenu that appears, select how the cursor lines will appear.
 - On both x (horizontal) and y (vertical) axes
 - On x axis only
 - On y axis only
 - None (no cursor lines)
2. Click the *Frame* tool. When you move the pointer to the image, the cursor auxiliary lines will appear.

To see how the cursor auxiliary lines work, draw a scan frame. Click on the top left corner of the image as your starting point, then drag down diagonally to form a scan frame. As you draw the scan frame, cursor lines will appear to help you draw the scan frame precisely. When you release the mouse, your scan frame will be aligned with the cursor lines.

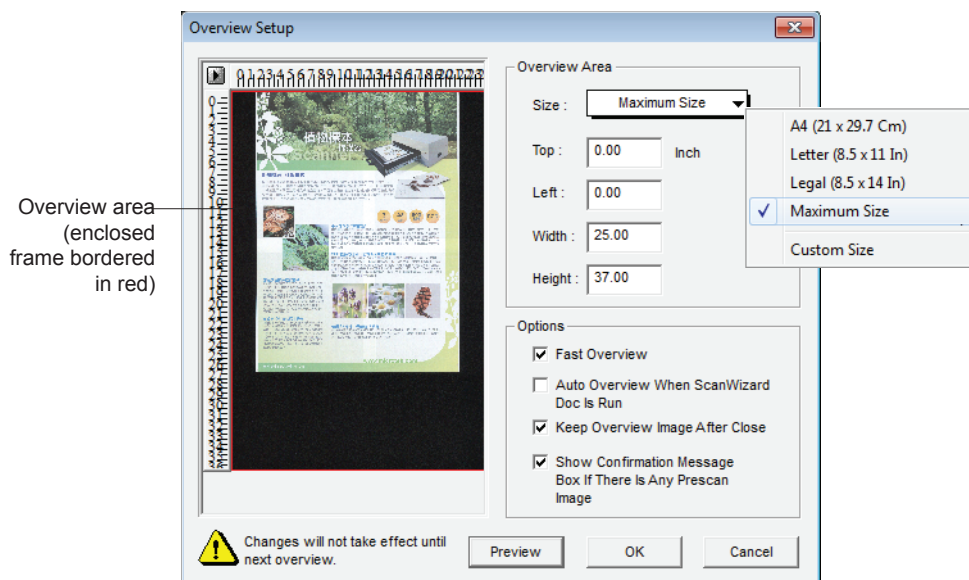


Overview Setup

This command lets you set the area you want to be overviewed of the scan bed, and provides some overview options as well.

By default, ScanWizard Graph overviews the maximum scan area as determined by your scanner model's bed size. You can, however, customize the overview area so that the scanner consistently overviews only the specific dimensions you have in mind. For example, if your maximum scan area is 25" x 37" (635x 940 mm), you can customize the overview area so that it consistently overviews, say, 16.53" x 23.39" (420 x 594 mm/A2) of the bed size.

As a rule of thumb, it is best to use the default maximum settings. You should change the overview area only if your subsequent overview is too large to be shown in entirety, or too small for reliable previewing. A smaller overview area will increase the overview resolution for clearer image viewing. You may also wish to change the size of your overview to improve performance. Generally, a shorter overview time results from the scanner motor travelling a lesser distance.



Overview Area

This represents the scan bed size. The dimensions of this overview area will depend on the size as stipulated by the *Size* and the *Left/Top/Width/Height* settings in the dialog box.

Size: This option lets you choose whether to do an overview of the *Maximum* area or a *Custom* area.

Left, Top, Width, Height: These edit boxes let you specify the dimensions of the overview area.

Fast Overview

If this box is checked, the overview process is speeded up. The trade-off to increased speed is a slightly downgraded overview image. If you do not care about the image quality of the overview image, check this box.

Auto Overview When ScanWizard Graph Is Run

If this box is checked, an overview is performed automatically when you run ScanWizard Graph.

Keep Overview Image After Close

If this box is checked, the overview image will be kept when you quite ScanWizard Graph, and the same overview image will be displayed again when you run ScanWizard Graph the next time.

Show Confirmation Message Box If There Is Any Prescan Image

If this option is checked, a confirmation message appears, notifying you in the Preview window, a previously prescanned image exists. If unchecked, there is no warning message in this occasion.

Preview

This button performs an overview and shows the overview image in the Overview Setup dialog box.

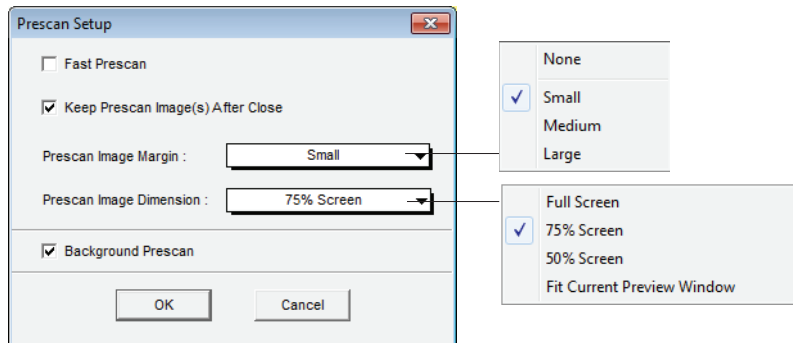
Unit

Select the unit of measurement for the rulers by clicking the arrow button at the 0,0 point of the rulers and choosing from the drop-down menu.

Prescan Setup

The Prescan Setup command lets you determine the margin surrounding the prescan image and the size of the prescan image.

The major difference between Overview and Prescan is that the Overview button scans the area specified in the Overview Setup command for getting a low-resolution preview image, whereas the Prescan button only scans the selected scanning frame, resulting in a more detailed preview image. When the Prescan Setup dialog box comes up, click the option you need or specify your parameters.



Fast Prescan

If this box is checked, the prescan process is speeded up, but the resulting image is grainier. If unchecked, the prescan process is slowed down a bit, but the resulting image is of better quality.

Keep Prescan Image(s) After Close

If this box is checked, the preview images stay after you exit ScanWizard Graph. Otherwise, all prescan images are deleted after you exit ScanWizard Graph.

Prescan Image Margin

This option allows you to specify how wide or narrow the margin around the scan frame is for the prescan image. Options are: None, Small, Medium, and Large. Smaller margins give you more room to capture the preview image, while larger margins will allow you to have more room to expand your scan frame.

Prescan Image Dimension

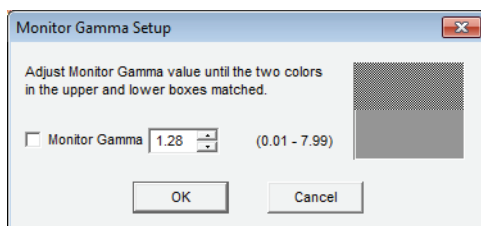
This option lets you specify how large the prescan image will be. Options are: Full screen (“screen” meaning your main monitor), 75% screen, 50% screen, and Fit Current Preview Window. The larger the size, the higher the prescan resolution. The maximum prescan resolution is the scanner’s optical resolution.

Background Prescan

If checked, the background prescan function is enabled. You can assign a number of scan jobs to execute a prescan while carrying out other jobs in the meantime (e.g., performing color correction to other scan jobs). If unchecked, this function is disabled.

Monitor Gamma Setup

The Monitor Gamma Setup command lets you compensate for the linear intensity of the monitor, allowing for consistency between the preview image and the final scanned image.



Monitor Gamma

Check this box to enable monitor gamma value setting. When the Monitor Gamma option is checked, click the up/down arrow buttons to make the gray level of the boxes as close as possible. Click *OK* to confirm.

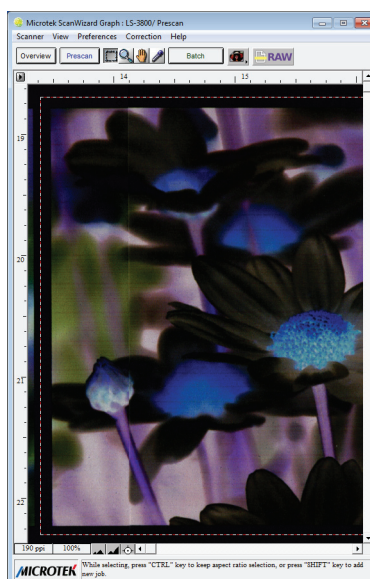
Invert

This command inverts images of all scan jobs. Take note that all scan jobs are inverted at the same time; you cannot invert an individual scan job alone.

When an image is inverted, the brightness value of each pixel is converted to its inverse value. In the case of 24-bit images, for example, a pixel in a positive image with a value of 255 is changed to 0, and a pixel with a value of 5 is changed to 250.



Before



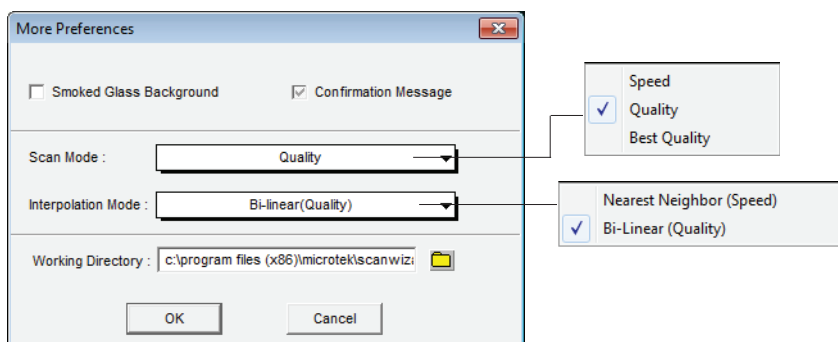
After

To use this feature:

Choose the *Invert* command in the Preferences menu. A check appears next to the command when it is enabled.

More... command

The *More...* command shows the More Preferences dialog box, where you can specify other options for ScanWizard Graph.



Smoked Glass Background

This feature lets you apply a smoked glass background that makes your scan jobs stand out more clearly and allows you to focus on the scan jobs. This feature can also be used for multiple scan jobs to show their respective image modes, as well as their image editing settings.



The framed part of the image (inside the marquee) stands out clearly.

Applied to the rest of the image is the smoked glass background (shaded gray area surrounding the selection or framed area).

Confirmation Message

If checked, a confirmation message appears when image effects such as Rotate or Flip are applied. If unchecked, no confirmation message appears.

Scan Mode

This option allows you to select the image quality by controlling the scanner hardware and the maximum image processing depth.

- Speed: Choose this option if your primary concern during scanning is speed. Image data is delivered faster and the image data is processed in 8 bits per channel.
- Quality: This is the default setting. Scanned data is delivered a little slower but in high quality, and the image data is processed in 8 bits per channel.
- Best Quality: This setting is available only to higher-depth scanners (10-, 12-bit, or 16-bit). Scanned data is delivered a little slower but in high quality, and image data is processed in maximum bits per channel (i.e., 10-, 12-bit, or 16-bit), and then converted to the desired output depth. This special operation results in the best image quality possible.

Interpolation Mode

The interpolation mode controls the way ScanWizard Graph interpolates (either expands or shrinks) image data. Interpolation always occurs when the scan resolution you select is different from the scanner's optical resolution. The trade-off is speed vs. quality. If your application requires higher quality, use Bi-linear (Quality) mode, especially if you are scanning higher-resolution line art images.

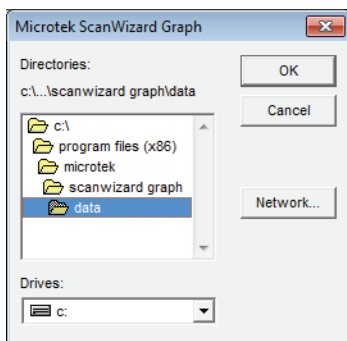
1. Nearest Neighbor (Speed): When this option is selected, ScanWizard Graph will do the following:
 - Expanding (when scan resolution is higher than optical resolution): Linear interpolation is used (i.e., makeup pixels are created by using the average of the neighboring pixels).
 - Shrinking (when scan resolution is less than optical resolution): Pixel drop is used to match the resolution.
2. Bi-linear (Quality): When this option is selected, ScanWizard Graph always scans in a high-enough resolution and then applies a bi-linear interpolation algorithm to expand or shrink image data. This is a complicated mathematical formula, and thus, takes longer to process.

Working Directory

The working directory is the folder where ScanWizard Graph creates temporary files (e.g., scan job files) , with the temporary files deleted at the end of an operation. If the working directory is not found or does not exist, a warning message appears, and ScanWizard Graph will create a new one for it.

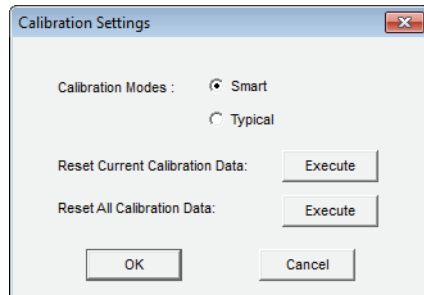
You should change to a different folder only if the working directory is located in a disk volume that is too small for scanning operations. To specify a new working directory, click the yellow folder beside this option, and assign a new directory to use.

If the computer on which the working directory is created is being shared for use among several people, each person may specify a working directory of their own.



Calibration Settings

This command allows you to choose if you want to calibrate your scanner before performing a scan job each time. This feature is only available when using some scanner models.



Calibration Modes

Smart: If this option is checked, the ScanWizard Graph will memorize the calibration values generated by scanning in different settings. Next time, when you perform a scan job with a same value of scanning settings, the scanner will skip the calibration step and directly perform a scan job. This mode enhances the scanning speed obviously when you often scan materials sharing same scanning settings.

Typical: This is the default setting. If this option is checked, the ScanWizard Graph calibrates your scanner before performing a scan job when the scanning settings are changed. When the scanning settings are not changed, the scanner will skip the calibration process and start scanning immediately.

When the Smart mode is checked, you can decide if you want to clear the calibration data.

Reset Current Calibration Data

By clicking the *Execute* button after this option, the ScanWizard Graph clear the calibration data with current scanning settings, which means that the program will need to re-calibrate your scanner and to re-memorize the calibration value if your next scan job carries the same scanning settings as the current values are using. This option only delete the calibration data you are using presently. Other saved calibration data are not affected.

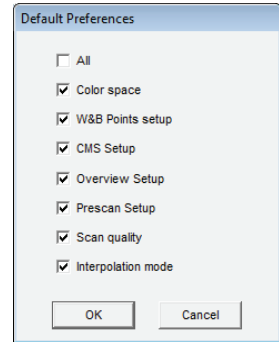
Reset All Calibration Data

By clicking the *Execute* button after this option, the ScanWizard Graph clear all saved calibration data; therefore, the program will need to re-calibrate your scanner and to re-memorize the calibration value when you perform the next scan job. Also, when you click the *Execute* button, a pop-up window appears to remind you if you are sure to clear all the saved calibration data.

Default command

The Default command brings up a dialog box where you can specify the preferences to be restored to their default values. To restore any or all preferences, check the boxes next to the targeted preferences, then click **OK** in the dialog box.

The following options are available as general guidelines, where (x) indicates that a check box is checked for that particular preference. Please take note, however, that the default values may vary depending on the scanner model.



Preference	Default Value
Color Space	<ul style="list-style-type: none">• Advanced (Native)
White & Black Points Setup	<ul style="list-style-type: none">• Auto Clipping: 0.01% and 0.01%• Output Levels: 0% and 100%• Markers: 0% and 100%
CMS Setup	<ul style="list-style-type: none">• Display Using Monitor Compensation (x)• Native Mode RGB Color Matching (x)• Embed ICC Destination Profile In Scan Image (x)• RGB Destination: sRGB• CMYK Destination: Coated FOGRA27 (ISO12647-2-2004)• Auto Color Enhancement (x)
Overview Setup	<ul style="list-style-type: none">• Size: Maximum size• Fast Overview (x)• Keep Overview Image After Close (x)• Show Confirmation Message Box If There Is Any Prescan Image (x)
Prescan Setup	<ul style="list-style-type: none">• Keep Prescan Image(s) After Close (x)• Prescan Image Margins: Small• Prescan Image Dimension: 75% screen• Background Prescan (x)
Scan Quality	<ul style="list-style-type: none">• Quality
Interpolation Mode	<ul style="list-style-type: none">• Bi-linear (Quality)

The Correction Menu

The Correction menu lets you use the Advanced Image Correction (AIC) features of ScanWizard Graph. The commands in the Correction menu correspond to the AIC buttons in the Settings window.

Correction	
Dynamic Range...	Ctrl+D
White & Black Points...	Ctrl+W
Brightness & Contrast...	Ctrl+B
Color Correction...	Ctrl+C
Tone Curve...	Ctrl+V
Filter...	Ctrl+F

Native color mode

Correction	
Dynamic Range...	Ctrl+D
White & Black Points...	Ctrl+W
Gradation...	Ctrl+G
Color Cast...	Ctrl+C
Saturation Curve...	Ctrl+S
Selective Color...	Ctrl+E
Tone Curve...	Ctrl+V
Filter...	Ctrl+F

LCH color mode

For more information, see the section of the manual on *Advanced Image Correction*.

The Help Menu

The Help menu lets you access on-line help for ScanWizard Graph and the Microtek website.

Help
ScanWizard Doc Reference
Microtek Web Site...
About

About

This command displays the ScanWizard Graph software and driver versions.



The Toolbar



Frame



Magnify
Glass



Pane



Dropper





Scan Frame tool

The Frame tool lets you select the area to be scanned or prescanned. You can have multiple scan frames, but only one scan frame can be current at a time; the current scan frame is indicated by a flashing marquee. Multiple scan frames can be more easily distinguished if you turn on the *Smoked Glass Background* command in the Preferences menu.

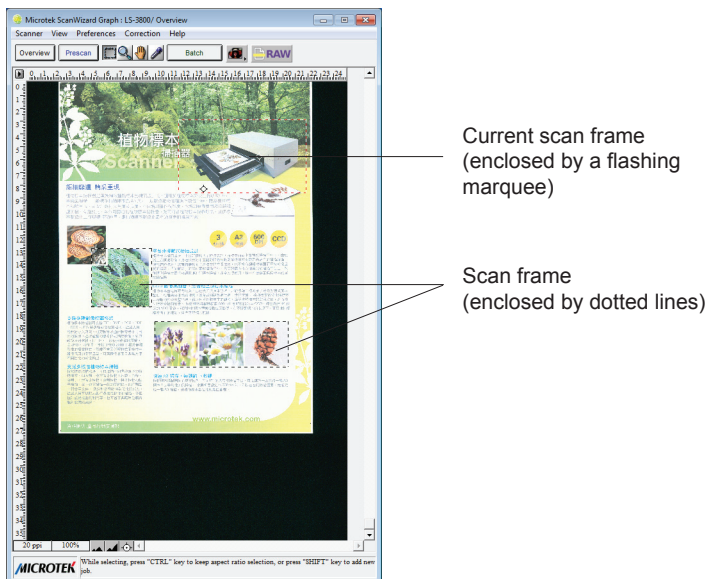


Image with multiple scan frames

To use the Frame tool:

1. Click the *Frame* tool.
2. Move the pointer (now a crossbar) to the Overview image, and draw a frame enclosing the area to be selected. When you release the mouse, a flashing marquee will indicate the scan frame. To create multiple scan frames, hold down the *Shift* key and drag your next scan frame.
3. To resize the scan frame, drag a corner of the scan frame and resize to the desired area you want.
4. To change the position of the scan frame, drag inside the scan frame and move to a new location.



Magnify Glass tool

The Magnify Glass tool lets you magnify (zoom in) and reduce (zoom out) your view of the image. Only your view of the preview image is changed; the actual size of the image remains unaffected.

Each click of the Magnify Glass tool magnifies or reduces by a factor of 2. Thus, the magnification levels increase from 100% to 200%, to 400%, and to the maximum 800%.



Before



After

To use the Magnify Glass tool:

1. Click the *Magnify Glass* tool.
2. Move the pointer (now a lens with a plus sign inside it) to the image and click to magnify the view.

To reduce the view, hold down the *Shift* key (the Magnify Glass tool changing to show a minus sign inside it), and click again.



Pane tool

The Pane tool lets you scroll through an overview or prescan image, allowing you to move parts of the image into view quickly without using the scroll bars.

You can use the Pane tool for scrolling through zoomed-in images that were enlarged through the Magnify Glass tool, or for scrolling through parts of an image not included completely within the frame of the preview window .



Before



After

To use the Pane tool:

1. Click the *Pane* tool.
2. Move the pointer (now in the form of a hand) to the image. Hold down the mouse and move the Pane tool left, right, up, or down, and you will see portions of the image come into view.



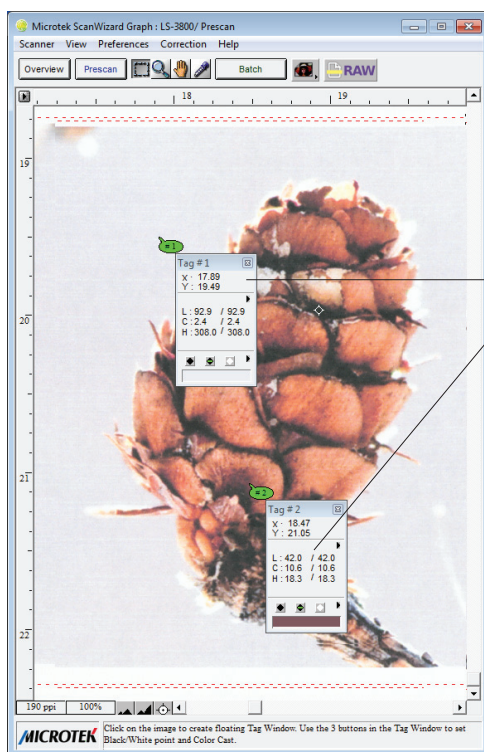
Dropper tool

The Dropper tool lets you set the Black (shadow) point and White (highlight) point of an image.

It also creates Tag windows, which are used to isolate and identify precise colors in a given image, providing a visible and retrievable record of color values. This way, ScanWizard Graph lets you pinpoint and “tag” the color on the image, showing you the original or “Before” values, as well as the corrected or “After” values following the application of image adjustment controls.

The Dropper tool is useful especially if you are making color adjustments based on known mathematical values, as the displayed color information provides a basis for knowing how close or accurate are the color changes that have been made.

Also in the Tag window, the Magic Diamonds are for adding or removing a color cast, as well as for setting the White/Back point.



Tag Windows at these points show the x, y coordinates and the color values of the selected pixels

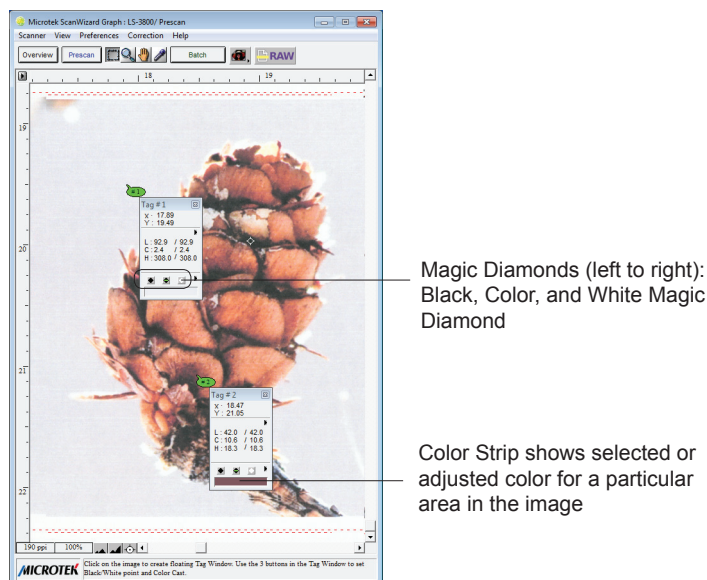
LCH color mode

To create a Tag window

Click the *Dropper* tool, then move to any part of the preview image and click. The Tag window displays the x/y coordinates of the selected pixel and the color value of that pixel (RGB, CMYK, Lab, etc.), depending on the image mode selected.

To close the Tag window

Click the *Close* box (x) on the upper left corner of the Tag window to close window. To close all Tag windows, hold down the *Shift* key, then click the *Close* box of any Tag window.



Choosing the White & Black Points of an image

There are two ways to choose the White and Black points of an image:

- A. By using the Dropper tool in the Toolbar.
 - To choose the White (highlight) point in an image, click the *Dropper* tool, press the *Alt* key, and click on a white point in the image.
 - To choose the Black (shadow) point in an image, click the *Dropper* tool, press the *Ctrl* key, and click on a black point in the image.
- B. By using the Magic Diamonds. See the next section for details.

Using the Magic Diamonds

The Magic Diamonds is another way of setting the White (highlight) and Black (shadow) point in an image. The Magic Diamonds can also be used to add or remove a color cast.

- To set the White (highlight) point on the image: Click the *Dropper* tool, then click a white point in the image. When the Tag window appears, click the *White Magic Diamond*.
- To set the Black (shadow) point on the image: Click the *Dropper* tool, then click a black point in the image. When the Tag window appears, click the *Black Magic Diamond*.
- To remove a color cast: Click the *Dropper* tool, then click a color in the image that corresponds to the color cast to be removed. In the Tag window, click the *Color Magic Diamond* in the middle
- To add a color cast: Click the *Dropper* tool, then click a color in the image that corresponds to the color cast to be added. Hold down the *Alt* key, and click the *Color Magic Diamond*, the minus sign (-) is changed to plus sign (+), then add a color cast.



Before

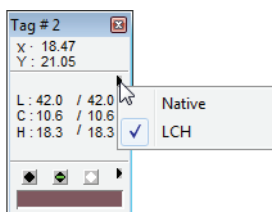


After

The Color Magic Diamond with a minus sign (-) inside it. It only appears when the working color space is set to "Expert (LCH)".

To switch input display mode

Click the arrow button next to the value of selected pixel in the Tag window, then select *Native* or *LCH* to change the input display.

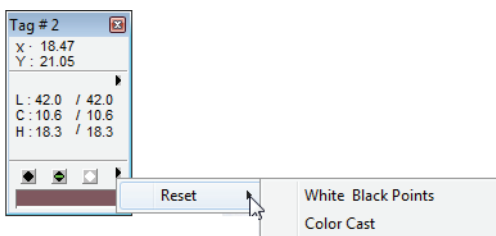
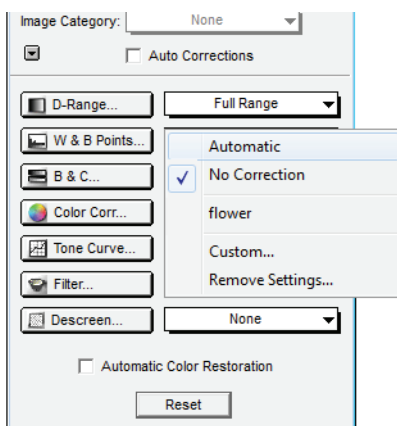


To restore original settings

Select *No Correction* from the White/Black Points menu in the Settings window.

or,

Click the *Reset* button in the Settings window or in the Tag window.



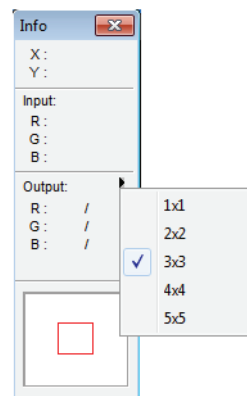
To display color information for a pixel or an averaged area:

1. Click on the *Dropper* tool.
2. As you pass over a point in the image, see the Information window — the values will be displayed in the Input and Output area of the Information window. These values are based on the sample size you selected.

To change the sample size of the Dropper:

1. Open the Information window by choosing the *Show Info Window* command in the View menu.
2. Click on the *Sample Size Options* button, located to the right of the Color Output Meter in the Information window.
3. Choose your options.

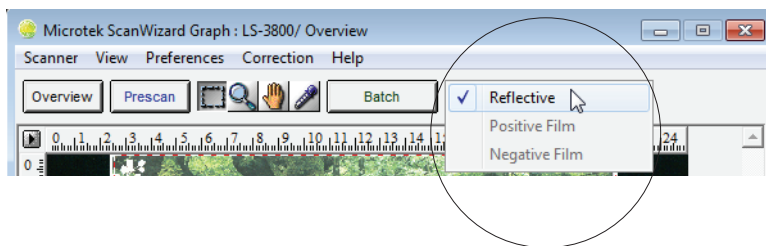
Select the sample size. For instance, the 1 by 1 option will display the value of one pixel — the one in the middle of the sample size area. The 3 by 3 option reads the average value of an area that is 3 x 3 pixels.





Scan Material button

The Scan Material button, located to the right of the Batch/Scan button, allows to access the Scan Material menu. Click the *Scan Material* button and then choose the correct scan material from it's drop-down menu that appears.



Scan materials can be classified into three types:

- Reflectives, such as maps, posters, drawings, fine arts, or other prints
- Positive transparencies
- Negative film

The default scan material depends upon the scanner you're using, and the choices available to you in the Scan Material drop-down menu will also depend on your scanner model. The *Reflective* choice is available only if you are using a large-format scanner, such as the LS-3800. When you click this button, you will see the Reflective option checked.



RAW button

The RAW button activates the raw file condition, which means the scanner will not apply any customized ICC profile to scan. When it is enabled, all color management and color correction features will be turned off. Thus, you will see that the AIC tools in Settings window and the Menu bar in the Preview window are grayed out for not using. This is only used when you want to create scanner ICC profiles with your own calibration target and profiling tool. For more details on how to use, please refer to “Appendix C: How to Create Scanner ICC Profiles with Your Calibration Kit” section in this manual.

Overview, Prescan, Batch/Scan buttons

Overview

Overview

The Overview button previews the image on the scan bed. By default, the entire scan bed is previewed when you click the *Overview* button. To change the area to be previewed, specify the dimensions in the *Overview Setup* command in the Preferences menu.

Prescan

Prescan

The Prescan button previews in high resolution the area selected by the Frame tool. Multiple prescans can be done if you have several selected scan jobs, and the prescans are done one after another in the order that they are listed in the Scan Job Queue window. Options governing the prescan function can be found in the *Prescan Setup* command in the Preferences menu.

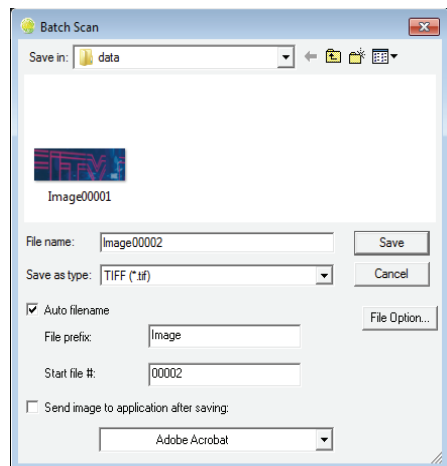
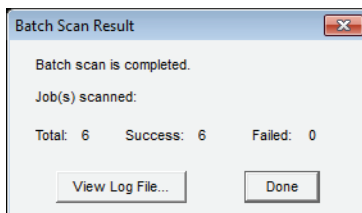
Batch

Batch

The Batch button appears when ScanWizard Graph is launched as a stand-alone (e.g., launched from the *Start* menu or the *ScanWizard Graph* icon on the desktop). It performs the final scan and delivers the scanned images to your selected folder or application.

When the “Batch Scan” dialog box appears, key in a file name, then select TIFF, BMP, EPS, JPEG, JPEG2000, PSD, PDF or other as the export file format, and click *Save* to perform the final scan.

When done, a dialog box will appear and inform you how many scan jobs are completed, then click *Done* to finish.



Save in

This allows you to assign the preferred folder into which the scanned images are saved.

File name

This is the file name to store images.

Save as type

This allows you to choose a file format when saving a file. The selectable file format includes TIFF, BMP, EPS, JPG, PSD, and PDF, “TIFF” is the default file format.

Auto filename

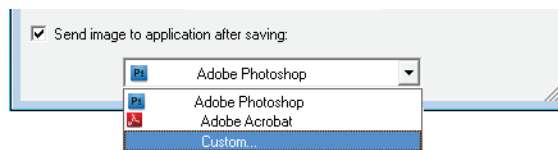
The file name consists of the file prefix, plus the file serial number. By default, this option is checked and allowed to edit as your preferences.

File prefix: This edit box lets you enter a beginning string for a file name. “Image” is the default root file name.

Start file #: This edit box lets you enter a beginning number for a file name. “00001” is the default.

Send images to application after saving

If this option is checked, the scanned images are sent to your selected application and opened in it automatically. Select an application you want to use from it's drop-down menu. If no desired application found, you can add a new one by using the *Custom...* command from the list of the drop-down menu.

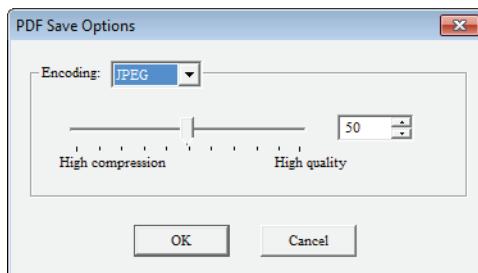


File Option

The File Option button allows you to save the scanned image in different compression ratio of quality. It appears only when either of the following situation meets:

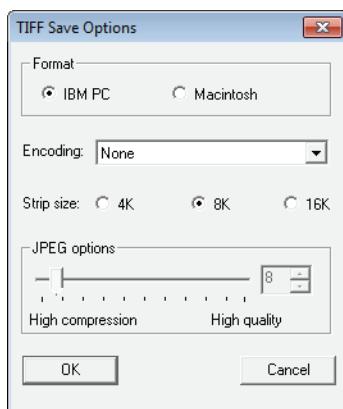
- File format is set as PDF and the image type is set as RGB Color
- File format is set as TIF and the image type is set as RGB Color, Grayscale, Line Art, or B&W Diffusion

- PDF format: When “PDF” is selected and then you click the *File Option* button, the “PDF Save Options” dialog box will appear.

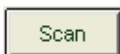


ZIP and JPEG options are available for Encoding. If ZIP is selected, image compression control will not be available for adjustment.

- TIFF format: When “TIF” is selected and then you click the *File Option* button, the “TIFF Save Options” dialog box will appear.



You are allowed to adjust settings based on your preferences. If “None” is selected for Encoding, the JPEG image compression control will not be available for adjusting; if “JPEG” is selected, the Strip size options are grayed out and not being used.



Scan

The Scan button appears when ScanWizard Graph is launched from an image-editing application (e.g., Adobe PhotoShop). It performs the final scan and delivers the scanned images to the application that you are using.

Rulers, Unit of Measurement

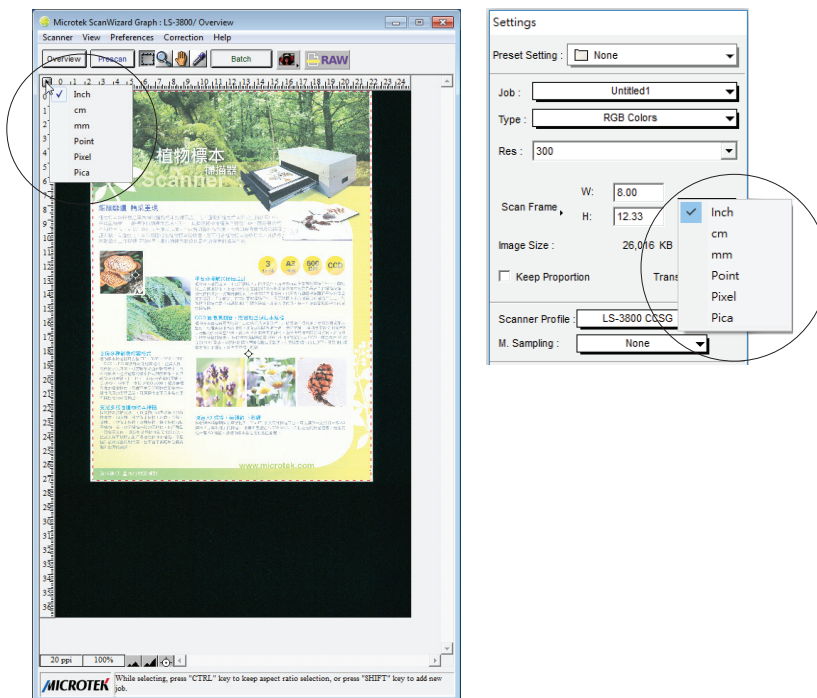
The rulers on the top and left sides of the preview window help you with measurement and alignment, marking off measurement according to the selected unit (inch, pica, pixel, etc.).

The rulers change when dimensions are altered in the preview area of the *Overview Setup* command (in the Preferences menu). For example, if you change the preview area size from 25" x 37" to 8.5" x 11", the rulers will change accordingly.

The unit of measurement can be selected in two ways:

- Through the *Ruler Unit* box in the Settings window.
- Through the *Ruler Unit* button at the 0,0 point of the rulers in the Preview window.

The options for unit of measurement include *inch*, *centimeter*, *millimeter*, *point*, *pica*, and *pixel*. The *pixel* option is dimmed if the selected resolution unit is *lpi*.



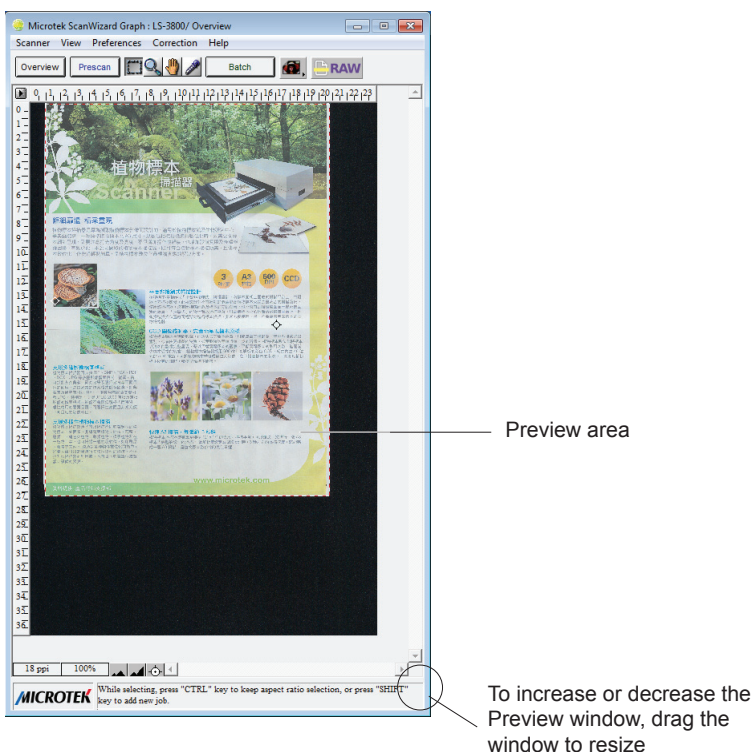
Preview Area

The preview area is where the overview or prescan image appears. You can increase the size of the preview area to see more detail in your image, or you can reduce the preview area to save on memory.

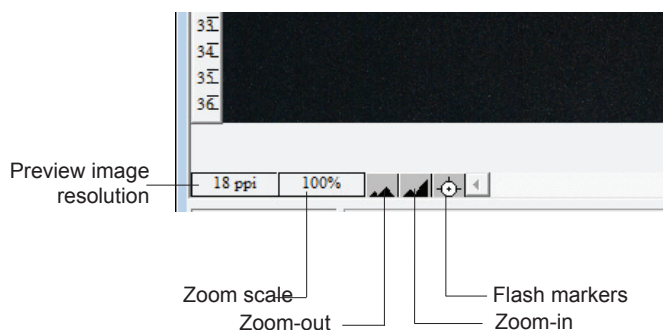
Take note of the following:

- When you perform an overview, the overview image size is determined by the current preview area dimension. The bigger the preview area, the higher preview resolution.
- When you perform a prescan, the prescan image detail is determined by the settings in the Prescan Setup dialog box.

For details on how to change the size of the preview area, refer to the *Overview Setup* command in the Preferences menu section.



Auxiliary Information



Preview image resolution

This shows the image resolution for the Overview or Prescan image. The preview image resolution will change, according to the size of the preview window. To resize preview window, drag any side or corner of the window.

Zoom scale

This shows the zoom factor, or how many times the image has been magnified using the Zoom scale tool or the Zoom-in / Zoom-out icons to the right of the Zoom scale. You may select the exact Zoom scale from here, ranging from 100%, 200%, 400% to 800%.

Zoom-out

This lets you reduce a zoomed-in or magnified image one level down with each click, up to the minimum 100% view.

Zoom-in

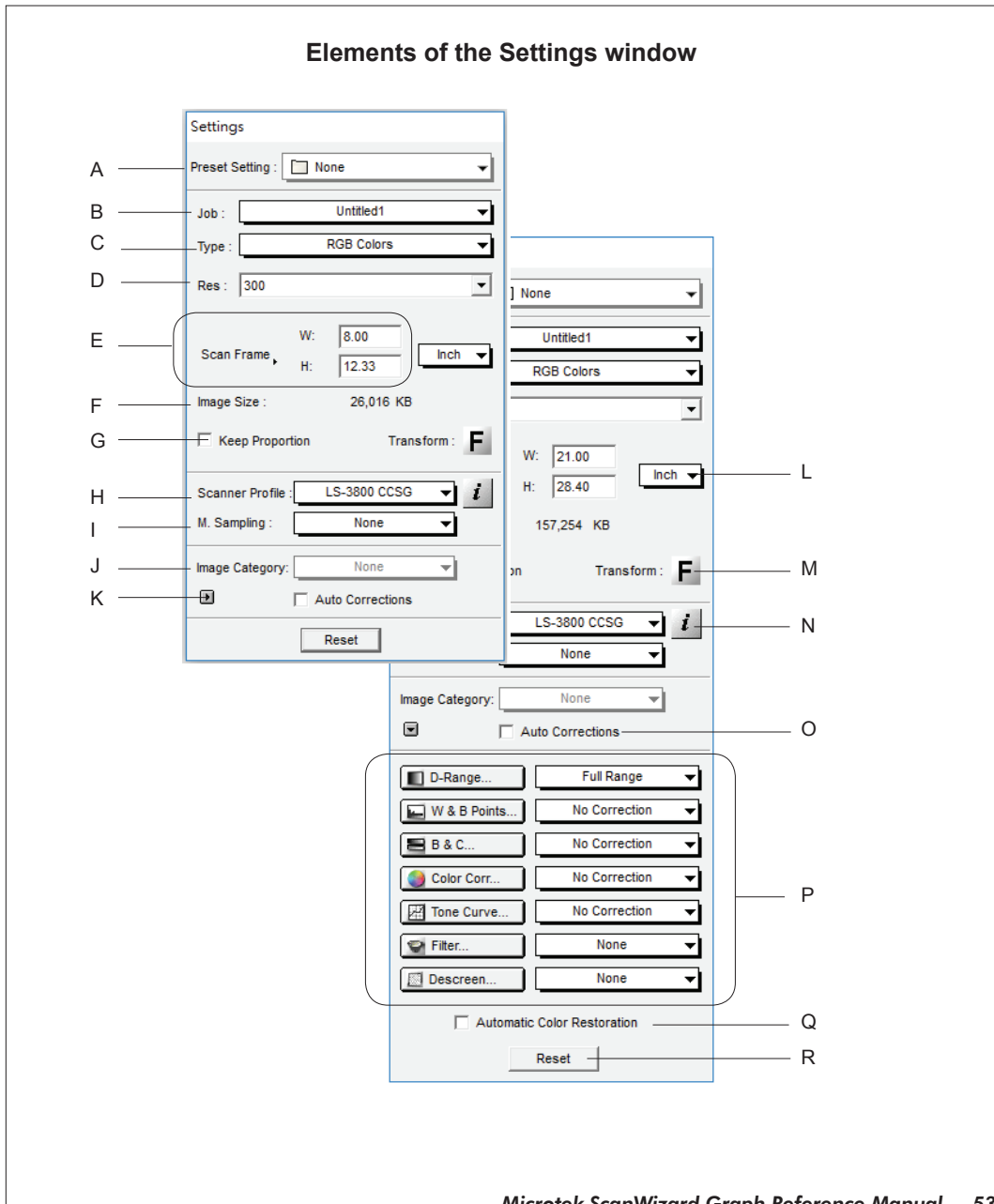
This lets you magnify or enlarge the image one level up with each click. Each time you click, up to the maximum 800% view.

Flasher for White/Black Point markers

When the overview or prescan image is displayed, the White Point marker (the extremely white reference point) and Black Point marker (the extremely black reference point) are shown. If the two markers cannot be visually detected with ease (depending on how your image may obscure the markers), clicking the *Flash Markers* icon activates the markers to flash a few times for easier detection, allowing their locations on the overview or prescan image to be seen.

The Settings Window

The Settings window contains the parameters for outputting your scanned image for the current scan job and includes the advanced image correction tools of the program.

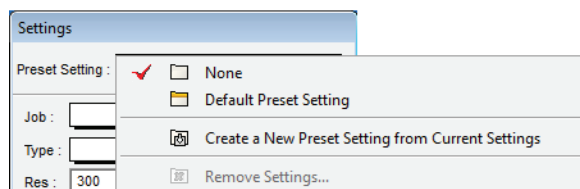


- A. Preset Setting: This feature allows to retrieve and load a scan preset that you have previously defined as image settings for your scan jobs.
- B. Scan Job: This shows the current scan job as indicated by the Scan Job Queue window and by the selected image in the Preview window.
- C. Type: This shows the image type of the current scan job.
- D. Resolution settings: This area includes the following: the *Resolution box* for specifying your output resolution; the *Resolution list box* (with the arrow button) that provides predefined resolution values for easier selection of the resolution setting; and the *Resolution unit*, which lets you choose from ppi and several lpi options. Your most recent scan resolution settings will be recorded as well.
- E. Scan Frame options: This area includes the Scan Frame settings which represent the dimensions of the image that you wish to scan.
- F. Image size: This shows the size of the file when the image is scanned.
- G. Keep Proportion: This lets you keep the proportion of width and height for the image despite any changes made.
- H. Scanner ICC Profile: This lets you select from different ICC scanner profiles for your scan job.
- I. Multiple Sampling: This lets you reduce the random noise of the scanned image. If your scanner is not supported, this feature will not be available for selection in the window.
- J. Image Category: Image Category: This lets you select the image characteristics that most closely resemble your original.
- K. Expansion button: This lets you reveal the bottom half of the Settings window, which includes the various image-enhancement controls.
- L. Unit of measurement: This lets you choose your desired unit of measurement, which will then be reflected in the rulers along side the Preview window. Choose from *inch*, *cm*, *mm*, *point*, *pica*, or *pixel*.
- M. Transform: This lets you flip the image horizontally or rotate the image in increments of 90 degrees.
- N. Scanner Profile Information: This shows the ICC profile of the currently selected scanner.

- O. Auto Correction: This improves the color of an image automatically, resulting in more vibrant colors.
- P. Advanced Image Correction (AIC) tools : The Advanced Image Correction (AIC) tools let you adjust and enhance the image, and image corrections are displayed in real time. The AIC tools available for use will vary, depending on the color space (LCH or Native mode) chosen in the “More” command under the Preferences menu (found in the Preview window).
- Q. Automatic Color Correction: This restores faded colors in documents or prints back to life.
- R. Reset button: This changes settings in the Advanced Image Correction (AIC) controls to their default values.

Preset Setting

This feature allows users to save current image settings as a user-defined scan preset setting and use it later when necessary. When clicking the *Preset Setting* box, a drop-down menu will show options for adding, removing, or loading a custom scan preset setting. Choose a scan preset setting you wish to use from the list. Once selected, the loaded scan preset setting then becomes the image settings for your selected scan job. This is particularly useful when you want to work on a new job based on the current scan settings.



None

This option plays a remind function when the selection of the Preset Setting box is either Default Preset Setting or user-defined preset setting (e.g. scanner). If any changes are made to the jobs in the Settings window, the selection of the Preset Setting will be set back to “None”.

Default Preset Setting

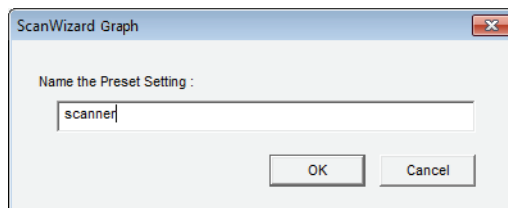
This option allows you to apply a default scan preset to your scan job. Once you choose this option, the current image settings you made for your scan job are cancelled, and settings will be restored back to the default preset settings.

Create a New Preset Setting from Current Settings

This option allows you to save current image settings as a custom scan preset with a user-defined name. The custom scan preset will be displayed and selectable from the Preset Setting drop-down menu.

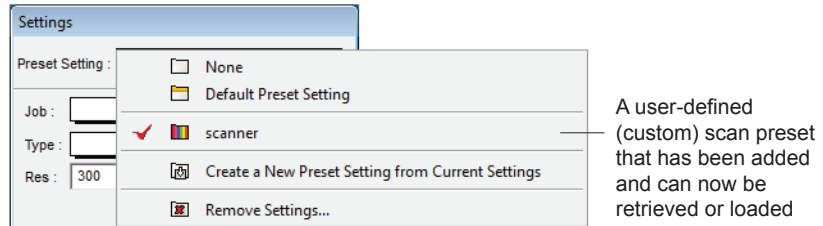
To create a custom scan preset:

1. After you finish the image settings, choose “Create a New Preset Setting from Current Settings” from the Preset Setting drop-down menu. A dialog box appears.



2. Enter the name of the new scan preset to be created, and then click *OK* to save.

The current images settings will be saved as a custom scan preset and added to the Preset Setting options menu. Next time when you wish to retrieve this user-defined scan preset, simply go to the Preset Setting drop-down menu and choose it.



Remove Settings...

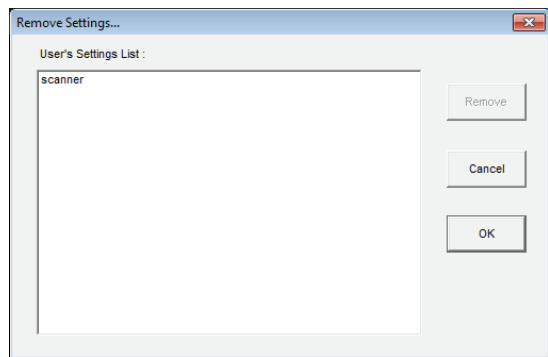
This option allows you to remove a custom scan preset from the list of the scan presets.

To remove custom scan presets:

1. Choose “Remove Settings” from the Preset Setting drop-down menu.
2. When a dialog box comes up, select the scan preset to be removed, then click the *Remove* button.

The selected scan preset will be removed from the list and will not be displayed in the Preset Setting drop-down menu.

3. Repeat the step 2 until all unwanted custom scan presets have been removed, then press the *OK* button.



Scan Job

The Job box shows the currently selected scan job, which is also shown in the Scan Job Queue window and the Preview window.

There is always at least one scan job in existence (by default). If you have multiple scan jobs, not only are these reflected as multiple entries in the Scan Job Queue window and as multiple images in the Preview window, they will also be shown as multiple entries in the Job box of the Settings window.

To select from multiple scan jobs, choose the scan job you wish in the Job box; this will automatically select the corresponding scan job in the Preview and Scan Job Queue windows as well. Conversely, selecting a scan job in either the Preview or Scan Job Queue window will automatically show that selection in the Job box.

This means that a quick look at the Job box, the Preview window, or the Scan Job Queue window can show you which is your currently selected scan job.

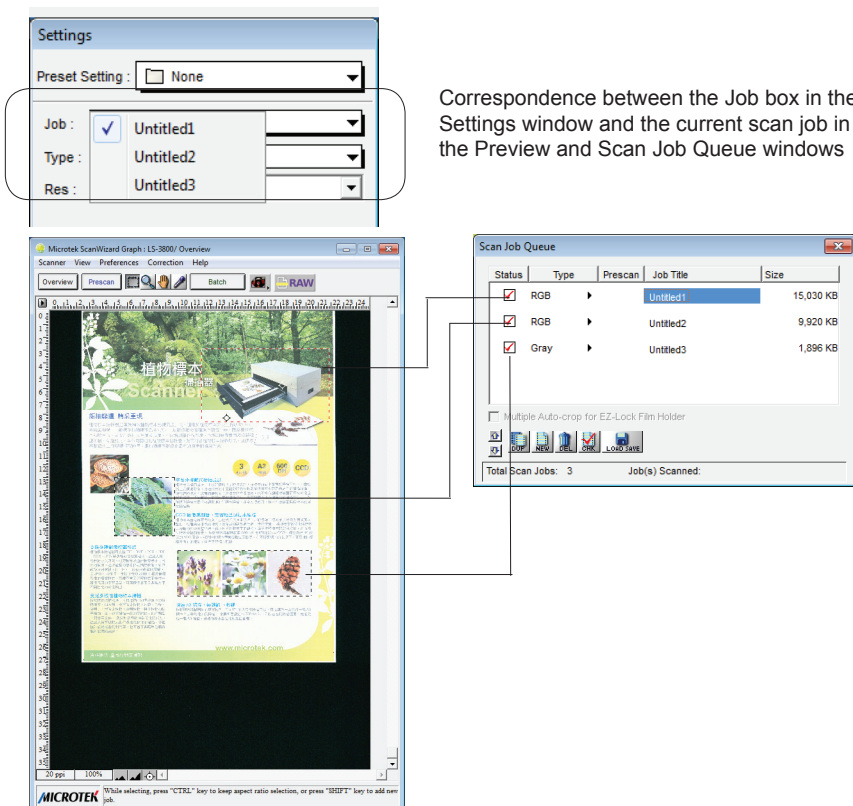
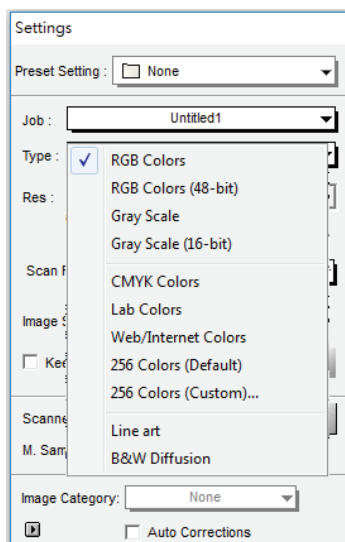


Image Types

The Type box shows you the image type of the current scan job. ScanWizard Graph allows direct scanning in the following color spaces described below.



RGB Colors

RGB (Red, Green, and Blue) images use three colors to reproduce up to 68.7 billion colors. Because scanners and monitors are RGB devices, the RGB color space is the most commonly used space for capturing and displaying images. ScanWizard Graph offers standard RGB and 48-bit RGB color selection, with the 48-bit option available for some professional scanners.

Grayscale

Grayscale images use shades of gray to simulate gradations of color or tonal values, and contain 8 bits per pixel. The Grayscale 16-bit option is provided in ScanWizard Graph for some professional scanners.

CMYK Colors

CMYK images are made up of the standard four colors (cyan, magenta, yellow and black or K) for separated film or digital files used for commercial printing. CMYK mode instantly converts the scanner's RGB input to the CMYK color space. CMYK images are four channel images, containing 32 bits per pixel.

Lab Colors

Lab images are three-channel images containing 24 bits per pixel. Lab mode is useful for editing a pixel's luminance but not its color values. Lab mode produces device-independent color and is recommended for moving images between systems or printing to a PostScript Level 2 printer.

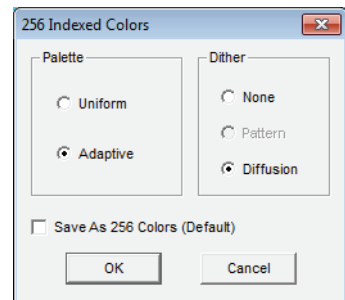
Web / Internet Colors

This mode is useful for displaying images on the Web or Internet. Output for the Web / Internet color mode in ScanWizard Graph is 8-bit, 256 indexed color images in the sRGB color space.

256 Colors (Default) / 256 Colors (Custom)

These are single-channel images (8 bits per pixel) that use a color lookup table containing up to 256 colors. The file size is smaller for images in this mode. As an initial setting, selecting 256 Colors (Default) uses an *Adaptive* palette with *Diffusion*. If the 256 Colors (Custom) option is selected, the dialog box below appears.

- **Palette:** The Palette option lets you choose the method for creating the color palette table. *Uniform* uses a 6-6-6 fixed color palette table. *Adaptive* (default) creates a color palette table from the more commonly used areas of the color spectrum that appears in the image.
- **Dither:** The Dither option can improve the color quality of the 256-indexed color image for photographs or continuous-tone images, using a technique of mixing available colors to simulate missing colors. *None* provides no dithering. *Pattern* uses a structured pattern to simulate missing colors. *Diffusion* (default) uses the error diffusion technique to dither colors and produces the best quality for 256 colors.



Line Art

Line Art images are made up of one bit of color (black or white) per pixel. Few editing options are available in this mode, but this mode is useful for images consisting purely of black and white or even single colors, such as mechanical drawings, blueprints, or fine-line illustrations.

Black-and-White Diffusion

This is a single-bit black-and-white image dithered with error diffusion. The black and white pixels are arranged in a way as to “fool” the eye into seeing gray.

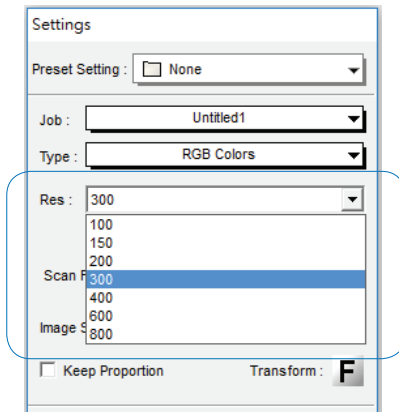
Resolution Settings

Resolution/Res is the sampling of image pixel per measurement unit or the amount of pixel information stored in an image. Together, the image resolution and dimensions determine the file size of the image, which is measured in kilobytes (KB) or megabytes (MB).

The resolution of an image is important in determining the quality of the output image. Resolution is also directly related to file size, and the higher the resolution, the larger the resulting file size will be.

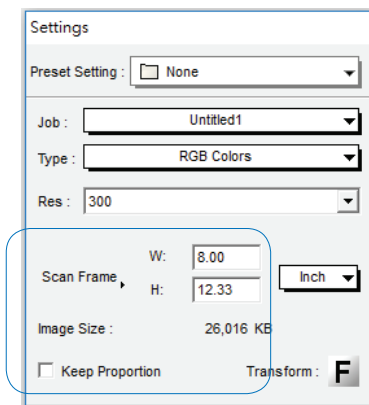
When dealing with resolution, remember to distinguish between optical resolution and interpolated resolution.

Optical resolution is the “real” resolution as measured by the scanner’s optics. Interpolated resolution is software-enhanced resolution and can be useful for enlarging very small images or for printing line art to obtain superior results.



Scan Frame and Related Settings

These settings allow you to adjust the various factors that affect your image, including the width and height of your image when it is first scanned.



Scan Frame Settings

The Scan Frame settings (width and height) provide controls relating to the output image dimensions.

To specify your settings, enter the dimensions manually in the width and height edit boxes; or use the Scan Frame tool to define or resize your scan frame. Changes made in the Preview window are automatically displayed in the Scan Frame setting edit boxes.

Keep Proportion

When the Keep Proportion option is checked, the width and height values of the image are kept in proportion despite changes made to either setting. This preserves the aspect ratio of the image.

Image Size

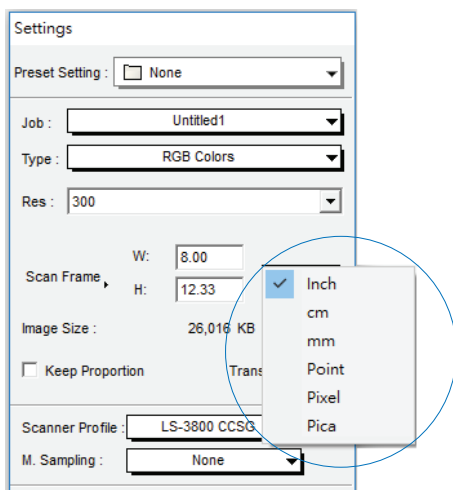
The Image Size field indicates how big the file will be when you accept the dimensions shown in the edit boxes, together with the resolution setting that you have selected. Size is calculated automatically. The resulting file size depends on the image type; resolution; and dimensions of the image.

Unit of Measurement

The Unit of Measurement lets you select the desired unit for your image dimensions. The unit options include *inch*, *centimeter (cm)*, *millimeter (mm)*, *point*, *pica*, and *pixel*. The *pixel* option is dimmed if the selected resolution unit is *lpi*.

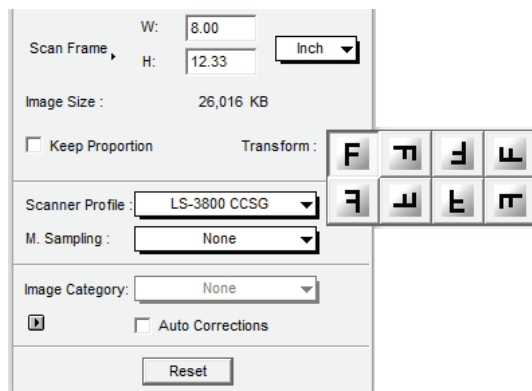
To choose the ruler unit, click the arrow button next to the box, and choose your setting from the list box.

Important: Make sure you select the correct unit of measurement before entering any of the values for width or height in the Scan Frame settings.



Transform

The Transform command allows you to rotate and /or flip the image in increments of 90 degrees.



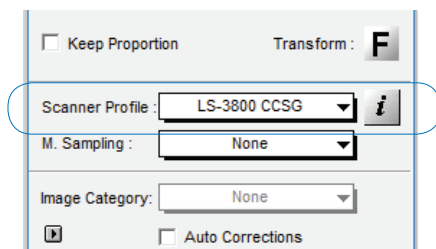
The effects of the Transform command will be seen in the Prescan image or are after you click the *Batch/Scan* button and scan the image in; the Transform effect is not shown in the Overview viewing mode.

To use the Transform command:

1. Click the *Transform* button “F” in the Settings window.
2. From the options that appear, choose the degree of rotation you wish.
3. Click the *Batch/Scan* button in the Preview window. When the image is scanned, it will be rotated or transformed according to the selected option.

Scanner Profile

The Scanner Profile is a feature that lets you select different ICC scanner profiles for your scan job. In ScanWizard Graph, a default scanner profile is always selected (provided with your scanner model).



To select a scanner profile:

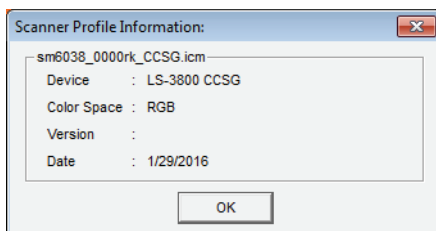
Click the *Scanner Profile* box in the Settings window, and choose a scanner profile you wish to use from the list box.

To create a scanner profile:

If you would like to use your own calibration kit (calibration target and profiling tool) to generate scanner ICC profiles for your scanner, refer to the section of manual titled “Appendix C: How to Create Scanner ICC Profiles with Your Calibration Kit” for more details.

To view the scanner profile information:

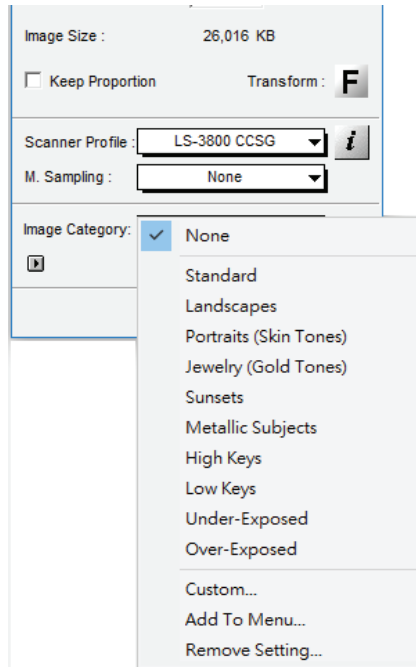
Click the *Scanner Profile Information* button located to the right of the Scanner Profile box, the Scanner Profile Information dialog box below will appear. This dialog box lets you view the profile information of the selected scanner profile before you make your final decision.



Profile information shows the profile of the currently selected scanner

Image Category

The Image Category function in ScanWizard Graph applies predefined settings to your image and brings out characteristics specific to that image type. This is helpful in providing a more accurate output image. The option menu can be activated only when the Working Color Space is set as “Expert (LCH)”; otherwise, it will be grayout.



To select the correct image category, go to the Settings window and choose the option you wish from the Image Category menu. Select the image category that corresponds most closely to the image characteristics of your original.

- *None*: No image category conversion.
- *Standard*: Used for an image not falling into any of the categories described below. You can also use this category for images of good quality (neither underexposed nor overexposed, with accurate color and tones).
- *Landscape*: Used for images with cool atmosphere with broad tonal variation and a wide hue range. Examples: Natural scenery; skyline with an expanse of blue sky; mountains and fields.

- *Portrait (Skin Tones)*: Used for images with dominant skin tones and midtone details present. Examples: Portraits and objects with fleece- or skinlike covering.
- *Jewelry (Gold Tones)*: Used for images featuring dominant gold / silver hues. Examples: Gold and silver jewelry, silverware.
- *Sunsets*: Used for images with warm reddish hues or a color cast reminiscent of sunsets. Examples: Scenes at dusk or twilight.
- *Metallic Subjects*: Used for images with broad highlight and shadow details but with very narrow midtown details. Examples: Audio equipment, Cameras.
- *High Keys*: Used for images with broad highlight tonal variation but with less shadow detail. Examples: Snow-covered landscapes; wedding gowns.
- *Low Keys*: Used for images with broad shadow tonal variation but with less highlight detail. Examples: Nighttime scenery; dark suits and clothing.
- *Underexposed*: Used for images with compressed tonal variation particularly in the shadow areas, characterized by an overall dark appearance typical of underexposed positive film.
- *Overexposed*: Used for images with compressed tonal variation particularly in the highlight areas, characterized by an overall bright appearance typical of overexposed positive film.

Advanced Image Correction Tools

The Advanced Image Correction (AIC) tools form an integral part of ScanWizard Graph. With the AIC tools, you can adjust or enhance images right from within ScanWizard Graph and preview the changes to your image even before you scan.

Before we go to the use of the AIC tools, we will briefly discuss the LCH color model, which is important for working with images in ScanWizard Graph. This is followed by other information relating to the LCH model, including the availability of the AIC tools in LCH vs. Native color mode, etc.

The following topics are covered:

- The LCH Color Model
- AIC tools in LCH vs. Native Mode
- AIC tools and your image type
- How to access the AIC tools
- Elements of the AIC dialog box
- The Action buttons
- Using Custom Settings
- Discussion of the individual AIC tools

The LCH Color Mode

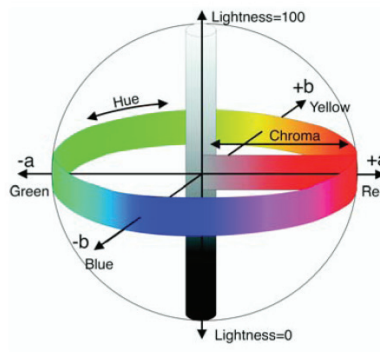
One of ScanWizard Graph's strengths is its ability to let you work in the LCH color space. Unlike the RGB color model, which corresponds to the color space as defined in monitors and printers, the LCH color model is a more intuitive way of working with colors, based on the values of Lightness (the "L" in LCH), Chroma (C), and Hue (H). For instance, if you wish to change the color of the sky in an image to a darker blue, your own eye — and your own judgment — will be the guide to making those color changes. This is easier than, say, knowing the mathematical equivalent in RGB or CMYK values that would correspond to a "dark sky blue".

The LCH model, in effect, makes it easier to comprehend colors as they are couched in the terms we are familiar with: Lightness (how dark or light a color is), Chroma or saturation (how rich or dull a particular hue of green is), and Hue (the property that distinguishes, say, the color red from the color blue.)

In the LCH color model, colors of equal brightness lie on a single plane of the model, as shown below. Red and green lie opposite each other on the horizontal axis, as blue and yellow lie opposite each other on the vertical axis.

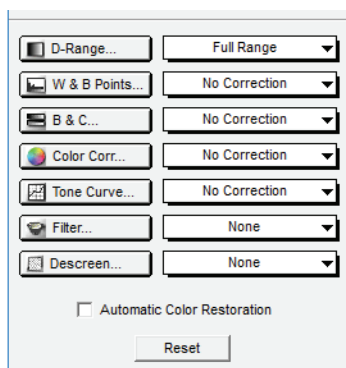
On the color sphere shown below, you can see how the different LCH properties play out:

- The different hues (red, green, yellow, blue) are spread around the sphere.
- The chroma (saturation) for each hue increases from the center of the sphere outward, with the most saturated colors lying on the edge of the sphere.
- The brightness values increase from the bottom of the model to the top.

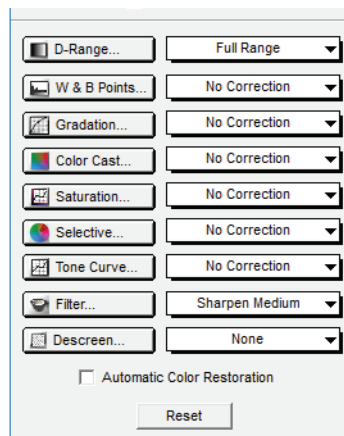


AIC Tools in LCH vs. Native color mode

All the AIC tools are available when you work in the default Native color space, but a different set of tools is available when you choose to work in the LCH color space. As discussed in an earlier section of the manual, you can select the color space of your choice in the *Preferences* menu > *Working Color Space* in the Preview window.



Native color mode



LCH color mode

AIC Tools and your Image Type

The AIC tools do not apply to all image types. See the table below to determine which AIC tool can be used for a particular image type.

	RGB	CMYK	Lab	Web	256	Gray	Line Art	B & W Diffusion	Remark
Dynamic Range	✓	✓	✓	✓	✓	✓			
White & Black Points	✓	✓	✓	✓	✓	✓			
Gradation	✓	✓	✓	✓	✓	✓			*
Color Cast	✓	✓	✓	✓	✓				*
Saturation	✓	✓	✓	✓	✓				*
Selective	✓	✓	✓	✓	✓				*
Tone Curve	✓	✓	✓	✓	✓	✓			
Filter	✓	✓	✓	✓	✓	✓			
Descreen	✓	✓	✓	✓	✓	✓			***
Brightness & Contrast	✓			✓	✓	✓			**
Color Correction	✓			✓	✓				**
Threshold							✓		

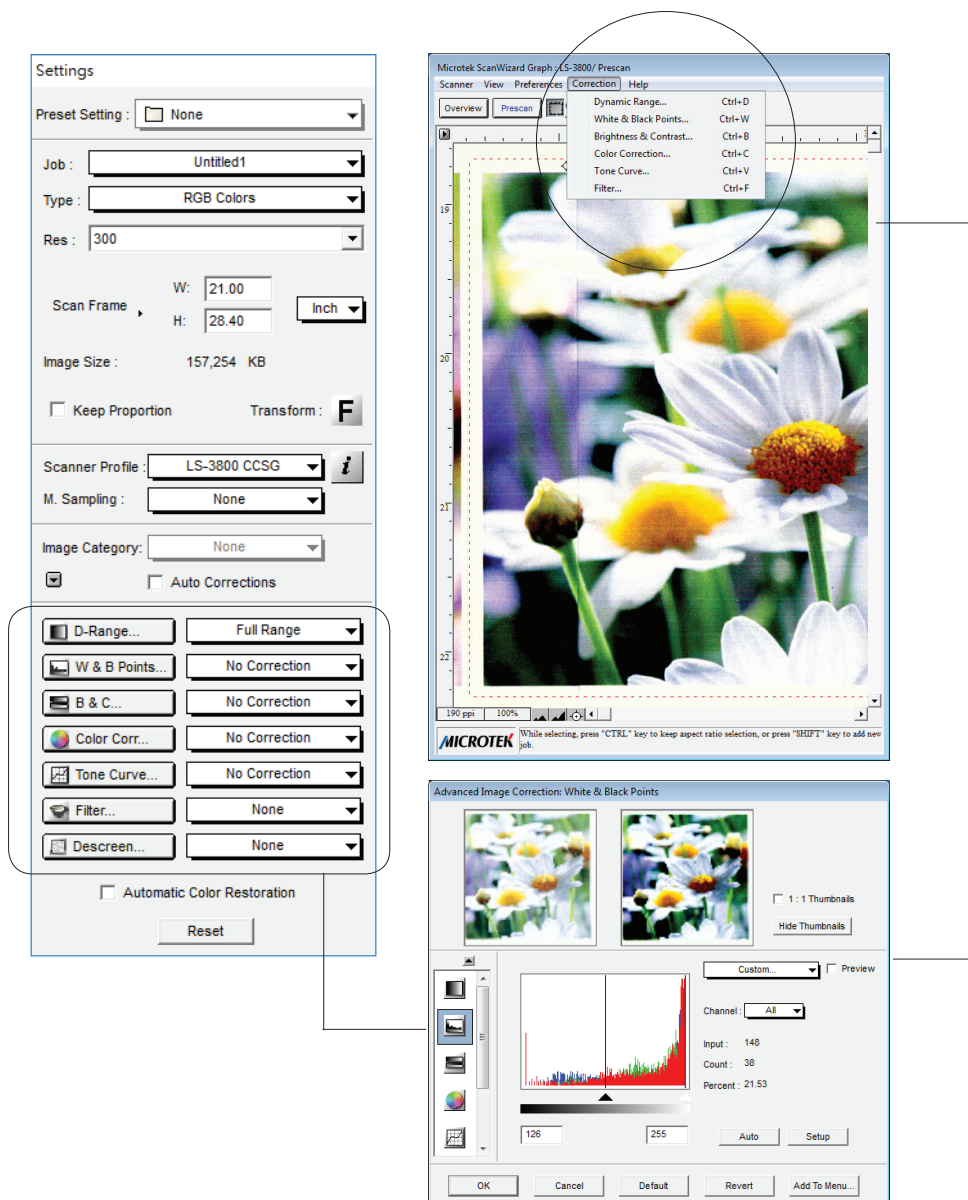
* Only appear in LCH color mode

** Only appear in Native color mode

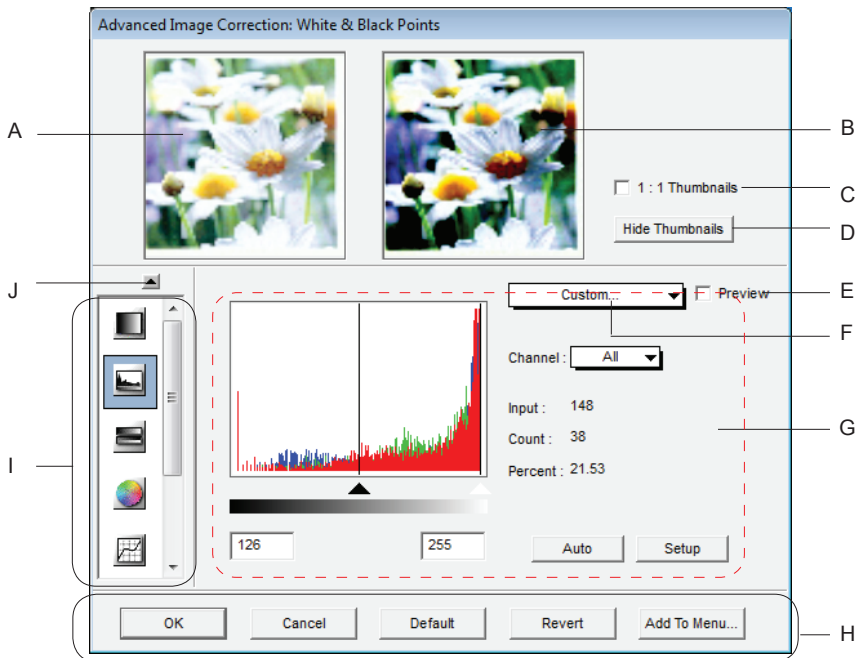
*** Only appear when the Scan Material is set as "Reflective"

Accessing the AIC Tools

- To access an AIC tool, click a particular tool in the Settings window or choose its counterpart in the Correction menu in the Preview window.
- After clicking a tool, the AIC dialog box appears. The elements of the AIC dialog box are explained in the next section.



Elements of the AIC Dialog Box



A. Left thumbnail

This shows the image *before* enhancements are applied.

B. Right thumbnail

This shows the image *after* enhancements are applied.

C. 1:1 Thumbnails

If checked, size of the thumbnail is about the same as the image shown in the Preview window. If unchecked, the image size appears fit into the shown dialog box.

D. Hide Thumbnails

This allows you to hide the “before” and “after” thumbnails. The screen collapses to show only the lower portion of the dialog box. To restore the screen, click the up arrow at the left side of the dialog box.

E. Preview option

If checked, changes or enhancements are applied immediately to the Preview window image (for both Overview and Prescan images). If unchecked, changes are seen only after you close the AIC dialog box.

F. AIC drop-down menu

This contains custom and other settings you have created for the particular AIC tool shown. This corresponds to the AIC drop-down menu in the Settings window.

G. Core of the AIC screen

This is the heart of the AIC screen, and the content here changes to reflect your selected AIC tool.

H. Action buttons

These carry out a specific action. See the next section “The Action buttons” for more details.

I. Advanced Image Correction Tools (AIC)

These tools adjust or enhance your images. Click any tool in this area, and see how the core of the AIC screen (#G) changes to reflect the properties of that tool.

J. Arrow button:

This allows you to hide/show the thumbnails.

The Action Buttons

The Action buttons in the AIC dialog box let you accept, cancel, or control the application of AIC settings.

Revert button

This button cancels out the changes that were made with the current image enhancement tool. This means that if you used several AIC tools, *Revert* cancels the effect of only the last used (or current) tool, and preserves the effects of the other preceding tools.

Example: If you changed the tone curve, applied filters, changed saturation, then clicked *Revert*, the saturation changes will be cancelled out, but the altered tone curve and filters settings remain in effect

Default button

This button restores all settings to their default ScanWizard Graph values.

Cancel button

This button cancels out all image-enhancement changes you have made to the current scan job, and then closes the AIC dialog box.

Example: If you applied filters, changed the curve, and then clicked *Cancel*, none of the changes will take effect, and you exit the AIC dialog box.

OK button

This button applies to the current scan job whatever image enhancements you have performed, and then closes the AIC dialog box.

Example: If you increased saturation, changed the gradation curve, and then clicked *OK*, all the changes are applied, and you exit the AIC dialog box.

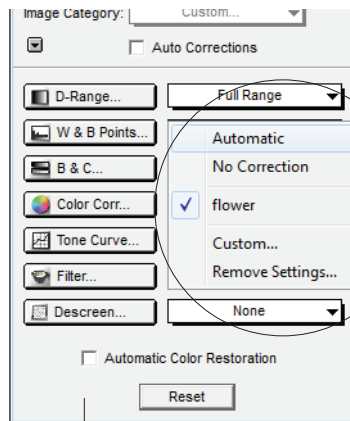
Add to Menu button

This button allows users to save and add user-defined settings made for the jobs to the AIC drop-down menu, so that you can retrieve and load the settings in the future if necessary. See the next section “Custom Settings” for more details.

Custom Settings

When you click on each AIC setting in the Settings window, a drop-down menu will show options for adding, removing, or loading custom settings. These custom settings are settings that you define yourself for your jobs.

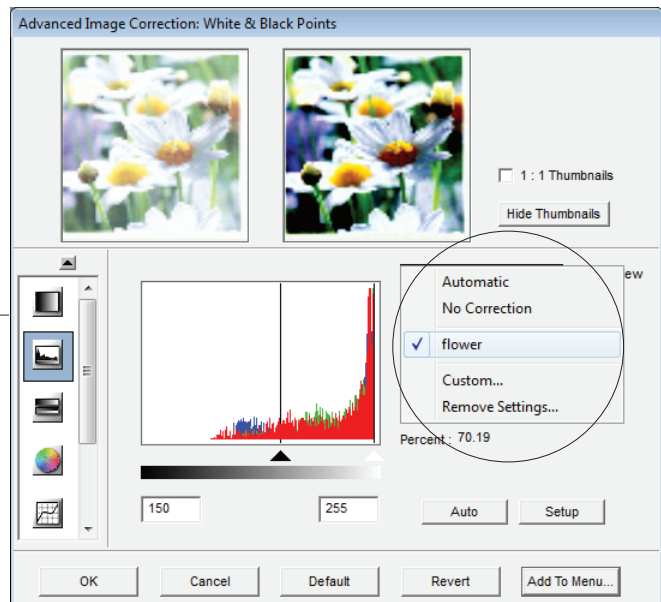
For instance, if you wish to apply a certain filter (such as sharpen) to an image and then save that filter setting for future scan jobs, you can add the filter as a custom setting. The next time you wish to retrieve that particular filter setting, simply go to the Filter AIC drop-down menu, and choose that setting.



A custom setting that has been added and can now be retrieved

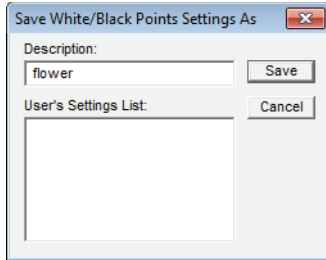
Lets you add or remove custom settings you have previously defined

The AIC drop-down menu in the Settings window is as same as that in AIC dialog box



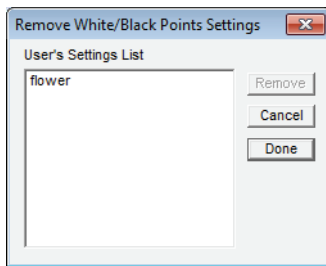
Adding Custom Settings

To add a custom setting for an AIC tool, click the *Add To Menu ...* button in that tool's dialog box. When a dialog box comes up, enter the name of the new custom setting to be added. For instance, the added setting can be called “show girl” as shown below.



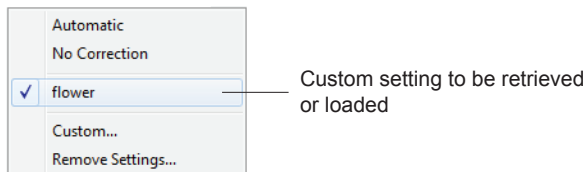
Removing Custom Settings

To remove a custom setting for an AIC tool, click the *Remove Settings...* in that tool's drop-down menu. When a dialog box comes up, select the particular setting to be removed, then click *Remove* and *Done* in the dialog box.



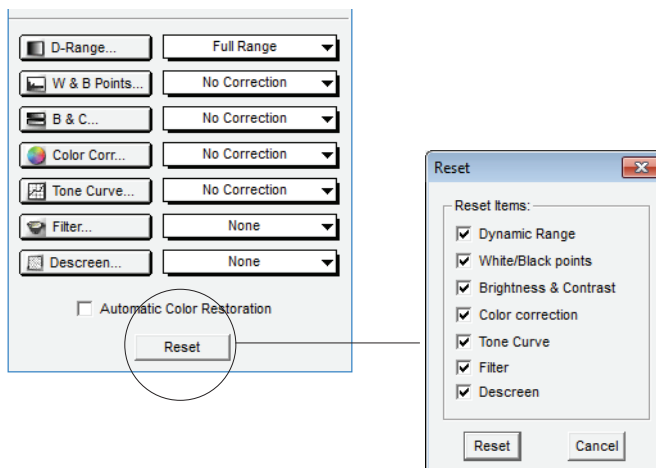
Loading/Retrieving Custom Settings

To load or retrieve a custom setting that you have previously defined for an AIC tool, go to that AIC tool's drop-down menu, and choose the setting you wish to be loaded.



The Reset button

The Reset button in the Settings window brings up a dialog box where you can specify the AIC settings to be reset to their default values. To reset any or a combination of settings, check the boxes next to the targeted settings, then click *Reset* in the dialog box.



Dynamic Range tool

The Dynamic Range tool is used to set the density capture range of the scanner and displays the density distribution (histogram) of the image to be scanned. The Auto range (default) feature automatically determines the Dmin (minimum density, lightest tone) and Dmax (maximum density, darkest tone) of the image, and sets the scanner capture range.

The screenshot shows the 'Advanced Image Correction: Dynamic Range' dialog box. It features two thumbnails of a flower image, a 'Density Histogram' plot, and various control options. Annotations with arrows point to specific elements:

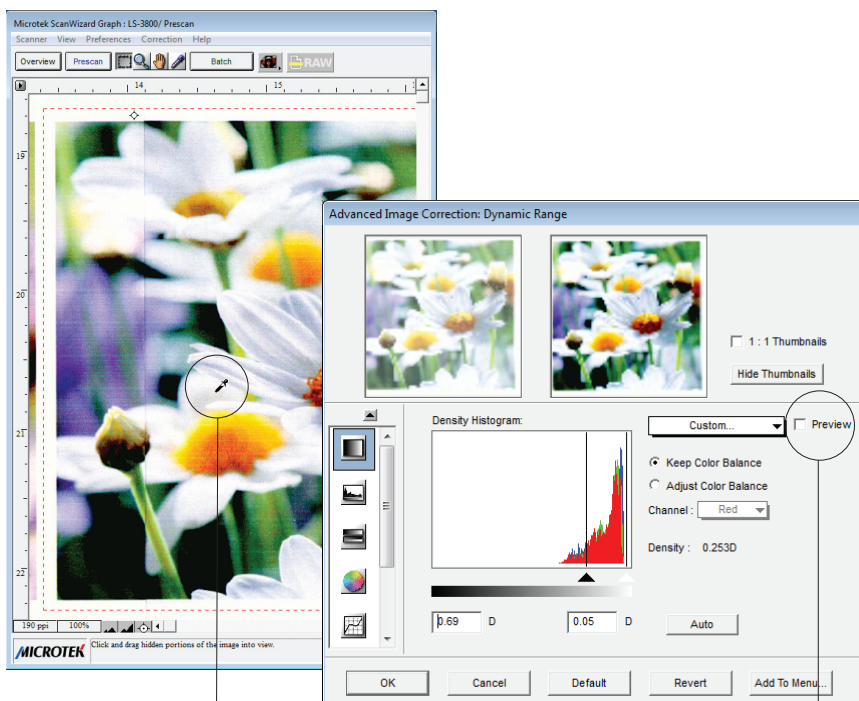
- Drag sliders to define custom Dmin/Dmax settings**: Points to the histogram's density axis sliders, which are set to 3.00 (Dmax) and 0.52 (Dmin).
- Select this option to adjust the Dmin/Dmax settings of the RGB channels simultaneously.**: Points to the 'Custom...' dropdown menu.
- Select this option to adjust the Dmin/Dmax settings of the RGB channels individually.**: Points to the 'Adjust Color Balance' radio button.
- Select the channel in which you wish to work with the image. The individual color (Red, Green, Blue) channels are available if you choose the "Adjust Color Balance" option.**: Points to the 'Channel:' dropdown menu, which is currently set to 'Red'.
- Observe histogram density values at cursor position as it is swept around the histogram.**: Points to the 'Density: 0.3000' readout.
- Click Auto to let ScanWizard Graph determine the Dmax and Dmin settings automatically.**: Points to the 'Auto' button.
- Click to save and add the current custom setting to Dynamic Range preset settings.**: Points to the 'Add To Menu...' button.

Other visible elements include '1:1 Thumbnails' and 'Hide Thumbnails' checkboxes, 'Keep Color Balance' and 'Adjust Color Balance' radio buttons, and 'OK', 'Cancel', 'Default', and 'Revert' buttons at the bottom.

You can also use the Black and White Eyedropper tools to define the Dmax (darkest tone) and the Dmin (lightest tone) settings, respectively.

Simply move the cursor toward to the preview image in the Preview window while the Dynamic Range dialog box is on display. Notice that the cursor automatically changes to a Black Eyedropper tool (default). Press and hold the Alt key, and the Black Eyedropper will be changed to a White Eyedropper tool.

- To define the Dmax (darkest tone) setting, use the Black Eyedropper tool.
- To define the Dmin (lightest tone) setting, use the White Eyedropper tool.



Use the Black Eyedropper tool to manually define your Dmax (darkest tone) setting.



Use the White Eyedropper tool to manually define your Dmin (lightest tone) setting.

Enable this check box to show the adjustment effect on the preview image in the Preview window

White & Black Points tool

The White & Black Points tool is used to change the shadow and highlight points of an image. By using this tool, you can manipulate an image to either bring out the highlights in a very dark image, or bring out more of the shadows in a very light image.

A. In Native color mode

In Native color mode, the White & Black Points dialog box allows you to modify the histogram in your RGB, CMYK, or Lab channel. Channels can be modified individually or collectively (when you select “All”) in the Channel box.

Following the selection of your channel, you can move the black and white sliders below the histogram to set the shadow and highlight values, respectively. The edit boxes below the sliders will reflect those values.

The screenshot shows the 'Advanced Image Correction: White & Black Points' dialog box. It features two thumbnails of a daisy image, a histogram, and various controls. Annotations with leader lines point to specific features:

- Drag sliders to define custom shadow and highlight settings.** Points to the black and white sliders below the histogram.
- Edit box for shadow value** points to the '0' input box below the black slider.
- Edit box for highlight value** points to the '129' input box below the white slider.
- Select all or individual color channel in which you wish to work with the image.** Points to the 'Channel: Blue' dropdown menu.
- Observe histogram values for distribution of the Lightness “L” channel in the image, as cursor is swept around histogram.** Points to the histogram area.
- Click Auto to let ScanWizard Graph determine the shadow and highlight points automatically.** Points to the 'Auto' button.
- Click Setup to bring up the White/Black Points Setup dialog box. For more details, see the section titled White/Black Points Setup (under the Preferences menu in the Preview window).** Points to the 'Setup' button.

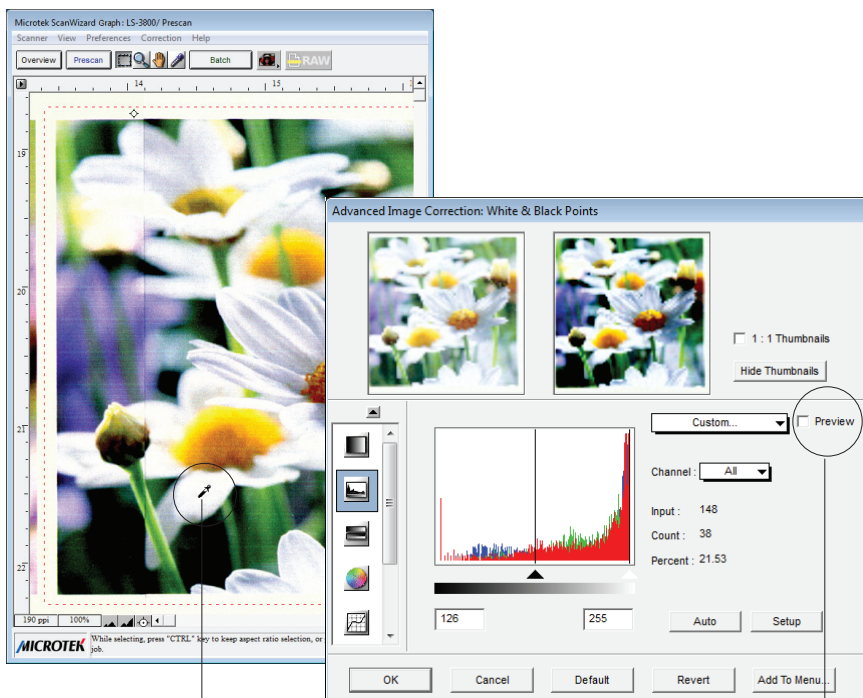
Other visible elements include 'Input: 228', 'Count: 24', 'Percent: 50.76', and buttons for 'OK', 'Cancel', 'Default', 'Revert', and 'Add To Menu...'.

You can also use the Black and White Eyedropper tools to define the Shadow and Highlight points.

Simply move the cursor toward to the preview image in the Preview window while the White & Black Points dialog box is on display. Notice that the cursor automatically changes to a Black Eyedropper tool (default). Press and hold the Alt key, and the Black Eyedropper will be changed to a White Eyedropper tool.

- To define the Black (shadow) point, use the Black Eyedropper tool.
- To define the White (highlight) point, use the White Eyedropper tool.

Note: You may also set the White & Black Points by using the Magic Diamonds in the Tag window. For more details, refer to “Using the Magic Diamonds” under the Dropper tool section.



Use the Black Eyedropper tool to manually define the Black (Shadow) point.



Use the White Eyedropper tool to manually define the White (Highlight) point.

Enable this check box to show the adjustment effect on the preview image in the Preview window.

B. In LCH color mode

In LCH color mode, the White & Black Points tool can also be used to neutralize the color cast in the highlight and shadow regions.

Drag sliders to define custom shadow and highlight settings.

Observe histogram values for distribution of the Lightness "L" channel in the image, as cursor is swept around histogram.

Check to auto neutralize unwanted color casts in Shadow (black) area or Highlight (white) area.

Click to save and add the current custom setting to Lightness preset settings.

Enter custom Lightness, Chroma & Hue values for Shadow (Black area) here.

Enter custom Lightness, Chroma & Hue values for Highlight (White area) here.

C & H values are applicable only when the *Auto Neutralize - Shadow* check box is enabled.

C & H values are applicable only when the *Auto Neutralize - Highlight* check box is enabled.

Click *Setup* to bring up the White/Black Points Setup dialog box. For more details, see the section titled *White/Black Points Setup* (under the Preferences menu in the Preview window).

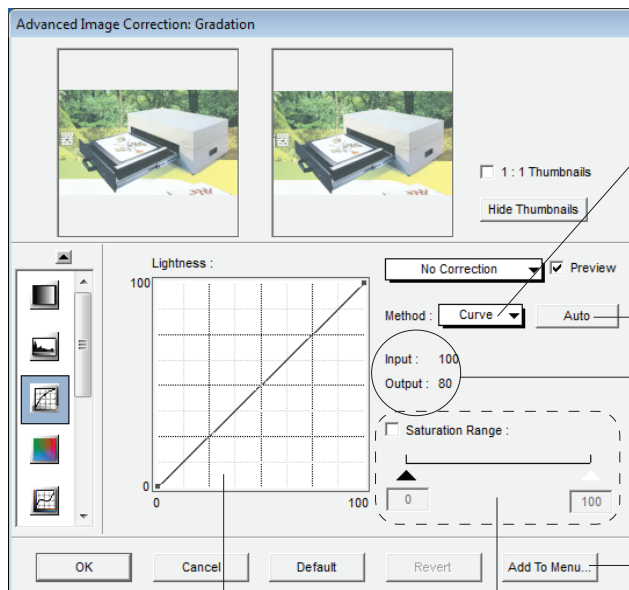
Click *Auto* to let ScanWizard Graph determine the shadow and highlight points automatically.

The shadow point is defined as the lightness value "L" in an image that is output as black (mapped to the Minimum Output Level), while the highlight point is defined as the lightness value "L" that is output as white (mapped to the Maximum Output Level).

Gradation Curve tool (LCH color mode only)

The Gradation tool lets you adjust the midtones (the mid-level grays) of the lightness channel “L” of an image without altering the color itself. This is because even with changes to the luminance or lightness value, the chroma and hue values are kept constant.

To prevent color images from losing saturation when adjusting the lightness, ScanWizard Graph provides a Saturation Range option. With this option, colors outside of a given chroma range are not affected by the manipulation of the gradation curve.



Choose the kind of curve you wish to have. Select from Curve, Line, or Gamma.

Click *Auto* to let ScanWizard Graph calculate the Gradation setting automatically.

Coordinates of cursor position within the grid.

Click to save and add the current custom setting to Gradation Curve preset settings.

For details on how to read the curve, see the next page.

Check to enable the **Saturation Range** option. Then drag the sliders or enter the values in the edit boxes to define the saturation (chroma) range. The colors outside the chroma range will not be affected by the Gradation curve.

How to read the curve

The curve shows the relationship of the brightness changes across the middle pixels between the resulting image and the original. When you open the Curves dialog box, the line on the graph is diagonal because the Input and Output values are the same.

The x axis of the graph represents the original brightness values of the pixels, from 0 to 255, for 8-bit scanners (see the table below); the y axis represents the new brightness values. Clicking on the diagonal line then plots a point that can be adjusted.

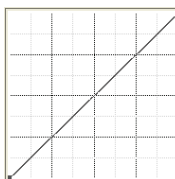
Scan	Original brightness value
8-bit color	0 - 255
10-bit color	0 - 1023
12-bit color	0 - 4095
CMYK	0 - 100%
Gray	0 - 100%

In the above table, 100% indicates purely black.

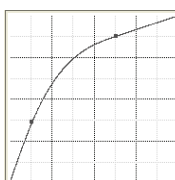
When the curve is moved up or down, the relationship between input value and output value changes accordingly.

- In areas where the curve is moved down, pixels in that portion of the image are darkened.
- In areas where the curve is moved up, pixels in that portion of the image are lightened.

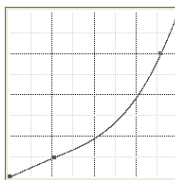
Contrast in an image can be seen by the angle of the line. The steeper the slope, the higher the contrast. The closer the line is to horizontal, the lower the contrast.



Original Curve



Curve is moved up



Curve is moved down



Appearance of curve if Method chosen is "Curve"

Advanced Image Correction: Gradation

1 : 1 Thumbnails
Hide Thumbnails

Method: **Curve** Auto

Input: 87
Output: 98

☒ Saturation Range:

6 92

OK Cancel Default Revert Add To Menu...

Dragging the top-right section of the curve below the default diagonal line will add shadow to lightness tones.

Dragging the bottom-left section of the curve above the default diagonal line will add lightness to shadow tones.

Click to create handles from which to drag and manipulate a portion of the curve. The more handles are created, the easier and smoother it is to manipulate the curve.

To remove a handle, drag the handle off the graph or the grid.

The default Gradation method is "Curve".

Check to enable the **Saturation Range** option. Then drag the sliders or enter the values in the edit boxes to define the saturation (chroma) range. The colors outside the chroma range will not be affected by the Gradation curve.

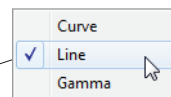
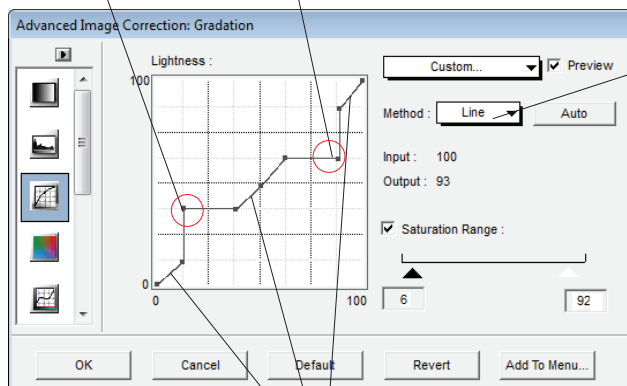
In this example, the lower chroma section (0 to 50) will be affected by the Gradation adjustment. The higher chroma section (51 to 100) outside the chroma range will not be affected.

Defining a chroma range is helpful if you wish to prevent images from losing saturation or color intensity.

Appearance of curve if Method chosen is “Line”

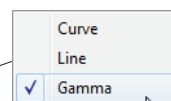
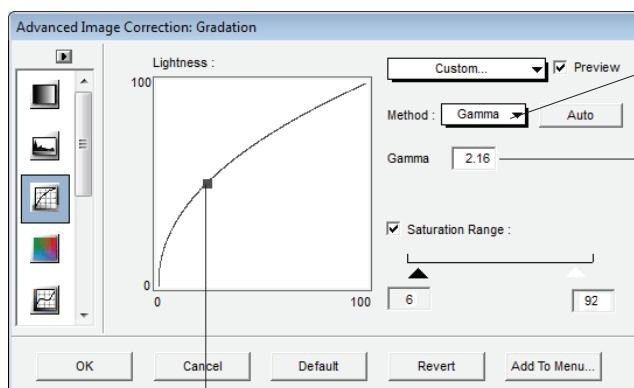
Dragging the lower left section of the line above the default diagonal line will add shadow to lightness tones.

Dragging the upper right section of the line below the default diagonal line will add lightness to shadow tones.



These sections of color tones are unchanged

Appearance of curve if Method chosen is “Gamma”



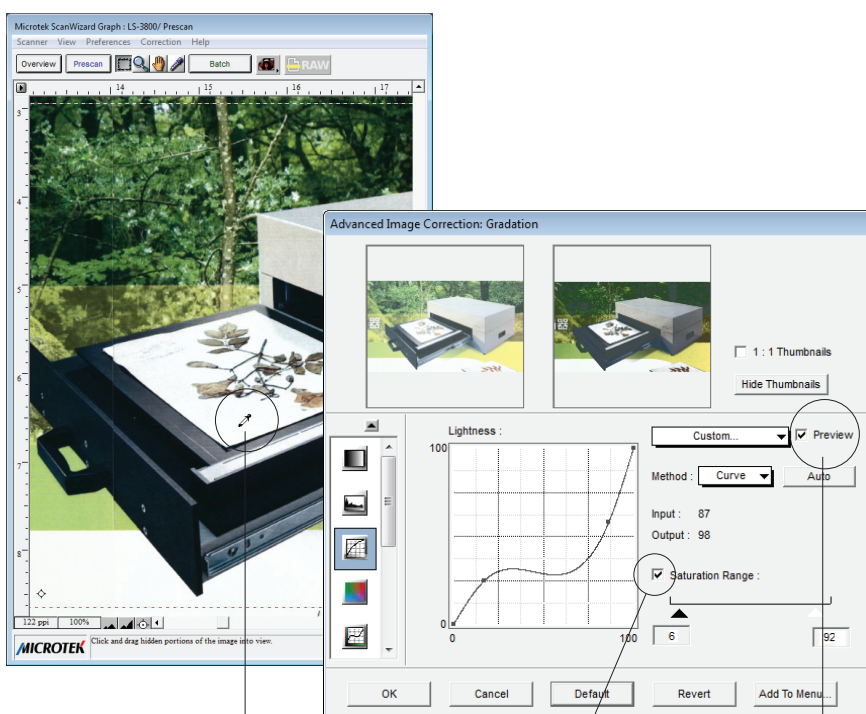
Instead of dragging the Gamma handle, you can also directly enter the appropriate Gamma value in the edit box.


Dragging the Gamma handle toward left (Gamma value above 1.00), will lighten the dark tones. Likewise, dragging the handle toward right (Gamma value below 1.00), will add shadow to light tones & vice versa.


You can also use the Black and White Eyedropper tools to define the Saturation Range.

Simply move the cursor toward to the preview image in the Preview window while the Saturation Range option is checked in the Gradation Curve dialog box. Notice that the cursor automatically changes to a White Eyedropper tool (default). Press and hold the Alt key, and the White Eyedropper will be changed to a Black Eyedropper tool.

- Use the White Eyedropper tool to define your high chroma range setting.
- Use the Black Eyedropper tool to define your low chroma range setting.



 Use the White Eyedropper tool to define your high chroma range setting.

 Use the Black Eyedropper tool to define your low chroma range setting.

Enable this check box to show the adjustment effect on the preview image in the Preview window.

Check this box to enable **Saturation Range** option. You can use either the saturation sliders or Eyedropper tools to set saturation range to be subjected for Gradation.

Color Cast tool (LCH color mode only)

The Color Cast tool is used to eliminate any unwanted color casts in an image, as well as to add a color cast without altering the lightness channel “L” values.

The screenshot shows the 'Advanced Image Correction: Color Cast' dialog box. It features two thumbnails of a daisy image at the top. Below them is a 'Color box' (a color wheel) and a 'Lightness bar' (a vertical grayscale bar). To the right of the color box are edit boxes for L (50.0), C (0.0), and H (0.0). A 'Mode' dropdown menu is set to 'Remove Cast'. At the bottom are buttons for 'OK', 'Cancel', 'Default', 'Revert', and 'Add To Menu...'. A separate panel on the right shows 'Remove Cast' and 'Add Cast' buttons.

Color box

Lightness bar

Color (Chroma and Hue) Handle:
Drag it to define custom Chroma and Hue settings.

Lightness Handle:
Drag it to define custom Lightness setting.

Select whether to add or remove a color cast. “Remove Cast” is the default

Click to save and add the current custom setting to Color Cast preset settings

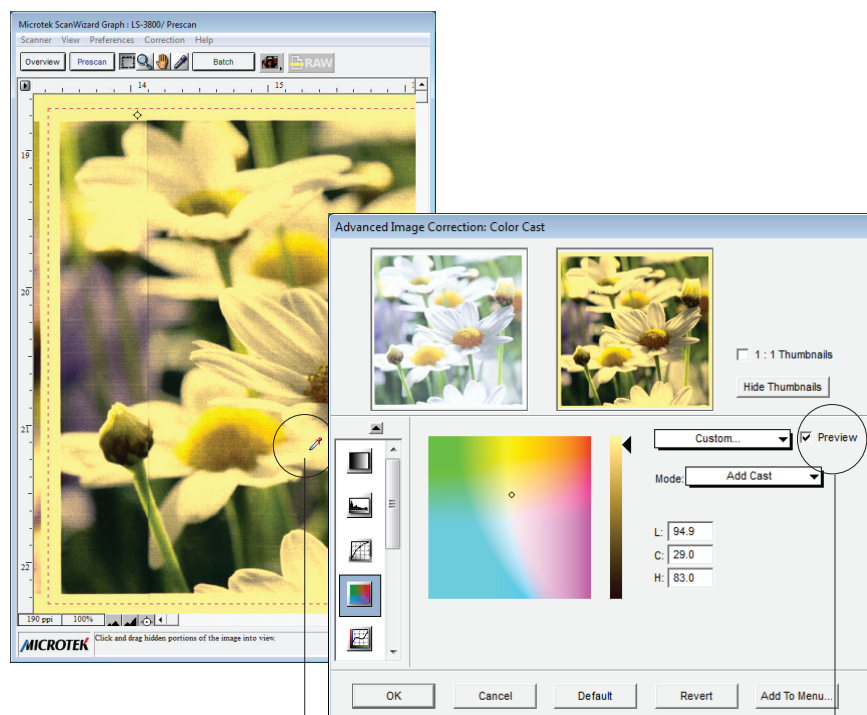
Enter values in the edit boxes and see how the Lightness and Color handles get positioned in the color box and lightness bar.

Conversely, move the handle in the color box and see how the values change in the edit boxes.

It is more convenient to use the Color Cast Eyedropper tool in removing or adding a color cast.

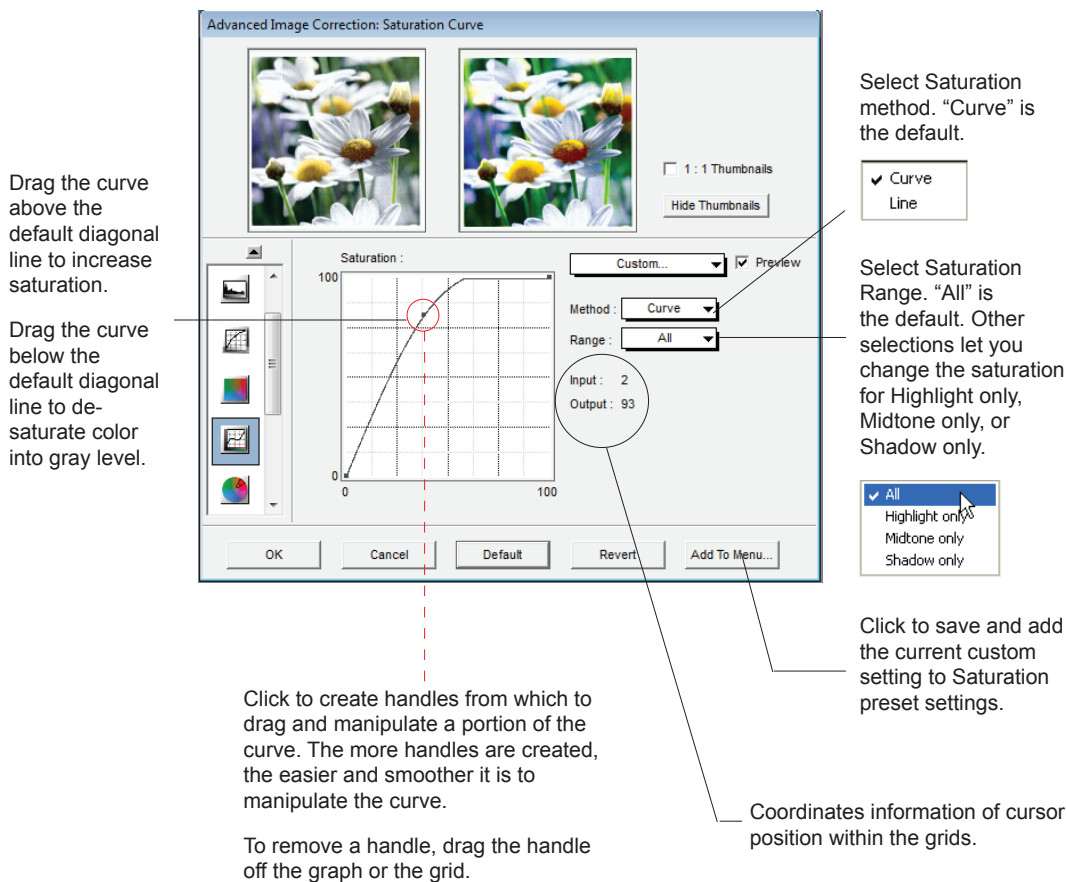
Simply move the cursor toward to the preview image in the Preview window while the Color Cast dialog box is on display. Notice that the cursor automatically changes to a Color Cast Eyedropper tool. Use this tool to pick the color cast to be added or removed from the image .

Note: You can also use the Magic Diamonds in the Tag window to add or remove a color cast. For more details, refer to “Using the Magic Diamonds” under the Dropper tool section.



Use the Color Cast Eyedropper to add or remove a color cast.

Enable this check box to show the adjustment effect on the preview image in the Preview window.



Selective Color tool (LCH color mode only)

The Selective Color tool is used to perform color correction to a specific color range without altering the other colors in an image. This is done either to increase the visual impact of a color or to completely change the relationship of the targeted color to the other colors in the image.

Advanced Image Correction: Selective Color

Lightness bar

This sector represents the values of the "From" color.

Color wheel

Click the **New** button to add colors from the color box.

Click the **Del** button to remove the colors from the color box.

This color box shows you the affected colors: the "From" color (left column) and the "To" color (right column).

Enable this check box to view which areas on the image will be affected by the "From" color change.

Values affected by dragging the "From" and "To" color sliders.

" Δ delta" LCH values expand or reduce the affected color area. LCH edit boxes in 2nd and 3rd column show values of "From" and "To" color.

Click to save and add the current custom setting to Selective Color preset settings.

Drag the "To" color slider to change the lightness ("L") value of the "To" color.

Drag the "From" color slider to change the lightness ("L") value of the "From" color.

Advanced Image Correction: Selective Color

1 : 1 Thumbnails

Hide Thumbnails

No Correction

Preview

Show Affected Areas

	From	To
Δ L:	100.0	50.0
Δ C:	100.0	50.0
Δ H:	30.0	0.0

Colors: 1

OK Cancel Default Revert Add To Menu...

How to use the Selective Color tool

1. Define a “From” color setting with the following steps:
 - a) Click the *New* button. For the first color to be changed, this step need not be performed. Each subsequent color to be changed, however, requires this step.
 - b) Select the color to be altered with any of the following methods:
 - Go to your prescan image in the Preview window, with the pointer (now a Color Cast Eyedropper); pinpoint the “From” color you wish to alter from the image.
 - Click the color wheel to select the “From” color; the selected “From” color will be enclosed in a sector. Within the sector is a hollow dot, and the position of the hollow dot corresponds to the *Chroma* and *Hue* values of the “From” color. If you wish to change the *Chroma* and *Hue* (C & H) values, click a new spot within the sector.
 - Enter numerical values directly in the “From” LCH edit boxes.

Use the Color Cast Eyedropper to select a color to be altered.

Selected “From” color is enclosed in a sector with a hollow dot in it.

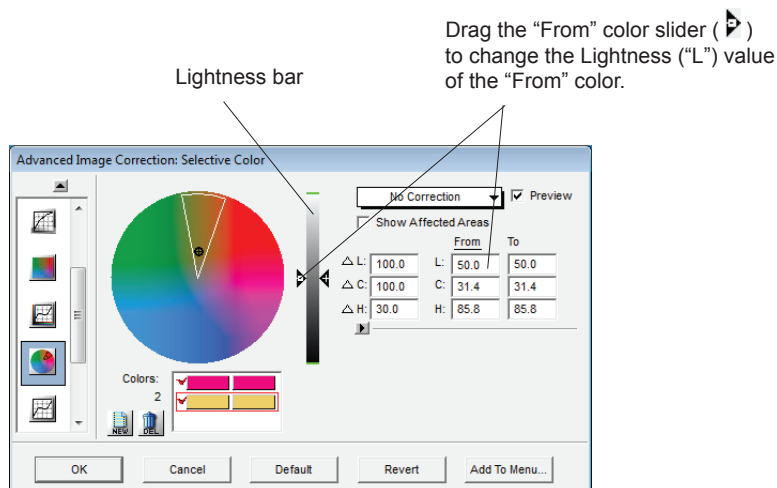
“From” LCH edit boxes. Be sure the “From” on top of the LCH column is underscored.

Click the *New* button to add colors to be altered.

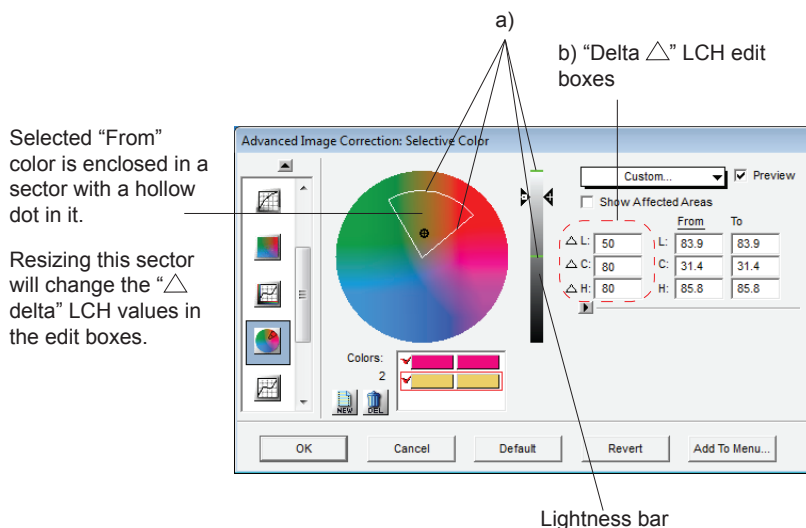
Position of hollow dot (●) corresponds to the C & H values of the “From” color.

	From	To
△ L:	100.0	83.9
△ C:	100.0	31.4
△ H:	30.0	85.8

2. Drag the “From” color slider of the Lightness bar to the desired tone range (or enter the numerical value directly in the “L” edit box of the “From” color settings) to be affected by color adjustment.

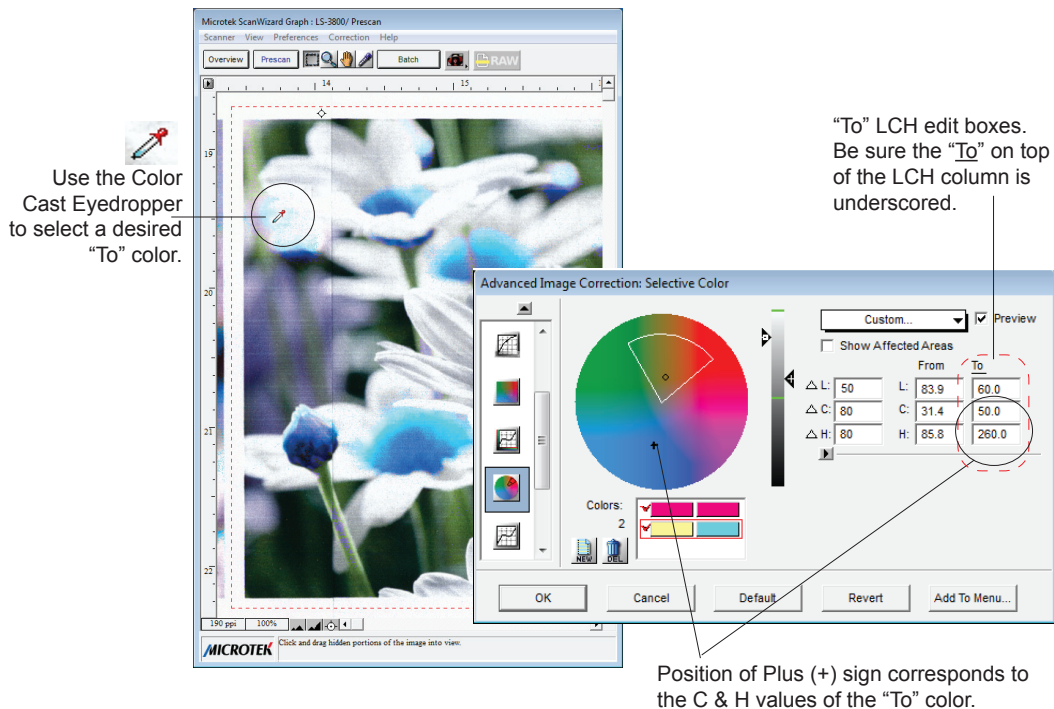


3. Adjust the “ Δ delta” LCH values to expand or reduce the region of the color area to be altered. This can be done by one of the following:
 - a) Adjust the Lightness bar and the radius, intersection, and arc of the sector in the color wheel.
 - b) Enter numerical values directly in the “ Δ delta” LCH edit boxes.



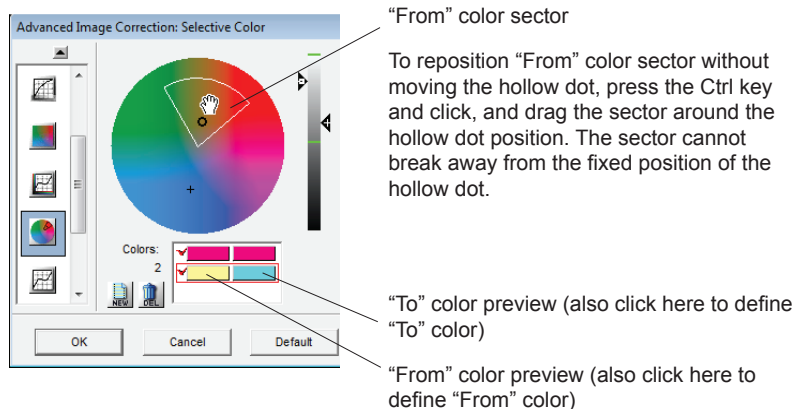
4. Define your “To” color setting with the following steps:

- a) Enable the “To” LCH column. This can be done by: 1) Clicking the *To* option located on top of the LCH edit boxes; or 2) Entering directly the “To” LCH values in the “To” LCH edit boxes.
- b) Select a “To” color with one of the following methods:
 - Go to your prescan image in the Preview window, with the pointer (now a Color Cast Eyedropper); pinpoint the desired “To” color you wish to turn the “From” color into.
 - Click the color wheel to select the “To” color. Note that the selected color spot is highlighted with a Plus (+) sign. Observe color change result in your “After” thumbnail image or prescan image. If not satisfied, try clicking at other spots of the color wheel.
 - Click near the arc of the “From” color sector to increase the hue of the selected color. Note that the position of the Plus (+) sign corresponds to the *Chroma* and *Hue* values of the “To” color. Thus, *Chroma* and *Hue* (*C* & *H*) values change as you click at new positions within the color wheel.
 - Enter numerical values directly in the “To” LCH edit boxes.

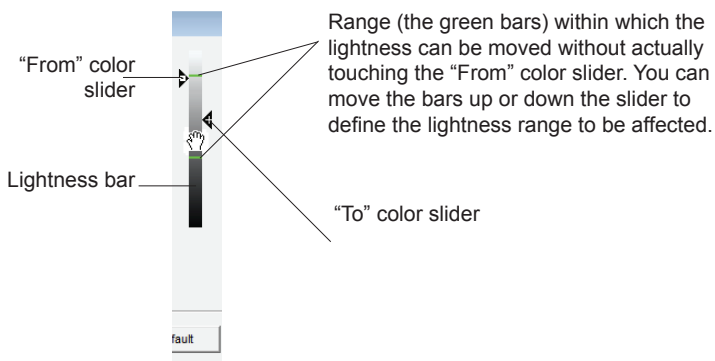


More Tips on using the Selective Color tool


To move the “From” color sector without changing the hollow dot position (fixed C & H values), press the *Ctrl* key and click inside the sector. When the pointer changes to a “Hand” pointer, drag the sector to a new position. You will see that the sector can only be expanded or contracted in a limited fashion, as it is constrained by the position of the hollow dot. If you need to move the sector around, you will also need to reposition the hollow dot, which then changes the *Chroma* and *Hue* (C & H) values.

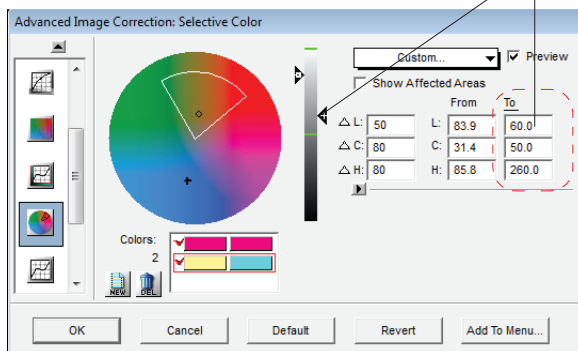


Likewise, you can move a defined lightness range of the “From” color along the Lightness bar without moving the “From” color slider (fixed “L” value). Press the *Ctrl* key and click inside the lightness range. When the pointer changes to a “Hand” pointer, drag the lightness range vertically to its new position. Note that the lightness range cannot go beyond the fixed “From” color slider position.



5. Adjust tonal range (Lightness value of the “To” color) of the resulting color with any of the following methods:
- Drag the “To” color slider of the Lightness bar to the desired tone.
 - Enter the numerical value directly in the “L” edit box of the “To” color settings.

Lightness value here reflects the position of the “To” color slider () in the Lightness bar.

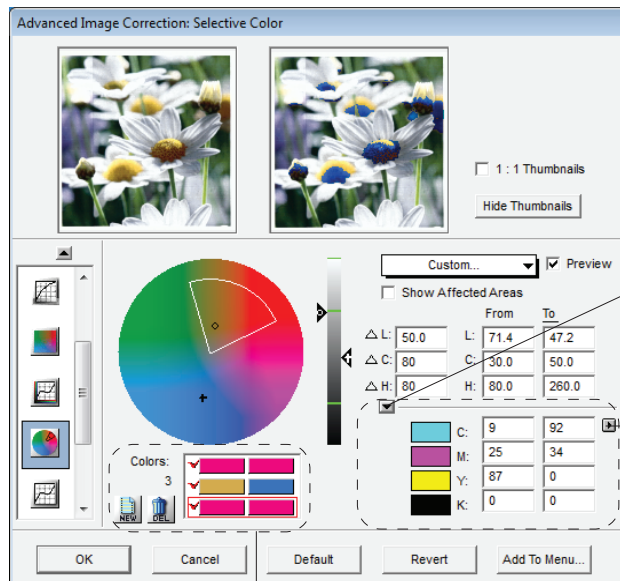


If you are not satisfied with the resulting preview image, you can always go back to redefine your “From” color settings. To go back temporarily to the “From” color setting environment, press the Alt key (watch “From” color setting being underscored) and perform the “From” color adjustment. Release the Alt key and the “To” color setting is again enabled.

6. Using CMYK or RGB values as “From” and “To” Selective colors. This can be done in one of the following ways:

- Define such requirement in the CMS Setup dialog box.
- Click on the expansion arrow provided in the Selective Color dialog box.

Then proceed to set “From” and “To” settings as they are done under LCH mode. Note that changes to LCH settings remain visible as you manipulate colors in CMYK/RGB mode.



Click to show/hide the CMYK/RGB settings

Click to select CMYK or RGB here



Click the *New* button to add colors to be altered.

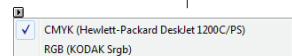


Click the *Del* button to delete a selected color (enclosed in a frame).



Click the *Check* mark to enable/disable a selected color.

Click any of the *From* (left) or *To* (right) colors to redefine the “From” or “To” settings of the particular color.



Tone Curve tool

The Tone Curve tool is used to adjust the tonal distribution of each channel of an image. It functions very much like the Gradation tool, except that it provides additional functions to allow separate adjustments of the tones in each RGB or CMYK channel, depending on the image type. This tool is especially useful for correcting the “ink percentage” distribution (i.e., dot gain correction) in CMYK images.

For details on how to read the tone curve, see the section on how to use the Gradation tool.

Appearance of curve if Method chosen is “Curve”

Advanced Image Correction: Tone Curve

Drag the top-right section of the curve below the default diagonal line to add shadow to lightness tones. (Here, it is dragged above the diagonal line to add more lightness to brighter tone to intensify contrast)

Drag the bottom-left section of the curve above the default diagonal line to add lightness to shadow tones. (Here, it is dragged below the diagonal line to add more shadow to darker tone to intensify contrast)

Click to create handles from which to drag and manipulate a portion of the curve. The more handles are created, the easier and smoother it is to manipulate the curve.

To remove a handle, drag the handle off the graph or the grid.

Choose the kind of curve you wish to have. Select from Curve, Line, or Gamma.

Choose All or individual RGB/CMYK channel to adjust tone distribution.

Coordinates of cursor position within the grid.

See applications for these tools next page

Click to save and add the current custom setting to Gradation Curve preset settings.

Load a previously saved tone curve for use with another image.

Save a tone curve together with its settings so that the curve can be used in the future if necessary.

Advanced Image Correction: Tone Curve

1 : 1 Thumbnails

Hide Thumbnails

Custom...

Preview

Method : Curve

Channel : All

Input : 3473

Output : 3506

Load...

Save As...

OK

Cancel

Default

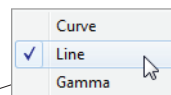
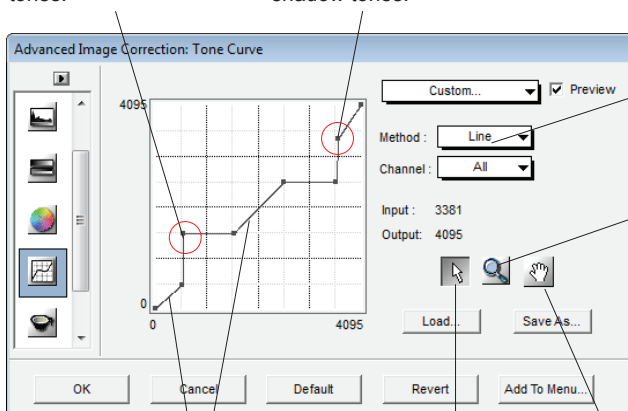
Revert

Add To Menu...

Appearance of curve if Method chosen is “Line”

Dragging the lower left section of the line above the default diagonal line will add shadow to lightness tones.

Dragging the upper right section of the line below the default diagonal line will add lightness to shadow tones.



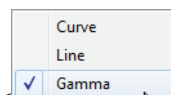
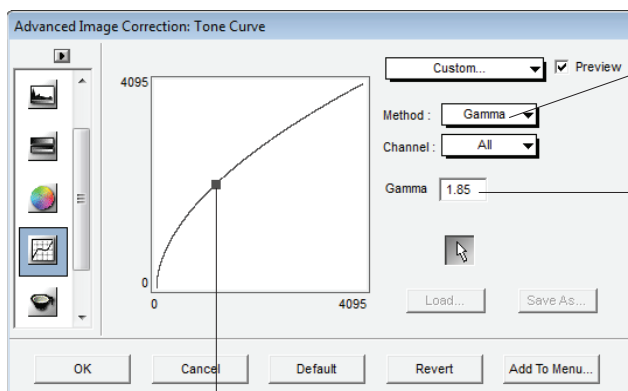
Use the **Curve Zoom** tool to zoom in on a particular point in the curve/line. Once the area is zoomed in, you can then use the Pointer tool to define new points for better precision. Press Shift key and click the **Curve Zoom** tool to zoom out it back to normal size.

These sections of color tones are unchanged

Use the **Curve Pointer** tool to define points in the curve that will be modified. When you click on any point in the curve/line, a black handle appears to mark your position. To remove a handle, drag the handle off the graph or the grid.

Use the **Curve Move** tool to scroll through the curve/line if the curve/line has been zoomed in.

Appearance of curve if Method chosen is “Gamma”



Instead of dragging the Gamma handle, you can also directly enter the appropriate Gamma value in the edit box.

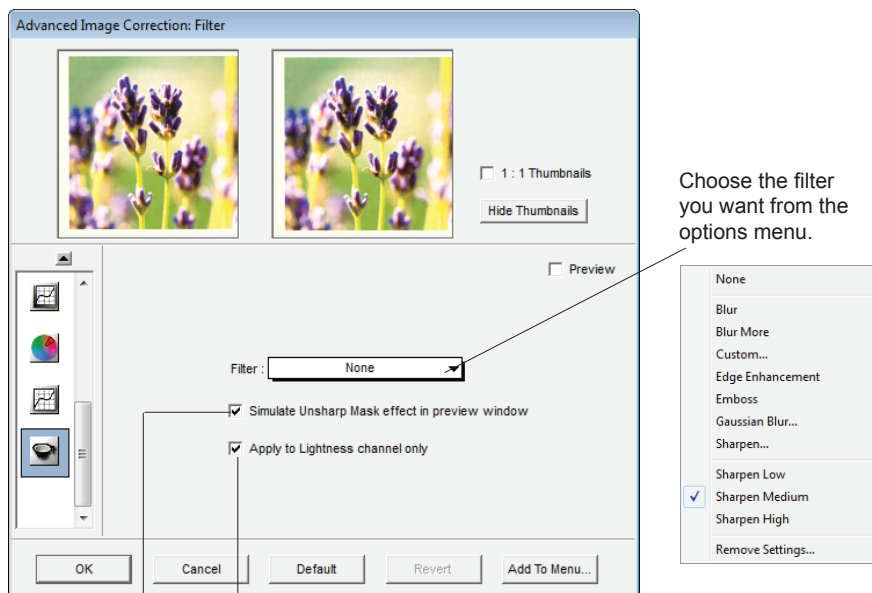
Dragging the Gamma handle toward left (Gamma value above 1.00), will lighten the dark tones. Likewise, dragging the handle toward right (Gamma value below 1.00), will add shadow to light tones & vice versa.

Filter tool

The Filter tool is used to apply special effects to your images. Several filters are provided in ScanWizard Graph, including Blur / Blur More, Sharpen / Sharpen More, Emboss, Edge Enhancement, Gaussian Blur, and Unsharp Masking.

In using most of the Filters (except Unsharp Masking), the image you obtain in the Preview window may differ from the way the image appears when you finally scan it in. For the Unsharp Masking filter, the final scan result can be simulated and previewed, either from the thumbnail on the filters dialog box or from the preview image in the Preview window.

Keep in mind too that the appearance of the image in the Preview window and how it is affected by a filter will depend on the resolution of the image. The higher the resolution, the less obvious the effect of certain filters (such as Blur).



Check this box to apply the filter effect to the Lightness "L" channel (for LCH mode only).

Check this box to ensure that for the Unsharp Masking filter, the image displayed in the Preview window simulates that of the final scan.

Blur/Blur More

The Blur filters eliminate noise in the parts of the image where significant color transitions occur. These filters decrease the contrast between adjacent pixels, making the image appear hazy and out of focus.

Blur smooths out the transitions by lightening pixels next to the hard edges of defined lines and shaded areas. *Blur More* produces an effect three or four times stronger than *Blur*.

Sharpen Low/Medium/High

The Sharpen filters do the opposite of the Blur filters and increase the contrast of adjacent pixels, making images appear sharper and more focused.

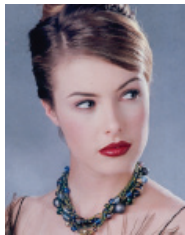
The three automatic Sharpen filters (Sharpen Low, Sharpen Medium, and Sharpen High) improve clarity. The Sharpen High filter has a greater sharpening effect than the Sharpen Medium filter, which in turn has a greater sharpening effect than the Sharpen Low filter.

Edge Enhancement

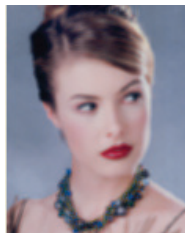
The Edge Enhancement filter gives greater contrast to edges. The filter can do this because edges are areas in an image where gray or color levels change abruptly. It is best to use this tool for improving geometrical, contoured shapes.

Emboss

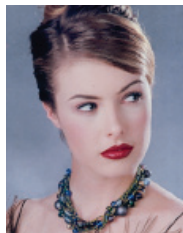
The Emboss filter makes a selection appear raised or stamped by suppressing the color within the selection and then tracing its edges with black.



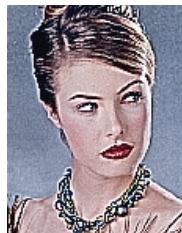
Original



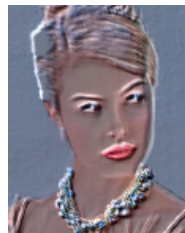
Blur More



Sharpen High



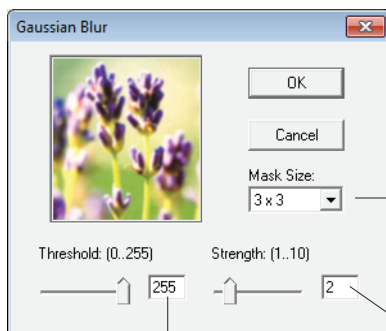
Edge Enhancement



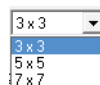
Emboss

Gaussian Blur

The Gaussian Blur is used to defocus an area of the image where significant color transitions occur or where noise exists, and the filter produces a hazy effect. “Gaussian” refers to the bell-shaped curve that is generated when this filter adjusts the color values of the affected pixels. The dialog box below appears when you choose *Gaussian Blur* from the Filter options menu.



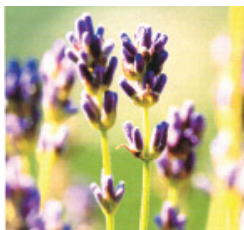
Select a mask size from the **Mask Size** list box. This parameter determines the depth of surrounding pixels that will be affected. The larger the mask size, the stronger the blurring effect of the filter.



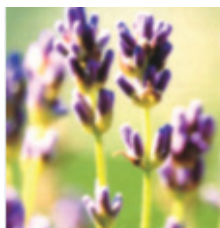
Enter a value (0-255) in the **Threshold** edit box (or drag the slider). This parameter allows you to specify a tolerance range to prevent overall blurring that might generate a too smooth or defocused result on undesired image area.

Enter a value (1-10) in the **Strength** edit box (or drag the slider). This parameter specifies the degree of the filter's effect. The higher the value, the stronger the blurring effect of the filter.

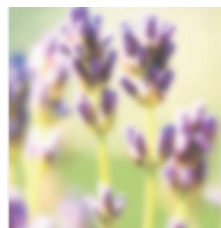
The Threshold defines the required range of contrast between adjacent pixels before blurring is applied. Only the pixels with the range of contrast below Threshold value, will be subjected to blur effect. Therefore, the smaller the Threshold value, the weaker the blurring effect.



Original



Gaussian Blur (3x3)



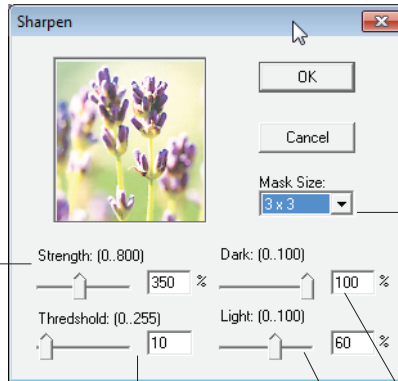
Gaussian Blur (7x7)

Sharpen (Unsharp Masking)

The Sharpen filter is used to adjust the contrast of edge detail, creating the illusion of more image sharpness. This filter can be useful for refocusing an image that has become blurry from interpolation or scanning, and it is an essential tool for doing CMYK color separation. In general, Sharpen is needed to render sharp color reproductions, especially when you wish to make a large color reproduction from a small original. The dialog box below appears when you choose *Sharpen* from the Filter options menu.

Strength: Enter a value in the Strength edit box (or drag the slider). This parameter specifies the degree of the filter's effect.

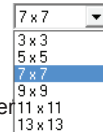
The higher the value, the stronger the sharpening effect of the filter. Too much sharpening will emphasize the noise in the image.



Threshold: Enter a value in the Threshold edit box (or drag the slider). This parameter specifies a tolerance range to prevent overall sharpening that might generate noise or cause unexpected results.

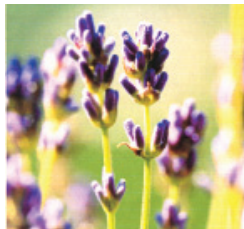
The Threshold defines the required range of contrast between adjacent pixels before sharpening is applied. Only the pixels with the range of contrast between adjacent pixels before sharpening is applied to an edge. A lower Threshold value produces a more pronounced effect.

Select a mask size from the **Mask Size** list box. This parameter determines the depth of surrounding pixels that will be affected. The larger the mask size, the stronger the sharpening effect of the filter. For small, low resolution image file, 3x3 is sufficient. For higher resolution or large scaled image file, use 7x7.

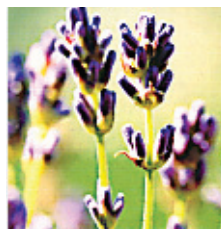


Dark: Enter a value in the Dark edit box (or drag the slider). This parameter pertains to how the Sharpen filter affects pixels which are darker than their adjacent pixels. By default, a value of 100 is specified for this field. The higher the value, the darker the edge around the lighter areas and the more pronounced the sharpening effect is.

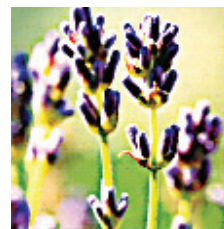
Light: Enter a value in the Light edit box (or drag the slider). This parameter pertains to how the Sharpen filter affects pixels which are lighter than their adjacent pixels. By default, a value of 60 is specified for this field. The higher the value, the lighter the edge around the darker areas and the more pronounced the sharpening effect is.



Original



Sharpen (7x7)



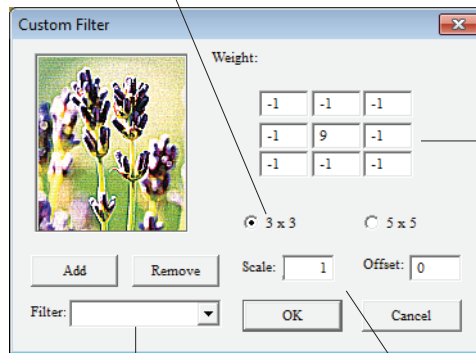
Sharpen (13x13)

Custom Filter

The Custom filter changes the brightness values of each pixel in the image according to a predefined algorithm known as convolution. This filter allows you to define a 3x3 or 5x5 mask size custom filter. The dialog box below appears when you choose *Custom* from the Filter options menu.

Choose a filter mask size, 3x3 or 5x5. Notice the Weight edit boxes switches between 5x5 (25) and 3x3 (9) edit boxes.

Click the center Weight edit box. This represents the pixel being evaluated. Enter the value by which you want to multiply that pixel's brightness value. Value range is +/-99.



Click a Weight edit box representing an adjacent pixel for you to assign a weighted value. Enter the value by which you want to multiply the pixel in that position multiplied. For example, if you want the brightness value of the pixel to the immediate bottom of the current pixel multiplied by 1, enter 1 in the Weight edit box right under the center Weight edit box.

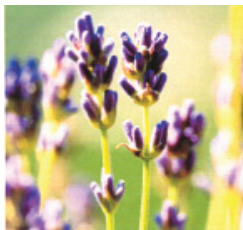
Repeat the last two steps for all the pixels you want to include in the operation. It is not necessary to enter values in all the Weight boxes.

Enter a filename in the **Filter** edit box, and click the **Add** button to save current Custom filter parameters in the Filter menu. Click **Remove** button to delete.

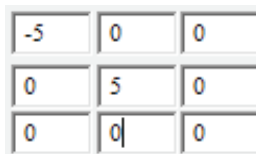
In the **Scale** edit box, enter the value by which to divide the sum of the brightness values of the pixels included in the operation.

In the **Offset** edit box, enter the value to be added to the result of the scale calculation.

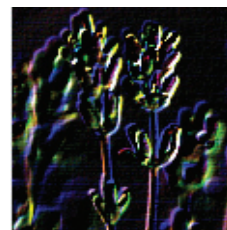
Sample **Custom Filter** setting and result



Original



Fine edge settings

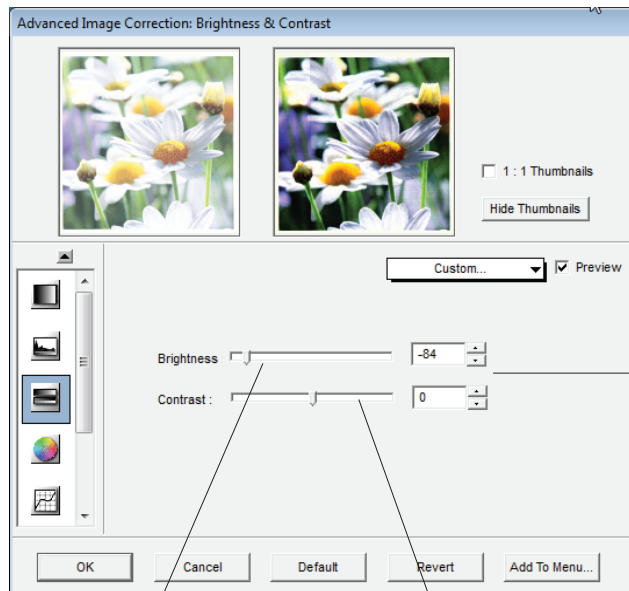


Fine edge effect

Brightness & Contrast tool (Native color mode only)

The Brightness & Contrast tool lets you control the brightness and contrast levels of the entire image. Increasing the brightness makes all tones in the image lighter. Contrast, on the other hand, is the range between the darkest and lightest shades in the image, and increasing the contrast makes greater separation between the darkest and lightest areas of the image.

Note: Individual channel adjustments for brightness and contrast are not supported. For RGB color images, the same effect applies to all channels. For Lab color images, brightness and contrast applies only to the L (Lightness) channel.



Drag the sliders
or enter values to
change Brightness
and Contrast

Brightness: The Brightness control lets you change the brightness setting. Too much brightness can make an image look washed out, while too little brightness will make the image look dark.

Contrast: The Contrast control lets you change the contrast setting. Too much contrast will make an image look like a photocopy of a picture, with little or no gray shades left. Too little contrast will make the colors in the image look dull and flat.

Color Correction tool (Native color mode only)

The Color Correction tool changes the hue and saturation of an image. You can also add a color cast to an image by simply moving the pointer to a particular place in the color wheel, or you can remove an unwanted color cast by moving the pointer to a complementary color to balance out the tones. For instance, to remove a greenish cast from your image, move the pointer in the color wheel to the “red” portion to neutralize the greenish hue of the image.

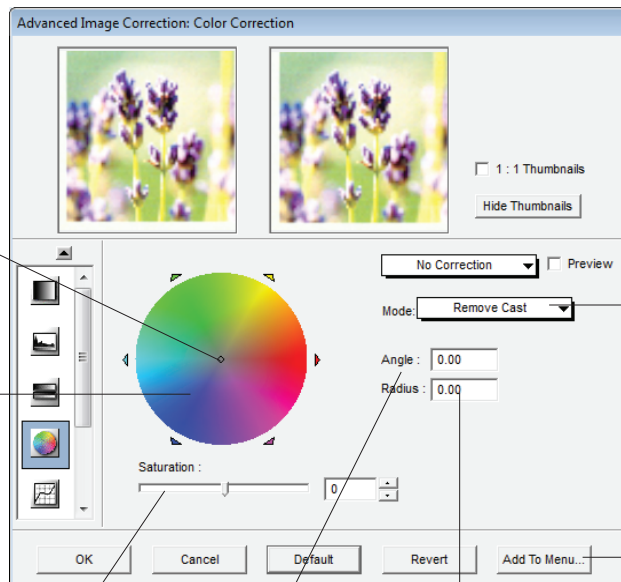
To change the hue of an image, move the pointer (a small dot in the center of the wheel) in the color wheel to its new color position.

The **color wheel** shows you the position of colors — green is across magenta, and red is across cyan.

Saturation: This lets you change the intensity of the hues (colors) in your image. Use Saturation selectively, because increasing saturation will increase the intensity of all hues in the image.

Angle: This shows the angle of the pointer on the color wheel as measured in degrees, and a value can also be entered directly in the edit box to move the cursor to any point in the color wheel.

Example: 0° corresponds to the color red on the color wheel, 60° to the color yellow, 120° to the color green, 180° to the color cyan, 240° to the color blue, and 300° to the color magenta.



Select whether to add or remove a color cast. “Remove Cast” is the default.

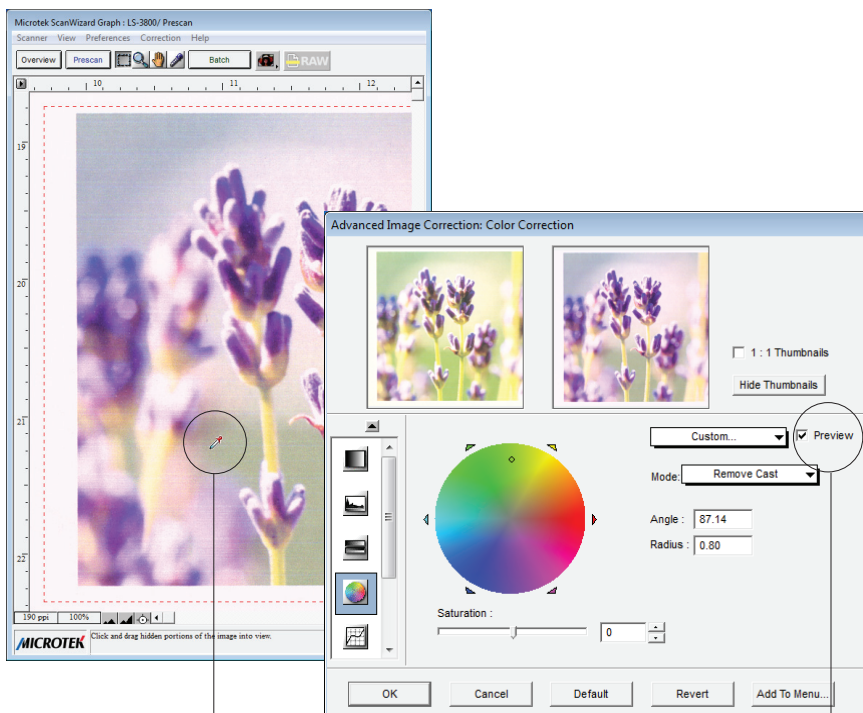
Click to save and add the current custom setting to Color Correction preset settings.

Radius: This shows the amount of shift towards a particular color and works in tandem with the Angle field. The Radius range extends from 0 located at the center of the color wheel and indicating the least concentration of color, to 1, located at the periphery of the color wheel and indicating the greatest concentration of color.

Example: If your angle is 0° (red on the color wheel) and the radius is 1, this results in an intense reddish cast on the entire image. The Angle-Radius feature works differently from that of the Saturation bar, which increases the saturation of all hues in the image without tending towards any particular color cast.

It is more convenient to use the Color Cast Eyedropper tool in removing or adding a color cast.

Simply move the cursor toward to the preview image in the Preview window while the Color Correction dialog box is on display. Notice that the cursor automatically changes to a Color Cast Eyedropper tool. Use this tool to pick the color cast to be added or removed from the image .

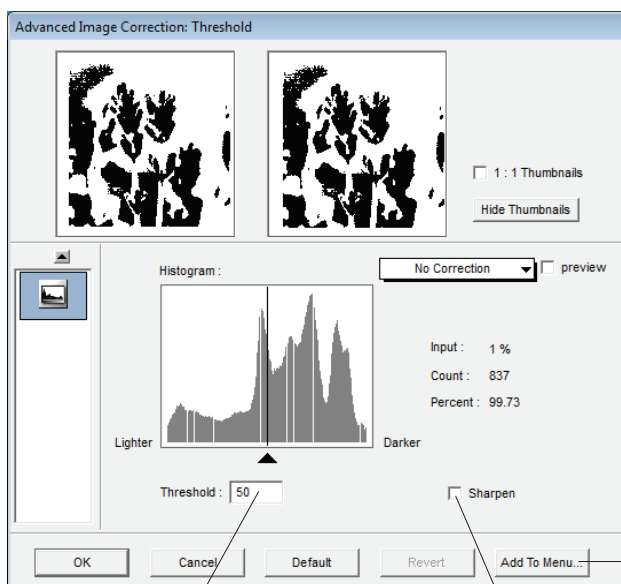


Use the Color Cast Eyedropper to add or remove a color cast.

Enable this check box to show the adjustment effect on the preview image in the Preview window.

Threshold tool (Line Art images only)

For Line Art images, the only AIC tool available is the Threshold tool. Threshold is the dividing line between black and white; the range is 0 to 255 (0 to 100 %), and the default is 128 (50 %). Thus, gray levels below the Threshold are converted to black, while gray levels equal to or above the Threshold are converted to white, resulting in a high-contrast, black-and-white representation of the image.



Click to save and add the current custom setting to Threshold preset settings.

Threshold: Drag the slider or enter a value in the Threshold edit box to change the Threshold.

Sharpen: Check this box if you wish to sharpen your Line Art image

- To darken the original, drag the slider to the right. This increases the Threshold value so that more pixels are turned to black, resulting in a darker image.
- To lighten the original, drag the slider to the left. This lowers the Threshold value so that more pixels are turned to white, resulting in a lighter image.

Descreen (Reflective Scan Material only)

The Descreen tool lets you remove moiré patterns in the scan process. Moirés occur when you scan a screened original (mostly reflective materials, such as pictures from a newspaper or magazine), and these patterns appear to the naked eye like a series of grids or dots, as shown in the example below.



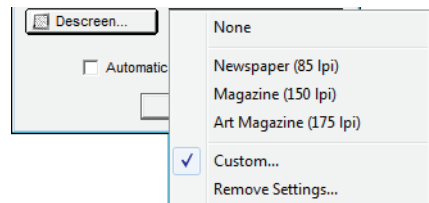
Before



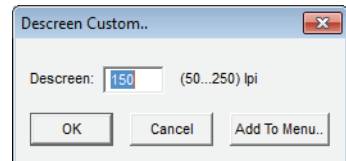
After

To use Descreen:

1. Click the *Descreen* drop-down menu in the Settings window.
2. When the Descreen menu comes up, select the screen for your needs, or choose *Custom* to set your own descreen options.



When the Descreen Custom dialog box comes up, enter a value that best corresponds to the dot quality of the original in which the moiré is to be removed.

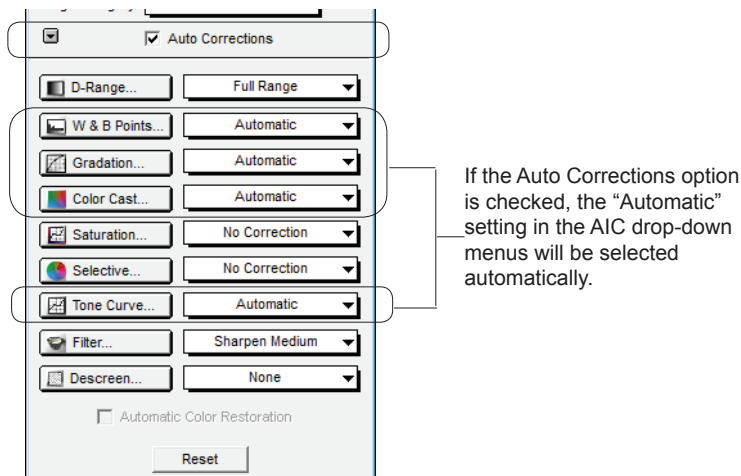


- Set a value from 50 to 85 if the original image has a coarse dot pattern, as in images taken from a newspaper.
- Set a value from 100 to 133 if the original image has a fine dot pattern, as in images taken from a magazine.
- Set a value from 200 to 250 if the original image has a very fine dot pattern with a near-photographic quality, as in images taken from a high-quality art magazine.

Note: You may use a screen finder to measure the print screen lpi. Please contact your local print shop for more information on how to obtain a screen finder.

Auto Corrections

The Auto Correction feature improves the color of an image automatically, resulting in more vibrant colors. It optimizes the quality of scanned images by making adjustments to the AIC tools (e.g., W & B Points, Gradation, Color Cast, and Tone Curve). You can turn on this feature by checking it. If this feature is checked, the Automatic Color Restoration option will be grayed out in the Settings window.



To use the Auto Corrections feature:

1. Click the *Overview* button to preview the entire scan bed.
2. Check the “Auto Corrections” option in the Settings window.

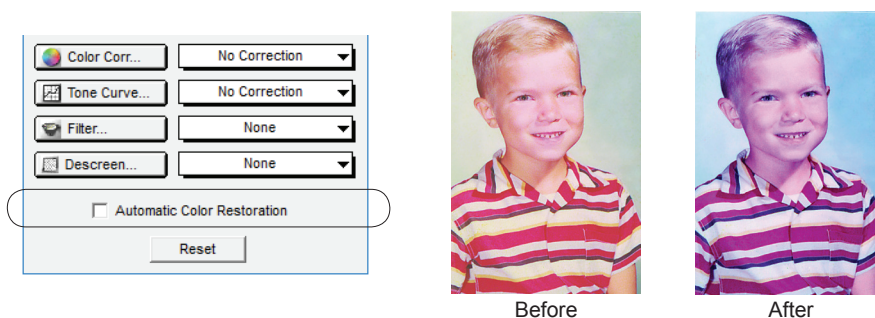
Image corrections effect will be applied immediately to the preview image in the Preview window. To cancel the correction effect you just made to the image, click the *Reset* button in the Settings window, and then check the boxes next to the targeted items.

3. Click the *Batch/Scan* button in the Preview window. When the image is scanned, it will be corrected automatically.

Automatic Color Restoration

The Automatic Color Restoration feature is part of Microtek's ColoRescue™ system for photo color restoration, bringing faded colors back to life.

With ColoRescue™, the scanner restores faded colors in photos and/or film, bringing hues back to their original luster and brilliance for more vibrant images. ColoRescue's one-click, automatic color recovery process is simple and straightforward, involving no learning curve or hassle.



Note:

- This option will not work when the Image Type is set to “Line Art” or “Black and White Diffusion.”
- For best results when using the “Automatic Color Restoration” feature, select only the image area of the photo to be restored. Do not include the white border around the photo, as inclusion of the background may lead to inaccurate color restoration.

To use the Automatic Color Restoration feature:

1. Click the *Overview* button to preview the entire scan bed.
2. Check the “Automatic Color Restoration” option in the Settings window.

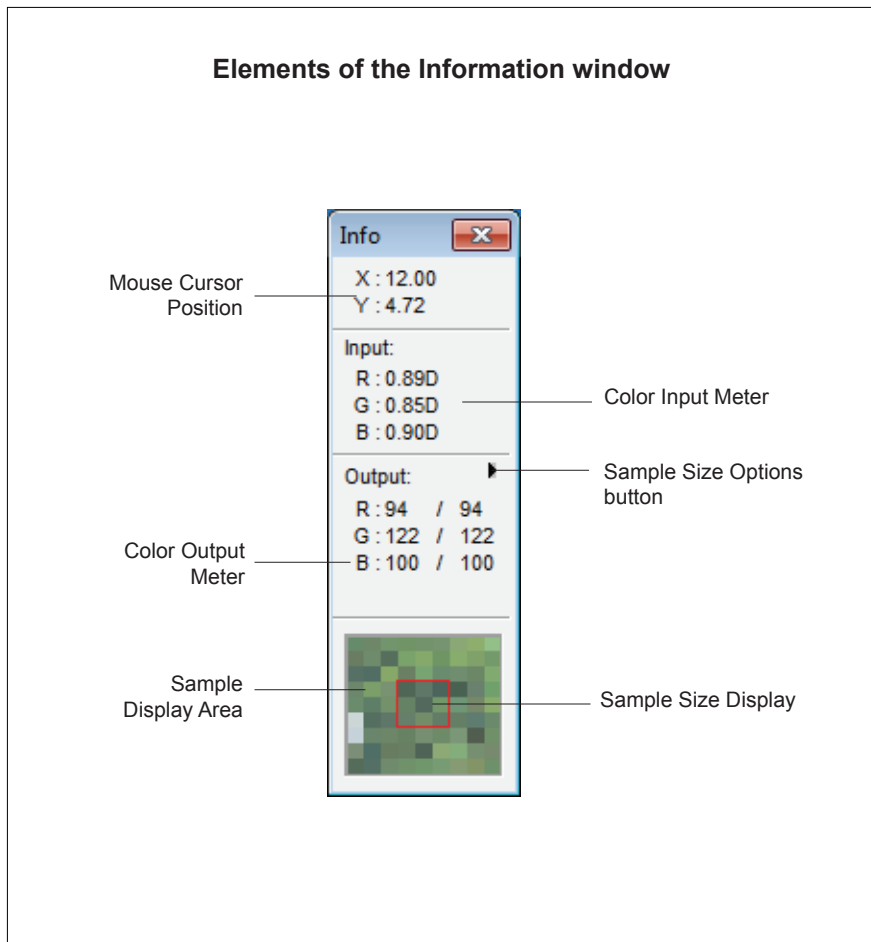
Color restoration effect will be applied immediately to the preview image in the Preview window. To cancel the color restoration effect you just made to the image, uncheck this option.

3. Click the *Batch/Scan* button to start scanning. Automatic Color Restoration is applied, and faded colors in the photo are restored.

The Information Window

The Information window displays color information as you move the cursor over the preview image in the Preview window.

You can choose to show or hide the Information window in ScanWizard Graph. To do this, click the *Show / Hide Info Window* toggle command under the View menu in the Preview window.



Mouse Cursor Position

The Mouse Cursor Position (Pixel Position) shows you the cursor position on the x (horizontal) and y (vertical) coordinates of the axis. This feature is useful for operations that require very precise measurements and alignment.

Color Input Meter

This displays the input (density) pixel values of the scanned raw image data at the specific *x/y* location. This information is useful for you to locate Dmin/Dmax points. Take note of the following:

- For all color image types (RGB, CMYK, or Lab), the density values of the raw image are displayed.
- For grayscale images, the gray (K) channel is displayed.
- For single-bit images such as line art, this section is disabled.

Color Output Meter

This displays the output values of the selected pixel at the specific *x/y* location. Take note of the following:

- The left part of the fraction is the *Before* value, or the pixel value before image correction.
- The right part of the fraction is the *After* value, or the pixel value of the final output image after all image corrections. In the example shown, the *After* value is the same as the *Before* value, as the image was not corrected or adjusted in any way, leaving the colors unaffected.

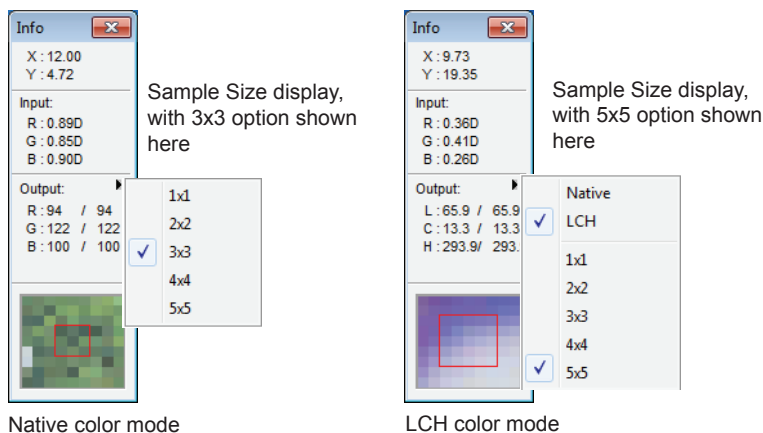
The range of your output value will depend on the output image type. See the table below for more information.

For Native color mode		For LCH Color Mode	
Image Type	Value Range	Channel	Value Range
RGB	0 - 255	L	0 - 100
CMYK	0 - 100%	C	0 - 100
Gray Scale	0 - 100%	H	0 - 360

Sample Size Options

The Sample Size options let you choose the size of your sample display area.

For instance, if you choose 5 x 5 as your sample area, this means your RGB values will represent color information for a 5-pixel by 5-pixel area. If you choose 1 x 1 (the default), the color information pertains to a single pixel — the pixel in the middle of the sample area.



The color output information is displayed either in numbers or percentages depending on the image type of the scan job (e.g., RGB, CMYK, Grayscale, LCH).

- In numbers, the numbers represent values in the 0-to-255 pixel scale regardless of the bit depth of your output image. For instance, an R value of 23 indicates that the sampling size selected has a red color value of 23. Value is calculated by multiplying the percentage by the constant 255 (value = 255 x percent).
- In percentages, the numbers represent percentage of intensity (divided by 255). For instance, a G value of 35% indicates that the sampling size selected has a green color value of 35 percent intensity (out of 100 percent). Percent is calculated by dividing the constant 255 by the value (percent = 255 ÷ value).

Sample Display Area

The Sample Display Area helps you see how color pixels are organized and distributed. The display can then help you make judgment on how best to modify the image characteristics, such as shadows and highlights, and also allow you to verify the changes that are made. The size of the sample area depends on the selection made in the Sample Size options (discussed above)..

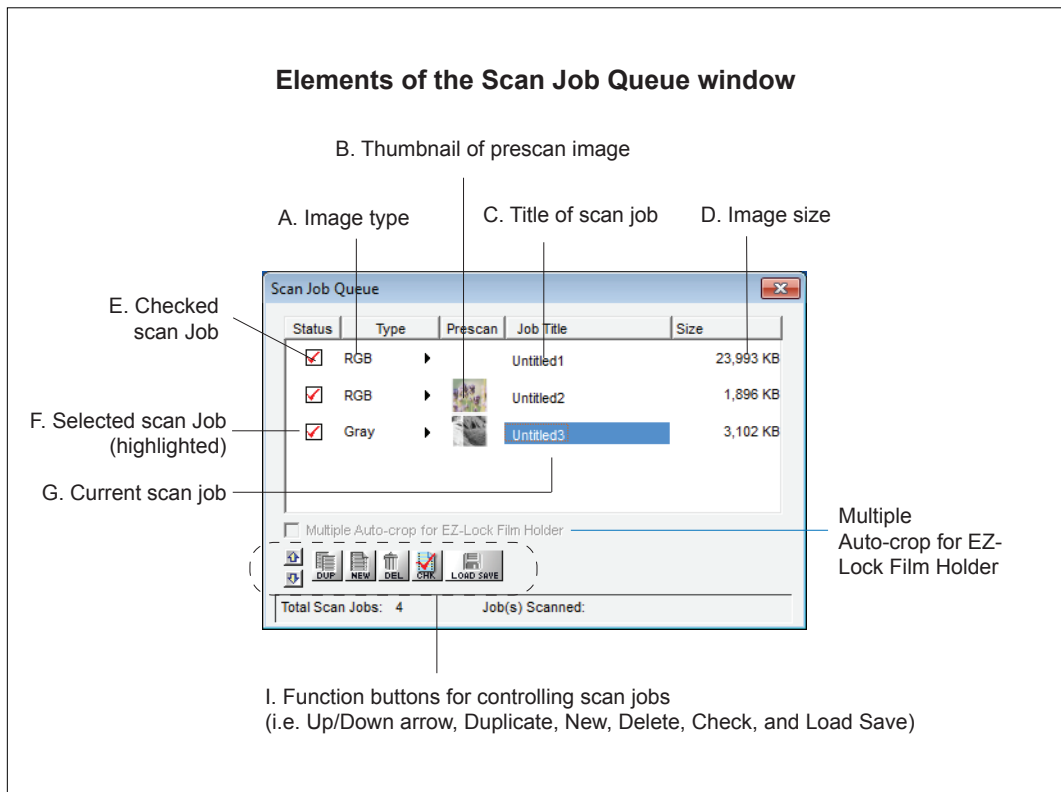
The Scan Job Queue Window

The Scan Job Queue window provides several functions for managing your scan jobs. By definition, a scan job contains the following elements: a set of scanning parameters (shown in the Settings window); a scan frame (shown in the Preview window); and one or several scan job items (shown in the Scan Job Queue window).

You can have multiple scan jobs, each having its own distinct settings; the number of scan jobs is indicated by the number of titles in the Scan Job Queue window (three in the example below).

Scan jobs marked with a check are the ones designated to be scanned, and the jobs are scanned in the order that they appear in the Scan Job Queue window.

You can choose to show or hide the Scan Job Queue window in ScanWizard Graph. To do this, click the *Show/Hide Scan Job Queue Window* toggle command under the View menu in the Preview window.

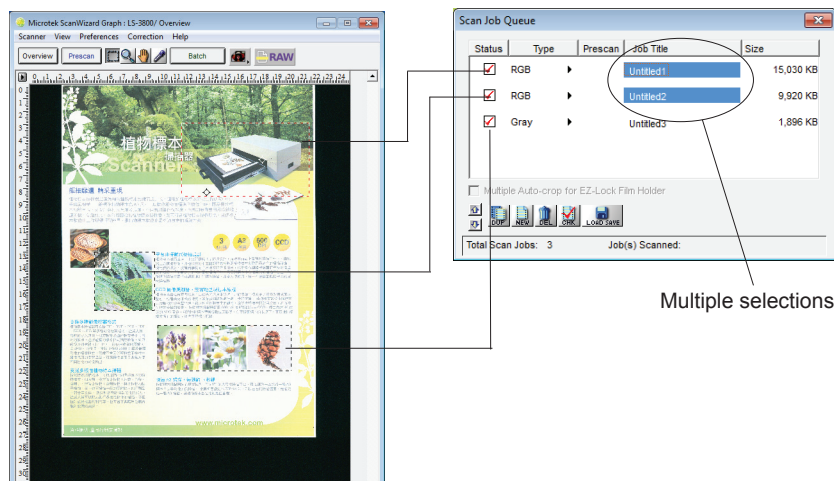


- A. Image type display: This shows the image type of the scan job (e.g., RGB, CMYK, Grayscale, etc.).
- B. Thumbnail of prescan image: A thumbnail appears for the selected scan job after you click the *Prescan* button in the Preview window. This means a prescan image is available for that scan job. To see the prescan image, double-click the scan frame or go to the View menu in the Preview window and switch to prescan image viewing mode.
- C. Title of scan job: The title of each scan job is shown. To edit a scan job title, double-click the title and type a new name when an edit box appears.
- D. Image size: This is the image size of the scan job.
- E. Checked scan job: Checked scan jobs are the ones that are scanned when you click the *Batch/Scan* button in the Preview window. The check box is a toggle for checking/unchecking a scan job. To check a box, you can either click the check box or use the *Check* button at the bottom of the Scan Job Queue window.
- F. Selected scan job: The selected scan job is the highlighted item. You can have multiple selected scan jobs, and clicking on a function button (such as *Check* or *Duplicate*) will implement that function on the selected scan job.
- G. Current scan job: There may be several defined scan jobs, but only one scan job can be current. In the Preview window, the current scan job is the one with the flashing marquee.
- H. Multiple Auto-crop for EZ-Lock Film Holder: This feature performs multiple auto-crop preview of the film loaded onto the scanner. If your scanner is not supported, this option will be grayed out in the window.
- I. Function buttons for controlling scan jobs: These buttons perform a specific action on the selected scan job. The *New* and *Load/Save* button can be used on only one selected scan job. The *Duplicate*, *Delete*, and *Check* buttons can be used, however, on multiple selected scan jobs.

Selecting Multiple Scan Jobs

The *Duplicate*, *Delete*, and *Check* buttons at the bottom of the Scan Job Queue window can be used for multiple job selections. For example, you can select multiple scan jobs, and then click the *Delete* button to remove all the jobs simultaneously.

To select multiple scan jobs, press the *Shift* key and click on the jobs to be selected for random selection; for sequential selection, click the “begin” scan job, then press the *Shift* key, then click the “end” scan job.



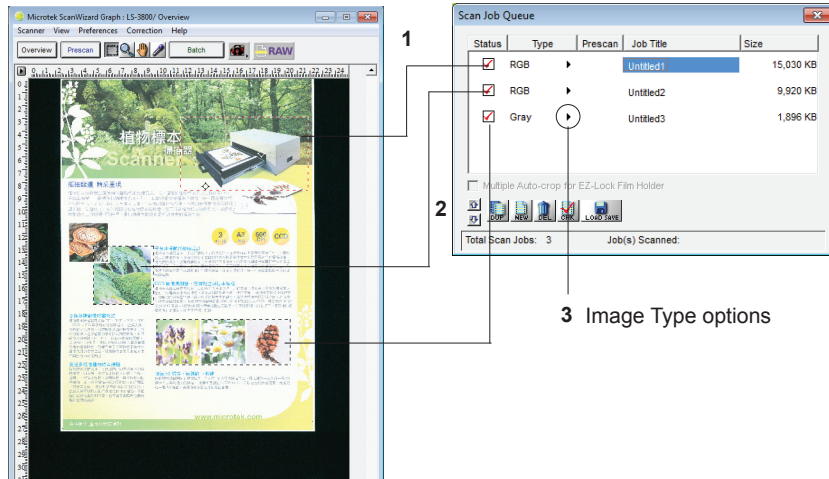
Editing Multiple Scan Jobs

ScanWizard Graph lets you edit multiple scan jobs at the same time, increasing your efficiency in using the software.

To edit multiple scan jobs, simply select all the scan jobs to be edited in the Scan Job Queue window.

To include each scan job for selection, use the *Shift* + *Click* combination (pressing the *Shift* key while clicking the mouse at the same time). Then perform the selected editing function. For instance, you can go to the Settings window and choose an image type that will apply to all the scan jobs. Another example is to apply a common resolution setting to all the scan jobs. Simultaneous editing simplifies the scanning process for you.

How to read the Scan Job Queue window



1. The example above shows three scan jobs.

- The first scan job, entitled *Untitled 1*, is a RGB color image.
- The second scan job, entitled *Untitled 2* is a RGB image.
- The third scan job, entitled *Untitled 3*, is a Grayscale image.

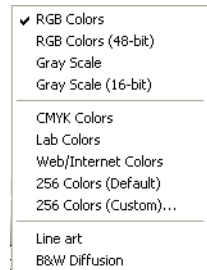
The current scan job is the third scan job (*Untitled 1*), as it is highlighted. In the Preview window, the current scan job is the one with the flashing marquee.



2. All three scan jobs will be scanned, as each is marked with a check. To change the order of the scan jobs in the Scan Job Queue window, use the Up/Down arrows to change the sequence of the scan jobs in the list.

3. The image type display shows the image output type of the scan job (e.g., RGB, CMYK, Grayscale, etc.).

You may also set the image type of the scan job from the Image Type options by clicking the arrow button next to the image type display in this window.





Adding a New Scan Job

The New button lets you create a new scan job; the new scan job will have default settings. This feature allows you to create as many scan jobs as you wish, and each scan job can then have its own settings.

1. Click the *New* button.
2. When a title of new scan job appears, accept the default name or enter a name for the new scan job. Use unique names for your scan jobs, as duplicate names are not accepted.
3. Define the scan frame in the Preview window for the new scan job.
4. In the Settings window, specify the settings for the new scan job. With the creation of a new scan job, the new scan job becomes the current scan job.



Duplicating a Scan Job

The Duplicate button lets you duplicate the settings of a scan job. This function is very helpful if you have created optimal settings for a scan job and wish to use these settings as a template for other scan jobs. This saves time, as you don't have to create the settings repeatedly for every scan job you make.

1. From the list of scan jobs available, select the scan job(s) to be duplicated.
2. Click the *Duplicate* button. The selected scan job(s) will be duplicated. The Duplicate function is very useful when scanning several images at the same settings.



Removing a Scan Job

The Delete button allows you to remove a scan job from the list of scan jobs available.

To delete a scan job, highlight the scan job to be removed, then click the *Delete* button.



Checking a Scan Job

The Check button allows you to select the scan jobs to be scanned. Checked scan jobs are the ones that are scanned when you click the *Batch/Scan button to* button in the Preview window. The check button is a toggle for checking/unchecking a scan job.

To check a scan job, highlight the scan job, then click the *Check* button. A check sign will appear next to the selected scan job.

To uncheck a scan job, highlight the scan job, then click the *Check* button. The scan job will be unchecked, and the scan job will not be scanned when you click on the Scan button.



The Up/Down Arrows

The Up/Down arrows allow you to change the order of the scan jobs in the Scan Job Queue window.

To move up/down the scan job, highlight the scan job, then click the *Up/Down* arrow to change the order of the scan job in the list.

When you start scanning, the scan jobs will be processed and scanned in the order that they appear in the Scan Job Queue window (i.e., the first scan job is scanned first; the second scan job is scanned second, etc.).



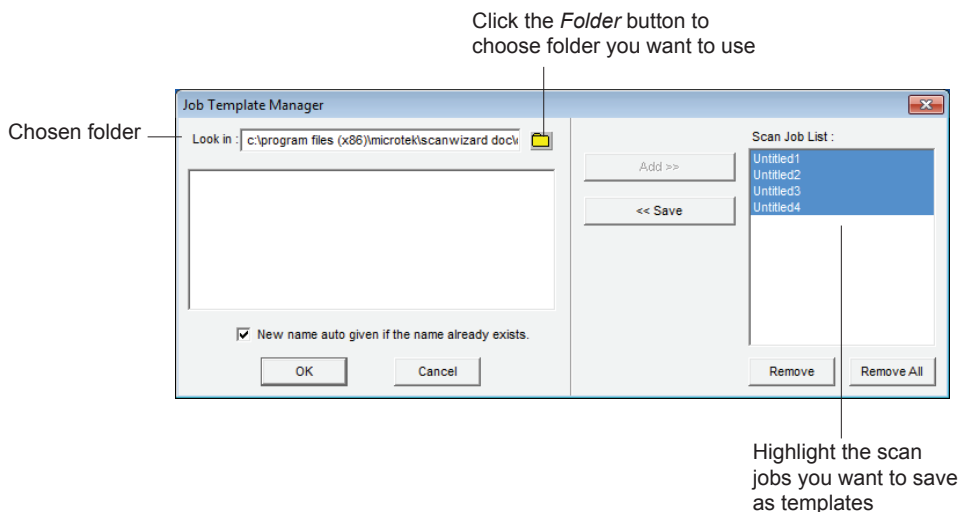
The Load/Save button

The Load/Save button allows you save scan jobs that can be loaded at a later time when necessary. The idea of saving and loading scan jobs has important applications, especially for scanners with different templates or “trays”. Loading/ Saving scan jobs is also useful if you consistently work in a specific format, scan the same kind of images, or if the scanner is used by several users who have their own sets of jobs.

To save a scan job as a template:

1. Click on the *Load/Save* button to open the Job Template Manager dialog box.
2. Specify a folder for saving scan jobs by clicking the *Folder button* (yellow) or use the current default folder.
3. Highlight the scan job(s) you want to save at the right column of the dialog box.
4. Click the <<Save button in the dialog box. The selected scan job(s) will be saved into the chosen folder and appeared at the left column of the dialog box.

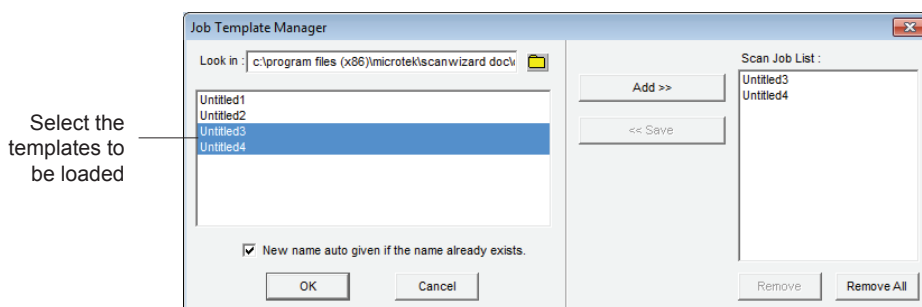
You may also specify different folders for respective scan job templates as you desired.



To load scan job template(s):

1. Click the *Load/Save* button to open the Job Template Manager dialog box.
2. Switch to the folder where the scan job template is stored.
3. Highlight the scan job template to be loaded at the left column of the dialog box.

Before loading a new scan job, you may remove your existing scan jobs from the right column



4. Click the *Add>>* button to load the scan jobs from a chosen folder into the Scan Job Queue window.

To remove scan job template(s):

1. Click the *Load/Save* button to open the Job Template Manager dialog box.
2. Highlight the scan job to be removed at the right column of the dialog box.
3. Click the *Remove* or *Remove all* button to remove the scan jobs from the Scan Job Queue.

New name auto given if the name already exists

When you load or save scan job templates, you may check or uncheck the “New name auto given if the name already exists” option in the dialog box. For instance, if you check this check box and the scan job templates you are going to add already exist, a number suffix is automatically appended to the root file name for the new scan job. If unchecked, the existing scan job templates are overwritten.

Appendix

This section contains important information on product and support policies, troubleshooting, and other scanner-related features. The following subjects are covered:

- Product and Technical Support
- Microtek Color Management System (CMS)
- How to Create Scanner ICC Profiles with Your Calibration Kit

Appendix A: Product and Technical Support

If you need to call Technical Support, please have the following information ready:

- Your scanner model. The model name is indicated on the front of the scanner, not the back.
- The scanner's serial number. This can be found on the back or left/right side of the scanner.
- Your computer name and model.
- The version number of ScanWizard Graph for Windows. This can be found at About window in the Help menu.
- Your system components, or the devices on your system, such as an external hard drive, CD/DVD-ROM, etc.
- Software being used with your scanner.

Appendix B: Microtek Color Management System

CMS Overview

Some Background Information

Everyone perceives colors differently. Even the same person's perception can be affected by different lighting conditions. Different devices (input, display, and output) also interpret and define color differently and simply can't create the same gamut (or "range") of colors.

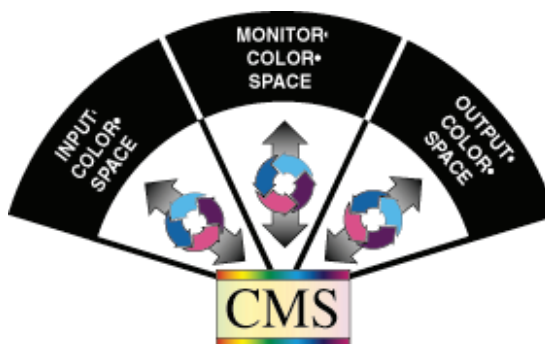
The goal of color management, then, is to help you get accurate, predictable color across all devices by managing, compensating for, and controlling these differences.

The Idea Behind Color Management

Each type of device reads, displays, or interprets color in a unique way. This unique interpretation is called a "device dependent color space." And while there are groups of color spaces, such as RGB or CMYK each device is still unique within its group. For example, monitors display color in RGB, yet each monitor displays a unique version.

The CMS automatically translates between each device dependent color space—so the color data is accurate and understandable.

This chart shows the central role of the CMS in managing device dependent color spaces.

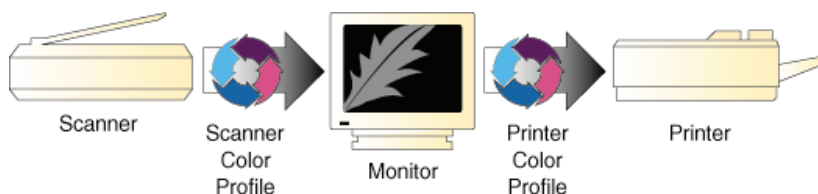


How Color Management Works

The aim of color management is to preserve true color information by making up for the differences in the way devices communicate color. Your CMS does this by using a scientifically designed system including:

- A Color Matching Processor
- A Device-Independent color space, frequently called a Reference Color Space or Profile Connection Space (PCS), which acts as a Rosette Stone in the translation process
- Device Color Profiles (DCPs)

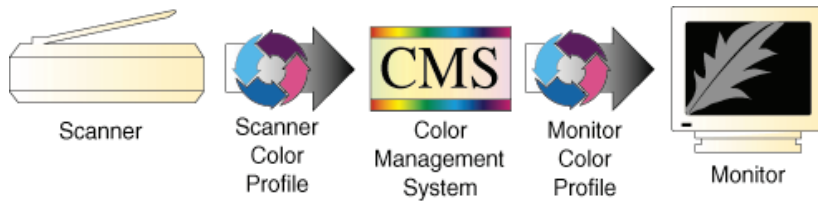
DCPs relate a device dependent color space to the Profile Connection Space. The CMS uses the Color Profile to translate from one device dependent color space to another.



How CMS Translates between Devices

When you scan an image, a CMS uses the information about the scanner—stored in the Scanner Color Profile—to translate the RGB image from the scanner to the Profile Connection Space. The CMS then uses the information about your monitor—stored in the Monitor Color Profile—to translate the image from the Profile Connection Space to your monitor color space, where you see it displayed.

In this example, the scanner is the “source” device, and the monitor is the “destination” device.



When you print the image, the CMS again translates the image data from the monitor’s RGB color space to the printer’s CMYK color space—using the information about both devices as stored in their Color Profiles.

So, although all of the devices in this example use different device dependent color spaces, the CMS is able to translate between them and produce accurate, predictable color.



What are Device Color Profiles

Color Management Systems use Device Color Profiles to interpret color data between devices. DCPs are a collection of one or more ICC Profile data files. ICC Profiles contain color characteristics of a given device (input, display, or output).

ICC profiles conform to the International Color Consortium profile specification, allowing the same device profiles to be used across multiple platforms.

Where Do Color Profiles Come From?

Color Profiles are created by either Microtek or other color professionals using specialized software packages, sometimes known as profile building tools.

Microtek use sensitive, specialized equipment to measure the color characteristics of a representative example of each device, as supplied by the manufacturer, to determine the intrinsic properties of the device.

From these measurements they develop a “characterization” of the device, called a Device Color Profile, for each make and model measured.

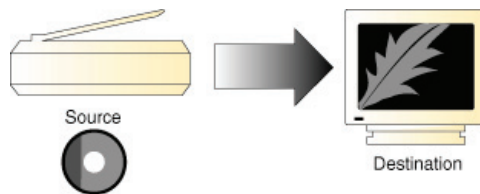
The Color Profile includes color tables that relates the device's color space to a Profile Connection Space, as well as information about key attributes of the device for use by CMS-based applications.

A Word about Source and Destination

People often get confused about what is the “source” of an image and what is its “destination,” so let’s clarify this.

In general, the “source” of an image refers to where the image currently is, and the “destination” is where you want the image to go.

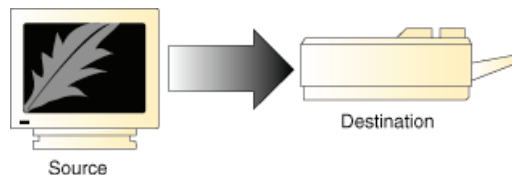
In CMS terms, “source” means the Color Profile used to bring the image data into the Profile Connection Space (PCS). “Destination” means which Color Profile is used to get it from PCS to the destination device. For example, when you scan in an image, you want it to appear on your monitor. So the source is your scanner, and its related Color Profile, and the destination is your monitor, using its Color Profile.



Likewise, when you open a Photo CD image, the source is the Photo CD, plus the Color Profile that relates the color data to the PCS, and the destination is the monitor, plus the Color Profile that relates the PCS to the monitor’s color space.

Here’s another example: Let’s say you manipulate the image on your monitor screen, and print it.

The source this time is the monitor (plus the Color Profile that relates it to the PCS), and the destination is a printer (plus the Color Profile that relates the PCS to the printer’s color space).



So, Source and Destination mirror a logical two-step process most Color Management Systems use to translate images between device color spaces;

- The Source Profile brings the image into the PCS
- The Destination Profile connects the image from the PCS to the output device, such as a Monitor, Printer, or Proofer.

However, this is not the case with a Microtek CMS.

We take the Source and Destination Profiles and composes them into a single color transforming profile.

This technology adds significant improvement in the quality and performance of the Color Management System.

Note: You use the Source/Destination information when you setup or use your CMS-based application, such as PageMaker 6.5.

Controlling UCR & GCR

Controlling UCR and GCR with Professional CMYK Profiles

In the final stages of color prepress production, the issues change: And your role changes with them. You become that of a professional separator. And it becomes a question of how skilled you are at making good films, films that run correctly on press, avoiding downtime, rework, and expense.

Microtek CMYK Profiles helps you with your separations. It expands your selection of undercolor removal (UCR) and gray component replacement (GCR) options, so you can produce correct, quality separations.

Some Background

It is difficult to print four wet layers of ink on top of one another. This is one of the physical constraints of the printing process.

In theory, if you printed a 100% of each CMYK layer, you would have 400% Total Area Coverage (TAC). Real-world experience proves this to be impractical. It is difficult to print jobs that have more than 340% TAC, and most printers feel more comfortable with 280% TAC.

Another area of practical concern is in how process inks are combined. Most printers can not produce a clear, dense black from cyan, magenta, and yellow. Black is needed to produce better details, contrast, and to get a desirable density. Adding black to CMY reduces ink coverage TAC, and thus improves the ability of paper to firmly hold each layer of wet ink, known as ink trapping.

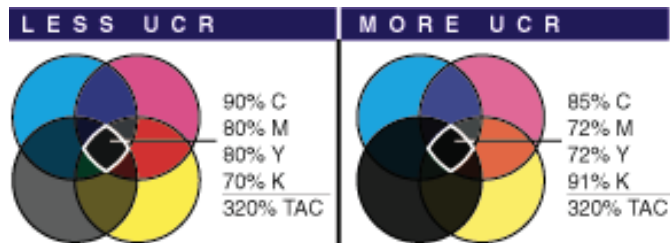
So, from the concerns about ink coverage and ink combinations have come tried-and-true approaches to producing excellent films for excellent separations.

Two aspects of the offset printing process are undercolor removal (UCR) and gray component replacement (GCR).

UCR

Undercolor removal is the practice of removing quantities of yellow, magenta, and cyan ink from the dark neutral areas in a reproduction and replacing what was removed with an appropriate amount of black. Microtek implements UCR in its Color Profiles within a TAC constraint: CMY gets replaced by the maximum amount of K up to the TAC limit—so you get the highest possible density.

The neutral center of both diagrams show different UCR/TAC settings. With UCR applied, less process inks and more black increases the density in the shadows.



Advantages & Disadvantages to UCR

Undercolor removal within a TAC constraint reduces the problem of printing four solid layers of ink, one on top of the other, while each previous layer is still wet. Reducing the ink coverage, TAC, improves the ability of the paper to firmly hold each layer of wet ink.

Less ink means better control, and faster drying times. Also, replacing cmY ink with the less expensive black ink has proven more cost efficient on long runs that use more ink.

Also, blacks and neutrals that print black are not influenced easily by shifts in the chromatic inks which cause color casts in the shadow tones. Separations produced with greater UCR produce darker blacks which result in better shadow detail.

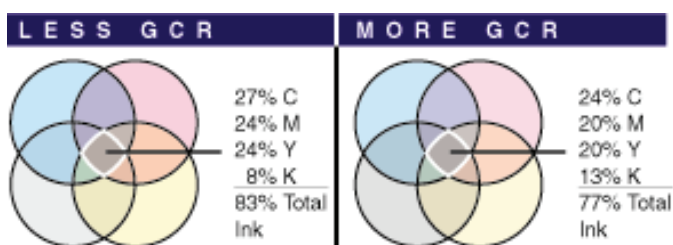
However, some printers don't like high UCR because of on-press dot gain and contrasty rosettes.

GCR

Gray component replacement is a variation on undercolor removal. The theory is simple: Whenever amounts of cyan, magenta, and yellow are present in the same color, that color has a gray component. Some or all of this gray component can be printed with black ink while maintaining the original color appearances.

In contrast to UCR, GCR involves a more general color replacement, with black being substituted over all colors.

The neutral center of both diagrams looks the same. With more GCR applied, less color ink and more black ink produces the same color.



Advantages & Problems of GCR

The main advantage of GCR is it reduces the effects of variations on press, so when ink coverage varies, the colors become slightly lighter or darker, rather than changing hue.

Increased amounts of GCR also allows your printing company to use a somewhat higher proportion of black ink, thus reducing cost—which saves you money.

High levels of GCR and/or UCR expand the overall gamut, so darker and more saturated colors are achievable. However, with too light GCR you may not get as saturated a color as with higher levels of GCR.

Professional CMYK Profiles Package

What You Get with Professional CMYK Profiles Package

“Professional CMYK Profiles” was developed for the serious professional, who is concerned about productivity, quality separations, and color fidelity.

With “Professional CMYK Profiles”, you get six different UCR/GCR settings that conform to generic CMYK SWOP, Japanese Ink Standard, and Euroscale standards—Letting you select the best values for your printing conditions.

Any of these combinations give you the control you need to optimize your separations for your proofing and printing applications, reduce your printing costs, and minimize ink trapping problems on press.

However, check with your printer as to the optimal UCR/GCR setting to select for your printing conditions.

The following two pages list the settings for the three standards.

EUROPEAN PRINTING STANDARDS:

Filename	Profile Description	GCR	Maximum TAC
eucmyk02.icm	Light GCR 260 UCR CMYK Euro Positive Proofing	Light	260%
eucmyk04.icm	Light GCR 280 UCR CMYK Euro Positive Proofing	Light	280%
eucmyk06.icm	Light GCR 300 UCR CMYK Euro Positive Proofing	Light	300%
eucmyk08.icm	Light GCR 320 UCR CMYK Euro Positive Proofing	Light	320%
eucmyk10.icm	Light GCR 340 UCR CMYK Euro Positive Proofing	Light	340%
eucmyk50.icm	Light GCR 360 UCR CMYK Euro Positive Proofing	Light	360%

U.S. CMYK SWOP PRINTING STANDARDS:

Filename	Profile Description	GCR	Maximum TAC
gncmyk02.icm	Light GCR 260 UCR CMYK US Negative Proofing	Light	260%
gncmyk04.icm US Negative Proofing	Light GCR 280 UCR CMYK	Light	280%
gncmyk08.icm US Negative Proofing	Light GCR 320 UCR CMYK	Light	320%
gncmyk10.icm	Light GCR 340 UCR CMYK US Negative Proofing	Light	340%
gncmyk14.icm	Medium GCR 280 UCR CMYK US Negative Proofing	Medium	280%
gncmyk18.icm	Medium GCR 320 UCR CMYK US Negative Proofing	Medium	320%
gncmyk28.icm	Heavy GCR 320 UCR CMYK US Negative Proofing	Heavy	320%
gncmyk50.icm	Light GCR 360 UCR CMYK US Negative Proofing	Light	360%

JAPANESE PRINTING STANDARDS:

Filename	Profile Description	GCR	Maximum TAC
jpcmyk02.icm	Light GCR 260 UCR CMYK Japan Std. Proofing	Light	260%
jpcmyk04.icm	Light GCR 280 UCR CMYK Japan Std. Proofing	Light	280%
jpcmyk06.icm	Light GCR 300 UCR CMYK Japan Std. Proofing	Light	300%
jpcmyk08.icm	Light GCR 320 UCR CMYK Japan Std. Proofing	Light	320%
jpcmyk10.icm	Light GCR 340 UCR CMYK Japan Std. Proofing	Light	340%
jpcmyk50.icm	Light GCR 360 UCR CMYK Japan Std. Proofing	Light	360%

You read these settings as follows:

- All TAC percentages have the maximum degree of UCR in order to attain the highest density blacks within that TAC limit.
- A Light GCR means a small percentage of the possible gray component is replaced with black.

Check With Your Service Provider

These DCPs were created with the following conditions in mind. You will want to check with your service provider to confirm the laydown order.

Colorant Laydown Order: Yellow, Magenta, Cyan, Black

This DCP assumes that your imagesetter has been linearized. So, it's important that you use some kind of calibration software for your imagesetter.

Appendix C: How to Create Scanner ICC Profiles with Your Calibration Kit

This chapter is only for the users who would like to use their own calibration kits (calibration targets and profiling tools) to generate scanner ICC profiles for the scanner that you are using under ScanWizard Graph.

To create your own scanner ICC profile with your calibration kit, follow the steps below:

- A. Scan your calibration target (e.g., X-Rite ColorChecker, IT8, HCT Precision color targets) with the raw scan settings.
- B. Create scanner ICC profiles with your profiling tool (e.g., X-Rite ProfileMaker 5).
- C. Load and use your custom-made scanner ICC profiles.

The following sections covers the steps you need to take in order to create your own scanner ICC profiles. Before it, make sure that you have ScanWizard Graph and your profiling tool installed and function properly.

A. Scanning the CalibrationTarget

To create the scanner ICC profiles, you have to capture an image of your calibration target first with special settings in ScanWizard Graph that are quite different from the ones used in normal scanning.

Follow the steps below to capture an image of your calibration target:

1. Make sure your scanner is connected to your computer and powered on.
2. Place your calibration target on the scan bed, making sure that the top end of the target is positioned toward the right of the scanner, with its edge firmly aligned against the ruler.
3. Launch ScanWizard Graph as a standalone by clicking on the program icon on the desktop.
4. In the Preview window, click the *RAW* button to switch to the RAW mode which will activate the raw scan settings.
5. Select a desired image type and resolution in the Settings window.
6. Click the *Overview* button to perform an initial preview of the calibration target image, which will appear in the Preview window.
7. Select the *Scan Frame (Frame)* tool to crop the calibration target image by dragging a rectangle around it. You will see the selected area enclosed by the frame with dotted lines.
8. Click the *Batch* button in the Preview window to start scanning.

After the button is pressed, you will be prompted to specify the file attributes for the raw image, such as entering the file name, specifying a folder name of your own, etc. When you have completed the settings, press the *Save* button, and the scanner will automatically scan and save your image based on your settings.

Select a desired image type and resolution for the raw image

Settings

Preset Setting : ☐ None

Job :


Type :

Res :

Scan Frame : W: H:

Image Size : 26,016 KB

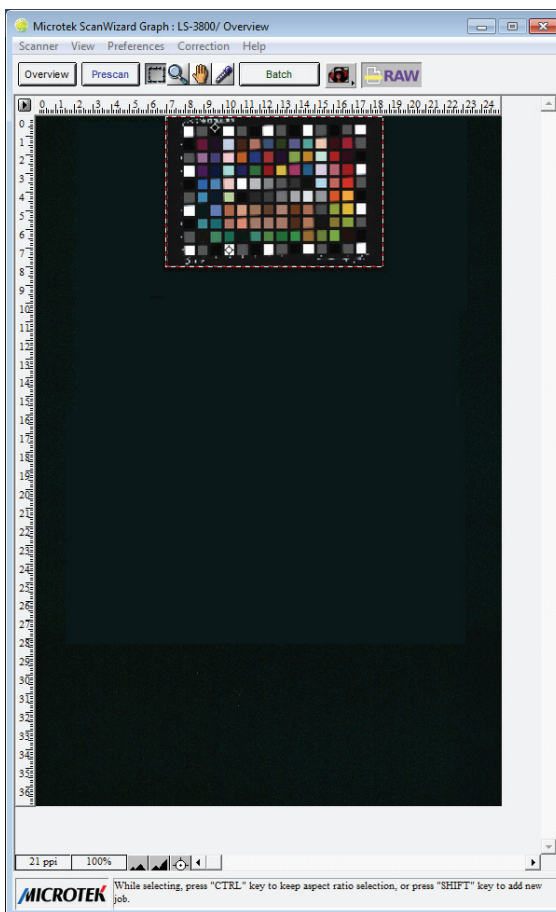
☐ Keep Proportion Transform : **F**

Scanner Profile : 

M. Sampling :

Image Category :

☒ ☐ Auto Corrections



B. Creating the ICC Profiles

After you completed the scanning process in previous section of the manual. Now you can use your profiling tool to create the ICC profiles for your scanner. Refer to the user guide that came with your own profiling tool.

C. Loading the ICC Profiles

Once the ICC profiles have been produced, follow the steps below to load the profiles you just created.

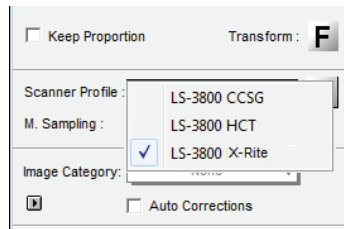
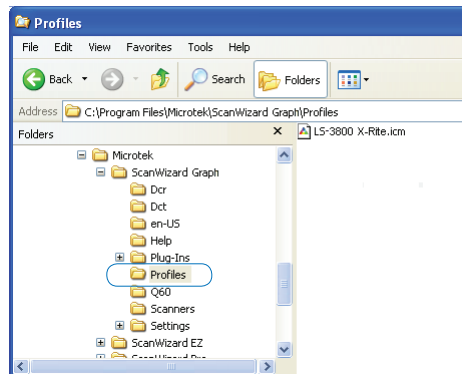
1. Close and exit ScanWizard Graph.

2. Copy the profiles from the folder where stores the ICC profiles you just created into the “Profiles” folder under ScanWizard Graph, at the following path:
C:\Program Files\Microtek\ScanWizard Graph\Profiles.

3. Relaunch ScanWizard Graph.

4. In the Preview window, click the RAW button again to turn the RAW mode off and restore to normal scan settings.

5. From the Settings window, click on the *Scanner Profile* list box, and select the profile you have just created.



Now you can use your scanner ICC profile with ScanWizard Graph to start your scans. Proper use of ICC profiles can save a lot of time and ensure color accurate, consistent output for your scans.

Note: ScanWizard Graph includes only ICC input profiles existed under the C:\Program Files (x86)\Microtek\ScanWizard Graph\Profiles to the Scanner Profile list. For display and output profiles full color management, please refer to Color Matching Setup section in this manual.

