Software Reference

FlexColor 3.0 for Flextight Scanners

by imacon

Software Reference - FlexColor 3.0 for Flextight Scanners, revision X-X.

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Introduction

What's in this Manual

This manual provides a menu-by-menu, screen-by-screen listing of controls and settings available with **FlexColor**. Topics include:

- Summaries of all menu commands
- Descriptions of all controls and settings in the main **FlexColor** window
- Information about rotating and mirroring images
- Full details of all tab sheets in the **Setup** window
- Full details of the **Preferences** window
- Instructions for editing **ColorSync™** profiles
- Brightness and contrast control with the **Gradations** window
- Advanced highlight and shadow settings with the **Histogram** window, including color neutralization and control
- Advanced color control with the **Color Correction** window
- Sharpening images with the **Unsharp Masking** window
- Batch scanning to create individual scans from each of several crop and settings combinations

Software compatibility

The **FlexColor 3.0** software works with the entire range of Flextight scanners (except for the Flextight 4800).

FlexColor under Mac OS and Windows

The CD that came with your scanner includes versions of **FlexColor** for both Macintosh and Windows-based systems.
The interface is nearly identical on both platforms, with mostly superficial differences to conform with the interface guidelines of the two systems.

Nearly all of the screen captures in this manual were taken from Mac OS. Windows users will notice the following differences:

- In the **Setup** window, the color management tab is called **ICM** instead of **ColorSync™**.

- The menus are located at the top of the main **FlexColor** window instead of at the top of the screen.

- The Windows version uses standard Windows frames, with standard maximize, minimize, and close buttons.

System Requirements

IBM PC-Compatibles

- Minimum 233 MHz processor.

- Windows 95/98, NT4, 2000 and ME.

- Windows 98, 2000 or ME is required for scanning to CMYK and color management (ICC profile) support.

- Minimum 64 MB system RAM.

- Screen resolution of 800 x 600 pixels with true colors (24 bits).

- Mouse or other pointing device.

- FireWire interface
  or
  SCSI Interface (with Adaptec EZ-SCSI version 4 or later).

- Minimum available hard disk space of 200 MB

Macintosh

- Minimum Power PC processor.

- Mac OS 9.0 or higher.

- Minimum 64 MB system RAM.

- Screen resolution of 800 x 600 pixels with true colors (24 bits).

- FireWire interface
  or
  SCSI interface.

- Minimum available hard disk space of 200 MB.

Memory Configuration

The required memory allocated to the program will vary depending on, whether you are working with a scanner or a camera. When launching **FlexColor** for the first time a **Memory configuration** window will pop up giving you a choice of 3 memory configurations:
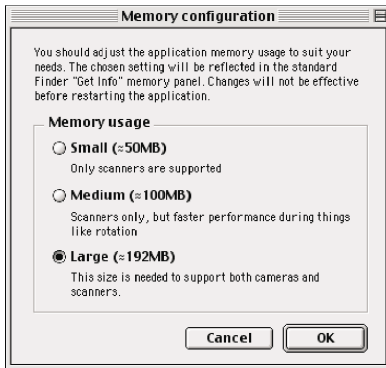
Small (=50 MB)   Only scanners are supported.

Medium (=100 MB) Only scanners - but with improved rotation speed. This setting is also recommended when scanning high resolution scans on a slow host computer.

Large (=192 MB)   Supports both scanners and cameras.

The configuration will not be effective before quitting and relaunching the application. If you need to change the configuration you can access the dialog by pressing the **Memory Usage** button in the **Preferences** window.

The memory configuration affects the settings that are accessible via the Finder **Get Info** window, and you are free to fine tune the settings there if you need to.

FlexColor Menus

FlexColor commands are available via a standard menu bar. Each of them is described briefly below. Note that most menu entries also list a keyboard shortcut to the right of the entry. Try to remember and use these shortcuts to speed your work.

The File Menu

The **File** menu includes entries that initiate scans and make settings for **FlexColor**.

```
File
   Scan Preview   ⌘N
   Final Scan...   ⌘S
   Close           ⌘W

   Setup...        ⌘U
   Preferences...
   Devices...

   Page Setup...
   Print...        ⌘P

   Quit            ⌘Q
```

- **Scan Preview**: Takes a low-resolution, 14-bit-per-color preview scan. This image will be displayed in the main **FlexColor** window so that you can preview settings and crop the image for the final scan. All settings are previewed using the full 14-bit color depth to display results.

- **Final Scan**: Takes a final-resolution scan and saves it on your hard disk. All of the settings you made after taking the preview scan will be combined with the standard settings for your selected setup and applied to the final image.

- **Setup**: Opens the **Setup** window, in which most of the basic settings for a scan can be made, saved and loaded. See "The Setup Window" on page 25 for more information.

- **Preferences**: Opens the **Preferences** window, which enables you to select an application for viewing final scans, make power-saving settings, and set up custom original holder formats. See "The Preferences Window" on page 41 for more information.

- **Quit**: Quits **FlexColor**.
- **Devices**: Opens the **Devices** window.
  Here you can select which camera or scanner device you want to work with, as it lists all connected devices - click on the one you prefer and click the **Select** button. If you have only a single scanner or camera connected this device is automatically chosen.
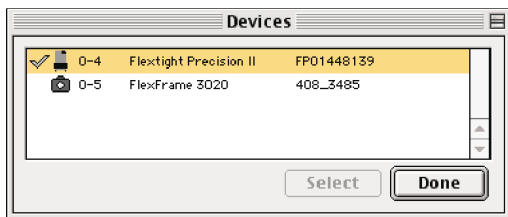
The disabled functions in the menu (Close, Page Setup and Print) are not accessible when working with Flextight devices.

The Edit Menu

The **Edit** menu contains entries that enable you to undo multiple actions that you have made while making settings in **FlexColor**. It also enables you to cut, copy and paste text in various windows.

Edit	
Undo Crop Change	⌘Z
Redo Setup Modification	⌘R
Cut	⌘X
Copy	⌘C
Paste	⌘U
Clear	
Select All	⌘A
Show Clipboard	

- **Undo**: Reverses your most-recent actions for example, a crop area modification or a change in the **Setup** window. You are able to step back through a long series of actions.

- **Redo**: Reapplies the last action that you cancelled using the **Undo** command.

- **Cut**: If you have selected some text in a text field, then this command removes the text and saves it on a system-wide virtual clipboard.

- **Copy**: Saves the selected text on the clipboard without removing it.

- **Paste**: Places a copy of the text on the clipboard at the insertion point.

- **Clear**: Removes all text from the clipboard.

- **Select All**: Selects all of the text contained in the field in which the insertion point is standing. In the **Batch Scan** window, this selects all of the listed scans (see "Batch Scanning" on page 69).

- **Show Clipboard**: displays the current contents of the clipboard.

The Maintenance Menu

The **Maintenance** menu includes entries that are used for calibrating and cleaning the scanner. The functions of these entries will depend on the model of Flextight scanner you are using. See your scanners hardware documentation for details of when and how to use these commands.

Maintenance
> Focus calibration...
> White calibration...
> CCD calibration...
>
> OptiRes upgrade...
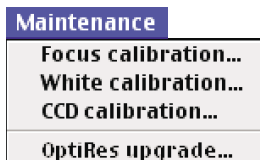
- **Focus Calibration**: Opens the **Calibration** window, which calibrates the focus and sizing of the scanner. Only Flextight Precision and Flextight Progression require this function.

- **White Calibration**: Initiates a white calibration scan for reflective originals. Only scanners that support reflective scanning require this function.

- **Cleaning**: Prepares the scanner so that you can clean the internal white calibration surface. This is only possible with some older Flextight Precision scanners. However, we now recommend using the external white calibration method even with these scanners, in which case cleaning is never necessary.

- **CCD calibration**: Calibrates the CCD to make sure all pixels react the same way to equal levels of light. See "CCD Calibration" on page 75 for more information about this feature.

- **OptiRes upgrade:** Starts the **OptiRes upgrade** function. The **OptiRes** function (See "OptiRes Functionality" on page 22 for more information) is a standard feature for all Flextight Precision III and Flextight 8000 scanners. If you have a Precision II scanner you will have to upgrade it as described in "OptiRes Upgrade" on page 22.

The Windows Menu

Windows	
✓ Gradations	⌘1
Histogram	⌘2
✓ Color Correction	⌘3
Unsharp Mask	⌘4
Magnifier	⌘5
Batch Scan	⌘6
Exposure	⌘7
Thumbnails	⌘8
✓ Color Info	⌘9

The Windows menu opens and closes each of the image settings window available with **FlexColor**. Each window that is currently open shows a check mark to the left of its name. For more information about each of these windows, see the appropriate section later in this manual:

Gradations window - see page 51.
Histogram window - see page 57.
Color Correction window - see page 63.
Unsharp Mask window - see page 65.
Magnifier window - see page 67.
Batch Scan window - see page 69.
Color Info window - see page 73.

The Main FlexColor Window

Introduction

The main **FlexColor** window displays your preview images and
provides access to most of the scanning and image editing functions
available with **FlexColor**.
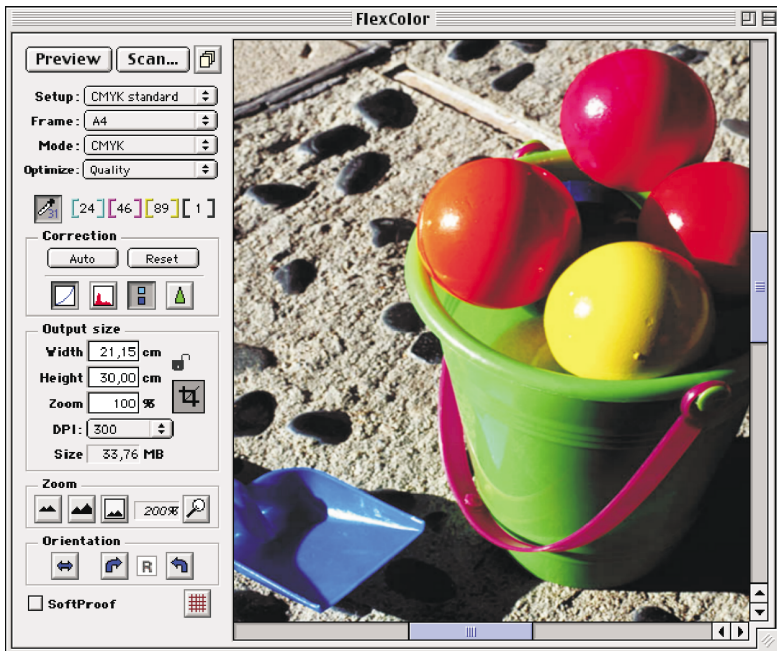
Scan Controls

Preview   Click this button to take a preview. A preview image will
appear in the large area on the right. All image correction
settings (such as tonal range, gradation and color
corrections) will also be previewed on this image.

Scan   Click this button to take a final scan using the current image correction, size, and color separation settings.

Batch Button: Click this button to initiate a batch scan, in which each of several crops will be saved as different files using different settings. See "Batch Scanning" on page XX for more information.

Setup   Use this pop-up menu to choose between any of the currently available setups. A small + will appear to the right of the menu to indicate when you have made custom changes that affect the setup but have not been saved.

Frame   Use this pop-up menu to set the film format (size) of the original you are scanning.

Mode   Use this pop-up menu to set the scan mode (**RGB**, **RGB 16 bit**, **Grayscale**, **Grayscale 16 bit**, **Lineart**, or **CMYK**). This setting mirrors the **Mode** setting on the **General** tab of the **Setup** window. See "The General Tab" on page 28 for more information.

Optimize   In the **Optimize** pop-up you have the following options:

        Quality: Use this setting to obtain the highest quality.
        Speed: Enables faster scan times by taking greater advantage of resizing.
        True Resolution: Use this mode to avoid any kind of software resizing.

Size Controls

Width   The measured width of the output image. The units used are set on the **General** tab of the **Setup** window. See "The General Tab" on page 28 for more information.

Height   The measured height of the output image. The units used are set on the **General** tab of the **Setup** window. See "The General Tab" on page 28 for more information.

Zoom   The level of magnification applied during scanning.

DPI   The output resolution of the final scan. Note that those settings that, combined with the current **Zoom** setting, will result in a non-interpolated (true optical resolution) scan are shown underlined. See your scanners hardware documentation for more information.

Size   The file size of the final scan. This is affected by the **Width**, **Height**, and **DPI** settings.

Lock Button: The lock button enables you to lock the output width and height settings. When the lock is closed, then the output width and height will not change when you modify the crop area or zoom value, and the proportion of height to width will be maintained. If you edit the **Height** or **Width** values while the lock is closed, the crop area will stay the same, but the **Zoom** value will change. Click on the lock to toggle its setting.

Crop Button: Usually this button is gray, which indicates that the crop tool is active. When the crop tool is active, you are able to click and drag on the preview image to create and manipulate the crop area. However, some tools, such as the color pickers, change the cursor so that it selects colors instead of defining a crop area. When one of these tools is active, the crop button is white. To return to the crop tool, click on the crop button.

Note the following points about working with the crop and size tools:

• When you work with the scanner, you will typically know the target output dimensions and resolution. If so, first enter the dimensions in the **Height** and **Width** fields and choose the output resolution from the **DPI** pop-up menu. Then click on the **Lock** icon so that it is closed (this will lock your height and width settings). You are now able to click and drag the crop area to define the composition of your scan. The Zoom value automatically tracks your changes without changing the height, width, or DPI of your output image.

• To set the crop area, place the mouse cursor over the preview image. Click and hold over one corner of the area you wish to scan and drag the cursor away to outline the scan area. Release the mouse button to select the area.

• To move the crop area, place the mouse cursor inside the outline, then click and drag the area. Release the button to drop the area again.

• To resize the crop area, place the mouse cursor over one of the sides or corners. The cursor will change into a double sided arrow. Click and drag the side or corner to stretch or shrink the area.

Zoom Controls

Zoom Out: Click this button to make the preview image smaller.

Zoom In: Click this button to make the preview image larger.

Normal Zoom: Click this button to resize the preview to fit the window.

Magnifier: Click this button to open the **Magnifier** window. This window shows a strongly magnified view of the preview image that tracks the motion of your cursor. See "The Magnifier Window" on page 67 for more information.

Keyboard shortcuts for zooming

- To fit the entire preview image in the window, type **cmd-0**.
- To zoom to 100%, type **alt-cmd-0**.

Color Display

To use the **Color Display**, place the mouse cursor over the preview image. The number fields in this area indicate the pixel brightness at the selected position in the image.
Note the following:

- The values indicate values after gradation and tonal range settings.
- When showing CMYK, the values indicate ink percentage values (0 - 100) with white = 0, 0, 0, 0.
- When showing RGB, the values indicate pixel brightness values (0 - 255) with white = 255, 255, 255.

Color Info button: Opens/closes the **Color Info** window. This window is also available from the Windows menu. See detailed description in "The Color Info Window" on page 73.

Corrections Controls

Auto   Click this button to apply automatic settings for highlight and shadow points based on the histogram of your image.

Reset   Click on this button to return all correction windows (**Gradations**, **Histogram**, **Color Correction**, and **Unsharp Mask**) to their neutral settings.

Gradation Button: Opens/closes the **Gradations** window. See "The Gradations Window" on page 51 for more information.

Histogram Button: Opens/closes the **Histogram** window. See "The Histogram Window" on page 57 for more information.

Color Correction Button: Opens/closes the **Color Correction** window. See "Selective Color Correction" on page 63 for more information.

Unsharp Mask Button: Opens/closes the **Unsharp Mask** window. See "Unsharp Masking" on page 65 for more information.

Other Controls

Mirror Button: Mirrors the preview and final image.

Rotate Buttons: Rotates both the preview and final image 90° either clockwise or counter-clockwise. See "Rotating Images" on page 21 for more information.

Orientation Icon: Shows the current rotation/mirroring in relation to your scanned original.

Softproof   Mark the checkbox to activate the Softproof feature. This feature combines the ICC color profile of your monitor with the profiles of your scanner and output device to provide a simulation of the output colors on your screen. Click on the box to toggle the check. The result shown is only an approximation - you may find it most useful to work with this option turned off.

Grab tool: Holding down space activates the grab tool allowing you to drag the contents of the preview window around.

Grid button: Makes a grid over the preview. The grid can be useful for aligning your original before the final scan. Holding down the **option** key while clicking the **Grid** button opens the **Grid options** window:
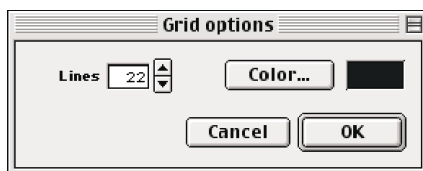
Define the number and color of the lines in the grid.
The number of lines is per the smallest image dimension (width or height).

The Preview

FlexColor has been designed with the philosophy that when creating digital images, it is best to judge image quality with your eyes, not based on point measurements and color lookup tables. This is why we have drawn so much attention to the screen calibration procedure in the tutorial, and why we have integrated ICC color profiles to maintain the color accuracy you see on your screen all the way to print.

To make it easy for you to see and use the preview, **FlexColor** provides a large 14-bit image with a zoom function and magnifier window. Because your monitor can only show 8-bit colors, **FlexColor** calculates a new 8-bit image from the 14-bit information each time you apply a highlight, shadow, gradation, or color setting. This creates a very accurate preview image.

Rotating Images

In some cases, your originals may be rotated so that they appear sideways in relation to the **FlexColor** preview window. If this annoys you, you can use the rotate buttons to rotate the image 90° either clockwise or counter clockwise. Both the preview and the final image will be rotated.

Note that scanning rotated images will require more memory and will slow down your scans slightly - especially for large scans.

To improve the performance of the rotation function under Mac OS, increase **FlexColor**'s memory partition by using the procedure described below.

NOTE! This operation is not necessary if you are using Windows or if you have already set the **Memory Configuration** to **Medium (=100 MB)** when starting up **FlexColor** for the first time. See "Memory Configuration" on page 7 for details.

Increase memory partition as follows:

1. Quit **FlexColor** if it is running.

2. Find the **FlexColor** application icon on your hard disk and click once to select it.

3. Select **Get Info** from the **File** menu and select **Memory** in the **Show** pop-up.
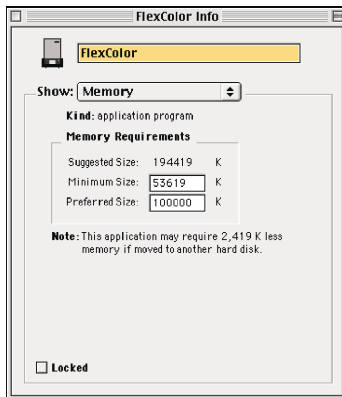
4. Edit the value shown in the **Preferred Size** field at the bottom of the window. If you have enough memory, then increasing the value to up to at least 100 MB (100000 K) will speed your rotated scans.

The OptiRes Functionality

The **OptiRes** functionality has the following advantages:

• The resolutions of the standard frames are fitted more accurately to the actual holders, leading to higher resolutions in frames like 36x24 and 24x36, which will be scanned in 5000 dpi and 6300 dpi respectively. This also results in speed increases when scanning lower resolutions.

• You are able to specify the exact width of your custom frames. Note that the width automatically determines the max. optical resolution.

• You are able to work in a **True Resolutions** mode, where scans are never software resized - the scanner will always focus exactly at the chosen input resolution (output dpi * Zoom percentage).

NOTE! Reflective scans are still limited to a few fixed resolutions because of the fixed white calibration used in reflective mode.
To work in **True Resolutions** mode select **True Resolutions** in the **Optimize** pop-up in the main **FlexColor** window (see page 16).

NOTE! The **OptiRes** function is a standard feature for all Flextight Precision III and Flextight 8000 scanners.
If you have a Precision II scanner you will have to upgrade it as described in the following.
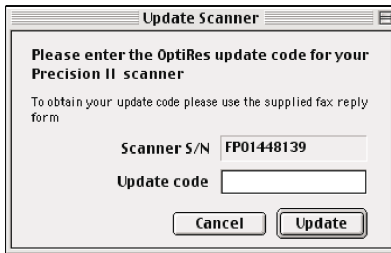
OptiRes Upgrade

(Only necessary for Flextight Precision II scanners).

• Make sure that you have **FlexColor 3.0** installed.

• Register your scanner.

• Order the **OptiRes** package from your Flextight dealer.

• Fill out the fax reply form supplied with the **OptiRes** package and return it to Imacon. Imacon will subsequently supply you with an update code.

• Start **FlexColor 3.0**.

• Select the **OptiRes upgrade...** function from the **Maintenance** menu.

```
┌──────────── Update Scanner ─────────────┐
│                                          │
│ Please enter the OptiRes update code for your │
│ Precision II scanner                     │
│                                          │
│ To obtain your update code please use the supplied fax reply │
│ form                                     │
│                                          │
│   Scanner S/N  FP01448139                │
│                                          │
│   Update code  [              ]          │
│                                          │
│            [ Cancel ]  [ Update ]        │
│                                          │
└──────────────────────────────────────────┘
```

• Enter the supplied update code in the **Update code** field and click the **Update** button.
• Your scanner has now been updated enabling all the benefits of the **OptiRes** functionality.

The Setup Window

Introduction

The **Setup** window shows many settings that affect the image and the way in which the other tools in the **FlexColor** application work. All of the settings displayed in the window can be saved and loaded from your hard disk.

To open the **Setup** window, select **Setup** from the **File** menu.
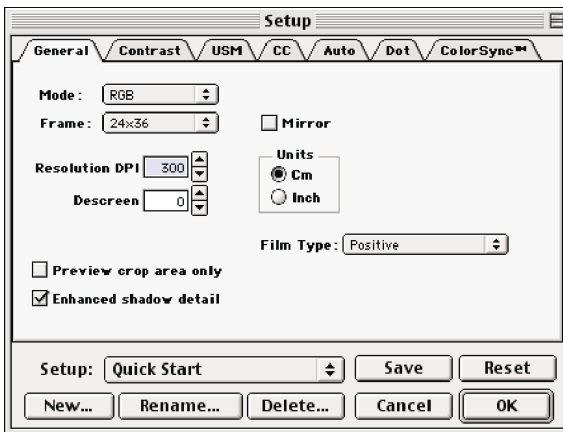
Many of the settings, such as sharpness, gradation, and color correction, are available individually through tool buttons in the main **FlexColor** window. All settings you make using the individual tools are also applied to the **Setup** window, and vice versa.

The **Setup** window is divided into several tab sheets to help you find the setting you want to make.

The FlexColor Setup Philosophy

With a traditional drum scanner, the professional operator requires extensive education and experience to make all of the settings required to obtain good results. The operator examines each original and, applying his or her experience, enters a best guess of what all the setting should be for that particular type of original. Then the operator checks the preview and makes fine tuning adjustments.

FlexColor simplifies this process by enabling you to save a library of setups that you use most frequently. Nearly all **FlexColor** settings, including all settings in the **Setup**, **Gradations**, **Histogram**, and **Unsharp Mask** windows, are saved in each setup file.

Each time you scan a new original, select the closest setup from the **Setup** menu, define the crop, click on the **Auto** button, and you are 98 to 100% of the way to a perfect scan.

FlexColor is delivered with several generic setups to get you started quickly. Use the **Setup** pop-up menu to choose a setup that is appropriate for your original. The name of each setup indicates its intended use.
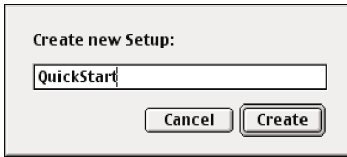
The following naming conventions apply:

- **Saturated**: The setup applies extra saturation to colors.
- **Dark**: The setup is designed to scan dark or underexposed originals.
- **CMYK** or **RGB**: Indicates the color space of the file created by the setup.
- Setups designed to scan negatives are each named for a brand of negative film. Each of these is set up to create an RGB file. To generate a CMYK file, choose the negative setup that matches your film type, then open the **Setup** window and choose a CMYK output profile.

Start by using the generic setups. If you want to develop your own setup library, begin with the closest of the available generic setups, modify it, and save it with a new name.

Managing Setups

To create a new setup, click on the **New** button. A window will appear in which you can name the new setup. All of the settings currently applied in the **Setup**, **Gradations**, **Histogram**, and **Unsharp Mask** windows will be saved in the new file.

```
Create new Setup:
┌─────────────────────────────────┐
│ QuickStart                      │
└─────────────────────────────────┘
              [ Cancel ]  [ Create ]
```

To rename the currently loaded setup, click on the **Rename** button. A window will appear in which you can rename the setup.

```
Rename Setup:
┌─────────────────────────────────┐
│ Quick Start                     │
└─────────────────────────────────┘
┌─────────────────────────────────┐
│ Linotronic Output               │
└─────────────────────────────────┘
              [ Cancel ]  [ Rename ]
```
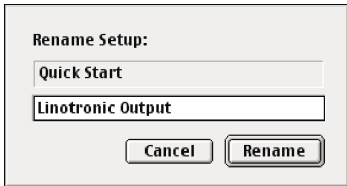
After you have made changes to the current setup, save them by clicking on the **Save** button in the **Setup** window.

To delete the current setup, thereby removing it from the **Setup** pop-up menus, click on **Delete**.

NOTE! The generic setups that ship with **FlexColor** are locked so that you can not accidentally modify, rename or delete them. If you want to modify a generic setup, then select the setup from the **Setup** pop-up menu, make modifications, then click on **New** to save your new setup with a new name.

Advanced Setup Management

The **Setup** pop-up menu in the main **FlexColor** window is organized into sections. Positive film setups are in the top section, followed by negative film setups. User-defined setups appear at the bottom of the list. All of the setups are saved as individual files in a folder called **Settings**, which is in the same folder as the **FlexColor** application. Each section shown in the **Setup** pop-up menu corresponds to a folder inside the **Settings** folder. If you would like to customize the organization of the menu, then you can add new folders and/or move setup files as required.

The General Tab

The **General** tab of the **Setup** window affects the general behavior of the interface and identifies the setup file currently loaded.
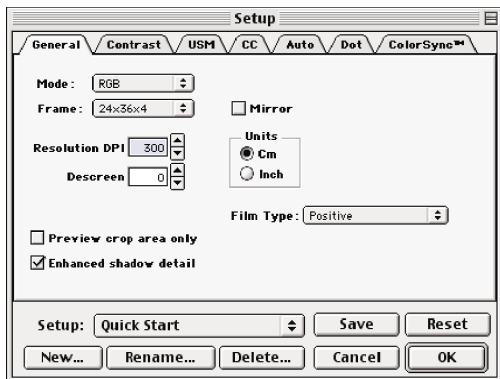
Mode

Provides a pop-up menu for choosing the color space used by the application. The following options are available:

- **RGB**: stores final images as standard 8-bit RGB TIFF files.

- **RGB 16-bit**: stores final images as 16-bit TIFF files. This preserves the full color resolution captured by the Flextight scanner, but creates larger files that many applications cannot read. Tonal range and gradation settings will have no effect if you use this mode.

- **Grayscale**: creates grayscale images, such as black and white photographs. Grayscale files are smaller than color files, so use this mode if your originals or final publications are in black and white. To obtain a grayscale result, **FlexColor** combines information from all three RGB color channels. ICC profiles have no effect when you scan using this mode.

- **Grayscale 16-bit**: stores final images as 16-bit grayscale TIFF files. This preserves the full tonal range captured by the scanner, but creates files that many applications cannot read. Tonal range, gradation and ICC profile settings will have no effect if you use this mode. To obtain a grayscale result, **FlexColor** combines information from all three RGB color channels.

- **Lineart**: creates 1-bit images in which each pixel is either 100% black or 100% white. These files are even smaller than grayscale images. Use this mode if your originals are, for example, pen and ink drawings. To adjust the threshold at which the input will jump to either black or white, use the **Gradations** window. See "Setting the Threshold for Lineart Scans" on page 58 for more information. ICC profiles have no effect when you scan using this mode.

- **CMYK**: creates print-ready color images. You must set up an ICC profile to create CMYK images directly from **FlexColor**. See "ColorSync or ICM Tab" on page 37 for more information about ICC profiles.

Frame

Provides a pop-up menu for choosing the format of the original (35mm, 4"x5", A4, etc.).

Resolution DPI

Defines the resolution of the output image. Set this value according to the requirements for your printed output. Most high-quality color work uses 300 dpi. Newspapers typically use less (150 to 200 dpi). On-screen display, such as for the web, requires only 72 dpi.

Descreen

If you are scanning an offset-printed original, then this setting will compensate for rosettes in the original. It attempts to prevent moiré patterns from appearing in your print, at the expense of defocusing the image. The higher the setting, the more extreme the effect will be.

Mirror

If your original is a mirror image, or if you want to create a mirrored image from the original, then place a check in this box. To keep the image as scanned, make sure this box is not checked.

NOTE! It is also possible to mirror your image directly from the main **FlexColor Window** using the **Mirror** button (see page 19 for details). Mirroring the image using the **Mirror** button will automatically place a check in the **Mirror** check box.

Units

This set of radio buttons enables you to select the units used to display Height and Width values in the main **FlexColor** window.

Film Type

Use this pop-up menu to identify the type of original you are scanning. The following options are available:

- **Positive**: for positive color or black and white images.
- **B/W Negative**: for negative black and white images.
- **Color Negative**: for negative color images.

Preview crop area only

When this box is checked, then your settings for tonal range and gradation will only be shown inside your selected crop area on the preview image - the rest of the image will appear just as it was scanned. When this box is not checked, then your settings will be shown everywhere in the preview image.

Enhanced shadow detail

Activates an algorithm that delivers more details in the shadow areas. This function is active by default and should only be deselected for images with a very narrow dynamic range or for images with an unusually high amount of color information in dark areas.

The Contrast Tab

The settings on the **Contrast** tab sheet are exactly the same as in the **Gradations** window (available from the **Windows** menu). Changes made here in the **Setup** window will also change the settings in that window, and vice versa. See"The Gradations Window" on page 51 for more information about these settings.
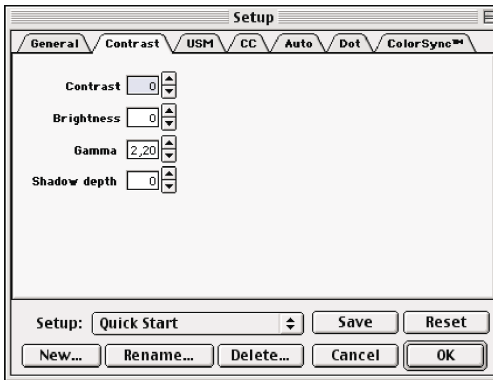
The USM (Unsharp Masking) Tab

The settings in the **USM** tab reflect those made in the **Unsharp Mask** window (available from the **Windows** menu).
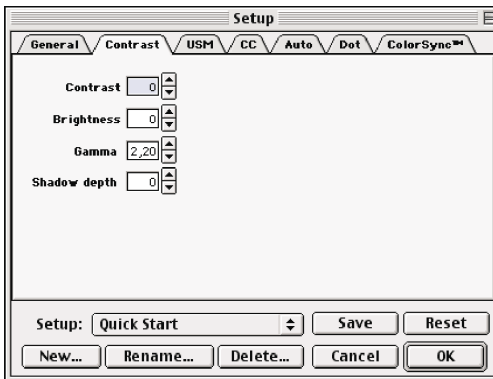
For more information about unsharp masking, see "Unsharp Masking" on page 65.

Amount

Controls the strength of the sharpening effect. The higher the value, the stronger the sharp lines will become. Depending on your image, a value between 80 and 200 is recommended.

Dark limit

Sets the brightness level below which the filter has no effect. This will keep the filter from enhancing noise or unwanted textures in your image. The higher this number, the less extensive the sharpening effect will appear. Depending on your image, a setting between 0 and 20 is recommended.

Grain limit

Prevents the filter from sharpening low-contrast features in the image, such as film grain, noise, or textures. It works by comparing brightness of each pixel to the brightnesses of its surrounding pixels. If brightnesses differ by less than the Grain limit, then no sharpening is applied to the target pixel. If your image looks grainy after sharpening, try to increase the Grain limit setting.

Radius

Sets the radius in which the unsharp masking algorithm looks for sharp edges. The larger the radius, the more extensive the sharpening effect will be. The setting you choose will depend on the contents on your image and the resolution you are using. Generally, use a large radius (4 or 5) with high-resolution images. Use a smaller radius (1 to 3) for lower resolutions images.
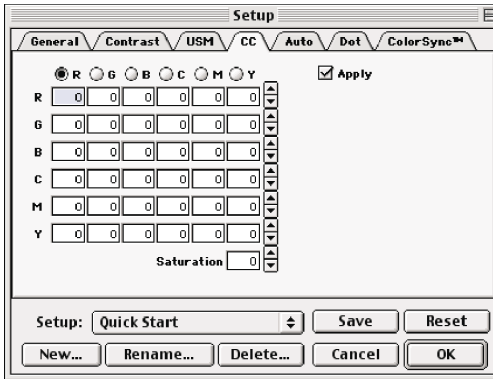
Color %

These three fields (Red, Green, and Blue) control the amount of sharpening effect applied in each color channel. Normally, you should leave them set to 100 each, which applies sharpening equally to all channels. In some cases, you may be able to reduce the effect of noise by applying less sharpening to one channel (typically the blue channel). You can also use these settings to create special effects.

Apply

Mark this checkbox to apply the unsharp mask filter to all scans. Remove the check to disable the filter.

The CC (Color Correction) Tab

The **CC** tab contains a color correction chart, which enables you to alter the way input colors are mapped onto the output colors. It can be used to remove or add color cast, or to create stronger colors in your images.

The matrix contains the same settings as the **Color Correction** window (available from the **Windows** menu), and displays all of the settings you have made using that window. In many cases, it will be easier for you to make adjustments using the **Color Correction** window instead. See "Selective Color Correction" on page 63 for more information.

To activate the color correction, mark the **Apply** check box. To disable the color correction settings, remove the mark from this box. Click on the box to toggle the mark.

To modify the amount of any one color component in the image, click on the button next to the target color along the top of the matrix. Then use the up and down buttons for each component color along the left side of the matrix to add or remove that component from the target color. Alternatively, you can click on any of the fields in the matrix and edit the value with your keyboard.

To modify the saturation in the entire image, use the **Saturation** up and down buttons or input field.

To enhance color saturation, try the following matrix:

	R	G	B	C	M	Y	
R	10	0	0	0	0	-0	More red in the red
G	0	10	0	0	0	0	More green in the green
B	0	0	10	0	0	0	More blue in the blue
C	0	0	0	10	0	0	More cyan in the cyan
M	0	0	0	0	10	0	More magenta in the magenta
Y	0	0	0	0	0	10	More yellow in the yellow

NOTE! You can also increase or decrease saturation by using the **Saturation** adjustment at the bottom of the matrix. The matrix above is equivalent to setting the **Saturation** to +10 when all other values are zero.

To reduce the amount of magenta:

	R	G	B	C	M	Y	
R	0	0	0	0	0	0	Neutral red
G	4	4	4	4	4	4	More green in all colors
B	0	0	0	0	0	0	Neutral Blue
C	0	0	0	0	0	0	Neutral Cyan
M	-4	-4	-4	-4	-4	-4	Less Magenta in all colors
Y	0	0	0	0	0	0	Neutral yellow

A full explanation on all of the applications of this tool would be complex and beyond the scope of this manual. If you would like to know more about color mapping, please speak with your printer or consult the electronic prepress section of your local library or book store.

The Auto Tab

The **Auto** tab sheet has percentage settings for both **Shadow** and **Highlight**. When you use the **Auto** button, the **FlexColor** application computes what it thinks the highlight and/or shadow values should be based on the histogram of your image. It then modifies the values by the percentages that you set here to find the final setting. The percentage is applied to the difference between the highlight and shadow settings.
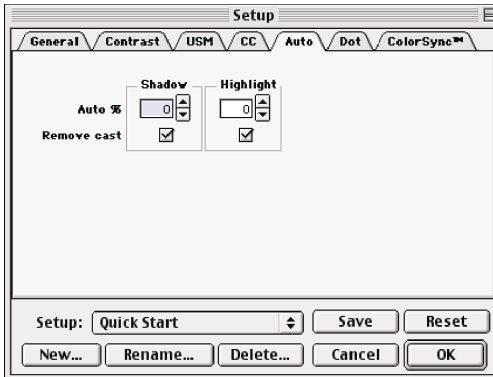
For example, if the **Auto** % for **Highlight** is set to 2 and you use the auto function on an image in which the highlight might normally be 200, then **FlexColor** will assign a highlight value of 196 (provided the shadow value were zero). If you find that you frequently need to adjust the highlight or shadow values to be tighter than the auto function normally chooses, then use a positive setting here. Positive settings will result in a relative increase in the contrast.

You are able to set negative values for the **Auto** % settings. This will make the automatic controls use less extreme settings for highlight and shadow then normal. For example, if the **Auto** % for **Highlight** were set to -2, and you use the auto function on an image in which the highlight might normally be 200, then **FlexColor** will assign a highlight value of 204 (provided the shadow value were zero). This setting will enable you to preserve more details at the extremes of the tonal range than you otherwise would if the highlight point were set lower.

This tab sheet also contains two check boxes named **Remove cast**. When one or both of these are checked, then **FlexColor** will automatically neutralize the colors in the highlight or shadow respectively whenever you use the color pickers or **Auto** button.

Use the **Remove cast** option when your images contain neutral highlight and shadow points. If the brightest points in your image are not white (such as in a sunset), then do not use the **Remove Cast** option for highlight. Similarly, if your shadow points should not be black, do not use the automatic cast removal for shadows. Note that the **Histogram** window contains a button called **Keep Cast**, which removes the effect of the **Remove Cast** options.

For more information about working with highlight and shadow points, see "The Histogram Window" on page 57.
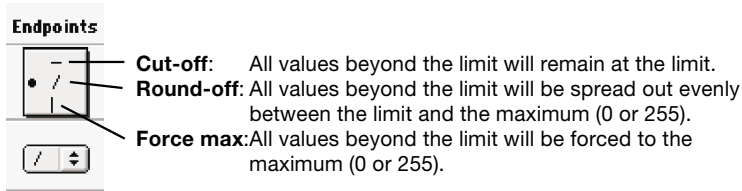
The Dot Tab

These settings affect the output of the image brightnesses. Normally, the output will be a maximum (255) at the brightest (highlight) point and minimum (0) at the darkest (shadow) point for each color. However, this can sometimes cause trouble for the printing presses, especially when too much ink is applied for the paper to dry quickly enough.
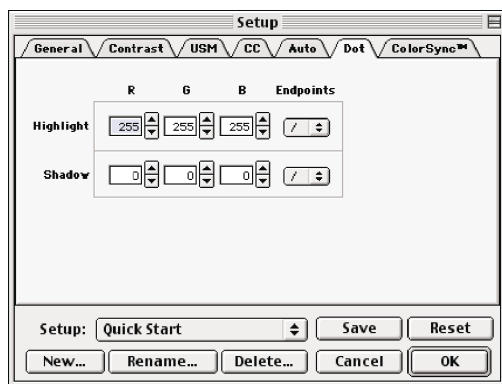
Printers often request that images be prepared to lie within certain limits. The settings on this tab sheet limit output at the extremes at each color. Speak to your printer for advice about how to set these values.

The values in the three (RGB) columns control the maximum (for highlight) or minimum (for shadow). For RGB color, 8-bit values (0 to 255) are shown for each color.

The **Endpoints** pop-up menu determines how the values for the color columns will be assigned when the input values exceed the defined limits. They work as follows:

Cut-off: All values beyond the limit will remain at the limit.
Round-off: All values beyond the limit will be spread out evenly between the limit and the maximum (0 or 255).
Force max:All values beyond the limit will be forced to the maximum (0 or 255).

ColorSync or ICM Tab

ICC color profiles define the color response of each device in your system. **FlexColor** uses these profiles to make calibrated, accurate, and high-quality color separations from your scans.

Under Mac OS, ICC profiles are controlled by Apples ColorSync technology and the setup tab for selecting ICC profiles in **FlexColor** is called **ColorSync**™.

Under Windows 98 and 2000, ICC technology is referred to as ICM (which stands for "Image Color Management") and the tab for selecting ICC profiles in **FlexColor** is called ICM.

Flextight scanners and most monitors and output devices include ICC profiles, which will help make sure the colors in your original are maintained and that colors you see on your screen will be accurately reproduced on paper.
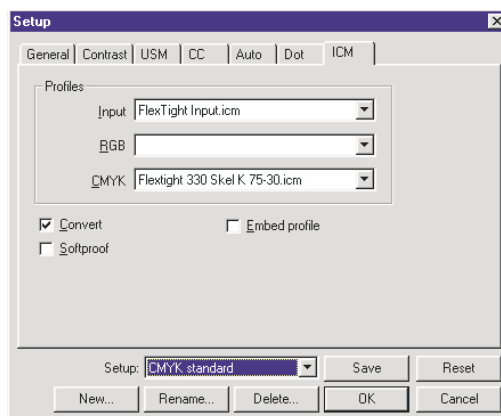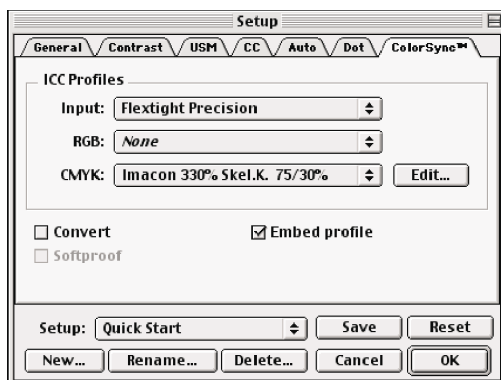
For more information about using ICC profiles, see the online help for your operating system.

For information about Apples ColorSync technology, check Apple's web site at:
http://www.colorsync.apple.com and/or **http://www.apple.com.**

Input

This pop-up menu shows a list of input ICC profiles installed on your system. Select the Flextight Input profile from the list.

RGB

This pop-up menu lists all of the RGB profiles currently installed on your system. Choose a profile that represents the color space in which you work on-screen. (If you are using Adobe Photoshop, you can save the space used by Photoshop as an ICC profile. To do this, start Photoshop and choose File -> Color Settings -> RGB Setup. The RGB Setup window appears (see the *Getting Started...* manual for more information about using this window).
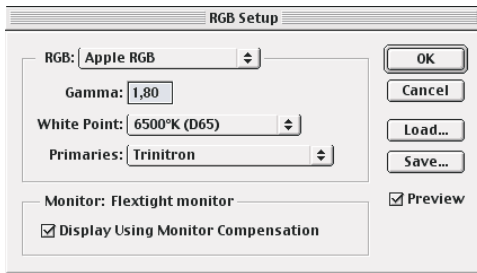
Click on the Save button and save your selected RGB working space as an ICC profile. Give the profile a new name and save it in the ICC profile folder used by your operating system. For most recent versions of the Mac OS, use the **ColorSync Profiles** folder inside the System Folder. For Windows 98, use **C:\WIN98\SYSTEM\COLOR**. The **RGB** drop down list in the **RGB Setup** window now shows the name of the file that you just saved.)

CMYK

This pop-up menu lists all of the output profiles currently installed on your system. Choose the profile specific for your output device, or select the closest of the generic profiles supplied with **FlexColor**. See "Generic ICC Output Profiles" on page 45 for more information about the generic profiles.

Convert

Mark this checkbox to apply your ICC selections to your scans. Remove the check to disable ICC profiles.

Softproof

Mark this checkbox to see an on-screen representation of the colors expected from your output device. It combines the output profile with the monitor profile selected for your system to create a simulation of the output colors. See the *Getting Started...* manual for instructions on how to set up a monitor profile for you system and for advice about using the **Softproof** feature.

Embed Profile

Mark this checkbox to embed a profile with your scanned image. If you are scanning to RGB, then the RGB profile will be embedded. If you are scanning to CMYK, then the CMYK profile will be embedded. If no output profiles have been chosen, then the input profile will be embedded.

Edit

The **Edit** button appears only if you are using the Mac OS version of **FlexColor**. Click on this button to edit the output profile. Use this feature only if you are an advanced user, or on the advice of your printer. For more information about editing ColorSync profiles, see "Editing ColorSync Color Profiles" on page 46.

The Preferences Window

The **Preferences** window contains several miscellaneous settings that control the general functions of the scanner and the software. The **Preference** window settings are universal for the **FlexColor** application they are not saved with the other settings in the setup files. To open the window, select **Preferences** from the **File** menu.
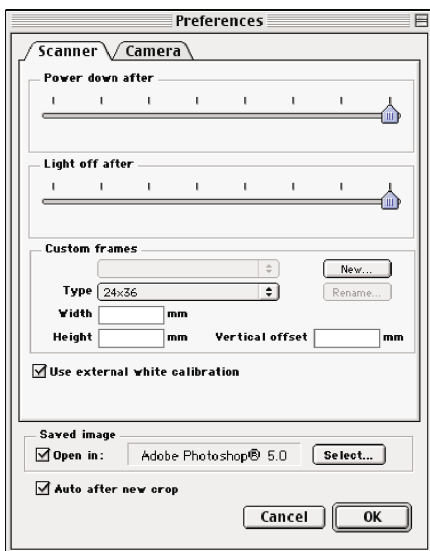
Power-Saving Features

To save power, you are able to make settings that will cause the scanner to shut down after a specified period of inactivity. There are two levels of power saving available:

- **Power down after**: the scanner is turned off, just as if you had pressed the on/off button on the scanners front panel.
- **Light off after**: the scanner remains turned on, but the light is shut off.

Use the sliders to make settings for how long the period of inactivity should be before activating the relevant power-saving function.

Custom Frames

Flextight ships with a selection of original holders that support several standard formats of originals. It is also possible to use custom, non-standard formats with Flextight. A larger number of custom frame formats can be defined at any one time.

To define a Custom frame do the following:

- Press the **New** button.
- In the pop-up, name your frame and press **Create**. This is the name that will appear in the **Frame** pop-up menu in the main **FlexColor** window and in the **Frame** pop-up menu on the **General** tab in the **Setup** window. Type a name that will help you remember the format.
- From the **Type** pop-up menu select the standard frame type that most closely matches your custom frame.
- Type in the **Width** and **Vertical offset** values of your frame.
- **NOTE!** If you have upgraded your scanner with the **OptiRes** functionality, you are able to specify both **Width**, **Height** and **Vertical offset** for transmission frames, but reflective frames are still limited to the few fixed widths because of the white calibration used in reflective mode.
- Press **OK**.

Use External White Calibration

Some older Flextight Precision scanners make use of this option when checking the white calibration. However, we now recommend that all Flextight users use external calibration, so this box should always be checked. On other Flextight models, this box does nothing.
If you are using a Flextight Precision scanner, then see the calibration information in your original scanner hardware manual for details.

Opening Saved Images

After taking a final scan, **FlexColor** is able to launch the application of your choice and open the saved image in that application. If you would like to use this feature, then place a check in the **Open in** checkbox. Then click on the Select button. A standard file finder window appears. Use it to locate and select the application you would like to use for viewing your final scans.

Auto after New Crop

FlexColor includes an auto tonal range function, which analyzes the cropped image and sets highlight and shadow values accordingly. You can use it at any time by clicking on the **Auto** button in the main Color-Flex window.

The **Auto after new crop** checkbox provides an optional shortcut for using the auto function. When this checkbox is marked, each time you make a new crop, **FlexColor** will immediately analyze the image contained in the crop area and set highlight and shadow values, just as if you had clicked on the **Auto** button.

You can also control this function by holding down the **option** key as you define a new crop:

• If the **Auto after new crop** checkbox is enabled, then hold down the **option** key to make a new crop without invoking the auto function.

• If the **Auto after new crop** checkbox is disabled, then hold down the **option** key to apply the auto function to your new crop.

NOTE! This function will not update the highlight and shadow settings when you move or resize an existing crop area; it only responds when you create a new crop area. If you would like to use the auto function again after moving or resizing a crop area, click on the **Auto** button in the main **FlexColor** window.
For more information about tonal range and the **Auto** function, see "The Histogram Window" on page 57 and "The Auto Tab" on page 35. For more information about cropping, see "The Main FlexColor Window" on page 15.

FlexColor ICC Profiles

Generic ICC Output Profiles

FlexColor includes six generic ICC output profiles for generating various types of color separations. The name of each profile provides a description of the results it creates. See Table 1 for details.

Profile	Max Ink	Black Generation	Max Black	Black Starts	Use
Flextight 250% GCR 40% K.90%	250%	GCR 40%	90%	n/a	Newspapers, low ink
Flextight 280% GCR 30% K.90%	280%	GCR 30%	90%	n/a	Newspapers, standard
Flextight 330% GCR 20% K.95%	330%	GCR 20%	95%	n/a	Glossy paper (magazines)
Flextight 330% Skel. K. 75/30%	330%	Skeleton Black	75%	30%	General use, glossy paper
Flextight 350% GCR 20% K.95%	350%	GCR 20%	95%	n/a	High-end, high ink
Flextight 350% Skel. K. 91/30%	350%	Skeleton Black	91%	30%	Extreme high-end (e.g. art repro)

Table 1: Generic ICC output profiles included with FlexColor.

GCR stands for gray color replacement. It is a scheme for adding black to dark colors, thereby reducing the total amount of ink applied. A high percentage of GCR results in more black ink in the image (and, consequently, less ink of other colors).

The skeleton black scheme does not add nearly as much black - especially in the colors, thus resulting in brighter colors, but also requiring higher quality paper. These profiles also specify the minimum ink percentage in each channel that a color must have before any black is added at all.

If you are not sure which profile to use, ask your printer if there is a limit on the maximum ink percentage and be sure to choose a profile that limits the percentage appropriately. In the majority of cases, the Flextight 330% Skel. K. 75/30% profile will provide the best results.

In some cases, a ICC profile for your (or your service bureaus) specific output device may be available. If so, then use it instead.

If your results are not satisfactory, then speak with your printer for advice about how you should modify the profile. See "Editing ColorSync Color Profiles" on page 46 for instructions.

# Editing ColorSync Color Profiles

NOTE! The profile editor is only available with the Mac OS version of **FlexColor**.

Flextight includes both a ColorSync input profile designed for the Flextight scanner and a set of generic output profiles, each of which is designed to create good results under a different set of conditions.

These generic profiles will deliver adequate to excellent results. If, after testing an output profile and speaking with your printer, you find that you would like to fine tune an output profile, then follow the procedure below.

The settings available for editing the output profiles are both highly detailed and very powerful. In general, they are intended for users who are very experienced in making color separations. Most likely, you should speak with your printer about how to make these settings. The Flextight scanner includes a Fax to Printer sheet, which you can deliver or fax to your printer to help you fill-in these numbers if necessary.

1. Run the **FlexColor** application.

2. Choose **Setup** from the **File** menu. Then click on the **ColorSync**™ tab.
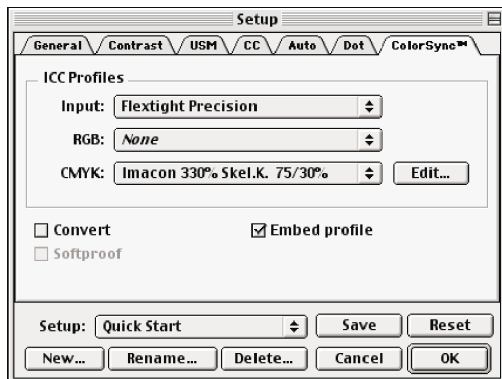

3. Use the **Output** pop-up menu to select the profile you would like to edit. Note that the profile you select must be as close as possible to the profile you want to make - you are not able to create a completely different profile using the editor. The menu lists all of the profiles currently installed in the **ColorSync**™ **Profiles** folder in the **Preferences** folder of your **System Folder**.

4. Click on the **Edit** button. The **Output Profile** window appears.
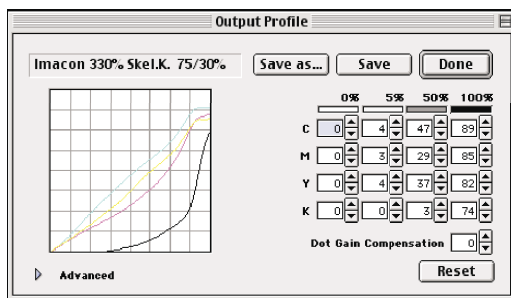
5. We recommend that you save your edited profile using a new name, so click on the **Save as...** button.

The **Create New Profile** window appears. Type a name for your edited profile and click on the Create button.

```
Create new Profile:

Custom Output Profile

        Cancel    Create
```
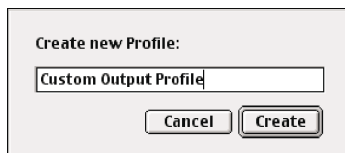
6. Return to the **Output Profile** window. It shows the output values applied in the final separated file for each color at each of four brightness (neutral-gray) levels (0%, 5%, 50%, and 100%). By adjusting these levels, you are able to control how colors will appear in your output. For example, if your prints look too yellow in the highlights, then you could turn down the Y value for 0% and/or 5% values. In many cases, this is all the level of detail you will need.

7. The **Dot Gain Compensation** setting compensates for the default dot-gain setting of the existing profile. The setting is relative, and can be positive or negative. Generally, this value varies from printer to printer. Finding the correct setting will require some trial and error.

8. If you need to make even more detailed adjustments, then click on the triangle next to the **Advanced** heading.
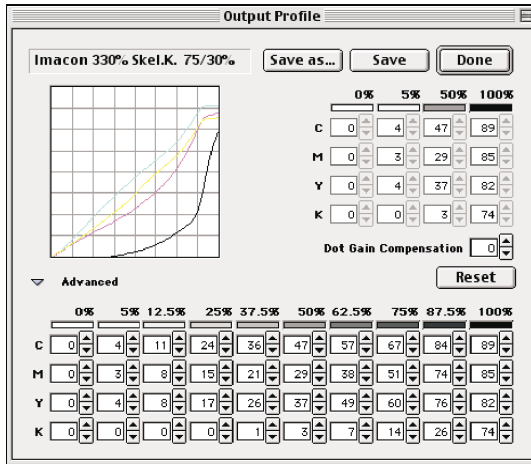
9. The **Advanced** section includes value settings for even more gray levels. These settings include the same four levels that you were able to adjust using the standard part of the **Output Profile** window.

10. When you are done making settings in the window, click on the **Save** button to apply the settings to your new profile.
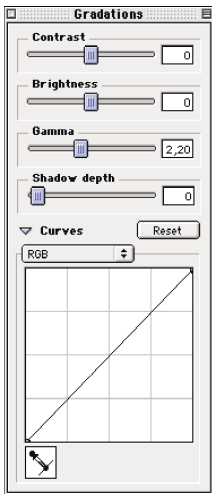
The Gradations Window

Introduction

The functions described in this section will not always be needed during normal scanner operation. They enable you to make fine adjustments to your output scan that will affect brightness and contrast and will compensate for printing conditions. As with the advanced highlight and shadow controls, take care when using the **Gradations** settings. Take some time to experiment with its settings. Look at the preview to see how the curve will effect scans. Take some final scans after using the settings and inspect them closely. Take notes on the kind of settings you use and make a comparative proof print.

To open the **Gradations** window, click on the **Gradation** button in the **Correction** area of the main **FlexColor** window, or select **Gradations** from the **Windows** menu.

The **Gradations** window includes sliders for **Contrast**, **Brightness**, **Gamma** and **Shadow depth**. It also includes a gradation curve, which is a plot of input brightness (on the horizontal-axis) versus output brightness (on the vertical-axis). You can hide or show the curve by clicking on the small triangle beneath the **Shadow depth** slider.

All of the settings you make using the curves and sliders in the **Gradations** window are saved with the current setup. The contrast, brightness, gamma and shadow depth settings can also be adjusted using the **Contrast** tab of the **Setup** window.

Using the Sliders

The sliders provide a quick and easy way to adjust the contrast, brightness, gamma, and/or shadow depth of your images. These adjustments affect the image, but are not reflected on the gradation graph that appears at the bottom of the window if you click on the triangle.

The sliders behave as follows:

- **Contrast**: This control affects the contrast in the image. Positive values increase contrast in the overall image by compressing the contrast in the highlight and shadow areas. Negative values reduce contrast in the midtones, but improve visibility at the extremes of the tonal range. This control is easy to use, but is less precise than using the curve.

- **Brightness**: This control affects the brightness of all points in the image. Positive values brighten the image, negative values darken it. This control is easy to use, but is less precise than using the curve.

- **Gamma**: The gamma setting applies a predefined gradation curve. However, unlike the standard gradation curve, the gamma setting is strictly controlled, so it enables you to use a color management program that is calibrated to the Flextight scanner at a given gamma setting. The default is 2.0. If you raise the gamma setting, then the image will become lighter and more details will be visible in the dark areas. The opposite occurs if you decrease the setting.

- **Shadow depth**: This setting controls a complex algorithm that affects the level of detail visible in the shadow areas of your image. The higher you move this slider, the more detail you will be able to see in the shadows. However, this will also reduce contrasts in the rest of the image. A setting of zero effectively disables this feature.

To neutralize all settings in all color channels of the gradation curve and sliders, click on the **Reset** button. None of your other **FlexColor** settings will be affected.

NOTE! The sliders affect all colors equally. They are not affected by the setting in the color channel pop-up menu located above the gradation curve.

Using the Color Picker

The **Color Picker** in the lower left corner of the **Gradations** window enables you to place a gravity point on the curve at the brightness of a point that you select in the preview. Click on the eyedropper icon to activate the gradations color picker, then click on a point in the preview to place the gravity point. See the next section for more information about using the curve.
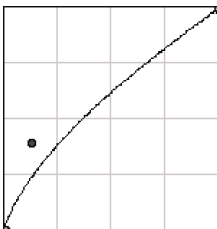
Using the Curve

The gradation curve is a plot of input brightness (on the horizontal-axis) versus output brightness (on the vertical-axis). It provides extremely detailed control over brightness and contrast in your final image, and even provides individual control over each color channel. You can hide or show the curve by clicking on the small triangle beneath the **Shadow depth** slider.

To adjust the curve, click and drag on the graph. Each time you click on a new point, you will create a gravity point, which will pull the curve toward itself. This system makes sure that the curve is always smooth. The preview image will update to reflect your changes.

Here are some guidelines to help you make adjustments to the gradation curve:
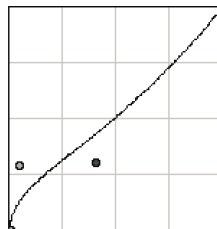
More overall brightness　　More overall contrast　　More shadow details

- To add a gravity point to the curve, click anywhere on the graph.
- To remove a gravity point from the curve, click on the point and then press the backspace button on your keyboard.
- A neutral (default) gradation curve is a straight, diagonal line from the lower left to the upper right of the graph.

- To add brightness to the image (without affecting the highlight value), drag the curve up above neutral. To darken an image, drag it below neutral.

- To reduce the contrast in the shadow, midtone, or highlight make the curve more flat on the bottom-left, center, or top-right areas respectively.

- To increase the contrast in the shadow, midtone, or highlight make the curve more steep on the bottom-left, center, or top-right areas respectively.

- To adjust the gradation in a single color channel, use the pop-up menu located above the gradation curve. Options are: **RGB**, **Red**, **Green**, **Blue**, **Cyan**, **Magenta**, or **Yellow**. This gives you a very powerful method of adjusting color in your images.

- To adjust the gradation without changing the color balance, set the pop-up menu above the gradation curve to RGB.

- All of the settings made to the gradation curve are saved with the setup, just as all of the settings shown in the **Setup** window. See "Managing Setups" on page 26 for instructions about how to select, load and save setups.

- To neutralize all settings in all color channels of the gradation curve and sliders, click on the **Reset** button. None of your other **FlexColor** settings will be affected.

Keyboard Shortcuts

While working with the gravity points on the gradation curve you have the following possibilities:

- Pressing **ctrl-tab** to step between gravity points (when more than one point is defined)

- To move a gravity point, either drag it with your mouse or activate it and then use the arrow buttons on your keyboard. Hold down the **ctrl** key to move the point in larger increments.

- While dragging a gravity point using the mouse, hold down the **shift** key to restrict its movement to the horizontal direction.

Setting the Threshold for Lineart Scans

When you are scanning in **Lineart** mode, **FlexColor** applies a threshold to the scan to create an image in which every pixel is either completely black or completely white. In this case, the gradation curve is simply a vertical line. You can move this line left or right to adjust the input level at which the threshold is applied.

Click and drag on the line to adjust the threshold level to the right (which cause more pixels to go to black) or the left (which will cause more pixels to go to white).

The Histogram Window

Introduction

The easiest way to set the highlight and shadow points is to use the Auto tonal range button in the main **FlexColor** window. However, in some cases, the auto function will not provide the desired results. The color pickers and sliders in the **Histogram** window provide the tools you need to fine tune your highlight, shadow, and midtone points.

- The Highlight Point is the brightness above which all input pixels will be output at white (usually 255, unless you have set values in the **Dot** tab sheet of the **Setup** window - see "The Dot Tab" on page 36 for details).

- The Shadow Point is the brightness below which all input pixels will be output at black (usually 0, unless you have set values in the **Dot** tab sheet of the **Setup** window - see "The Dot Tab" on page 36 for details).

- The Midtone Point is the brightness exactly midway between the highlight and shadow points. You are only able to set midtone points in the red, green, and blue channels - not for the overall image. These settings are used to control the color cast.

You must take care when using these settings, as they can have a powerful effect on your scans. Take some time to experiment with them. Look at the preview to see how these settings will effect scans. Take some final scans after using these controls and inspect them closely. Take notes on the kind of settings you use and make a comparative proof print.
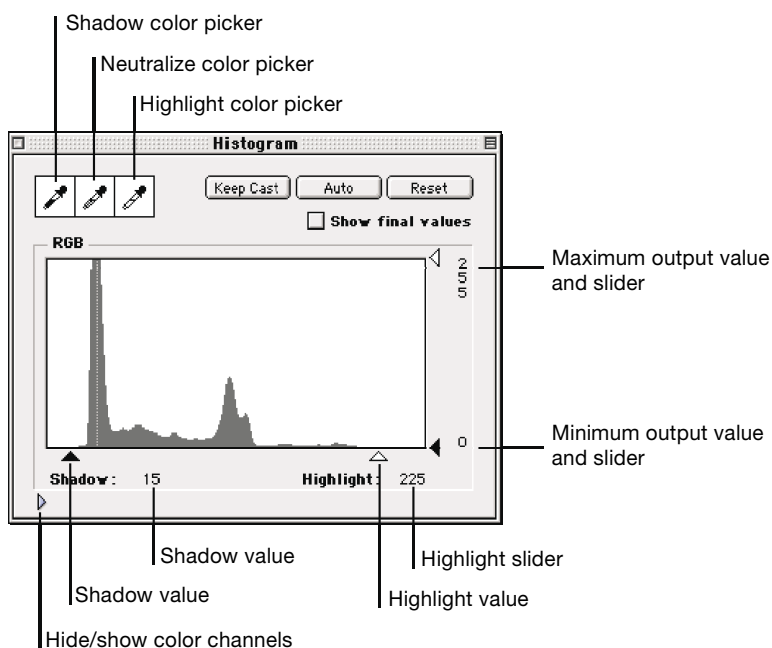
If you do not have any experience with scanning, then you should speak with an experienced scanner operator about how these controls will affect your images. Ask him or her what to look for when you are evaluating your proof prints. You should also read some books about scanning, digital imaging, and color reproduction.

The Histogram Display

To open the **Histogram** window, click on the **Histogram** button in the **Correction** area of the main **FlexColor** window, or select **Histogram** from the **Windows** menu.

The **Histogram** window contains a graph that indicates the tonal range of your image. The graph displays the number of pixels (on the vertical axis) of each brightness (on the horizontal axis). Pixels with a value of 0 (black) are shown on the left; pixels with a value of 255 (white) are shown on the right.

Shadow color picker

Neutralize color picker

Highlight color picker

Maximum output value and slider

Minimum output value and slider

Shadow value

Highlight slider

Shadow value

Highlight value

Hide/show color channels

Color Pickers

These enable you to click on pixels in your image to set highlight, shadow and neutral points. See "The Histogram Color Pickers" on page 60 for more information about using them.

Sliders

Click and drag the sliders to set the highlight and shadow points and to set the minimum- and maximum output values. The min. and max. output values reflect the settings on the **Dot** tab of the **Setup** window.

NOTE! You can also use the arrow keys on the keyboard to move a slider once it has been selected. Hold down the **ctrl** key to move in larger increments. Use **ctrl-tab** to step between sliders.

Keep Cast Button

Click on this button to keep the highlight level, but to remove all settings that affect the color cast. For example, if you used the Auto function to remove color cast, highlight and shadow values will be assigned separately in each channel in an attempt to create a true, neutral highlight point. If you then clicked on the **Keep Cast** button, all highlight sliders will be set to the same value, thus keeping the highlight level, but preserving the color cast in the original image. To turn the auto cast removal on or off, use the **Auto** tab of the **Setup** window, as described in "The Auto Tab" on page 35.

Auto Button

Click on this button to have **FlexColor** assign highlight and shadow values based on the histogram of your image. If the current setup is configured to remove color cast, the image will also be automatically neutralized. The **Auto** tab of the **Setup** window contains settings that affect the way this function works and turn the color correction on and off. See "The Auto Tab" on page 35 for more information.

Reset Button

Click on this button to remove all highlight, neutralize, color cast and shadow settings.

Show Final Values Checkbox

Mark this checkbox to display the histogram as it appears after the highlight and shadow values are applied. Remove the check to work while viewing the histogram of the scanned image before these settings are applied.

Hide/Show Color Channels

Click on this triangle to display separate histograms for each color channel. You are able to adjust highlight and shadow values separately for each. Note that each of the color channel histograms has a gray slider for setting the midtone point. The relative position of the slider between each color channel affects the color balance of the overall image. These sliders indicate the setting made using the neutralize color picker.
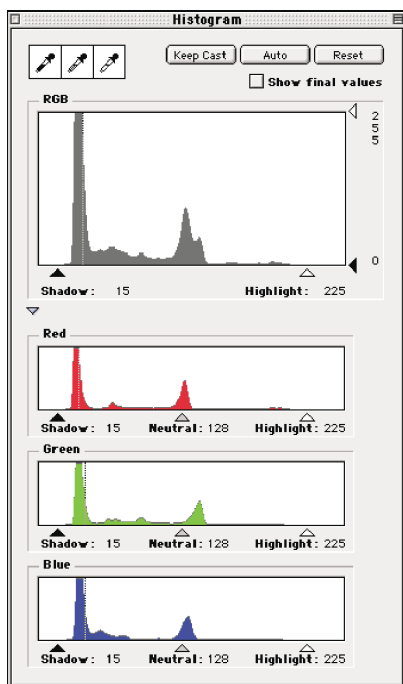

The Histogram Color Pickers

The histogram color pickers enable you to point at any pixel in your preview image and assign the highlight, midtone, or shadow point based on the value of that pixel.
Both the highlight and shadow color pickers will affect the brightness and contrast in your image by choosing the tonal range.
The neutralize color picker will only affect the color balance without adjusting overall brightness.

To use the color pickers:

1. Click on the appropriate eyedropper button for the type of tonal range setting you would like to make. Your mouse pointer turns into the selected eyedropper.

2. Move the mouse pointer over the preview image; note pixel value readings that appear in the **Color** area of the main **FlexColor** window. Note that the numbers displayed in the **Color** area are the current values (after histogram or gradation settings).
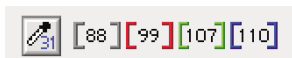
3. The **Magnifier** window, which shows a magnified view of the preview image under the color picker, can help you see individual pixels. To open the **Magnifier** window, select **Magnifier** from the **Windows** menu (or click on the **Magnifier** button in the **Zoom** area of the main **FlexColor** window). Note that the selected pixel is out-lined at the center of the window.

4. Place the tip of the eyedropper over an appropriate pixel in the preview image.
    *   When selecting a highlight point, select an object in the image that you would like to have print white. Check the pixel values at several potential white points to help you pick the best one (usually the brightest one that is not already at the maximum of 255 in any of the colors). All pixels brighter than the one you selected will burn out.
    *   When selecting a shadow point, select an object in the image that you would like to have print black. Check the pixel values at several potential black points to help you pick the best one (usually the darkest one that is not already at the minimum of 0 in any of the colors). All pixels darker than the one you selected will be black.

- When selecting a neutralize point, select an object in the image that should be a neutral (gray) color. This will not affect the image brightness, only the color cast. For best results, select a point close to the middle of the exposure range, for example with RGB pixel values around 150.

5. Click on the target point. The highlight, shadow or gray value will be reassigned to the values shown for that pixel in the info area. Your screen will be instantly updated.

6. Inspect the preview using the **Magnifier** window and **Color** area. Look for areas that are burned-out (showing values of 255) and also check the shadow areas to be sure you have not hidden any details in these areas.

Neutralizing Colors

Sometimes, variations in film emulsions and other factors will corrupt the colors in your originals. If your image contains an area that should look flat gray or white, but instead shows a color cast, then you can correct it using the neutralize color picker as described in the previous section. You can adjust the color cast manually by using the sliders in the expanded **Histogram** window as described earlier.

Note also that you can remove color cast in your highlight and shadow areas by using the **Auto** highlight and shadow button or the highlight and shadow color pickers. This is optional, according to the settings in the **Auto** tab of the **Setup** window. See "The Auto Tab" on page 35 for more information.

Selective Color Correction

Introduction

Sometimes you need more control over the image colors than simply removing a color cast. **FlexColor** features a powerful selective color correction feature, which enables you to adjust the appearance of specific colors throughout your image.
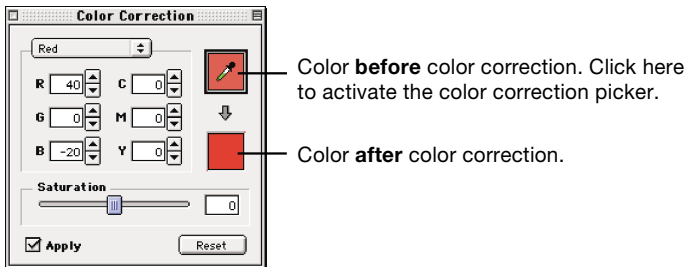
Opening the Color Correction Window

To open the **Color Correction** window, click on the **Color Correction** button in the **Correction** area of the main **FlexColor** window, or select **Color Correction** from the **Windows** menu.

Using the Color Correction Window

To use the **Selective Color Correction**:

1. Open the **Color Correction** window by selecting **Color Correction** from the **Windows** menu, or clicking on the **Color Correction** button in the main **FlexColor** window.

Color **before** color correction. Click here to activate the color correction picker.

Color **after** color correction.

2. Click on the upper square area to the right in the **Color Correction** window to activate the color correction color picker.

3. Click on the color in the preview image that you would like to change. The color will immediately appear in the top (before) color

box. Offsets to its pixel values are listed in the **R**, **G**, **B**, **C**, **M**, and **Y** fields (by default, these values are all set to zero).

4. The pop-up menu near the top of the window displays the nearest primary color to the one you picked in the preview. Adjusting this color will have the most dramatic effect on the color you chose. However, if you wish to edit a different primary color, then select a different color from the pop-up menu.

5. Add or subtract any of the other colors using the arrow buttons and numerical entry fields provided for each color channel. Positive values will add the respective color, negative values will remove it. All pixels containing the color selected in pop-up menu will be adjusted proportionately.

6. If you would like to change the saturation throughout the image, then use the **Saturation** slider. The hues will remain the same, but all of the colors will become either more or less strong, depending on whether you choose a positive or negative setting, respectively.

7. The lower square updates to show the effects your changes will have on the color you selected in the preview. Continue to adjust the settings until you are satisfied with the color shown in this box.

Note also the **Apply** checkbox. When this box is checked, the color correction will be applied to your preview and final scan. Remove the check to disable color correction without erasing your settings. Click on the box to toggle the check.

The **Reset** button returns all color correction setting to neutral. It does not affect any of your other **FlexColor** settings.

You can also view and edit settings made in the **Color Correction** window by looking at the **CC** tab in the **Setup** window. The color correction settings are saved and loaded together with all of the other settings in the **Setup** window, so you can keep a library of your favorite settings by saving a new **Setup** file for each one. See "Managing Setups" on page 26 for more information.

NOTE! If you are using the **Gradations** window to lighten the image, then you may notice that the saturation decreases. To compensate, you may then increase the saturation in the **Color Correction** window, which will make the image look a bit darker again. Avoid entering a cycle in which you repeat each of these settings until both windows are set to extremes. Extreme settings will typically degrade your image.

Unsharp Masking

Introduction

As your images are scanned, the unsharp mask filter applies an algorithm that increases contrast along sharply defined edges.

Unsharp masking has the potential to both improve and degrade your image - it makes the features more sharp, but can also bring out noise or graininess. Most typically, noise will appear first in the dark areas of the image. This is why **FlexColor** enables you to take final-resolution previews of the sharpness effect at two different parts of your image. Use one preview to see if there is enough sharpness to bring out the important features in the bright or midtone areas. Use the other preview to check if the setting will bring out too much noise in the dark areas.

Using the Unsharp Mask Window

To open the **Unsharp Mask** window, click on the **Sharpness** button in the **Correction** area of the main **FlexColor** window, or select **Unsharp Mask** from the **Windows** menu.
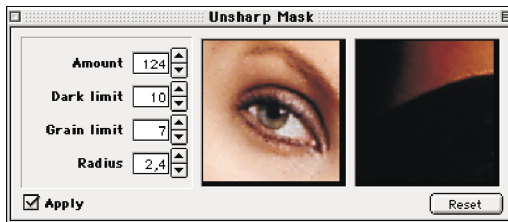
To change the filter's settings, click in the appropriate field and edit the value with your keyboard or use the up and down arrow buttons. The controls have the following effects:

- **Amount**: Controls the strength of the sharpening effect. The higher the value, the stronger the sharp lines will become.

- **Dark limit**: Sets the brightness level below which the filter has no effect. This will keep the filter from enhancing noise or unwanted textures in your image. The higher this number, the less extensive the sharpening effect will appear.

- **Grain limit**: Prevents the filter from sharpening low-contrast features in the image, such as film grain, noise, or textures. It works by comparing brightness of each pixel to the brightnesses of its surrounding pixels. If brightnesses differ by less than the **Grain limit**, then no sharpening is applied to the target pixel. If your image looks grainy after sharpening, try to increase the **Grain limit** setting.

- **Radius**: Sets the radius in which the unsharp masking algorithm looks for sharp edges. The larger the radius, the more extensive the sharpening effect will be. The setting you choose will depend on the contents on your image and the resolution you are using. Generally, use a large radius with high-resolution images. Use a smaller radius for lower resolutions images.

To preview your settings, click on one of the square areas on the right side of the **Unsharp Mask** window, then click on a target area in the preview image of the main **FlexColor** window. The scanner will take a new high-resolution scan of a small area of your original and show a preview of your settings in the **Unsharp Mask** window. Both previews behave in exactly the same way. There are two of them so that you can compare the sharpening effect in two different areas of your image. Use one to check for enough sharpness in the bright or midtone areas. Use the other to check for noise resulting from too much sharpness in the shadow areas.

The **Apply** checkbox turns the unsharp masking filter on or off. When the box is checked, the filter will be applied to your final scan and to the preview image. To disable the filter, remove the check. Click on the box to toggle the check.

The **Reset** button returns the filter to its default settings (Amount=100, Dark limit=10, Grain limit=0, and Radius=1). None of your other **FlexColor** setting will be affected.

It is also possible to apply different amounts of sharpening to each color channel. This is controlled on the **USM** tab of the **Setup** window. See "The USM (Unsharp Masking) Tab" on page 31 for instructions.

The Magnifier Window

Introduction

The **Magnifier** window shows a magnified view of the preview image. The image shown is of the area surrounding the mouse pointer. This window enables you to see and select individual pixels from the pre-view. The pixel directly under the cursor is outlined at the center of the window.

This window is especially useful when you want to read color values for a specific pixel in your image.

Opening the Magnifier Window

To open the **Magnifier** window, click on the **Magnifier** button in the **Zoom** area of the main **FlexColor** window or select **Magnifier** from the **Windows** menu.

Batch Scanning

Introduction

FlexColor is able to create several different scans of one or more originals contained in a single original holder. The process is called batch scanning. Each scan in the batch can have completely different settings for all ColorFlex windows, including resolution, crop, color space, sharpening, tonal range, color correction, gradation, and all setup tabs.
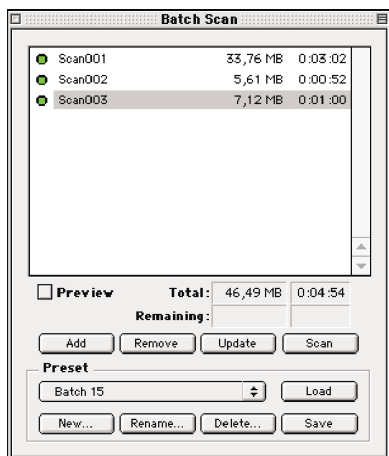
To open the **Batch Scan** window, click on the **Batch Scan** button near the top of the main **FlexColor** window, or select **Batch Scan** from the **Windows** menu.

Setting up a Batch Scan

1. Define a crop area and make scan settings in the **Size** area of the main **FlexColor** window and in all **Setup** and **Correction** windows.

2. Click on the **Batch Scan** button at the top of the main **FlexColor** window or select **Batch Scan** from the **Windows** menu. The **Batch Scan** window appears.
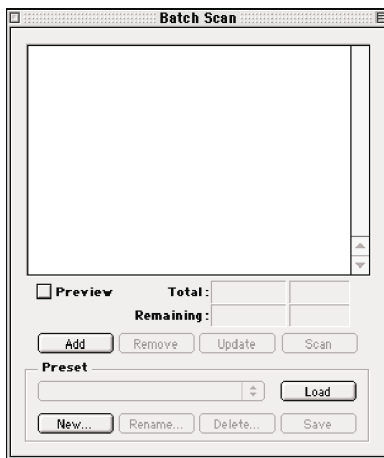
3. Click on the **Add** button. A standard file save window will appear. Use the window to choose a folder and file name with which to save the scan. The scan will not be taken yet, but its name will be added to the list in the **Batch Scan** window.

4. Make all settings for the second scan you want to take. All settings in all **FlexColor** windows are relevant.

5. Repeat steps 3 and 4 until you have defined all of the scans you want to make.

6. If you want to change any of your previously defined scans, click on the scan name in the **Batch Scan** window and make changes in the other **FlexColor** windows. Then return to the **Batch Scan** window and click on the **Update** button to save your changes. To remove a scan from the batch set, click on the scan name and then click on **Remove**. Note that you can work faster when editing the batch set by removing the check form the **Preview** box. When this box is not checked, the preview image in the main **FlexColor** window will not update each time you click on a new scan in the **Batch Scan** window. When the **Preview** box is checked, the preview updates each time, which takes about a second.

7. When you are finished defining the scans, click on the **Scan** button. **FlexColor** scans and saves all of the scans you have defined.

Getting Information about Each Scan

You can see an information window about any scan listed in the **Batch Scan** window. To see the **Batch Scan Info** window, double click on a scan name from the list in the **Batch Scan** window.
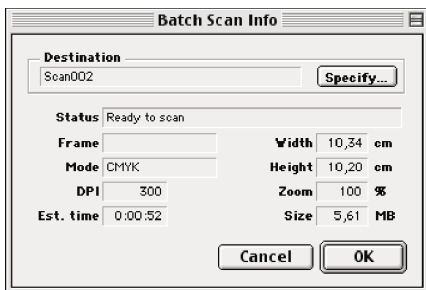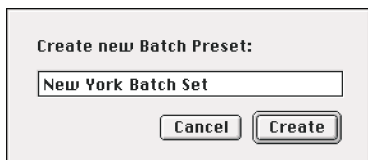

The window shows the following information:

- **Destination**: Shows the name assigned to the selected scan.
- **Specify button**: Click here to change the **Destination** name and folder.
- **Status**: Shows the status of the scan. If you are having problems with the batch scan, look here for help.
- **Frame**: Shows the original holder being used.
- **Mode**: Shows the color mode (e.g., CMYK or RGB) that the scan will be saved in.
- **DPI**: Shows the output resolution of the scan.
- **Est. time**: Shows and estimate of how long the selected scan will take.
- **Width**, **Height**, and **Zoom**: These fields display the output size of the final scan and the zoom level compared to the original.
- **Size**: Shows the file size of the final scan.

Working with Batch Presets

If you want to save a batch preset, then click on the **New** button in the **Batch Scan** window. The **Create New Batch Preset** window appears. Type a name and then click on **Create**.
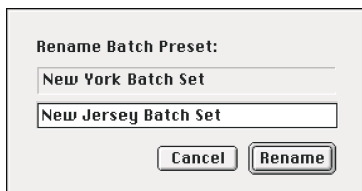
```
Create new Batch Preset:

New York Batch Set

        [ Cancel ]  [[ Create ]]
```

The preset name then appears in the pop-up menu in the **Preset** area. If you have several batch presets saved, then you can use the pop-up menu to switch between them.

To rename a batch preset, select the preset in the pop-up menu, then click on the **Rename** button. The **Rename Batch Preset** window appears. Type a new name and then click on **Rename**.

```
Rename Batch Preset:

New York Batch Set

New Jersey Batch Set

        [ Cancel ]  [[ Rename ]]
```

To delete a batch preset, select the preset in the pop-up menu, then click on the **Delete** button.
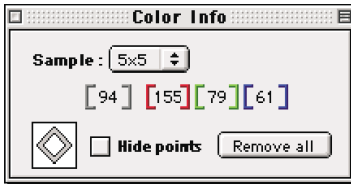
The Color Info Window

Introduction

The **Color Info** window enables you to read pixel values at any point in your image. You can also set up to five fixed **Sample points** and read the values at all of them simultaneously to monitor the effects of your other settings.

To open the **Color Info** window, click on the **Color Info** button in the main **FlexColor** window or select **Color Info** from the **Windows** menu.

## Reading Values in the Color Info Window

To use the **Color Info** window, place the mouse cursor over the preview image. The number fields in the window indicate the pixel brightness at the selected position in the image. Note the following:

- When showing RGB, the values indicate pixel brightness values (0 - 255) with white = 255, 255, 255.
- When showing CMYK, the output values indicate ink percentage values (0 - 100) with white = 0, 0, 0, 0. However, input values are still shown in RGB, as described above.

The **Sample** pop-up menu indicates the size of the area sampled by the color picker (mouse cursor). The numbers shown in the **Color Info** window indicate averages of the values found in the sample area. You can choose a setting of 5x5, 3x3 or 1x1 pixels.

Setting Fixed Sample Points

You are able to set up to five fixed **Sample points** so that you can monitor the effects that your settings are having in key areas around your image. Each sample point is indicated with a diamond and a number in the preview image. The current values for each sample point are shown next to the appropriate number in the **Color Info** window.
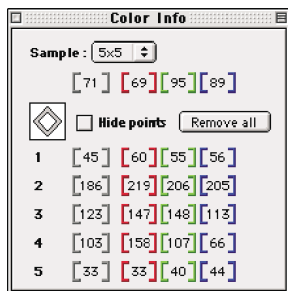
To set a sample point, click on the **Sample Point** button, which will turn grey when it is activated. Then click on a point in your image to place the point. A numbered diamond will then appear on the preview image at the point you select.

You can work with the sample points as follows:

- To move an existing sample point, activate the sample point picker by clicking on the **Sample Point** button to make it grey, then click and drag on the target point.
- To delete an existing sample point, activate the sample point picker, click once on the target point and then press the backspace button on your keyboard.
- To keep the existing sample points, but hide them in the preview, mark the **Hide points** check box. To view and/or edit the points again, remove the mark from this check box.
- To remove all sample points from your preview click **Remove all**.

CCD Calibration

Introduction

To make sure all of the pixels in the CCD react equally to low levels of light, your scanners CCD should be calibrated. If it is not, you may see some faint single-pixel striping in very dark areas of positives or in light areas of images that were scanned from negatives. The problem, which is present in all CCD scanners, is most noticeable when you scan 35 mm negatives.

The CCD calibration information is stored in a flash PROM inside the scanner, not on your hard disk. This means that the CCD calibration (unlike the white calibration) is preserved when you move the scanner to a new computer.

IMPORTANT! Do **not** perform CCD calibration unless you are upgrading your software for use with a scanner that was delivered with ColorFlex software older than version 1.9. If your scanner came with version 1.9 or higher, then CCD calibration has been done at the factory; we highly recommend that you do not repeat it again yourself (recalibration is neither necessary or advisable).

Making a CCD Calibration

See the hardware documentation for your scanner for more information about calibration. However, as mentioned above, if you are upgrading from an older version of the software, then your hardware manual will not mention CCD calibration. Use the procedure below to calibrate your CCD sensor using **FlexColor**.

1. Find or make a color negative original showing a clear blue sky, or something similar. The original must not have too many sharp contours in it.

2. Mount the original in the 36 x 24 (landscape) original holder and set the original format in the **Frame** pop-up menu as usual.

3. Choose **CCD calibration** from the **Maintenance** menu. The **CCD calibration** window appears.
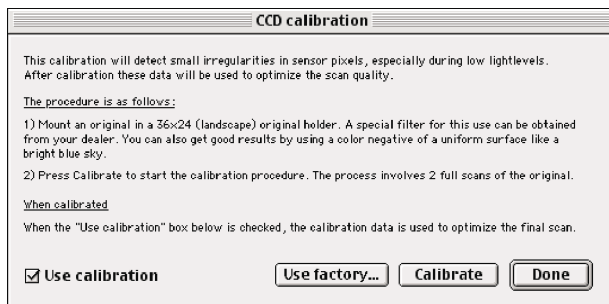
4. Read the information provided in the **CCD calibration** window, then click on **Calibrate**. The scanner will scan the image. When it is done, mark the **Use calibration** checkbox, then click on **Done**.

    NOTE! If your scanner was calibrated at the factory, then a warning will appear if you try to make a new CCD calibration. It is possible to dismiss the warning and continue, but we do not recommend that you recalibrate.

If it seems like the new CCD calibration only made your scans come out worse, it is probably because your calibration image contained too many contours.

You have two options for removing the effects of a faulty new calibration:

*   If your scanner was calibrated at the factory, you can return to the original CCD calibration by opening the **CCD calibration** window again and clicking on the **Use factory** button.
*   If your scanner was not delivered with a factory CCD calibration, you can remove the new calibration by opening the **CCD calibration** window again and removing the mark form the **Use calibration** checkbox.

If you were having striping problems and the CCD calibration simply didn't help, then the source of the problem may lie elsewhere; see the *Getting Started...* manual for troubleshooting advice.