Fiery EX12/EX2000d

COLOR GUIDE

About the Documentation

This manual is part of a set of Fiery® documentation that includes the following manuals for users and system administrators:

- The *Quick Start Guide* summarizes the steps for configuring the Fiery and printing. It also describes how to access the online documentation.

- The *User Software Installation Guide* describes how to install software from the User Software CD to enable users to print to the Fiery, and also describes setting up printing connections to the Fiery.

- The *Configuration Guide* explains basic configuration and administration of the Fiery for the supported platforms and network environments. It also includes guidelines for setting up UNIX, Windows NT 4.0, and Novell NetWare servers to provide printing services to users.

- The *Printing Guide* describes the printing features of the Fiery for users who send jobs from their computers.

- The *Color Guide* provides information on managing the color output of the Fiery. It explains how to calibrate your Fiery and take advantage of the ColorWise® color management system, as well as features in ColorWise Pro Tools™.

- The *Fiery Color Reference* addresses concepts and issues associated with managing color output of the Fiery and outlines key workflow scenarios. In addition, it offers information on printing color documents from popular Microsoft Windows and Apple Mac OS applications.

- The *Job Management Guide* explains the functions of the Fiery client utilities, including EFI Command WorkStation™ and Fiery DocBuilder Pro™, and how you can use them to manage jobs and maintain color quality. This manual is intended for an operator or administrator, or a user with the necessary access privileges, who needs to monitor and manage job flow, perform color calibration, and troubleshoot problems that may arise.

- *Customer Release Notes* provide last-minute product information and workarounds for some of the problems you may encounter.

FCC Information

WARNING: FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Class B Declaration of Conformity

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Industry Canada Class B Notice

This Class B digital apparatus complies with Canadian ICES-003.

Avis de Conformation Classe B de l'Industrie Canada

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

RFI Compliance Notice

This equipment has been tested concerning compliance with the relevant RFI protection requirements both individually and on system level (to simulate normal operation conditions). However, it is possible that these RFI Requirements are not met under certain unfavorable conditions in other installations. It is the user who is responsible for compliance of his particular installation.

Dieses Gerät wurde sowohl einzeln als auch in einer Anlage, die einen normalen Anwendungsfall nachbildet, auf die Einhaltung der Funkentstörbestimmungen geprüft. Es ist jedoch möglich, dass die Funkentstörbestimmungen unter ungünstigen Umständen bei anderen Gerätekombinationen nicht eingehalten werden. Für die Einhaltung der Funkentstörbestimmungen einer gesamten Anlage, in der dieses Gerät betrieben wird, ist der Betreiber verantwortlich.

Compliance with applicable regulations depends on the use of shielded cables. It is the user who is responsible for procuring the appropriate cables.

Die Einhaltung zutreffender Bestimmungen hängt davon ab, dass geschirmte Ausführungen benützt werden. Für die Beschaffung richtiger Ausführungen ist der Betreiber verantwortlich.

Software License Agreement

YOU SHOULD CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS BEFORE USING THIS SOFTWARE. IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT USE THE SOFTWARE. INSTALLING OR USING THE SOFTWARE INDICATES THAT YOU AGREE TO AND ACCEPT THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO ACCEPT THE TERMS OF THIS AGREEMENT YOU MAY RETURN THE UNUSED SOFTWARE FOR A FULL REFUND TO THE PLACE OF PURCHASE.

License

EFI grants you a non-exclusive license to use the software ("Software") and accompanying documentation ("Documentation") included with the Product. The Software is licensed, not sold. You may use the Software solely for your own customary business or personal purposes. You may not rent, lease, sublicense or lend the Software. You may, however, permanently transfer all of your rights under this Agreement to another person or legal entity provided that: (1) you transfer to the person or entity all of the Software and Documentation (including all copies, updates, upgrades, prior versions, component parts, the media and printed materials, and this Agreement); (2) you retain no copies of the Software and Documentation, including copies stored on a computer; and (3) the recipient agrees to the terms and conditions of this Agreement.

You may not make or have made, or permit to be made, any copies of the Software or portions thereof, except as necessary for backup or archive purposes in support of your use of the Software as permitted hereunder. You may not copy the Documentation. You may not attempt to alter, disassemble, decompiler, decrypt or reverse engineer the Software.

Contents

Chapter 3: ColorWise Pro Tools

Appendix A: Color Measurement Instruments

Appendix B: Importing density measurements

Glossary

Index

Introduction

This manual explains how to manage color output on the Fiery EX12/EX2000d Color Server™, and provides information on calibration and color profiles.

This manual is part of a set of documentation that includes manuals for users and system administrators. The other manuals should be available at your site—refer to them for a complete description of your Fiery EX12/EX2000d Color Server.

NOTE: The term "Fiery" is used in this manual to refer to the Fiery EX12/EX2000d Color Server. The term "copier/printer" is used to refer to the device supported by the Fiery. "Aero" is used in illustrations throughout this manual to represent the Fiery.

EX12 This icon specifies information that applies only to the Fiery EX12.

EX2000d This icon specifies information that applies only to the Fiery EX2000d.

About this manual

This manual is organized to supply you with key information about managing the color output of your Fiery.

• Chapter 1 describes the Fiery print options and how to get the best color results.

• Chapter 2 covers various methods of calibrating the Fiery.

• Chapter 3 takes you through the features of ColorWise Pro Tools. ColorWise Pro Tools include Profile Manager™, used to manage color profiles on the Fiery, and Color Editor™, which allows you to customize simulation and output profiles. This chapter also describes Spot On, which allows you to define CMYK equivalents for spot colors.

• Appendix A provides information about color measurement instruments, available as separately purchased options.

• Appendix B describes the Simple ASCII File Format (SAIFF), which can be used to import toner density measurements from measurement devices.

- The Glossary defines words in bold—for example, **output profile**—that appear throughout this manual. Color terms and concepts such as "RGB data," "color space," "spot color," "gamut," and "source profile" are used throughout this manual. If you are new to desktop color, or if any terms are unfamiliar, check the Glossary.

Key features of ColorWise

ColorWise is the **color management system (CMS)** designed and built into the Fiery and designed to provide both casual and expert users with the best color output for a variety of purposes. The ColorWise default settings provide great out-of-box color from many Windows and Mac OS applications. This allows casual users to achieve good quality output without knowing about or changing any color settings on the Fiery.

For consistent color, calibrate the Fiery on a regular basis. ColorWise Pro Tools include a simple-to-use calibrator, which allows you to calibrate using either the scanner that comes with the copier/printer or an optional **spectrophotometer** or **densitometer** (see Chapter 2).

ColorWise features let you modify printing results. Depending on your particular needs, you can:

- Set the behavior of **CMYK** printing to emulate **DIC**, **Euroscale**, and **SWOP** offset press standards.

- Match PANTONE and other spot colors for the best match when printed using four-color press conditions or when printed using presses with extra, custom plates.

- Select a **color rendering dictionary (CRD)**, also called a rendering style, for **RGB** printing. CRDs allow for rich, saturated printing of presentation graphics; smooth, accurate printing of photographs; and relative or absolute colorimetric rendering for specialized needs.

- Define the source of incoming RGB color data for better screen matching and provide for better color conversion of RGB data with no source information.

- Define whether RGB data is converted into the full gamut of the copier/printer or whether it is first converted into the gamut of another device, such as a press standard. This feature is very helpful for making one device behave like another. It is also useful for evaluating the appearance of the RGB file under different printing conditions without having to reprocess the RGB data each time.

ColorWise color management (ColorWise) offers an open color architecture, letting users customize the Fiery to meet new printing needs as they arise. ColorWise supports **ICC profiles**, which are industry standard color profiles that describe the color behavior of a device. Downloading ICC profiles to the Fiery enables the Fiery to simulate a custom press (or another copier/printer), as well as accurately print colors from a particular monitor or a scanner. In addition, you can create customized ICC profiles for the copier/printer.

ColorWise also lets you use any **Status T** densitometer by importing data in a standard file format (see Appendix B). In this case, it is important to note that the quality of the instrument used will determine the quality of the calibration.

Chapter 1: Fiery Color Management

The first part of this chapter describes the options available from the **ColorWise** color management system and explains how to customize the color settings for your particular needs. It provides descriptions of the preset ColorWise default settings and covers additional options for users who need to customize ColorWise.

Beginning on page 1-14 is a detailed explanation of what a **PostScript** Level 2 or 3 printer driver does, as well as information on the capabilities of various printer drivers and instructions for setting color options with the PostScript drivers for Windows and Mac OS computers.

Managing color on the Fiery

To modify the Fiery's printing behavior, do any of the following:

- Select ColorWise options for an individual print job using menus that appear in the printer driver.

- Select most ColorWise options as server defaults from the Color Setup application in ColorWise Pro Tools (see page 3-37). Defaults can also be set from Fiery Setup or from the Control Panel, as described in the *Configuration Guide*. These defaults will apply to all subsequent print jobs unless you override them.

- Select some ColorWise options, particularly default **ICC profile** settings and calibration options, from ColorWise Pro Tools. These options include default Simulation Profile (see page 1-9), Simulation Method (see page 1-10), Appear in Driver as (see page 3-8), default Source Profile (see page 1-7), RGB Separation (see page 1-8), and associated calibration set (see page 2-4).

Applications can generate color data for the Fiery in many different **color spaces**. The most common type of color data produced from office applications is RGB, while prepress applications generally produce CMYK data. Desktop applications can also generate spot colors, such as PANTONE colors. To complicate matters, a single page may contain a mix of RGB, CMYK, and spot colors. The Fiery lets users control the printing of these mixed-color documents with features that apply specifically to RGB, CMYK, or spot color data.

1

Fiery color management generates CMYK data to be sent to the copier/printer.

The following diagram illustrates the print options in the Fiery color management process that affect color data conversions. You access these print options when you send a print job to the Fiery. Most of these options and settings are described in subsequent sections of this chapter.
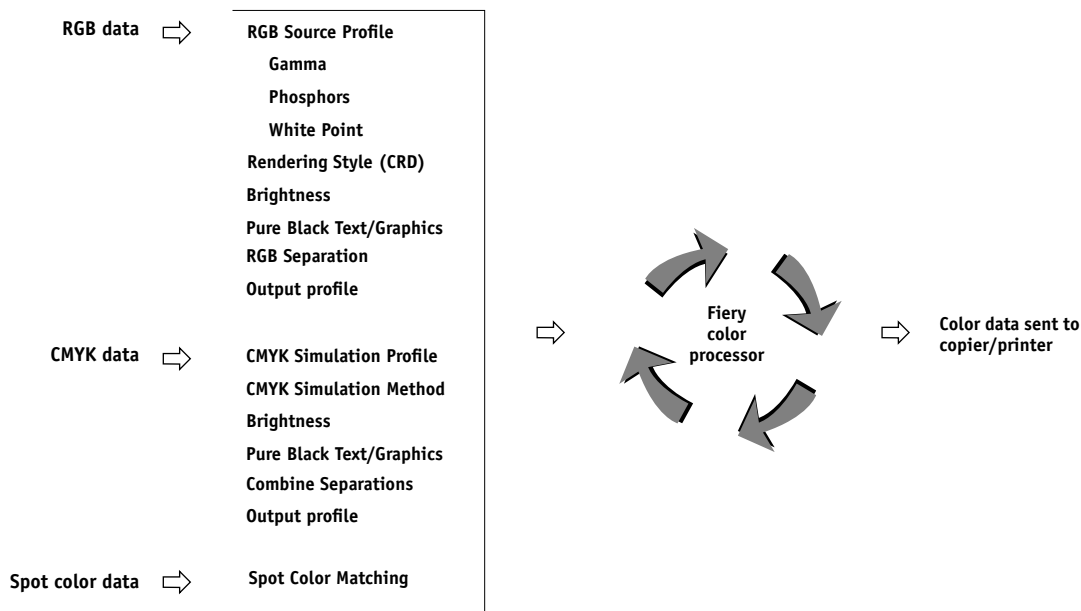
RGB Source Profile is the only color option that applies strictly to RGB color data. The other options that affect RGB color also affect the more rarely used Lab, XYZ, and other calibrated color spaces.

NOTE: For users who are familiar with PostScript 3 color, RGB Source Profile affects all CIEBasedABC color spaces (if the source space is RGB). If you send CMYK data to the Fiery in CIEBasedDEFG format, for example, by choosing PostScript Color Management in Adobe Photoshop, the Fiery Rendering Style selection—which normally affects only RGB data—will also affect this CMYK data.

Settings for the following options can be specified via print options when you send a job to the Fiery. Some can also be set as defaults by the administrator during Fiery Setup or using ColorWise Pro Tools. Settings specified via print options override the defaults.

Fiery color print option	What it does
Color Mode CMYK/Grayscale or **Print Mode** Standard Color/Expert Color/Grayscale	Specifies the output color space of the job. Select CMYK, Standard Color, or Expert Color for a full-color document.
Combine Separations `EX12` On/Off/1–PgAutomatic `EX2000d` On/Off	Specifies whether to print separated CMYK data as a single, four-color composite document (see page 1-5). If you have the Fiery Graphic Arts Package option, you can combine an unlimited number of spot color separations along with the CMYK separations.
Rendering Style Photographic/Presentation/Relative Colorimetric/Absolute Colorimetric (Default set at Setup)	Applies a Fiery **color rendering dictionary** (**CRD**) to **RGB** data (see page 1-6), or to any incoming data with a PostScript **source color space** definition, including CMYK.
Brightness 85% Lightest to 115% Darkest	Performs a color adjustment on all **color channels** to make the printed output lighter or darker.
RGB Source Profile EFIRGB/sRGB (PC)/Apple Standard/Other/ Source 1-10/None (Default set at Setup or with ColorWise Pro Tools)	Applies an RGB source space definition to RGB data (see page 1-7). If you choose the Other setting, you can specify particular settings for Gamma, Phosphors, and White Point. See the corresponding options in this table. This option, along with Gamma, Phosphors, and White Point, only affects DeviceRGB or calibrated RGB color spaces.
(Other) Gamma 1.0/1.2/1.4/1.6/1.8/2.0/2.2/2.4/2.6/2.8/3.0	Applies the specified **gamma** value to the RGB source space definition (see page 1-7). To use this print option, you must choose Other as the RGB Source setting.
(Other) Phosphors Hitachi EBU/Hitachi-Ikegami/NTSC/ Radius Pivot/SMPTE/Trinitron	Applies the specified **phosphor** (monitor type) information to the RGB source space definition (see page 1-7). To use this print option, you must choose Other as the RGB Source setting.

Fiery color print option	What it does
(Other) White Point 5000 K (D50)/5500 K/6500 K (D65)/ 7500 K/9300 K	Applies the specified **white point** value to the RGB source color space definition (see page 1-7). To use this print option, you must choose Other as the RGB Source setting.
RGB Separation Output/Simulation	Determines which CMYK **color space** your original RGB data will be separated into—CMYK for the copier/printer (Output) or CMYK for a specified simulation (Simulation) (see page 1-8). It is important to note that when RGB Separation is set to Simulation, RGB colors are affected by CMYK Simulation Profile and CMYK Simulation Method.
CMYK Simulation Profile `EX12` SWOP-Coated/DIC/Euroscale/ Simulation 1-10/Match Copy/None (Default set at Setup or in ColorWise Pro Tools) `EX2000d` SWOP-Coated/DIC/Euroscale/ Simulation 1-10/None (Default set at Setup or in ColorWise Pro Tools)	Adjusts CMYK color data to simulate an offset press standard or a custom color **gamut** defined at your site. The Match Copy setting bypasses Fiery calibration to match a copy made from the copier glass. Choosing None bypasses simulation (see page 1-9). **NOTE:** Some of the Simulation settings have slightly different names depending on the model of copier/printer.
CMYK Simulation Method Quick/Full (Source GCR)/Full (Output GCR)/With CRD (Default set at Setup or in ColorWise Pro Tools)	Quick simulation applies one-dimensional transfer curves that adjust output density only. The Full simulations apply colorimetric transformations that adjust hue as well as output density (see page 1-10).
Paper Simulation No/Yes	Adjusts color output to compensate for the white point value of the paper stock used. This option is only available as part of the Fiery Graphic Arts Package feature set.
Output Profile Output 1-10 (Default set at Setup or in ColorWise Pro Tools)	The **output profile** is applied to all data in the print job (see page 1-10). User-defined output profiles can be downloaded to the Fiery using ColorWise Pro Tools (see Chapter 3).
Pure Black Text/Graphics On/Off (Default set at Setup)	The On setting optimizes the quality of black text and line art output. (see page 1-11).

Fiery color print option	What it does
Black Overprint On/Off (Default set at Setup)	The On setting overprints black text placed on colored backgrounds; it automatically activates the Pure Black Text/Graphics option (see page 1-11).
Black Overprint Style Text/Text & Graphics	Specifies whether black overprinting should apply to text only or to both text and graphics. For this option to take effect, the Black Overprint option must be set to On (see page 1-11).
Spot Color Matching On/Off (Default set at Setup or with ColorWise Pro Tools)	The On setting enables Fiery-defined matching of spot colors to their best CMYK equivalents. If you have the Fiery Graphic Arts Package option installed, you can use Spot On to manage and edit these spot color matches (see page 3-22). Off instructs the Fiery to match color output to a CMYK combination specified by the source application for the document (see page 1-13).
Image Smoothing Automatic/Off/On/Below 90–300 ppi	The On setting enhances the print quality of low-resolution images.

Detailed explanations of how these and other settings affect your print jobs are provided in subsequent sections of this chapter.

Combine Separations

The Combine Separations setting specifies how to print separated CMYK data. If you have the Fiery Graphic Arts Package option, you can combine an unlimited number of spot color separations along with the CMYK separations. The Combine Separations options are:

- **Off** prints each separation individually.

- **On** combines separations as a single, composite-color document, and constrains the settings of the following print options: Color Mode (CMYK), Rendering Style (None), Pure Black Text/Graphics (Off), Spot Color Matching (Off).

- **1–PgAutomatic** combines separations as a single, composite-color document, overprinting plates in the order defined by the source application.

EX12

Rendering styles

The Rendering Style option specifies a CRD for color conversions. You can modify the Rendering Style option to control the appearance of images, such as prints from office applications or RGB photographs from Adobe Photoshop. The Fiery allows you to select from the four rendering styles currently found in industry standard ICC profiles.

Fiery rendering style	Best used for	Equivalent ICC rendering style
Photographic—Typically results in less saturated output than presentation rendering when printing out-of-gamut colors. It preserves tonal relationships in images.	Photographs, including scans and images from stock photography CDs.	**Image**, **Contrast**, and **Perceptual**
Presentation—Creates saturated colors but does not match printed colors precisely to displayed colors. In-gamut colors such as flesh tones are rendered well; similar to the Photographic rendering style.	Artwork and graphs in presentations. In many cases, it can be used for mixed pages that contain both presentation graphics and photographs.	**Saturation**, **Graphics**
Relative Colorimetric—Provides white-point transformation between the source and destination white points. For example, the bluish gray of a monitor will map to neutral gray. You may prefer this style to avoid visible borders when *not* printing full-bleed.	Advanced use when color matching is important but you prefer white colors in the document to print as paper white. It may also be used with PostScript color management to affect CMYK data for simulation purposes.	**Relative Colorimetric**
Absolute Colorimetric—Provides *no* white point transformation between the source and destination white points. For example, the bluish gray of a monitor will map to a bluish gray.	Situations when exact colors are needed and visible borders are not distracting. It may also be used with PostScript color management to affect CMYK data for simulation purposes.	**Absolute Colorimetric**

1

RGB Source Profile

The RGB **source profile** setting allows you to define the characteristics of the RGB data in your document so that the appropriate color conversion can occur on the Fiery. Commonly used monitor color spaces are available from the driver and from the ColorWise Pro Tools Profile Manager. In addition, for special needs you can use ColorWise Pro Tools to download custom monitor or scanner profiles.

When you specify a setting other than None for the RGB Source Profile, the Fiery overrides source color space definitions or profiles that other color management systems may have specified. For example, if you specified a ColorSync System Profile on your Mac OS computer, the RGB Source Profile setting overrides it. In cases where you do *not* want this setting to override another specified source color space, choose the None setting.

When you specify a setting other than None for the RGB Source Profile—since the color space definitions are overridden—the prints from the Fiery will be consistent across platforms. The Fiery RGB Source Profile options are:

- **EFIRGB** specifies an EFI-defined color space recommended for users who have no detailed information about their RGB data.

- **sRGB (PC)** specifies the industry standard definition for a generic Windows PC monitor.

- **Apple Standard** specifies the definition of all standard Mac OS computer monitors.

- **Other** allows you to specify custom RGB source settings. If you choose Other as the RGB Source setting, you can choose settings for the Gamma, Phosphors, and White Point options.

- **Sources 1-10** specify the definitions you download as RGB source profiles. For more information about downloading RGB source profiles, see page 3-4.

  If you are printing with the PostScript driver from a Windows computer and have two-way communication enabled, the name of each downloaded profile is represented in the RGB Source Profile setting pop-up menu. If you are printing with the AdobePS driver from a Mac OS computer, downloaded profiles appear as Source-1 through Source-10. For more information on two-way communication, see the *User Software Installation Guide*.

1

- **None** instructs the Fiery to allow the RGB sources you defined elsewhere, such as in the application, to be used. When you set RGB Source to None, the appearance of colors will *not* be independent of the file type. For example, RGB EPS files will look different from RGB TIFF files.

  With RGB Source set to None, PostScript RGB data that contains a source color space definition is converted using the CRD specified by the Rendering Style option (see page 1-6). Non-PostScript RGB data and PostScript RGB data that does not contain a source color space definition are converted using a general **undercolor removal (UCR)** conversion method.

RGB Separation

The RGB Separation option determines how RGB colors (as well as Lab and XYZ colors) are converted to CMYK. The name of this option is meant to be descriptive, since the option defines the color spaces that will be used by the Fiery to "separate" the RGB data into CMYK values.

The two choices available for this option determine whether RGB data is converted into the full gamut of the copier/printer (**output**) or is first converted into the gamut of another digital printer or press standard (**Simulation**). This feature is helpful for making one device behave like another for RGB data. For example, if a high-quality ICC profile is available for another print device, the copier/printer can simulate the behavior of that device.

RGB Separation is also useful for prepress applications. For example, it lets you experiment with the appearance of an RGB scan under different press printing conditions, without having to convert the RGB data to CMYK data for each condition. When the desired printing condition is found, you can then convert the file to CMYK, using the same CMYK simulation profile you used during the experimentation.

NOTE: The RGB Separation print option should be used in conjunction with the Output Profile or CMYK Simulation Profile print options.

- **Output** converts all RGB colors into the CMYK color space of your copier/printer (when set to the printer's default), or a customized CMYK color space for your copier/printer (when set to Output 1-10).

1

- **Simulation** converts all RGB colors into the CMYK color space for a specified simulation (make sure to select the desired simulation with the CMYK Simulation Profile print option).

CMYK Simulation Profile

The CMYK Simulation Profile print option allows you to print press proofs or simulations. This setting specifies the offset press standard or other color printing device that you want to simulate. This option affects CMYK data only.

With the Windows 9x/Me or Windows NT printer driver, you can also view an unlimited number of custom Full simulations created using ColorWise Pro Tools. On Windows 2000/XP and Mac OS computers, you can view up to 10 Full custom simulations. The number of custom simulations is limited by the disk space on the Fiery.

If you are printing with the PostScript driver from a Windows computer and have two-way communication enabled, the name of each downloaded or custom profile is represented in the CMYK Simulation Profile setting pop-up menu. If you are printing with the AdobePS driver from a Mac OS computer, downloaded or custom profiles appear as Simulation-1 through Simulation-10. For more information on two-way communication, see the *User Software Installation Guide.*

The CMYK Simulation Profile setting you specify depends on the press standard for which the CMYK data was separated.

- For images that were separated using a custom separation (such as a separation produced with an ICC profile), choose the corresponding profile on the Fiery with the CMYK Simulation Profile setting.

- For images that were separated for **SWOP**, choose SWOP as the CMYK Simulation Profile setting.

NOTE: To properly simulate a printed image that was separated through the use of an ICC profile, the same profile must be present on the Fiery. For more information about downloading ICC profiles to the Fiery, see "Downloading profiles" on page 3-4.

CMYK Simulation Method

The CMYK Simulation Method setting specifies the quality of simulation to perform.

- **Quick** applies one-dimensional transfer curves that adjust output density in the cyan, magenta, yellow, and black channels.

- **Full (Source GCR)** provides a more complete and accurate simulation by applying colorimetric transformations that adjust the hue as well as output density of the cyan, magenta, and yellow channels. This option preserves the black amount determined by the simulation profile. Choose this option if you are printing a color proof to simulate output from a device represented by the simulation profile.

- **Full (Output GCR)** applies the same simulation method as Full (Source GCR), but preserves the black amount determined by the output profile. Choose this option if you are printing final output on the Fiery.

You should choose one of the Full options if you are printing an image separated using an optimized black generation (UCR/GCR) setting, either from a scan or from within an application such as Photoshop.

Output profile

The output profile is applied to all data in the print job, so make sure the selected profile is the right one for your job. The default output profile consists of both a profile for your copier/printer, describing its color characteristics, and a calibration target that describes the expected behavior of the copier/printer.

In certain cases, you may want to customize the default output profile using the ColorWise Pro Tools Color Editor to achieve particular color effects (see page 3-10). If you do so, the new customized output profile is applied to all data in the print job. Changing the output profile only does not affect its associated calibration target (since the target is based on a copier/printer model). You can edit D-Max values of the calibration target separately (see page 3-6).

You can use the ColorWise Pro Tools Profile Manager to download your own output profile to the Fiery (see page 3-4). Downloaded output profiles are at first associated with the calibration target that is tied to the default output profile. As mentioned above, you can edit calibration target D-Max values separately.

If you are printing with the PostScript driver from a Windows computer and have enabled two-way communication, the name of each downloaded or custom profile is represented in the Output Profile setting pop-up menu. If you are printing with the AdobePS driver from a Mac OS computer, downloaded or custom profiles appear as Output-1 through Output-10. For more information on two-way communication, see the *User Software Installation Guide*.

Pure Black Text/Graphics

The Pure Black Text/Graphics option affects the printout for black text and vector graphics on a page. Under most circumstances, it is preferable to leave this option set to On. When Pure Black Text/Graphics is on, black colors generated by applications are printed using 100 percent black-only toner (for example, RGB = 0, 0, 0; CMYK = 0%, 0%, 0%, 100%; or K = 100%). This means the black text and line art will not exhibit halftone artifacts and will not be misregistered, since there is only one toner used. In addition, this setting eliminates **blasting**. This option is automatically set to On when the Black Overprint option is set to On.

For some jobs, it is preferable to clear this option, for example, if the page includes gradient fills that use black. The following table describes the behavior of the Pure Black Text/Graphics option with black data defined in different color spaces.

NOTE: The Pure Black Text/Graphics option can be used only when printing composites, not when printing separations.

Input black color	Pure Black Text/Graphics	
	On	**Off**
RGB	Prints 100% black	With the default profile, prints a rich black using all toners.
CMYK		Prints only with black toner, because CMYK simulations preserve the black channel. The actual amount of toner used depends on the current simulation and the calibration state of the copier/printer.
Spot		Prints only with black toner, because spot color simulations preserve the black channel. The actual amount of toner used depends on the current simulation and the calibration state of the copier/printer.

NOTE: PostScript applications, such as QuarkXPress, may convert elements defined as RGB = 0, 0, 0 to four-color CMYK black before sending the job to the Fiery. These elements are not affected by the Pure Black Text/Graphics option. For details, see the application notes. Also, black text and line art defined as RGB = 0, 0, 0 in office applications (such as Microsoft Word) are converted to single-color black (CMYK = 0%, 0%, 0%, 100%) by the Microsoft PostScript Level 3 driver for Windows 2000/XP. To print this single-color black at the maximum toner density of the copier/printer, set the Pure Black Text/Graphics option to On.

Black Overprint

The Black Overprint option lets you specify whether or not black text—defined as RGB = 0, 0, 0, or as CMYK = 0%, 0%, 0%, 100%—overprints colored backgrounds.

- **On**—Black text overprints colored backgrounds, eliminating white gaps and reducing halo effects or misregistration of colors. Setting Black Overprint to On automatically activates the Pure Black Text/Graphics option.

- **Off**—Black text knocks out colored backgrounds.

NOTE: PostScript applications may perform their own black overprint conversions before sending the print job to the Fiery.

One example of how you might use this setting is with a page that contains black text on a light blue background. The background blue color is CMYK = 40%, 30%, 0%, 0% and the black text is CMYK = 0%, 0%, 0%, 100%.

- With Black Overprint On, the final text portions of the page are overprinted, or combined with the underlying colors. This results in CMYK = 40%, 30%, 0%, 100% for the color used for the text. There is no transition in the cyan and magenta toners, and the quality of the output is improved since it will not show **artifacts** near the edges of the text. The option also works with text defined in the RGB color space, that is RGB = 0, 0, 0.

- With Black Overprint Off, the border of the text is on an edge that has cyan and magenta toners on one side (outside the text) and black toner on the other side (inside the text). This transition may cause visible artifacts because of the practical limitations of the copier/printer.

Spot Color Matching

The Spot Color Matching option provides automatic matching of spot colors with their best CMYK equivalents.

- **On**—The Fiery uses a built-in table to generate the closest CMYK matches of spot colors your copier/printer can produce. (New tables are generated when you add new output profiles.) If you have the Graphics Art option installed, the Fiery uses the CMYK matches determined through Spot On (see page 3-22).

NOTE: Spot colors not included in the built-in table are treated as CMYK.

- **Off**—The Fiery uses CMYK equivalents defined by the spot color manufacturer, such as PANTONE. These are the same CMYK equivalents used by applications that include spot color libraries.

For jobs that include spot colors, set Spot Color Matching to On unless you are printing press simulations. In that case, set Spot Color Matching to Off and choose the appropriate CMYK Simulation setting (see page 1-9).

NOTE: You can use the Spot Color Matching option only when printing composites, not when printing separations.

1

Spot Color Matching and the PANTONE Coated Color Reference

The PANTONE Coated Color Reference (described in the *Fiery Color Reference*) prints differently depending on the Spot Color Matching setting.

- **On**—The Fiery uses a built-in table or, if you have the Fiery Graphic Arts Package option, the Spot On color dictionaries (see page 3-22) to generate the best matches of the PANTONE colors that your copier/printer can produce. The PANTONE number is printed below each swatch.

- **Off**—The Fiery prints swatches using the CMYK values recommended by Pantone, Inc. (and used by applications that provide PANTONE color libraries). The CMYK values used to generate the color, as well as the PANTONE number of the color, are printed below each swatch. These CMYK values are printed through the selected CMYK Simulation and Output Profile settings.

PostScript printer driver for Windows and Mac OS

You can access the printer driver options described in this section by choosing Start\Settings\Printers, right-clicking the appropriate PPD name, and choosing Properties (Windows 9x/Me), Document Defaults (Windows NT), or Printing Preferences (Windows 2000/XP) from the pop-up menu. To access the Mac OS driver options, choose Print from the File menu of your application. These settings are also accessible from the Print Setup or Page Setup dialog boxes of most applications.

For Windows computers, the Fiery driver interface enables you to save combinations of settings that you can later access. Additionally, you can choose different settings for individual jobs from the applications you use.

The printer driver writes a PostScript file containing the instructions generated by your application and the Fiery print options you chose. The printer driver sends the PostScript file to the Fiery. The Fiery then performs PostScript processing and color conversions and sends raster color data to the print device.

NOTE: The following illustrations and instructions do not apply to all applications. Many applications, such as Adobe PageMaker, Adobe Photoshop, Adobe Illustrator, QuarkXPress, and CorelDRAW, have other color management options in addition to those presented in the printer driver. For information on specific applications, see the *Fiery Color Reference*.

1

Setting color management print options for Windows

This section explains how to set Fiery color print options with the Adobe PostScript Printer Driver for Windows. This driver is a PostScript 3 printer driver that takes full advantage of the color features of the Fiery. Before you proceed, make sure you have completed the following procedures:

• Install the Adobe PostScript Printer Driver and the Fiery PPD (see the *User Software Installation Guide*).

• Set up the Fiery for printing (see the *Configuration Guide*).

• Install the ICC output profile for the Fiery on your Windows computer (see page 3-4).

TO SET PRINT OPTIONS FOR WINDOWS

1. **Access the printer driver option, as described on page 1-14.**

2. **Click the Fiery Printing tab, and choose settings from the ColorWise menu for the print options described on page 1-3.**

Choose ColorWise
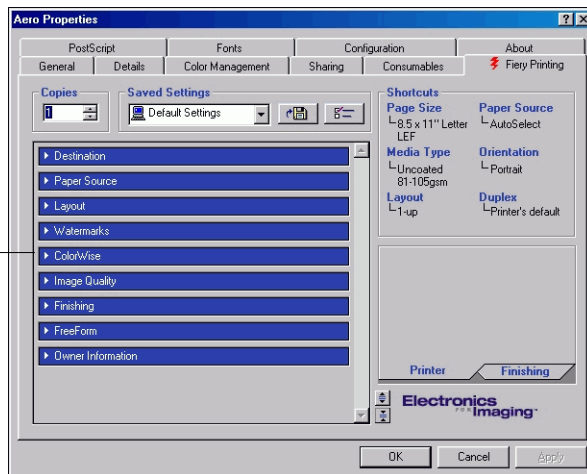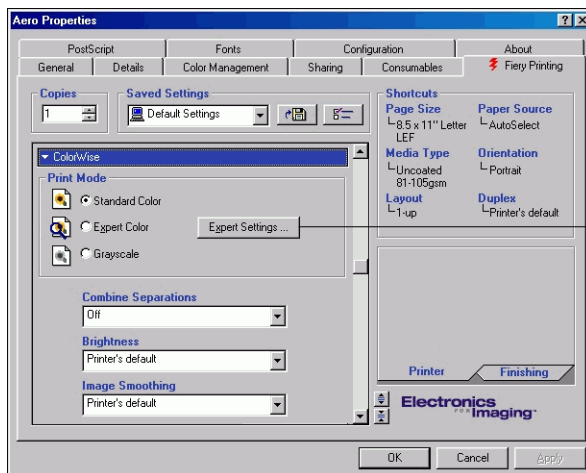
Click Expert Settings to access additional ColorWise options

3. Click Expert Settings.

The Expert Color Settings flowchart appears. This window displays additional color settings for the Fiery. Each option includes a menu from which you can select settings for your specific job.

4. Click Update to display the current Fiery settings.

If Update does not appear, make sure that two-way communication is set up as described in the *User Software Installation Guide*.

5. To specify custom RGB source settings, choose Other for the RGB Source Profile, and then click Custom Setup.

The following dialog box allows you to specify custom RGB source settings (see page 1-7).
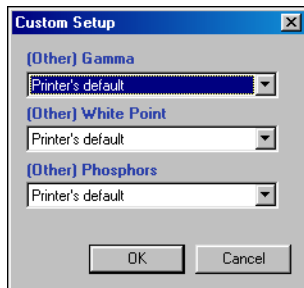
For most users, the default settings provide the right level of color control. For more information about individual print options, see page 1-3.

Adobe PostScript printer driver for Mac OS

This section explains how to set color management print options with the AdobePS printer driver for Mac OS, a PostScript 3 driver that takes full advantage of the color features of the Fiery and lets you save a set of print option settings.

Before you continue, make sure you have completed the following procedures, as described in the *User Software Installation Guide*:

• Install the AdobePS printer driver and the Fiery PPD.

• Select the Fiery in the Chooser and set it up with the Fiery PPD.

• Install the ICC output profile for the Fiery on your Mac OS computer (see page 3-4).

NOTE: The following illustrations and instructions do not apply to all applications. Many applications, such as PageMaker, Photoshop, Illustrator, QuarkXPress, and CorelDRAW have other color management options in addition to those presented in the printer driver. For information on specific applications, see the *Fiery Color Reference*.

Setting color management print options

You can choose print options from the various panes of the AdobePS driver dialog box. To access the initial AdobePS dialog box, choose Print from the File menu of your application.

NOTE: The word "pane" is used to describe the different pages that appear in the driver dialog box when you make selections from the pull-down menu at the upper left. Each pane presents a particular set of print options.

The AdobePS driver includes the following Color Matching options.

- **Color/Grayscale**—When this setting is used to print to the Fiery, ColorWise provides all color conversions on the Fiery. Typically, you should use this option when printing to the Fiery.

- **PostScript Color Matching**—Can be used with PostScript devices such as the Fiery. It provides for color conversion using a color rendering dictionary (CRD) that is downloaded with the print job. This method requires that the file is saved as an EPS with PostScript Color Management selected.

NOTE: If you use the PostScript Color Matching option, the driver may, depending on the application in use, attach a CMYK source definition to the CMYK data in your document. In such a case, the CMYK data in the document is reseparated using a Fiery CRD. The destination color space for the CRD is determined by the RGB Separation print option. When RGB Separation is set to Simulation, CMYK data is printed according to all specified CMYK Simulation Profile and CMYK Simulation Method settings. When RGB Separation is set to Output, CMYK data is converted to the selected output profile's CMYK color space.

- **ColorSync Color Matching**—Provides for color conversion *on the host computer.* This option can be used with PostScript devices such as the Fiery, but it is intended for use with PostScript Level 1 devices. If you use this option, be sure to specify the Fiery ICC profile as the Printer Profile. ColorSync Color Matching is not a suggested color matching method because it does not work in conjunction with all applications and requires that you disable features of ColorWise on the Fiery.

TO SET FIERY COLOR MANAGEMENT OPTIONS

1. **In the AdobePS Print dialog box, choose Color Matching.**

Choose Color Matching
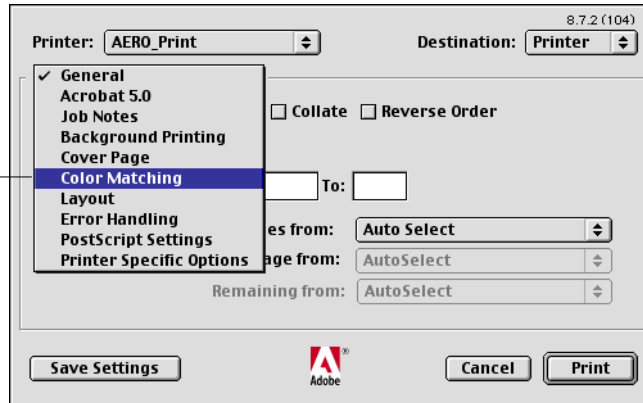
2. **Choose Color/Grayscale from the Print Color menu.**

Choose Color/Grayscale
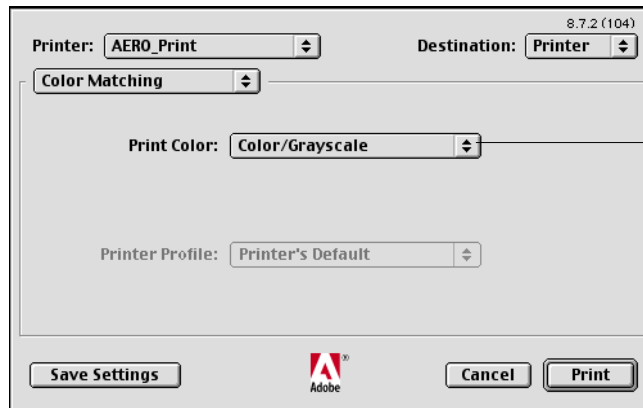
3. In the Printer Specific Options menus, choose settings for the print options described on page 1-3.
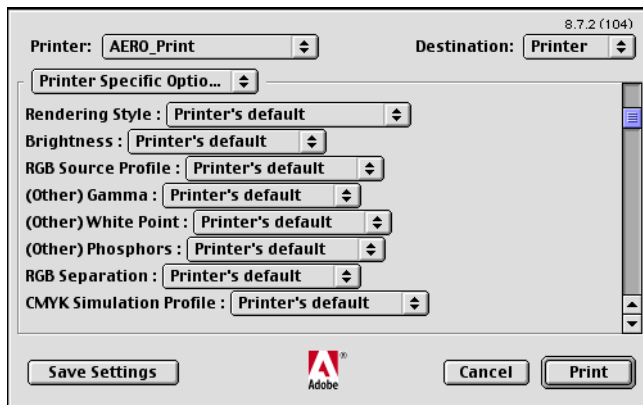
4. If these settings are used regularly, click Save Settings to save them for subsequent jobs.

**Chapter 2:
Color Calibration**

Calibrating the Fiery ensures consistent, reliable color output. You can calibrate the Fiery using ColorWise Pro Tools in combination with any of the following color measurement instruments, available as separately purchased options:

- X-Rite DTP41 automatic scanning spectrophotometer

- X-Rite DTP32 automatic scanning densitometer

- EFI Densitometer ED–100 hand-held densitometer

- EFI Spectrometer ES–1000 hand-held spectrometer

By connecting the instrument to the serial port on your computer, you can quickly measure calibration color patches and download measurements to the Fiery. For information on setting up and operating the DTP41 and DTP32, see Appendix A.

EX12 You can also obtain measurements from the copier's built-in scanner and calibrate using AutoCal™ or ColorCal™, which do not require the use of a measurement instrument and can be run from ColorWise Pro Tools or the Control Panel.

This chapter explains how **calibration** works and provides instructions for all calibration procedures.

For information on advanced calibration and simulation features available with ColorWise Pro Tools, such as editing profiles and creating custom profiles, see Chapter 3. A format for inputting color measurements from other densitometers is described in Appendix B.

NOTE: The procedures described in this chapter are fundamentally the same for Windows and Mac OS computers. The main differences are the interface cable and the port used to connect to the measurement instrument. This chapter shows screens and dialog boxes for the Windows version.

NOTE: The term *computer* is used to refer to any computer running ColorWise Pro Tools.

An overview of calibration

Calibration generates curves that adjust for the difference between the actual toner densities (measurements) and the response expected by the output profile.

• Measurements represent the actual color behavior of the copier/printer.

• Calibration sets are sets of measurements.

• A calibration target that describes the expected behavior of the copier/printer is contained in each output profile.

Once you have calibrated the Fiery, a calibration set is stored. This calibration set will be used when it is associated with an output profile. Every output profile has an associated calibration set. If you have not specified one, the calibration set associated with the default output profile is used.

NOTE: Changing calibration has the potential to affect *all* jobs for *all* users, so you may want to limit the number of people authorized to perform calibration. You can set an Administrator password in Fiery Setup to control access to calibration (see the *Configuration Guide*).

Understanding calibration

Although most users' needs are met by the default calibration set, the Fiery allows you to choose a calibration set to customize calibration for specialized jobs.

Calibration allows you to:

• Maximize the color reproduction capabilities of the Fiery.

• Ensure consistent color quality over time.

• Produce consistent output across Fiery servers that are connected to the same copier/printer.

• Achieve better color matches when reproducing spot colors such as PANTONE colors or other named color systems.

• Optimize the Fiery for using ColorWise rendering styles (CRDs) and CMYK simulations, and for using ICC profiles.

How calibration works

Success in obtaining satisfactory print quality from a color server such as a Fiery connected to a copier/printer depends on many factors. Among the most important are establishing and maintaining optimal toner densities. The **density** is the measure of the light absorbed by a surface. By carefully regulating toner densities, you can obtain consistent printed color.

Even with a calibrated system, toner density is affected by service settings, humidity, and temperature; density also tends to drift over time. Regular measurement detects day-to-day variations in densities, and calibration corrects for them.

Calibration works by creating calibration curves on the Fiery that compensate for the difference between actual (measured) and desired (target) density values. These calibration curves are the graphic equivalent of transfer functions, which are mathematical descriptions of changes that will be made to the data you start with. Transfer functions are often graphed as input or output curves.

The Fiery generates calibration curves after comparing measured values to the final target values for each of the four toner colors. The target values are based on the output profile specified.

Measurements

Measurement files contain numerical values that correspond to the toner density produced by the copier/printer when it prints solid cyan, magenta, yellow, and black, and graduated tints of those colors.

To create a measurement file, first print a page of color patches. Then measure the patches using either a color measurement instrument connected to a computer on the network or, if it is available, the print device's scanner. The new measurements are automatically downloaded to the Fiery.

Output profiles and calibration sets

Output profiles and calibration sets define desired calibration results. One or more output profiles and one or more calibration sets are provided with the Fiery. When you calibrate the Fiery, you can select the calibration set that corresponds to the typical printing jobs at your site. This same calibration set can be associated with one or more output profiles. (For more information on output profiles, see page 1-10.)

Scheduling calibration

In general, you should calibrate the Fiery at least once a day, depending on the volume of print jobs. If it is very important to maintain consistent color, or if the copier/printer is subject to wide fluctuations in temperature or humidity, calibrate every few hours. For the best performance, calibrate whenever there is a noticeable change in print quality.

If you need to split a print job into two or more batches to be printed at different times, it is especially important to calibrate before printing each batch. You should also calibrate the Fiery after copier/printer maintenance. However, because the copier/printer may be less stable immediately after maintenance, wait until you have printed approximately 50 pages before you calibrate.

NOTE: Since printed output from the copier/printer is very sensitive to changes in temperature and humidity, the copier/printer should *not* be installed near a window or in direct sunlight, or near a heater or air conditioner. Paper is sensitive to climate changes, as well. It should be stored in a cool, dry, stable environment, and reams should remain sealed until they are needed.

Print color reference pages. You can print Color Charts from the Control Panel (see the *Configuration Guide*) or Command WorkStation (see the *Job Management Guide*), and the color reference pages included with the user software (see the *User Software Installation Guide*). All of these pages include fully saturated color patches and pale tints of cyan, magenta, yellow, and black. Images with skin tones offer a very good basis for comparison. You can save and compare pages you printed at different times. If there is a noticeable change in appearance, calibrate the Fiery.

When you examine the Test Page, keep in mind that all color patches should be visible, even though they may be very faint in the five percent and two percent range. Each color's patch set should show uniform gradation from patch to patch as the color lightens from 100 percent to zero percent.

If the solid density patches (100% cyan, magenta, yellow, or black) look less saturated with time, show the pages to your copier/printer service technician to find out whether adjusting the copier/printer can improve output.

Checking calibration status

You can check whether the Fiery is calibrated, which calibration set and output profile were used, and when the copier/printer was last calibrated:

- Print a Configuration page or Test Page from the Control Panel or Command WorkStation.

- Select a calibration set in Calibrator—the last calibration and the user who performed it are displayed.

Using Calibrator

ColorWise Pro Tools Calibrator lets you calibrate the Fiery using the measurement method of your choice.

Changing the calibration has the potential to affect *all* jobs for *all* users, so you may want to limit the number of people authorized to perform calibration. You can set an Administrator password to control access to calibration (see the *Configuration Guide*).

NOTE: Multiple users can be connected to one server with ColorWise Pro Tools, but only one user at a time can use Calibrator. An error message appears if you try to calibrate when another user is already using ColorWise Pro Tools to calibrate.

2

Starting Calibrator

You start Calibrator from the ColorWise Pro Tools main window.

---

1. Start ColorWise Pro Tools and connect to the Fiery.
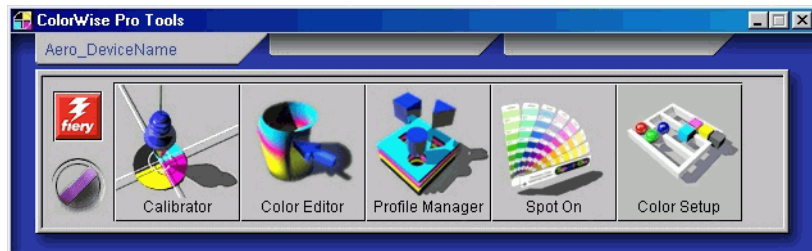
NOTE: Spot On is only available if you have installed the Fiery Graphic Arts Package option.

For instructions on configuring the connection to the Fiery, see the *User Software Installation Guide*.

NOTE: If the connection to the Fiery from Command WorkStation (which also allows for access to ColorWise Pro Tools) is not established, you can start ColorWise Pro Tools independently of Command WorkStation.

2. **Click Calibrator.**

The Calibrator window appears.

**Calibration methods
appear here**
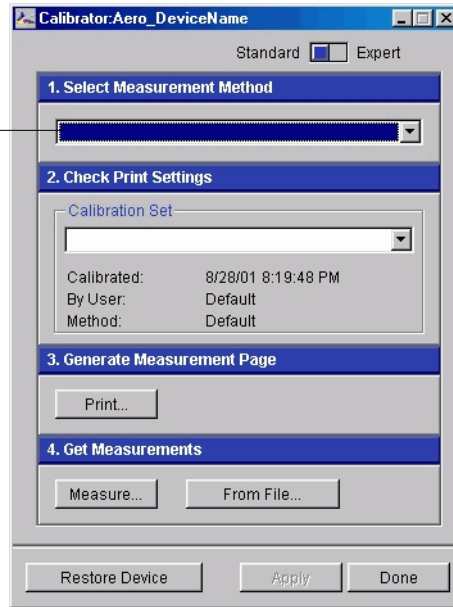
You can use the Calibrator window controls to perform the calibration method of your choice. Procedures for each calibration method are described in sections later in this chapter.

Expert Mode

You can set the Calibrator to either Standard or Expert Mode. You can perform all essential calibration tasks while in Standard Mode. Expert Mode offers two additional options: Print Pages and View Measurements.

Calibration methods appear here
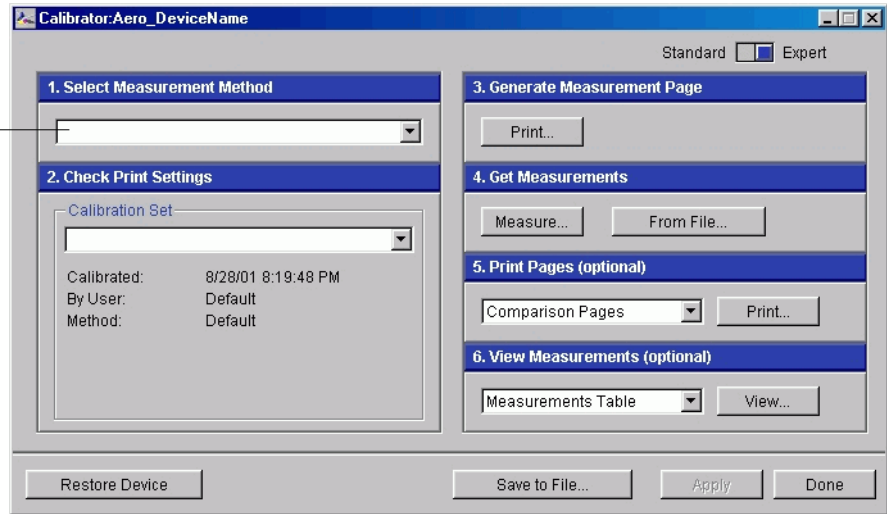
With the Print Pages option, you can print a calibration Comparison Page showing the results of the new measurements with any profile associated with the currently selected calibration set. You can also create a custom comparison page and save it as a PostScript or Encapsulated PostScript (EPS) file called CALIB.PS. You can then print the file to the Hold Queue of the Fiery from your application or download it to the Hold Queue with Fiery Downloader. An additional way to create the CALIB.PS file is to rename any job in the Hold Queue using Command WorkStation (see the *Job Management Guide*).

With the View Measurements option, you can view the current set of measurements as a table or as a graph that shows both the measurements and the target curves.
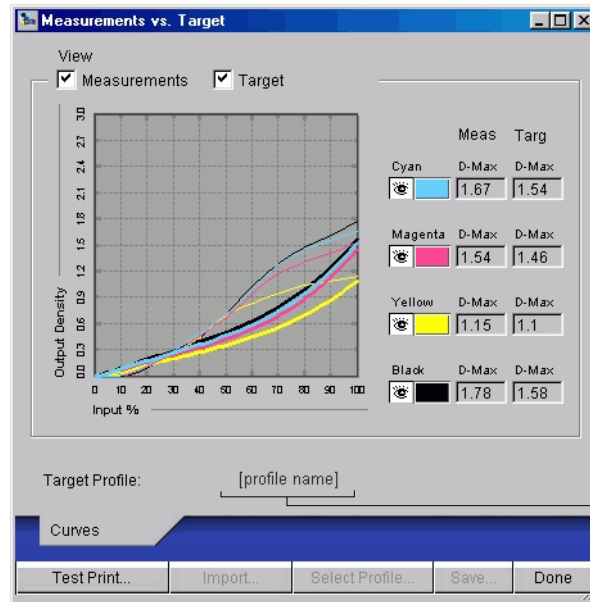
Output profile name appears here

When more than one profile uses the same target, an additional menu called Plot Against appears in the upper-right corner of the dialog box. It lists all output profiles that use that same calibration set. Selecting an output profile from this menu displays the target curves associated with that profile. If each output profile contains a unique calibration target, when you switch profiles, the curves displayed also change.

Restoring default calibration measurements

Use the following procedure to return to default preset calibration measurements.

TO RESTORE DEFAULT CALIBRATION MEASUREMENTS

1. In the main Calibrator window, click Restore Device.

A warning message appears.
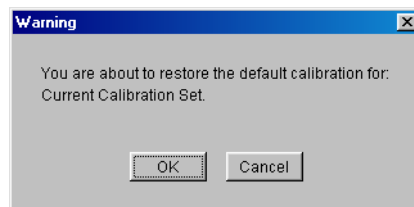
2. Click OK to restore the preset default calibration set.

NOTE: Restore Device applies only to the currently selected calibration set.

Calibrating the Fiery with the DTP41

Using the ColorWise Pro Tools Calibrator application and the DTP41 spectrophotometer, you can quickly measure color patches generated by the copier/printer and automatically download these measurements to the Fiery.

NOTE: Before using ColorWise Pro Tools and the DTP41 to calibrate the Fiery, follow the instructions on page A-5 for calibrating the DTP41 spectrophotometer.

TO CALIBRATE THE FIERY USING THE DTP41

1. Start Calibrator.

For instructions on starting Calibrator, see page 2-6.

2. Choose X-Rite DTP41 as the measurement method.

3. In the Check Print Settings pane, choose the desired calibration set.

Choose the appropriate calibration set for the type of and media you will use most often.

NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. There is no need to make any new associations for the default calibration set, since it is already associated with the default output profile.

4. In the Generate Measurement Page pane, click Print.

The Print Options dialog box appears.
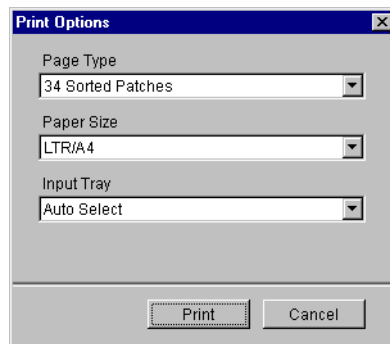
5. Choose the Page Type, Paper Size, and Input Tray to use for the measurement page and click Print.

In the Page Type menu, choose either 34 or 21 Sorted Patches.

In the Paper Size menu, the menu will automatically choose LTR/A4 for 21 Sorted Patches or 11x17/A3 for 34 Sorted Patches.

In the Input Tray menu, choose the paper source.

6. Retrieve the measurement page from the copier/printer.

7. In the Get Measurements pane, click Measure.

The Measurement Options dialog box appears, displaying the specified Page Type and Paper Size options.

8. Click Measure.

The Start dialog box appears.
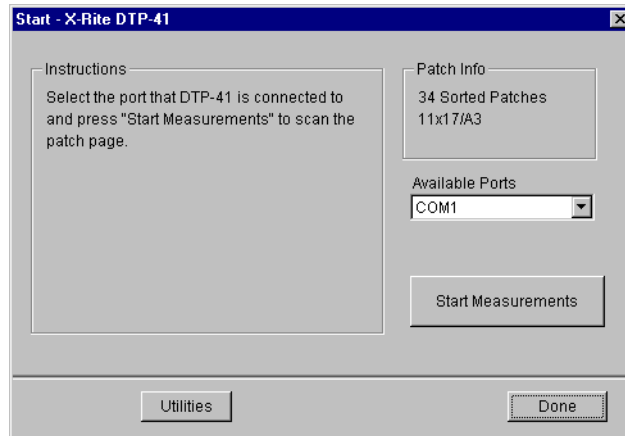
9. If necessary, choose the appropriate COM port for the DTP41 from the Available Ports menu. Click Start Measurements.

The Measurements dialog box appears.
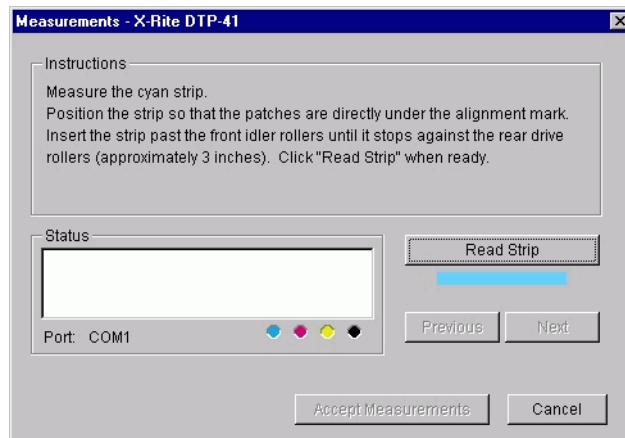
10. Feed the measurement page into the DTP41, starting with the cyan strip.

Align the page in the measurement page slot of the DTP41 so the appropriate color column is centered below the alignment mark (see the diagram on page A-2). Insert the page about 3 inches, past the front idler rollers, until it rests against the rear drive rollers.

11. **Click Read Strip.**

    The DTP41 pulls the measurement page through automatically.

    Once the measurement page is read, Calibrator instructs you to insert and align the page again for the next color.

12. **Repeat the measurement process for the magenta, yellow, and black strips.**
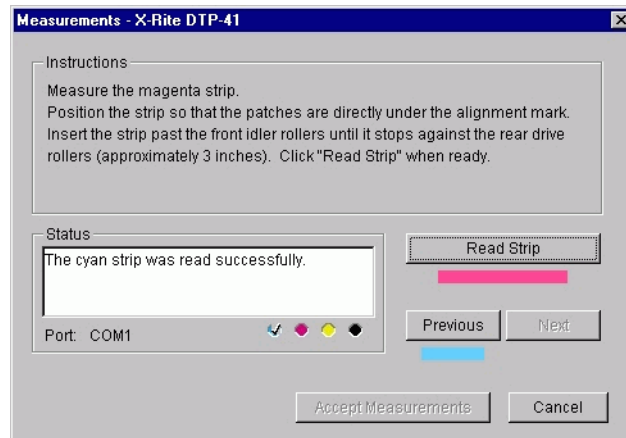
    A check mark appears on the circle of the color just read, and the Status field indicates that color was measured successfully.

    You can use the Previous and Next buttons to reverse or advance to another step in the measurement sequence.

13. **When the Status field indicates that all four color strips have been read successfully, click Accept Measurements.**

14. **In the Measure dialog box, click OK.**

15. **Click Apply in the Calibrator window to implement the new calibration set.**

16. **Click OK in the Information dialog box.**

    This completes the Fiery calibration process.

Calibrating the Fiery with the DTP32

Using the DTP32, you can quickly measure color patches and download these measurements to the Fiery using ColorWise Pro Tools Calibrator.

TO CALIBRATE THE FIERY USING THE DTP32

1. Start Calibrator.

For instructions on starting Calibrator, see page 2-6.

2. In the Select Measurement Method pane, choose X-Rite DTP32.

3. In the Check Print Settings pane, choose the desired calibration set.

If more than one option appears, choose the appropriate calibration set for the type of media you will use most often.

NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. The default calibration set is already associated with the default output profile, so there is no need to make any new associations.

4. In the Generate Measurement Page pane, click Print.

The Print Options dialog box appears.

5. Choose the appropriate Page Type, Paper Size, and Input Tray to use for the measurement page and click Print.

For Page Type, choose either 34 or 21 Sorted Patches.

In the Paper Size menu, the menu will automatically choose LTR/A4 for 21 Sorted Patches or 11x17/A3 for 34 Sorted Patches.

For Input Tray, specify the paper source.
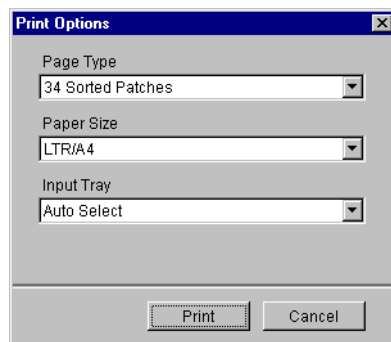
6. **Retrieve the measurement page from the copier/printer.**

7. **Click Measure in the Get Measurements pane.**

   The Measurement Options dialog box appears, displaying the specified Page Type and Paper Size options.

8. **Click Measure.**

   In the dialog box that appears, follow the directions for feeding the measurement page through the X-Rite DTP32.
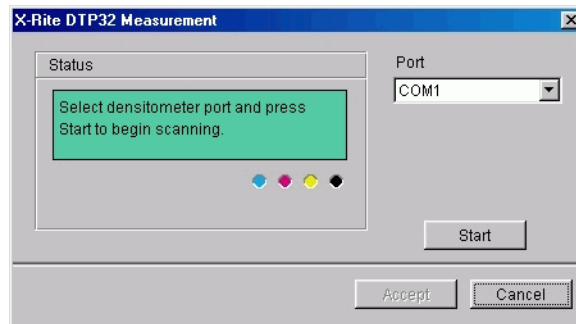
   The Status field displays instructions for selecting the port and feeding the measurement page through the DTP32 four times, once for each color strip.

9. **When the Status field indicates that the measurements were read successfully, click Accept.**

10. **Click OK in the Measure dialog box.**

11. **Click Apply in the Calibrator window to implement the new calibration set.**

12. **Click OK in the Information dialog box.**

    This completes the calibration process.

2

Using the EFI Spectrometer ES-1000 and EFI Densitometer ED-100

The EFI Spectrometer ES-1000 is a hand-held **spectrophotometer** that measures the **spectral light** reflected from printed output and other colored materials. Since the ES-1000 accurately measures both the **density** and color of printed output, it is an effective tool for calibrating the Fiery.

The EFI Densitometer ED-100 is a hand-held instrument that measures the **density** of printed ink and toner. Like the DTP32, the ED-100 is a reflection densitometer that you can use to calibrate the Fiery.

The ES-1000 and the ED-100 are available as separately purchased options.

Setting up the ES-1000

To use the ES-1000 for calibration purposes, you must first set it up for use with your computer. For best results, you should also calibrate the ES-1000 itself using the white point calibration card that is included with the instrument.

For complete instructions on setting up and calibrating the ES-1000, see the documentation that is included with the instrument.

The following illustration shows the different parts of the ES-1000.

Indicator light

Measure button

Sample aperture
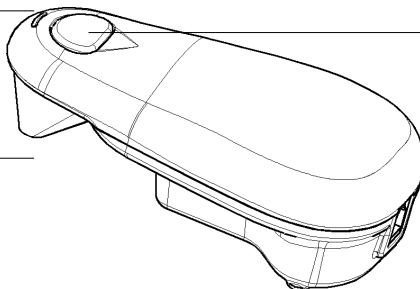
Setting up the ED-100

To use the ED-100 for calibration purposes, you must first set it up for use with your computer. For complete instructions on setting up the ED-100, see the documentation that is included with the instrument.

The following illustration shows the different components of the ED-100.

Indicator light

Measure button

Sample aperture (underneath)
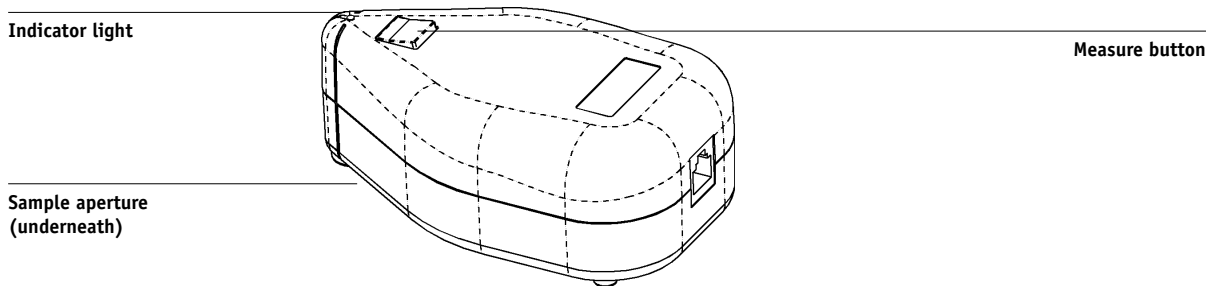
Calibrating the Fiery with the ES-1000 or ED-100

You can use ColorWise Pro Tools in conjunction with the ES-1000 or ED-100 to calibrate the Fiery.

TO CALIBRATE THE FIERY USING THE ES-1000 OR ED–100

1. **Start Calibrator.**

   For instructions on starting Calibrator, see .

2. **Choose EFI Spectrometer ES-1000 or EFI Densitometer ED-100 as the measurement method.**

3. **In the Check Print Settings pane, choose the desired calibration set.**

   Choose the appropriate calibration set for the type of media you will use most often.

   NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. There is no need to make any new associations for the default calibration set, since it is already associated with the default output profile.

4. In the Generate Measurement Page pane, click Print.

The Print Options dialog box appears.
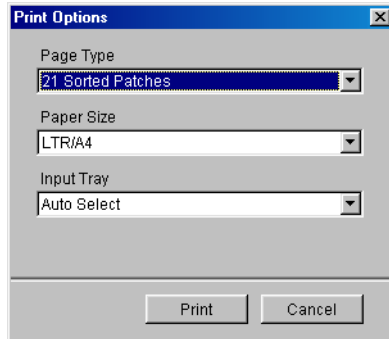
5. Choose the Page Type, Paper Size, and Input Tray to use for the measurement page, and then click Print.

In the Page Type menu, choose either 34 or 21 Sorted Patches, or 34 or 21 Randomized Patches. Sorted patches are printed on the page in order of their hue and saturation levels. Randomized patches are printed on the page in random order, to help compensate for density inconsistencies on different areas of the page.

In the Paper Size menu, the menu will automatically select LTR/A4 for 21 Patches or 11x17/A3 for 34 Patches.

In the Input Tray menu, specify the paper source.

6. Retrieve the measurement page from the copier/printer.

7. Click Measure in the Get Measurements pane.

The Measurements Options dialog box appears.
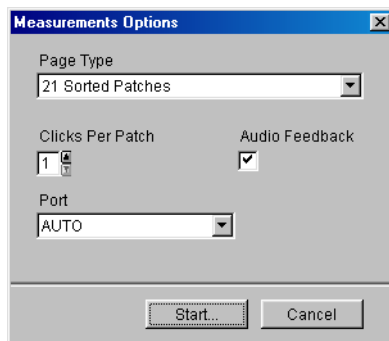
8. Choose Clicks Per Patch, Audio Feedback, and Port options, and then click Start.

The Page Type menu automatically chooses the measurement page type that you printed in step 6.

Use the arrow buttons next to the Clicks Per Patch field to choose the number of measurements you want to take for each patch on the page. When you choose multiple clicks, the average value of all measurements taken for the patch is returned to the Fiery. Multiple measurements are more accurate, but may take more time.

Select the Audio Feedback option if you want to hear a confirmation tone each time a measurement is recorded. A single tone indicates a successful measurement; two tones indicate a measurement error. If you have specified multiple clicks per patch, the tone sounds after you take the final measurement.

If necessary, choose the appropriate COM port for the ES-1000 or ED-100 from the Port menu.

When you click Start, the Measurements window appears. Directions for measuring the patches appear in the Status area.
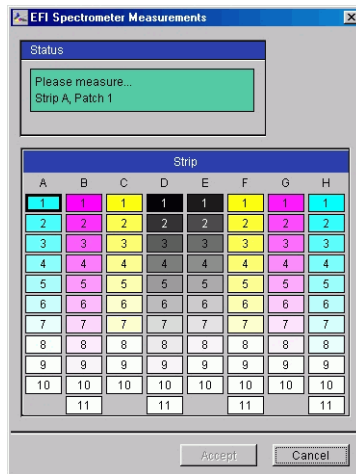
9. Place the ES-1000 or ED-100 over the specified patch on the Measurement Page, making sure to center the sample aperture over the patch. Press Measure to take the measurement.

NOTE: For a more accurate measurement, place several plain sheets of paper beneath the Measurement Page to block underlying colors from being read by the instrument.

If you have specified multiple clicks per patch, continue pressing Measure to take the required number of measurements. We recommend that you move the ES-1000 or ED-100 slightly after each measurement while keeping it within the patch circle.

When the patch has been measured successfully, a checkmark appears in the patch preview in the Measurements window. The window identifies and highlights the next patch to be measured.
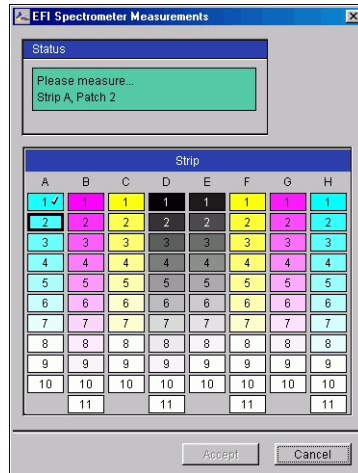
10. **Repeat step 9 to measure each successive patch on the Measurement Page.**

   To retake a measurement, first select the desired patch preview in the Measurements window. Then measure the patch on the page using the ES-1000 or ED-100.

   NOTE: You must take the measurements in the order outlined in the Measurements window and on the measurement page.

11. **When all the patches have been read successfully, click Accept.**

12. **Click Apply in the Calibrator window to implement the new calibration set.**

13. **Click OK in the Information dialog box.**

   This completes the Fiery calibration process.

EX12 Using AutoCal and ColorCal

AutoCal and ColorCal let you calibrate the Fiery without the use of an additional spectrophotometer or densitometer. Instead, these methods use the copier's built-in scanner to measure toner density values.

You can perform AutoCal and ColorCal calibration from either ColorWise Pro Tools or the Fiery Control Panel. For troubleshooting during the AutoCal procedure, see the *Job Management Guide*.

NOTE: To calibrate using AutoCal or ColorCal, you will need the Kodak Gray Scale strip included in the customer media pack that came with your Fiery.

EX12 Calibrating with ColorWise Pro Tools and AutoCal or ColorCal

When you run ColorCal from ColorWise Pro Tools, you have the option to calibrate the copier's scanner before calibrating the Fiery itself. This option is not available for AutoCal.

TO CALIBRATE WITH COLORWISE PRO TOOLS AND AUTOCAL OR COLORCAL

1. **Start Calibrator.**

   For instructions on starting Calibrator, see .

2. **In the Select Measurement Method pane, choose AutoCal or ColorCal.**

3. **In the Check Print Settings pane, choose the desired calibration set.**

   If more than one option appears, choose the appropriate calibration set for the type of media you will use most often.

   NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. The default calibration set is already associated with the default output profile, so there is no need to make any new associations.

4. **Click Print in the Generate Measurement Page pane.**

   The Print Options dialog box appears.
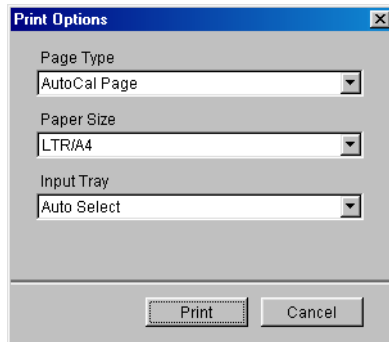
   AutoCal   **ColorCal**
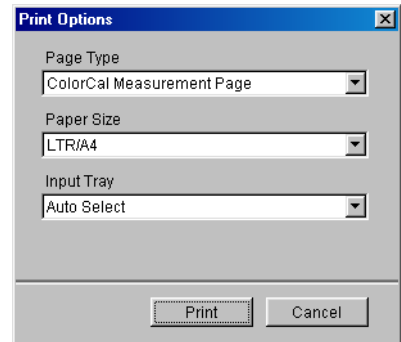
5. **Choose the Input Tray to use for the measurement page and click Print.**

   The Page Type is automatically set to AutoCal Page or ColorCal Measurement Page.
   The Paper Size is automatically set to LTR/A4.

6. **Retrieve the Measurement Page from the copier.**

7. **Click Measure in the Get Measurements pane.**

   If you chose the AutoCal method, skip to step 11.

   If you chose the ColorCal method, an alert message appears, asking if you want to
   calibrate the copier's scanner.
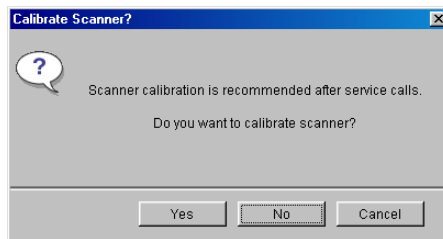
8. **If you are using ColorCal and want to calibrate the scanner, click Yes in the alert
   message.**

9. **Choose the Input Tray to use for the scanner measurement page, and click Print.
   Retrieve the scanner measurement page from the copier.**

2

10. **Place the Gray Scale strip, Color Scale strip, and scanner measurement page in the correct positions on the copier glass for scanner calibration.**

   Place the Gray Scale face down on the copier glass so that it will be centered along the top edge of the scanner measurement page. Then place the Color Scale strip face down on the copier glass so it is centered below the Gray Scale strip, keeping a distance of 0.25 inch to 0.5 inch between the two strips. Finally, place the scanner measurement page face down over the strips.

   To perform the scanner calibration, click Continue in the dialog box that appears.

   After the scanner has been calibrated, another dialog box appears, prompting you to calibrate the Fiery.

11. **Follow the directions in the dialog box for placing the Gray Scale strip and the AutoCal or ColorCal measurement page on the copier glass. Click Continue to perform the Fiery calibration.**

   AutoCal   **ColorCal**
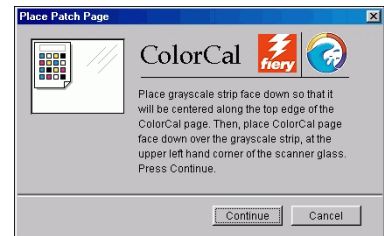
12. **Click Apply in the main Calibrator window to implement the new calibration set.**

13. **Click OK in the Information dialog box.**

   This completes the calibration process.

EX12 Calibrating from the Control Panel with AutoCal or ColorCal

If an Administrator password has been set, you will need it to perform calibration from the Control Panel. For instructions on using the Fiery Control Panel, see the *Configuration Guide*.

It is also possible to remove calibration measurements from the Fiery. In general, it is not necessary, because any new calibration replaces the existing one if the same calibration set is selected.

TO USE AUTOCAL OR COLORCAL FROM THE CONTROL PANEL

1. **At the Idle screen, press Menu to enter the Functions menu.**

2. **Using the Up and Down arrow buttons and the Line Selection buttons, choose Calibration, and then choose Set Up Calibration.**

    If a password is set on the Fiery, enter it and press OK.

3. **For Calibration Mode, choose Standard or Expert.**

    Expert Mode adds the option to print a Comparison Page (see page 2-8).

4. **For Tray, choose the paper source for the patch page and press OK.**

    Choose LTR/A4 from the Fiery Control Panel.

    NOTE: If you print a measurement page from the Manual Feed tray, you must load the appropriate paper in the tray and select the correct paper size from the copier/printer touch panel display.

5. **Choose Calibrate.**

6. **Select the Calibration Set.**

    You can choose from the list of all calibration sets on the Fiery. This screen appears only if more than one calibration set is available.

7. **When prompted, choose Yes to print the measurement page.**

    This page is comprised of swatches of color that will be measured by the copier's scanner and then compared to the target color values. After the page is printed, the Measure Page screen appears.

8. **Choose Yes in the Measure Page screen.**

9. **When prompted on the Control Panel, place the Kodak Gray Scale strip face down along the top of the copier glass.**

   Place the strip so it will be centered along the top edge of the AutoCal or ColorCal measurement page.

Place grayscale strip face down   **Place color measurement page face down over grayscale strip**
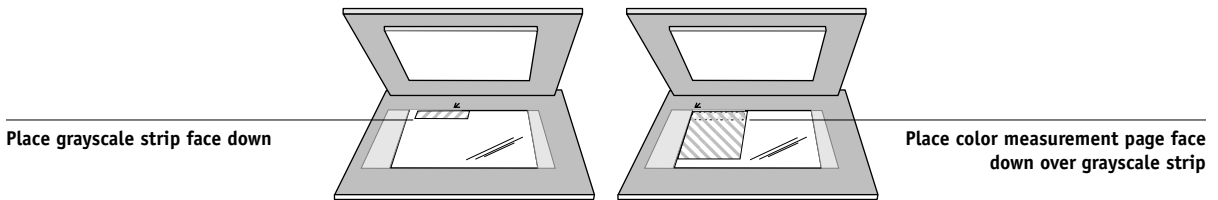
10. **Place the color measurement page face-down over the grayscale strip.**

    Place the page at the upper-left corner of the copier/printer glass. Slide the grayscale strip to the top center of the color measurement page. Make sure the patches on the grayscale strip do not overlap the color patches.

    Close the platen glass cover, being careful not to move the grayscale strip and color measurement page.

11. **On the Control Panel, choose OK.**

    Status messages display the progress of scanning and calculating measurements.

12. **When prompted to Print Comparison Page (Expert Mode only), choose Yes to print a preview of the selected calibration.**

    Choose from a list of output profiles that use the same calibration set and press OK. This option appears only in Expert Mode calibration.

13. **When prompted to apply or overwrite the calibration, choose Yes.**

14. **Choose Yes to confirm.**

    Status messages display progress information. When calibration is complete, the Control Panel display returns to the Functions menu.

2

TO REMOVE CALIBRATION FROM THE CONTROL PANEL

1. **From the Fiery Control Panel, access the Calibration menu as described on .**

2. **Choose Remove Calibration.**

3. **When prompted, verify that you want to proceed with removing calibration.**

    The current measurements are removed and a default calibration is restored.

3

Chapter 3: ColorWise Pro Tools

Designed to give you flexible control of color printing, ColorWise Pro Tools include the following color management tools:

• Calibrator (see Chapter 2)

• Color Editor

• Profile Manager

• Spot On (only available if you have installed the Fiery Graphic Arts Package)

• Color Setup
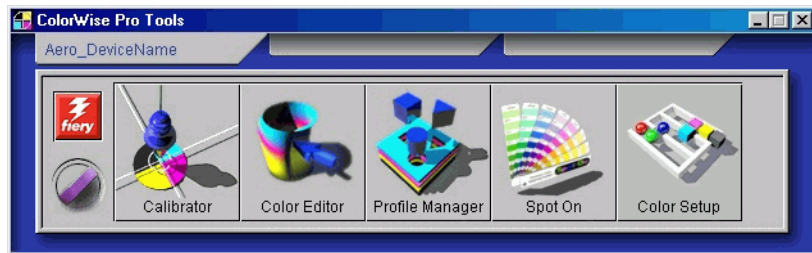
ColorWise Pro Tools for Windows and Mac OS computers are fundamentally the same; differences are noted in this chapter. The windows and dialog boxes illustrated are the Windows versions. For information on installing and configuring a connection to ColorWise Pro Tools, see the *User Software Installation Guide*.

NOTE: If the connection to the Fiery from Command WorkStation (which also allows for access to ColorWise Pro Tools) is not established, you can start ColorWise Pro Tools independently of Command WorkStation.

Profile Manager

Profile Manager allows you to manage and edit ICC profiles. In the case of the Fiery, these profiles are divided into RGB Source, Simulation, and Output profiles.

• **RGB Source** contains all monitor profiles resident on the Fiery. RGB Source profiles are used to define the source color space for RGB colors processed by the Fiery.

Note: If you use Photoshop 5.x or 6.x, you can upload the profile for your selected working space to the Fiery and choose that as your RGB Source profile. For more information, see the *Fiery Color Reference*.

- **Simulation** contains printer profiles used to simulate another device on the Fiery.

- **Output** contains copier/printer profiles that describe the connected copier/printer. For more information on output profiles, see .

Note: Changing the Fiery default profiles affects *all* jobs for *all* users. You may want to limit the number of people authorized to use ColorWise Pro Tools by setting an Administrator password.

The following profiles are provided with the Fiery.

RGB Source:

- **sRGB (PC)**—source color space for a generic Windows computer monitor

- **Apple Standard**—standard source color space for Mac OS computer monitors with older versions of ColorSync

- **EFIRGB**—preset default setting for a Fiery

Simulation:

- **SWOP-Coated**—United States press standard

- **Euroscale**—European press standard

- **DIC**—Japanese press standard

In addition, one or more output profiles are provided with the Fiery. For more information on output profiles, see .

Setting the default profiles

The default profiles are applied to all print jobs sent to the Fiery, unless you override them using print options. Therefore, the defaults should be the most commonly used profiles.

TO SPECIFY A DEFAULT PROFILE

1. **Start ColorWise Pro Tools and click Profile Manager.**
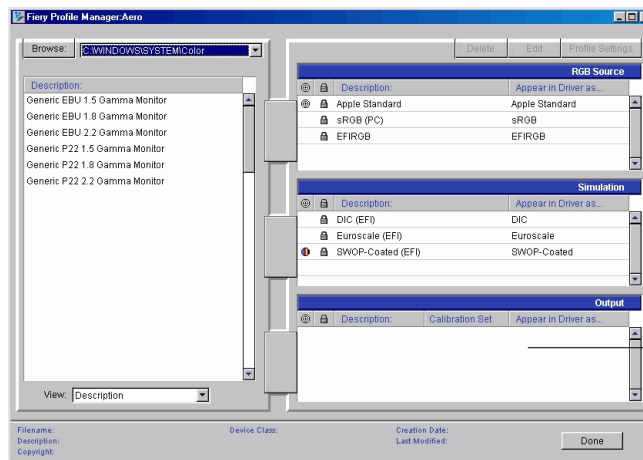
Output profiles appear here

The left side of the main Profile Manager window lists the ICC profiles in the default directory of your computer; the right side lists the three profiles on the Fiery.

The Lock icon (🔒) to the left of a profile name indicates that the profile cannot be deleted and can be edited only if saved under a new name. Only Simulation and Output profiles can be edited.

A small icon to the left of a profile name indicates the default profile for each category (RGB Source, Simulation, and Output). If you designate a different profile as the default, the icon appears next to your designated profile. The icon indicating the default RGB Source and Output profiles looks like a target (◎). The icon indicating the default Simulation profile changes in appearance depending on whether the default RGB Separation setting is set to Simulation (🔶) or Output (🔳).

2. **Select the profile you want as the default for a profile type and click Profile Settings.**

3. In the Profile Settings dialog box, click Default and click Apply.

Profile Settings dialog box for RGB Source (left) and Simulation (right)

Source Profile Settings	Simulation Profile Settings
Profile Description	Profile Description
EFIRGB	SWOP-Coated (EFI)
◎ ☑ Default	❶ ☑ Default
☑ Appear in Driver as...	☑ Appear in Driver as...
EFIRGB	SWOP-Coated
OK Cancel Apply	OK Cancel Apply
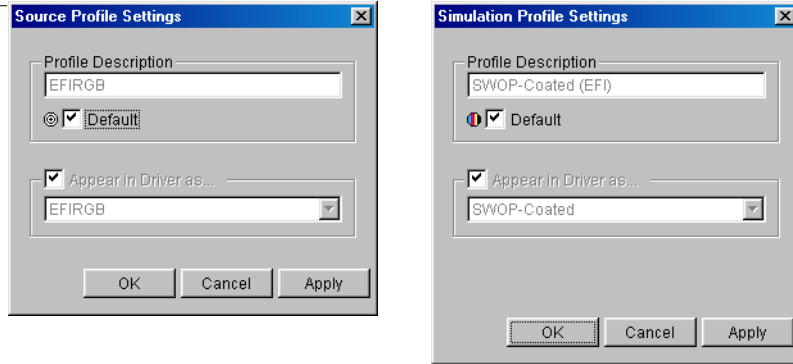
4. Click OK.

In the main Profile Manager window, the target icon appears next to the new default profile you specified.

5. Repeat steps 2 through 4 for each type of profile.

If no default is set for RGB Source, the RGB Source print option is set to None. If no default profile is set for Simulation, the CMYK Simulation print option is set to None. For more information on print options, see Chapter 1.

The Output profile always has a default profile. You can change the Output default by selecting a preset profile you want as the default and clicking Profile Settings. Or create a new default under a new name by selecting a preset profile and specifying your choice of the calibration set in the Use Calibration Set menu and a new name in the Profile Description menu.

Downloading profiles

The Fiery comes with default profiles. You can download additional profiles from any computer connected to the Fiery.

TO DOWNLOAD A PROFILE

1. **Start ColorWise Pro Tools and click the Profile Manager.**

   The left side of the main Profile Manager windows lists the ICC profiles in the default directory of your workstation.

   - **Windows 9x/Me**—Windows\System\Color

   - **Windows NT 4.0**—Winnt\System32\Color

   - **Windows 2000**—Winnt\System32\Spool\Drivers\Color

   - **Windows XP**—Windows\System32\Spool\Drivers\Color

   - **Mac OS**—System Folder:Preferences:ColorSync Profiles for ColorSync 2.0, and System Folder:ColorSync Profiles for ColorSync 2.5 or later

2. **If the desired profile does not appear, click Browse to go to a different directory. Browse to the directory containing the profile you want to download and click OK.**

3. **When the profile you want to download appears in the list in the main Profile Manager window, select it.**

   If the profile is compatible with the Fiery, a green arrow indicates that the profile is available for downloading. Only output device profiles are downloadable to Simulation and Output. Only input device profiles are downloadable to RGB Source.

   NOTE: On Windows computers, the profiles must have an extension of .icc or .icm to be listed. On Mac OS computers, the profiles must have a file type of "profile."

   All ICC profiles in the selected directory on your computer are displayed in the list in the main Profile Manager window. However, because a profile is listed does not necessarily mean it can be downloaded to the Fiery.

Simulation profiles should only be profiles for those devices you want the Fiery to match in terms of color output characteristics. Output profiles should only be profiles for the device to which your Fiery is connected. Although CMYK printer profiles can be downloaded as Simulation or Output, consider how they will be used. If you want the Fiery prints to look like another printer, download that profile as a Simulation. If you have a custom profile of the copier/printer your Fiery is connected to, download that profile as an Output profile.

4. **Click the arrow to download the profile and click OK when the download is complete.**

The new profile now appears in the list of profiles on the right side of the Profile Manager main window.

For Mac OS computers, this profile must be associated with one of the predefined names (Source-1 through Source-10 for RGB Source, Simulation-1 through Simulation-10 for Simulation, or Output-1 through Output-10 for Output) or set as the default before it can be used. For Windows computers, all profiles can appear in the printer driver by their profile descriptions (see "Defining profiles" on page 3-8).

NOTE: When an output profile is downloaded, it inherits the calibration target of the current default output profile.

Editing profiles

The profiles on the Fiery can be customized to meet your specific needs and the characteristics of your copier/printer using Color Editor, either directly or through Profile Manager. For more information on editing profiles, see "Color Editor" on page 3-10.

Managing profiles

Profile Manager lets you back up profiles to ensure that no custom profiles are lost when the Fiery software is updated. You can also upload a copy of a built-in Fiery profile to your workstation in order to use it with an ICC-aware application, such as Photoshop. Profile Manager also lets you delete unwanted profiles.

NOTE: You can back up and delete only those profiles that appear in the main Profile Manager window *without* a Lock icon next to them. Locked profiles cannot be deleted, but most can be backed up.

To back up profiles

1. **Start ColorWise Pro Tools and click Profile Manager.**

2. **Select the profile on the Fiery to upload.**

   The arrow in the middle of the Profile Manager window turns green and points to the left, indicating the profile is available for upload.

3. **Click the green arrow, choose a name and location for the profile, and click Save.**

   The name will be the file name of the profile, but the profile description will be the original description, or the one you entered in the Profile Settings dialog box.

   Note: When saving the profile on a Windows computer, be sure to include the extension .icm. If the extension is not included, additional dialog boxes appear.

4. **Click OK when you are notified that the profile was successfully uploaded.**

   Delete profiles to make sure no one uses the wrong profile and to free up disk space on the Fiery (although profiles are small and do not take up much space).

To delete profiles from the Fiery hard disk

1. **Start ColorWise Pro Tools and click Profile Manager.**

2. **Select the profile you want to delete and click Delete.**

   A Warning dialog box asks you to confirm the deletion.

   Note: You cannot delete preset profiles, profiles that are currently set as default, or profiles that are linked to any of the predefined custom names, for example Simulation-1.

3. **Click Yes to delete the profile.**

4. **To delete a profile currently set as the default or associated with a custom name, click Profile Settings and clear the default option.**

Defining profiles

For Mac OS computers, before you can apply any downloaded or edited profile to a print job, that profile must be linked to one of the predefined custom names, or you can set the profile as the default for all print jobs (see setting default profiles, page 3-3). Ten names are available for custom profiles—Source-1 through Source-10 for RGB Source, Simulation-1 through Simulation-10 for Simulation, or Output-1 through Output-10 for Output.

For Windows computers, all profiles appear by their actual names in the printer driver. These fixed names are used in the PPD so you can select profiles for each job even if your driver does not have the capability to obtain an updated list from the server.

NOTE: A custom simulation profile is used to illustrate this procedure. The same steps apply for defining custom or downloaded output profiles.

TO DEFINE A PROFILE

1. **Start ColorWise Pro Tools and click Profile Manager.**


Custom profile created with Color Editor
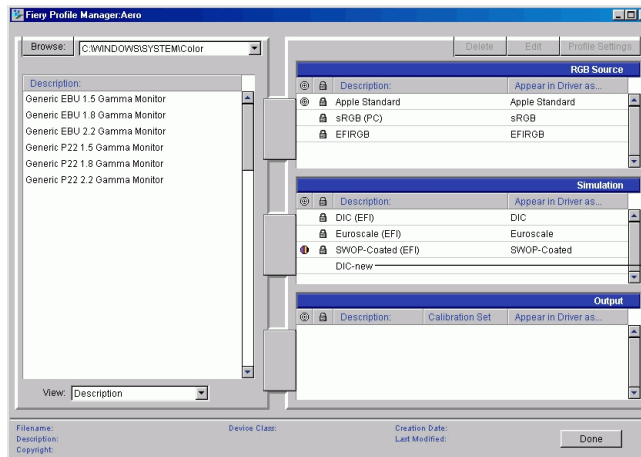
For the purposes of this example, assume DIC-new is a custom simulation profile created with Color Editor and, as such, no information is displayed for DIC-new under the heading "Appear in Driver as."

3

2. **Select DIC-new in the Simulation list, and click Profile Settings or double-click DIC-new.**

3. **Select the "Appear in Driver as" option, choose one of the predefined custom simulation names (Simulation-1 through Simulation-10) from the menu, and then click Apply.**

   NOTE: Choose a name that is not already linked with another simulation. If you try to define two profiles with the same name, you will get an error message.

   For an output profile, the predefined custom names would be Output-1 through Output-10.

   NOTE: While you cannot delete a preset profile, you can use the name of a preset profile name for your edited profile when you select the "Appear in Driver as" option. This replaces the preset profile with your own profile.
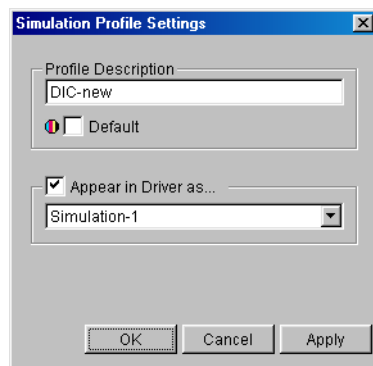
   When you choose Profile Settings for an output profile, the Use Calibration Set options also appear. You must calibrate the Fiery with this calibration set before this option has any effect. If you have never measured for this calibration set, default measurements will be used. For more information about calibration sets, see page 2-2.

   In Profile Settings, you can also change profile descriptions for all non-locked profiles.

4. **Click OK.**

DIC-new will appear
in driver as
Simulation-1
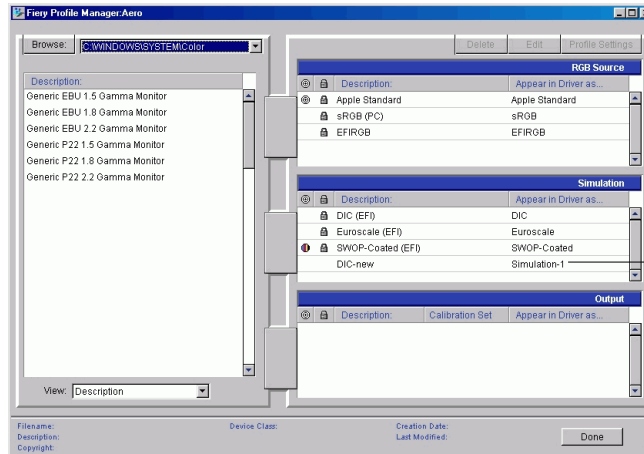
Simulation-1 now appears under the "Appear in Driver as" column for DIC-new.
Choosing Simulation-1 from the CMYK Simulation option of the printer driver
applies the DIC-new simulation to the print job.

If you do not define a custom simulation profile, your job will print with CMYK
Simulation Profile set to None. If you do not define a custom RGB Source or Output
profile, the default profile is used.

Color Editor

Color Editor allows you to customize simulation and output profiles. You can access
Color Editor directly by clicking its icon in the ColorWise Pro Tools main window, or
indirectly, through the Profile Manager.

Editing profiles

Color Editor allows you to create custom profiles by editing existing simulation or output profiles and saving the changes as a new profile. With Color Editor, you can fine-tune a profile on your Fiery to meet your exact specifications.

NOTE: You cannot edit source profiles; only simulation and output profiles can be customized.

Color Editor has two Edit Modes for editing output profiles.

- **Custom**—Edit output profiles and save customized versions of them.

- **% Density**—View the calibration target, which is one component of the output profile. You cannot make changes to the calibration target in this window, but you can import a new target (see).

Color Editor also has several Edit Modes for editing simulations.

- **Master**—Create a custom *master* simulation that affects all print jobs to which it is applied, unless a linked simulation exists for the selected combination of simulation profile, simulation method, and output profile.

- **Quick, Full (Source GCR), or Full (Output GCR)**—Create custom *linked* simulations. Linked simulations affect the print job only if the corresponding simulation profile, simulation method, and output profile are selected. If you choose an output profile and simulation method for which you have created a custom linked simulation, that simulation is applied automatically to the job. If you choose a simulation method or output profile for which there is no custom linked simulation, the master simulation is automatically applied. For detailed information about simulation methods, see .

NOTE: If you made edits to a master simulation after you created a linked simulation, the edits are not applied to the linked simulation.

1. **Start ColorWise Pro Tools and click Color Editor.**

2. **Choose Simulation or Output from the View menu.**

    Simulation lists the simulation profiles resident on the Fiery, and Output lists the
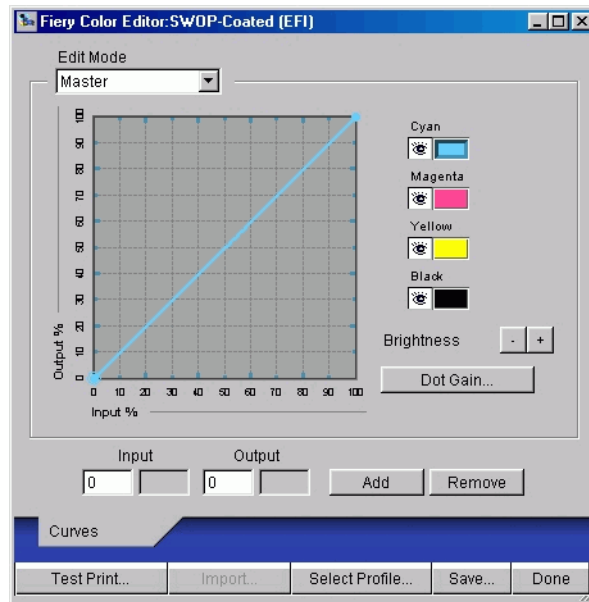   output profiles resident on the Fiery.
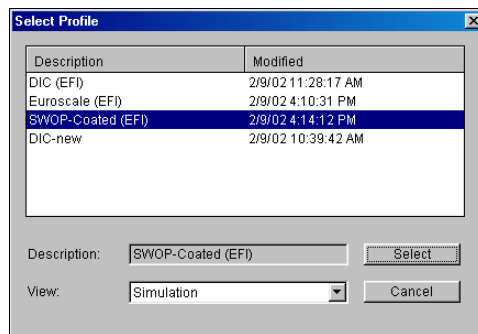
3. **Choose a profile to edit and click Select.**

    You can also open the Profile Manager, select a profile, and then click Edit.

4. **For a simulation profile, choose Master from the Edit Mode menu. For an output profile, choose Custom from the Edit Mode menu.**

   For instructions for using Quick, Full (Source GCR), or Full (Output GCR) mode, see .

   You can use this dialog box to view or edit profiles. The graph allows you to view and manipulate color output values.

   NOTE: When editing an output profile in Custom mode, clicking Import at the bottom of the Color Editor window lets you import a calibration target file (.trg) created on another Fiery using the previous version of ColorWise. The current version of ColorWise does not allow you to save a target separately; rather, it saves the target in conjunction with an output profile.

5. Select the colors you want to edit by turning colors off and on.

The Eye icon to the left of each color indicates whether that color is visible on the graph and will be affected by changes to the curves, brightness, and dot gain controls. You can view and edit all four colors (cyan, magenta, yellow, and black) at once, or any combination thereof. Working with only one or two colors at a time helps you fine-tune your adjustments. To turn off a color, click its Eye icon. In the following example, cyan and magenta are visible and can be edited.

6. To adjust the dot gain value for simulating press output, click Dot Gain.
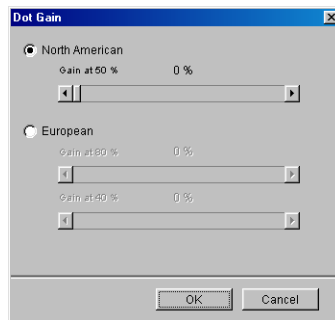
You can choose either the North American or European standard. Use the sliders to adjust to the desired Dot Gain:

• The range of values for North American at 50% input are from 0% to 50% gain on output.

• The range of values for European at 40% input are from 0% to 59% gain on output; the range of values for European at 80% input are from 0% to 20% gain on output.

If you use Dot Gain values, apply the settings first, so that the curves are deflected from their straight-line positions. Then make edits to the new curves. When you adjust Dot Gain values, all existing points on the curve are removed. A warning dialog box allows you to cancel Dot Gain settings before they are applied.

7. Use the plus and minus buttons to adjust brightness.

Changes to the brightness are reflected in the curve(s).

8. To adjust the curves directly, click and drag points on the curve or enter numbers into the input and output boxes.

The graph maps the input percentage to the output percentage. (These percentages refer to the size of the CMYK halftone dots.) The curve you selected appears, and points along the curve are marked so you can adjust them.
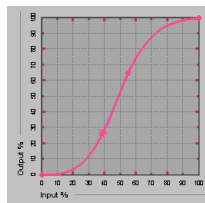
A curve with this shape makes a color appear lighter by reducing density in the midtones.
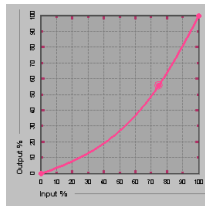
A curve with this shape makes a color appear darker by adding density in the midtones.
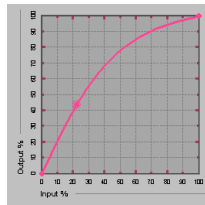
A curve with this shape increases contrast.

NOTE: You should adjust points in this way only *after* you have entered the Dot Gain and Brightness values.

3

For greater precision, you can type percentages in the Input and Output boxes or use the arrow keys on the keyboard to adjust the curve. To use the arrow keys, you must first click the curve to establish an anchor point that serves as a reference.

9. For an output profile, you can set maximum densities of the C, M, Y, and K channels.

You can enter the maximum densities, called D-Max values, of individual colors for profiles that support density settings. D-Max settings are not available when editing Simulation profiles in Master mode.

10. When you are finished, click Save and enter a name for the new profile.

The new custom profile is saved to the Fiery with the new name. If you edit one of the press standard targets (for example, SWOP-Coated, DIC, or Euroscale), you may want to include the original name as part of the new target name (for example, DIC-new) to help you remember the source of the new target.

NOTE: Preset default profiles are locked and *must* be saved with a new name.

For Mac OS computers, custom profiles must be linked to one of the 10 predefined custom profile names (Simulation-1 through Simulation-10 for Simulation or Output-1 through Output-10 for Output) in order to be accessible from the printer driver. You can create as many custom profiles as you want, but a maximum of 10 are available from the printer driver at any one time. For information on linking custom profiles to the predefined custom profile names, see "Defining profiles" on page 3-8. If you are using the printer driver for Windows, custom profiles will appear in the driver window without being associated with a predefined profile name.

If you set a custom profile as the default, you can access it from the printer driver *without* linking it to one of the predefined custom names. Simply select "Printer's default" from the printer driver.

3

1. **Start ColorWise Pro Tools and click Color Editor.**

2. **Choose Simulation from the View menu, select the simulation profile to edit, and then click Select.**

    Note: You can also open the Profile Manager, select a simulation profile, and click Edit.

3. **Choose Quick, Full (Source GCR), or Full (Output GCR) from the Edit Mode menu, and choose an output profile with which your edited simulation will be linked from the Link with menu.**

    The edited simulation will be linked with the output profile you choose from the "Link with" menu.
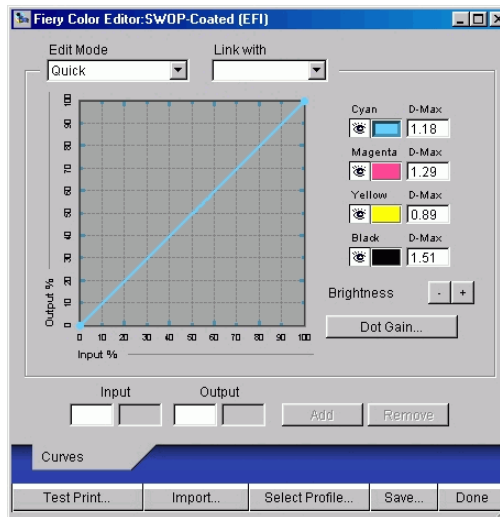
Note: When editing a simulation profile in Quick mode, clicking Import at the bottom of the Color Editor window lets you import a custom Quick Simulation created on another Fiery using the previous version of ColorWise. The current version of ColorWise does not allow you to save custom Quick or Full Simulations independently; rather, they are saved as components of the same profile.

4. **Edit and save the simulation as described in steps 5 through 10 of the procedure starting on page 3-14.**

   For this new simulation to be automatically applied to a print job, the CMYK Simulation, Simulation Method, and Output Profile settings must be the same as those used when you edited the profile. If the Simulation Method is different or a different output profile is selected, the Master simulation is applied.

   NOTE: A Simulation Profile can have a custom Master and one or more custom links—up to three links (Quick mode and the two Full modes) for each output profile on the system. (For the CMYK Simulation Profile option in the printer driver, note that if you select a custom profile for which the output ink percentage is greater than 0 and the input ink percentage is 0, the Use Master print option will have no effect.)

Undoing simulation edits

You can undo the changes you made to simulations (master and linked) in the following ways:

- If you have not yet saved your edits, click Done on the Color Editor menu bar, and do not save the changes.

- If you saved your edits under a new simulation name and want to delete all edits (in Master, Quick, and Full modes) to the simulation, see page 3-7.

EX12 Correcting gray balance

The AutoGray feature lets you use the copier's built-in scanner as a measurement device for correcting the gray balance of output profiles. Gray balance refers to the quality of neutral gray tones in a profile. In many cases, gray tones may contain a bluish or reddish color cast. AutoGray helps shift these tones back toward neutral grays.

TO CORRECT THE GRAY BALANCE OF AN OUTPUT PROFILE

1. Start ColorWise Pro Tools and click Color Editor.

2. Choose Output from the View menu.

3. Select a profile to edit and click Select.

You can also open the Profile Manager, select a profile, and then click Edit.
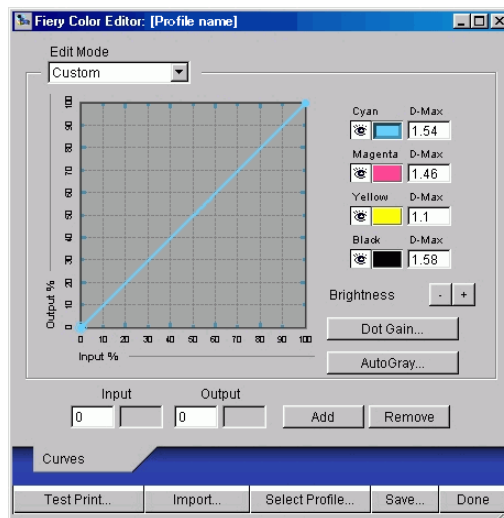
4. Choose Custom from the Edit Mode menu.

5. Click AutoGray.

6. **In the Print Options dialog box that appears, choose the Input Tray to use for the measurement page and click Print.**
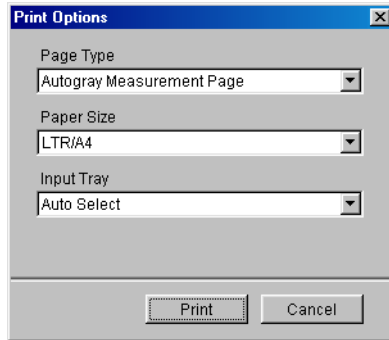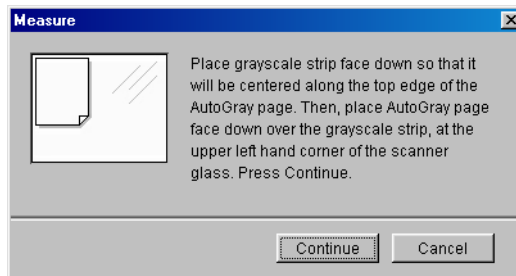

The Page Type is automatically set to AutoGray Measurement Page.

The Paper Size is automatically set to LTR/A4.

7. **Click OK to confirm printing of the measurement page.**

8. **Retrieve the page from the copier/printer.**

The AutoGray dialog box appears.

9. **Follow the directions in the dialog box for placing the Gray Scale strip and the AutoGray measurement page on the copier glass, and then click Continue.**

A message appears, displaying the progress of the gray balance adjustment.

10. **When the adjustment is complete, click OK.**

Color Editor displays the adjusted output profile curve.

3

Checking edited profiles

You can view a printed sample of a profile before you save it to the Fiery by printing one of the following:

- Comparison Page provided with ColorWise Pro Tools, which shows a comparison of images and colored patches with and without edits
- User-defined CALIB.PS in the Hold Queue

You can create a custom comparison page and save it as a PostScript or Encapsulated PostScript (EPS) file called CALIB.PS. Print the file to the Hold Queue of the Fiery from your application, or download it to the Hold Queue with Fiery Downloader (see).

TO CHECK A PROFILE

1. **Click Test Print from the Color Editor window.**
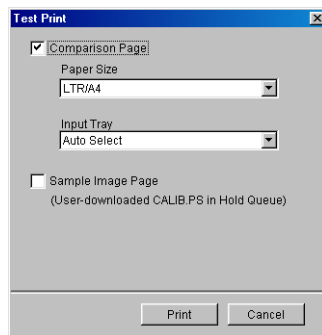
2. **Select a page to print, specify the paper size and input tray (Comparison Page only), and then click Print.**

For Comparison Page, choose the paper size (LTR/A4 or 11x17/A3) from the Paper Size menu. In the Input Tray menu, choose the paper source.

3

Using Spot On (Fiery Graphic Arts Package option)

The ColorWise Spot Color Matching option automatically matches spot colors with their best CMYK equivalents, so that spot colors can be simulated using the CMYK toner of the copier/printer. However, you may want to adjust the default CMYK equivalents to achieve a better match for your specific printing conditions.

Spot On allows you to adjust and manage lists of spot colors and their CMYK equivalents. The matching lists of spot colors and CMYK values are known as Spot Color Dictionaries. Spot On lets you maintain multiple Spot Color Dictionaries—one for each output profile on the Fiery.

NOTE: In order to use Spot On CMYK equivalents, you must enable the Spot Color Matching option (see).

Starting Spot On

You can start Spot On from ColorWise Pro Tools.

To work with Spot On, you must first specify the output profile associated with the Spot Color Dictionary that you want to edit. However, you may switch to a different output profile at any time while working with Spot On.
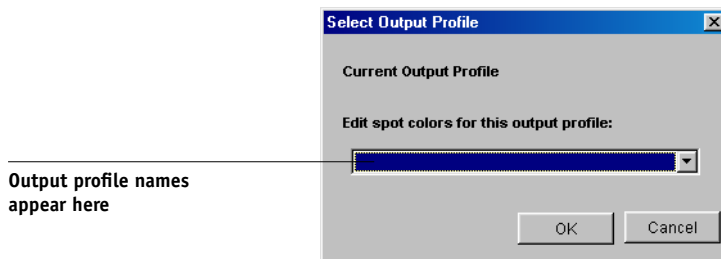
NOTE: The Fiery allows only one user connection through Spot On at a time.

TO START SPOT ON

1. **Start ColorWise Pro Tools and click Spot On.**
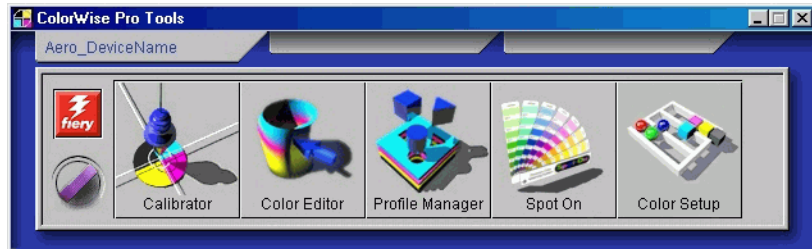
The Select Output Profile dialog box appears.
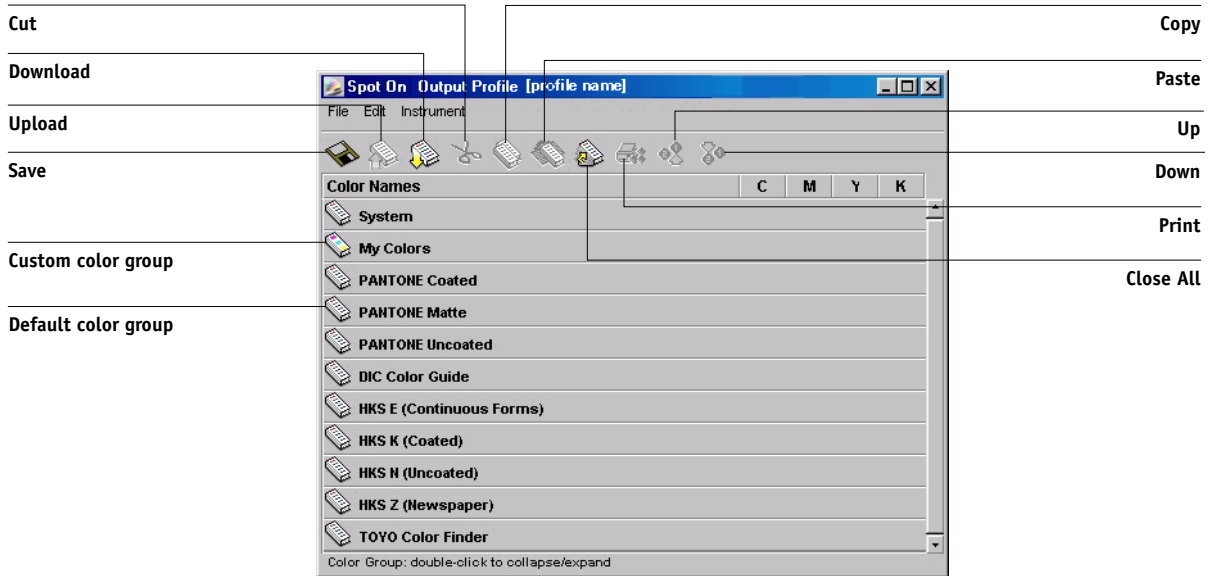

**Output profile names
appear here**

2. **Choose the desired output profile and click OK.**

The Spot On main window appears. The CMYK values you see in the window are calculated with respect to the specified profile.

Using the Spot On main window

The Spot On main window displays a list of color groups which represent libraries of spot colors on the Fiery. Tool icons for working with colors appear at the top of the window.

Cut
Download
Upload
Save

Custom color group

Default color group

Copy
Paste
Up
Down
Print
Close All

By default, the Fiery includes several PANTONE libraries along with a System library. The DIC, HKS, and TOYO libraries are available as part of the Fiery Graphic Arts Package option. These factory default libraries appear marked with the default group icon ( ).

You can also add custom color groups and colors to the Spot On window (see page 3-27). Added groups appear marked with the custom group icon ( ). Both default and custom groups can be opened to display their included colors.

TO OPEN AND CLOSE A COLOR GROUP

1. **To open a color group, click the icon to the left of the group name.**

   You can also open a group by double-clicking the blank area to the right of the group name.

   When you open a group, all colors in the group are displayed, and the group icon changes appearance.
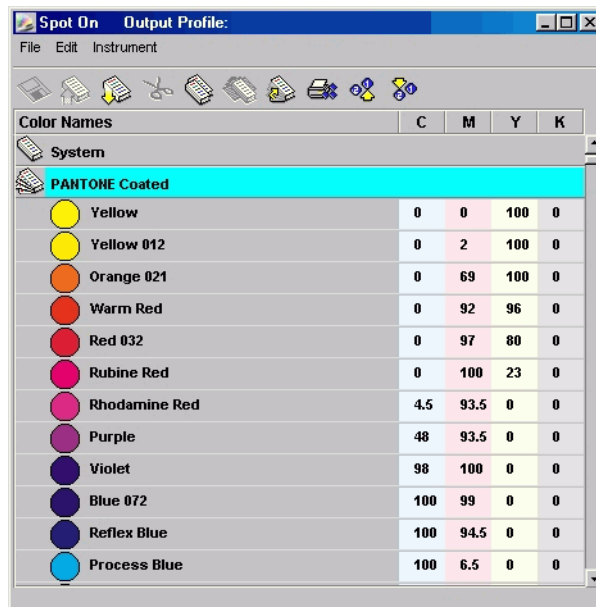
2. **To close a color group, click the icon to the left of the group name, or double-click the blank area to the right of the name.**

3. **To close all color groups in the list, choose Close All from the Edit menu.**

   You can also close all color groups by clicking the Close All icon above the color list.

Working with existing colors

With Spot On, you can view and manage existing groups of colors on the Fiery. You can also search for a particular color in the Spot On list.

Color groups in the Spot On window appear in order of their priority. Highest priority is given to color groups at the top of the list. For instance, if two colors from two different color groups have the same name, the Fiery uses the color from the higher group and disregards the other color. By managing the priority of colors in this way, you can maintain several CMYK variants for the same spot color.

---

1. **To rearrange an entire color group, select the desired color group.**

   **To rearrange an individual color, select the desired color.**

   Individual spot colors are marked with circular color icons.

2. **To move the selection up or down in the list, click the Up or Down icon in the toolbar.**

3. **To paste the selection in a different location in the list, click the Cut or Copy icon in the toolbar.**

   NOTE: The Cut operation is only available for custom colors.

4. **Click the location in the list where you want to paste the cut or copied selection, and click the Paste icon in the toolbar.**

   When you paste a default color group or color, a warning message may appear asking you to rename the selection. Use the menus to choose the desired prefix and suffix for the new name, and click OK. The pasted selection becomes a custom color group or color with the specified name.
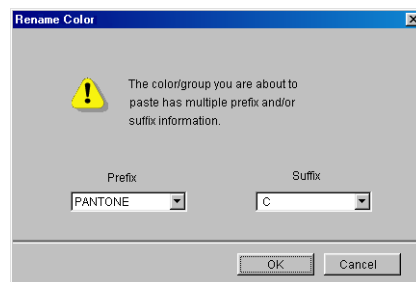
1. **Choose Find from the Edit menu.**

    The Find dialog box appears.

2. **Enter the name of the color you want to find and click OK.**

    Spot On searches for the specified color, starting from the top of the color list.
    The located color appears selected in the color list.

3. **To find additional colors based on the same search criteria, choose Find Again from the Edit menu.**

Creating custom colors

Spot On provides a number of default color groups, such as PANTONE and DIC, in the color list. You can add your own custom spot colors and groups to the list.
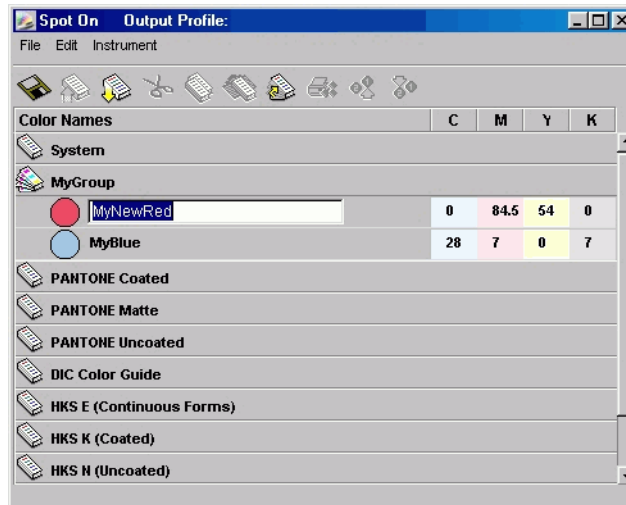
1. **Select the line in the group or color list where your addition is intended.**

2. **Choose New Group from the Edit menu to insert a new group or choose New Color to insert a new color.**

    A new color group entry or color entry appears as "Untitled."

1. **Select the Color Name or specific color you want to edit.**

2. **Type the new name exactly as it appears in the print job documents, including upper and lowercase characters and spaces, as needed.**

   **NOTE:** Default groups or colors (such as PANTONE) cannot be renamed.

Downloading custom color groups

You can download custom color groups from your computer to the Fiery. Downloaded groups are added as custom groups to the Spot On color list and are enabled immediately for use on the Fiery.

TO DOWNLOAD CUSTOM COLOR GROUPS

1. **Select the line in the color list where you want to add the downloaded group.**

2. **Choose Download from the File menu.**

   The Select File dialog box appears.
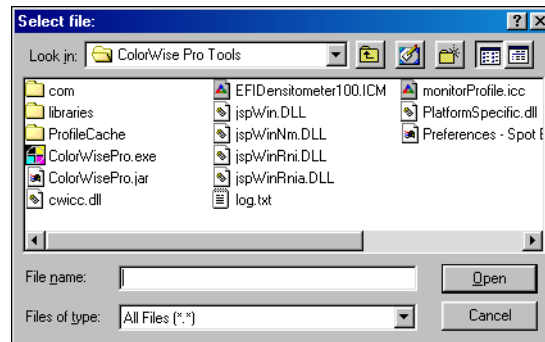
3. **Locate and select the desired color group, and click Open.**

   The downloaded group is added to the specified location in the Spot On list. If you did not specify a location, the group is added to the top of the list.

   If the downloaded group has the same name as an existing group in the list, you are prompted to rename the downloaded group.

Uploading custom color groups

You can upload custom color groups from the Fiery to your computer as ICC files. The upload feature allows you to share a group by creating a local copy that can be downloaded to another Fiery.

A color group must be saved to the Fiery before you can upload it to your computer. To upload a factory default group, first copy and paste the group as a new custom group. You can then upload the group as desired.

TO UPLOAD CUSTOM COLOR GROUPS

1. **Select the name of the color group you want to upload.**

2. **Choose Upload from the File menu.**

    The Save As dialog box appears.
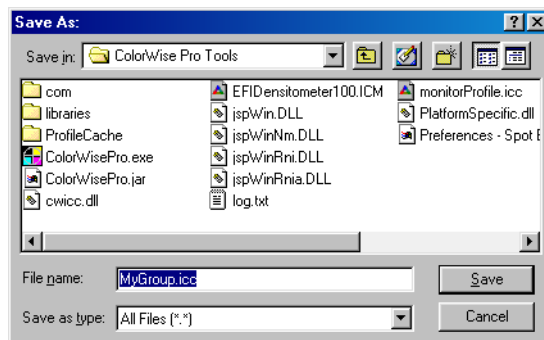
3. **Browse to the location where you want to save the file, name the file, and then click Save.**

Editing color values

The Spot Color Search targets the exact CMYK toner equivalents required to simulate a desired spot color on the copier/printer. If an existing spot color is not printing as desired, you can modify the color values as needed to achieve your intended result. Beginning with an approximate color, you can adjust the hue, saturation, and lightness of the color until you achieve a desirable match.

TO TARGET A COLOR USING SPOT COLOR SEARCH

1. Select a color icon from a color group and choose Color Search from the Edit menu.

The Spot On Color Search window appears. You can also display this window by double-clicking a color icon in the color list.

The current color appears in the center patch of the window.
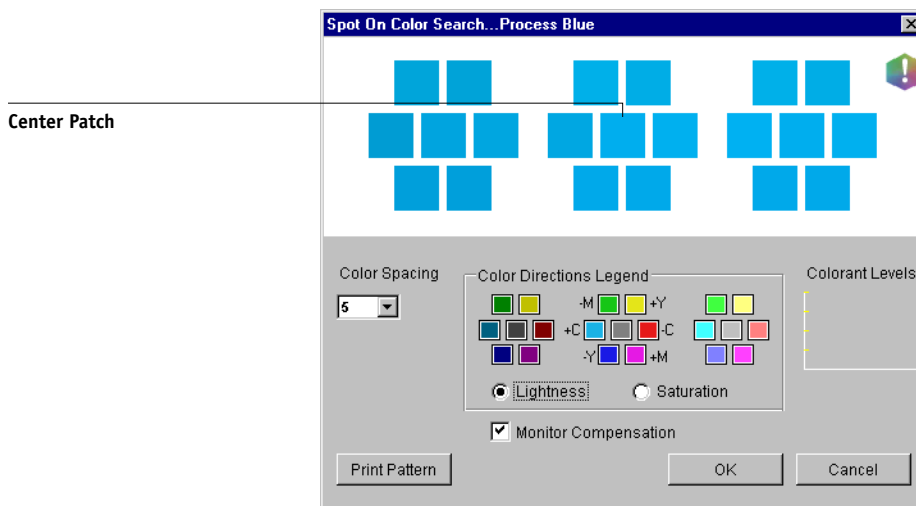
Center Patch

2. To update the center patch to a neighboring color that more closely matches the target, click the corresponding neighbor patch.

Neighboring patches represent variations from the center patch and can be selected if they offer a closer match to the desired color. Clicking one of these patches updates the center patch to the new color and provides a new selection of neighboring colors. These patches are either lightness or saturation neighbors, depending on the option specified in the following step.

NOTE: When you select certain colors, an exclamation point icon may appear in the upper right corner of the window. This icon indicates that the center patch color lies at the edge of the copier/printer's printable gamut and may not be reproducible. In such cases it is recommended that you use an approximate target that lies within the gamut, rather than the out-of-gamut color.

You can also click the center patch to enter CMYK values directly. For more information, see the procedure on .

3. **Use the following techniques to control how neighboring color patches are generated:**

    Select either Lightness or Saturation in the Color Directions Legend.

    Lightness generates neighbor patches based on darker to lighter shades of the original color. This variation is displayed from left to right, with the original color remaining in the center of the middle group.

    Saturation generates neighbor patches based on less saturated to more saturated variations of the original color. This variation is displayed from left to right, with the original color remaining in the center of the middle group.

    Choose a setting from the Color Spacing menu to control the closeness of the neighbor patches.
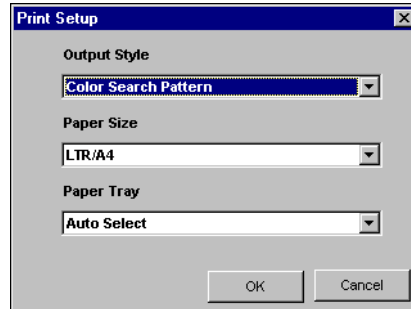
    A higher setting generates neighbor patches that differ more noticeably from the center color. As you get closer to your target color, you will want to reduce the color spacing to a smaller value.

    Select Monitor Compensation to simulate how all the on-screen color patches will appear when printed on paper.

    This simulation depends on the monitor profile that has been configured for the display. To specify the monitor profile, choose Preferences from the Edit menu in the Spot-On main menu.

4. **Continue adjusting the color patch controls and clicking neighbor patches until the desired color appears in the center patch. Then click Print Pattern.**

The Print Setup dialog box appears.

Print Setup	☒
Output Style	
Color Search Pattern ▼	
Paper Size	
LTR/A4 ▼	
Paper Tray	
Auto Select ▼	
OK Cancel	

5. Choose Output Style, Paper Size, and Paper Tray options.

For Output Style, choose between Color Search Pattern and Color Neighbor Pattern. Color Search Pattern prints patches with the same pattern as displayed in the Color Search window. Color Neighbor Pattern prints patches in a three column by eight row format.

For Paper Size, choose the size of the paper you want to use for printing the patches.

For Paper Tray, specify the input tray for the paper you want to use.

6. Click OK to print the patches.

The Print Pattern test page prints with following information:

• Center patch color CMYK value

• Color spacing

• Lightness or Saturation neighbors selected

• Output profile selected

The goal of the Spot Color Search is to find the color values that make a printed color patch match a target, not the screen simulation of it. Printing a Print Pattern of the neighbor color patches allows you to compare the printed patches to the color target. Once you compare the printed patches and find the one that matches most closely, you can then select the corresponding patch on the screen.
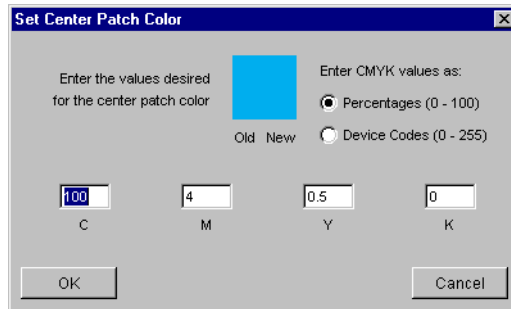
7. When you have selected the desired target color in the Spot On Color Search window, click OK.

The edited color appears in the color list of the main Spot On window.

3

1. Click the center patch in the Spot On Color Search window.

The Set Center Patch Color dialog box appears.

2. Select how you want to enter the CMYK values.

The Percentages option lets you enter color values between 0 and 100%, in increments of 0.5. Values out of this range are rounded to the nearest whole or half percentage.

The Device Codes option lets you enter color values between 0 and 255. This option reflects the full range of color values that the Fiery can actually reproduce, and provides finer gradations of color than are possible with Percentages.

3. Enter the C, M, Y, and K values of your specific color in the appropriate fields.

Use the Tab key to move from field to field. As you enter each new value, the preview patch updates to reflect the old and new colors.

4. Click OK.

The new color appears as the center patch in the Spot On Color Search window.

3

Using a measurement instrument to target colors

If you have the EFI Densitometer ED-100 or EFI Spectrometer ES-1000 option, you can import measured color values directly into Spot On. This feature lets you target matches based on the actual colors of immediate objects, such as the red of a printed logo or the yellow of a packaging envelope.

NOTE: For best results, download and save any measurement data you have gathered with the ED-100 or ES-1000 in its offline state. Spot On automatically clears stored data when it establishes a connection with the instrument. For information on downloading stored data from the ED-100 or ES-1000, see the documentation included with the instrument.

TO IMPORT COLOR MEASUREMENTS INTO SPOT ON

1. **Make sure you have installed and set up the ED-100 or ES-1000 for use with your computer.**

    For installation and setup instructions, see the documentation that came with the instrument.

    For an illustration of the ED-100, see the section beginning on page 2-17. For an illustration of the ES-1000, see the section beginning on page 2-16.

2. **Choose Start from the Instrument menu.**

    The Choose Port dialog box appears.

3. **For Instrument, choose the instrument you will use to take measurements. For Port, choose the serial port connection of the instrument. Click OK.**

    The indicator light on the instrument flashes for a few moments as the connection to Spot On is established. When the flashing stops, the instrument is ready to read measurements.

3

4. **Place the ED-100 or ES-1000 over the target color, making sure to center the sample aperture over the color. Press Measure to take the measurement.**

   The measured CMYK values are imported into Spot On as follows:

   • If an individual color is selected in the color list, it updates to the measured color.

   • If a group is selected in the color list, a new color with the measured values is created within the group.

   • If the Spot On Color Search window is open, the center patch updates with the measured values, and the neighbor patches update accordingly.

   • If the Set Center Patch Color dialog box is open, the measured values are imported into the CMYK entry fields.

5. **When you are finished taking color measurements, choose Stop from the Instrument menu.**

   Spot On closes the connection to the instrument.

Saving changes and exiting Spot On

To enable your spot color matches for use on the Fiery, you must save your edits before exiting Spot On. This action ensures that all your changes to Spot On color definitions are stored on the Fiery and available for use when printing documents that contain spot colors.

The following edits do not require saving to take effect:

• Rearranging the priority level of a color group

• Downloading a color group

• Clearing or deleting a color group

TO SAVE THE SPOT ON COLOR LIST

1. **Choose Save from the File menu.**

2. **Click Close in the upper-right corner of the Spot On main window to exit the utility.**

Color Setup

You can use Color Setup to set the default ColorWise settings for the Fiery. To access Color Setup, click its icon in the ColorWise Pro Tools main window.

Setting default ColorWise options

Color Setup allows you to configure the default color management settings for the Fiery. These settings are applied to all print jobs sent to the Fiery, unless a user overrides them for an individual job by changing settings in the printer driver. These default settings can also be overridden using Command WorkStation or Fiery WebSpooler™. Color Setup maintains a connection to the Fiery, so changes made in Profile Manager appear automatically. In addition, the defaults set in Color Setup are automatically reflected in other Fiery tools that list default settings.

You can also reset the Fiery to its factory default settings by clicking Factory Default in the lower-left corner of the Color Setup window.

The options in Color Setup are arranged in a pattern representing the flow of color processing that takes place on the Fiery.
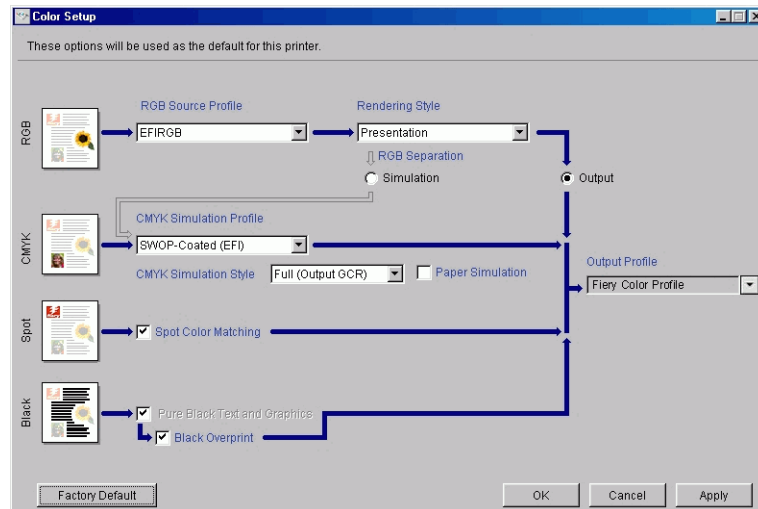
For those color options that offer multiple choices, make your selection from the menu that appears. For RGB Separation, make your selection by selecting the appropriate radio button. Other options are selected simply by selecting a check box next to the option name. Once you have made your changes, you must click OK or Apply for the changes to take effect. Clicking OK sets the new defaults and closes the Color Setup window. Clicking Apply sets the new defaults and keeps the Color Setup window open. Clicking Cancel closes the Color Setup window without applying any changes to the default settings.

For most users, the factory defaults result in optimal color output.

A

Appendix A: Color Measurement Instruments

This appendix explains how to set up and calibrate the following color measurement instruments, available as separately purchased options:

- X-Rite DTP41 automatic scanning spectrophotometer
- X-Rite DTP32 automatic scanning densitometer

Using the X-Rite DTP41 spectrophotometer

ColorWise Pro Tools Calibrator supports the X-Rite DTP41 spectrophotometer, a device that measures density and color data. The DTP41 communicates directly with the Calibrator application in ColorWise Pro Tools, sending measurements to the Fiery automatically.

Setting up the DTP41

Before you calibrate the Fiery, you must connect, configure, and calibrate the spectrophotometer to prepare for measuring the printed patches. For additional information about setting up and using the DPT41, see the documentation included with the instrument.

TO CONNECT THE X-RITE DTP41 TO THE COMPUTER

1. **Turn off the computer.**

2. **Unpack the X-Rite DTP41 and remove the spacer from the measurement page slot.**

3. **Plug the square end of the interface cable (looks like a modular phone plug) into the serial interface connection on the side of the X-Rite DTP41.**
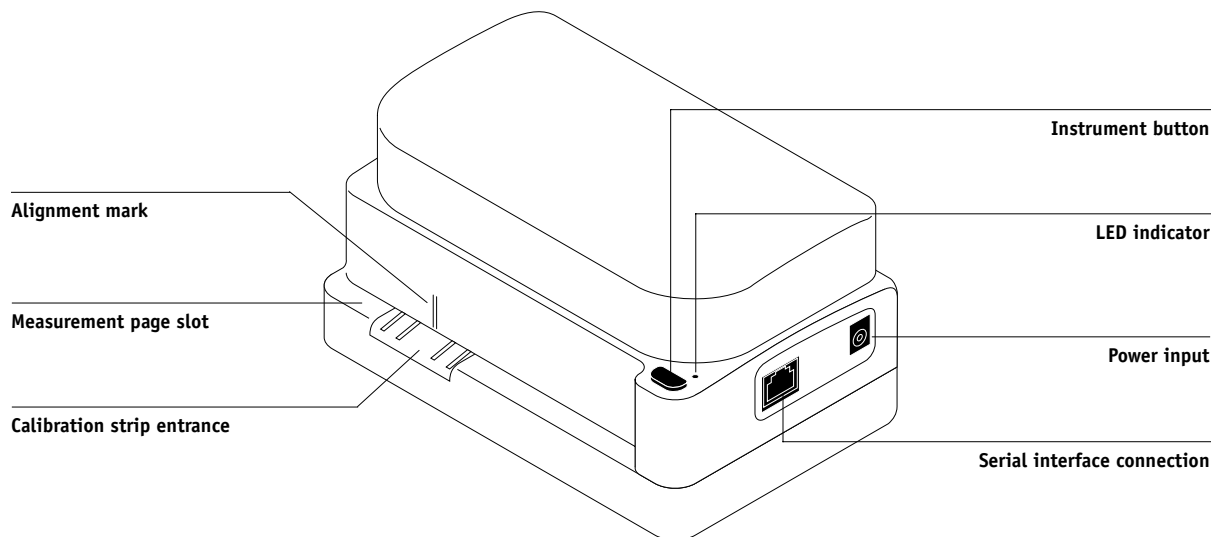
Instrument button

Alignment mark

LED indicator

Measurement page slot

Power input

Calibration strip entrance

Serial interface connection

4. Attach the connector to the computer.

For a Windows computer, insert the 8-pin mini-DIN end of the interface cable into the 9-pin DB9 Connector cable adapter. Insert the 9-pin end into the COM1 or COM2 port on the computer and tighten the screws. If the available port on your computer is 25-pin, you must use the 8-pin-to-25-pin adapter.

Unused connector

Connect to computer

Connect to adapter

Square connector

Interface cable

For a Mac OS computer, connect the 8-pin mini-DIN plug directly into the serial port of the computer.

Unused connector
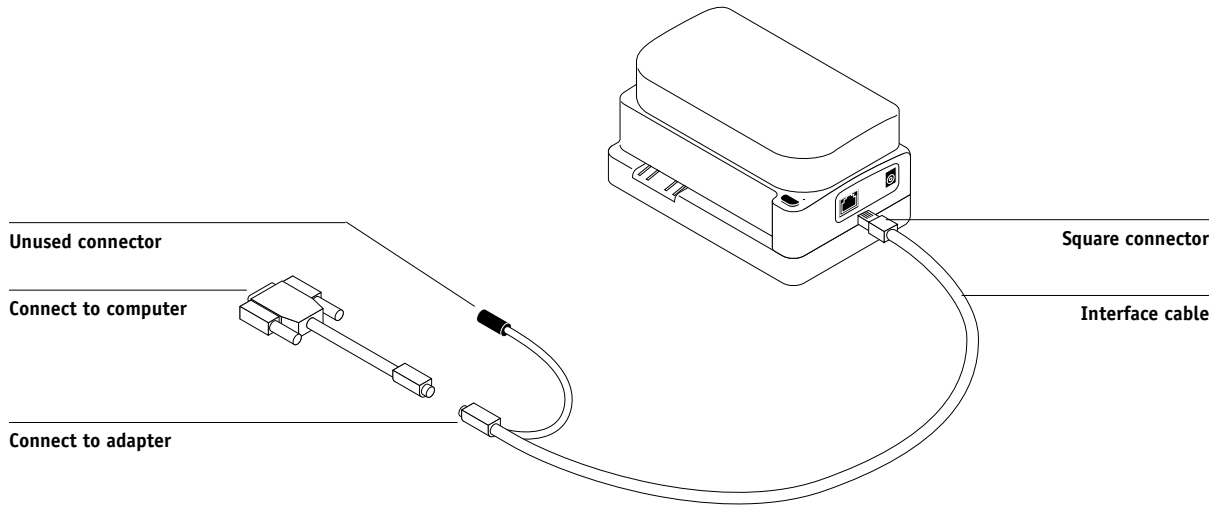
Connect to serial port

NOTE: For Mac OS computers with a USB port (for example, an iMac), you need an adapter to connect the DTP41 to your computer. For information on supported adapters, see the X-Rite, Inc. web site (www.x-rite.com).

5. Use the AC adapter to provide power.

Plug the small connector on the adapter cable into the power input of the X-Rite DTP41 and plug the AC adapter into the power cord. Plug the power cord into a wall outlet.

AC adapter

Power cord

Small connector
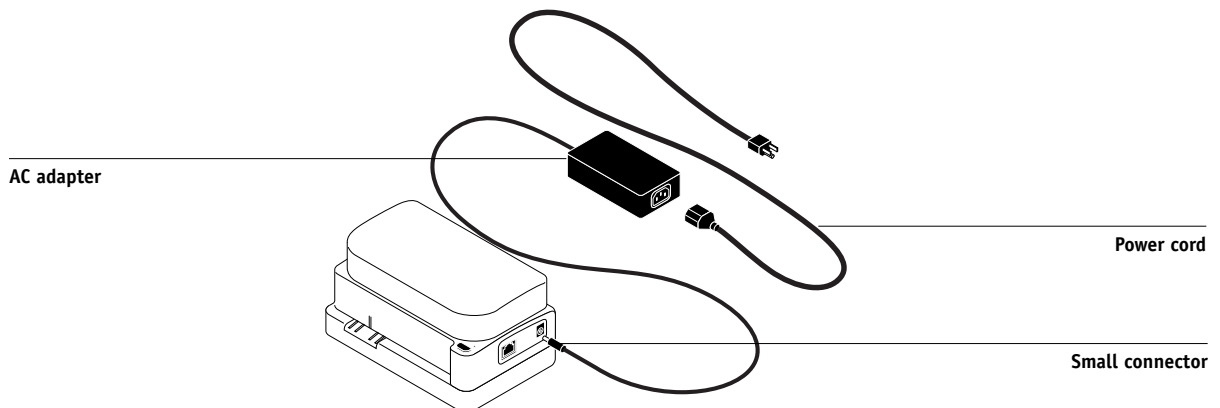
6. **Turn on the computer.**

7. **Calibrate the X-Rite DTP41 using ColorWise Pro Tools (see the following section).**

8. **Calibrate the Fiery using ColorWise Pro Tools and the DTP41 (see page 2-10).**

Calibrating the DTP41

For the best color accuracy, you should calibrate the X-Rite DTP41 spectrophotometer every time you calibrate the Fiery. You can initiate the calibration sequence in ColorWise Pro Tools Calibrator as part of the process of Fiery calibration. The computer may also prompt you that it is necessary to calibrate the spectrophotometer.

Alternatively, you can initiate the DTP41 calibration process using the Instrument button on the DTP41. For more information on this method, see the documentation that came with the X-Rite DTP41.

Multiple users can be connected to one Fiery server with ColorWise Pro Tools, but only one user at a time can use the Calibrator module. An error message appears if you try to calibrate when another user is already using ColorWise Pro Tools to calibrate.

You will need the Color Reflection Reference strip that is included with the spectrophotometer. Remove the strip from its protective envelope, handling it by the edges only. Keep the strip free of dust and smudges and always store it in the protective envelope.

TO CALIBRATE THE X-RITE DTP41

1. **Connect the spectrophotometer to the computer and turn on power (see page A-2).**

2. **Start Calibrator.**

    For instructions on starting Calibrator, see page 2-6.

3. **Choose DTP41 as the measurement method.**

4. In the Get Measurements pane, click Measure.

5. In the Measurement Options dialog box, click Measure.
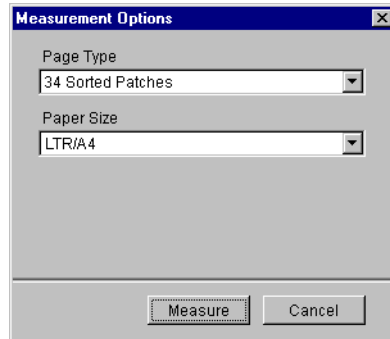
6. Choose the appropriate COM port for the DTP41 from the Available Ports menu.

The Instructions area displays instructions for selecting the port.
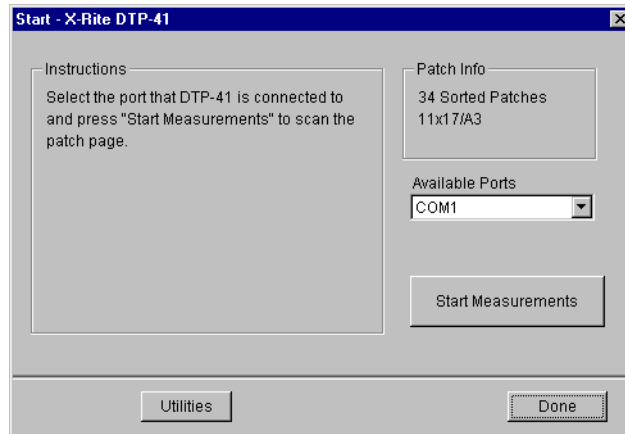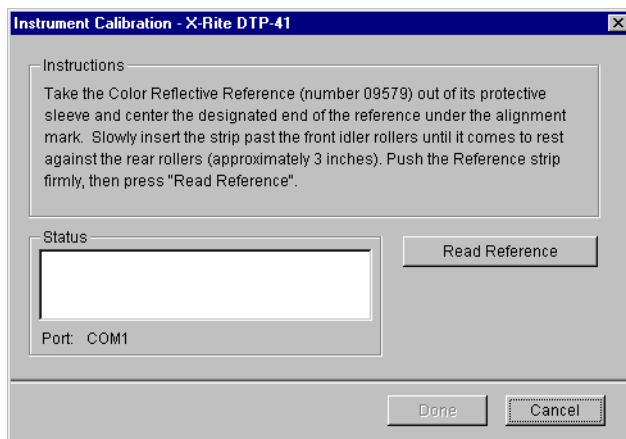
7. **Click Utilities.**

    The Utilities dialog box appears.
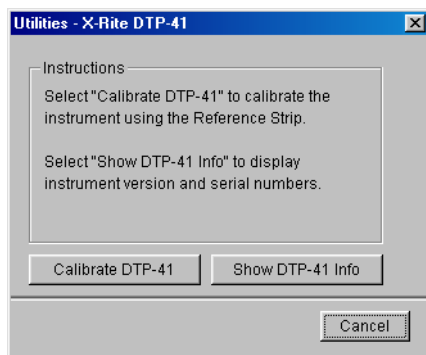
    To view version and serial number information, click Show DTP-41 Info, and then click Done when you are finished.

8. **Click Calibrate DTP-41.**

    The Instrument Calibration dialog box appears.

9. **If you have not already done so, remove the shipping spacer from the measurement page slot.**

10. **Insert the end of the Color Reflection Reference strip with the arrow into the calibration strip entrance on the DTP41, centering it below the alignment mark (see the diagram on page A-2).**

    Insert the strip about 3 inches, past the front idler rollers, until it rests against the rear drive rollers.

11. **Click Read Reference in the Instrument Calibration dialog box.**

    The DTP41 pulls the calibration strip through automatically.

    A message appears in the Status area when the calibration is finished.

12. **Click Done.**

13. **Close the Utilities window.**

    This completes DTP41 calibration.

    When the DTP41 requires calibration, your computer prompts you. When the prompt message appears, click Calibrate Now and follow the instructions, starting with step 8 on page A-7.

    After calibrating the DTP41, calibrate the Fiery (see page 2-10).

Using the X-Rite DTP32 densitometer

ColorWise Pro Tools are designed to work with the X-Rite DTP32 reflection densitometer, which feeds color measurements to the Fiery automatically.

NOTE: Measurements from other densitometers can be input using a simple ASCII file format (see Appendix B).

Setting up the DTP32

Before you calibrate the Fiery using the X-Rite DTP32, you need to connect, configure, and calibrate the densitometer to prepare for measuring the printed patches (see "Calibrating the DTP32" on page A-11). For additional information about setting up and using the DTP32, see the separate documentation included with the densitometer.

TO CONNECT THE X-RITE DTP32 TO THE COMPUTER

1. **Turn off the computer.**

2. **Plug the square end of the interface cable (looks like a modular phone plug) into the I/O port on the side of the X-Rite DTP32.**
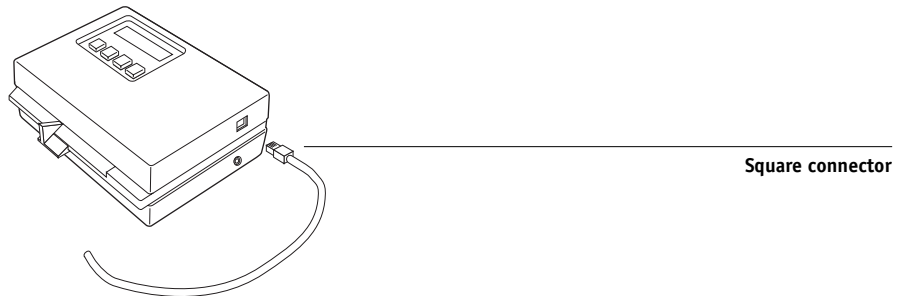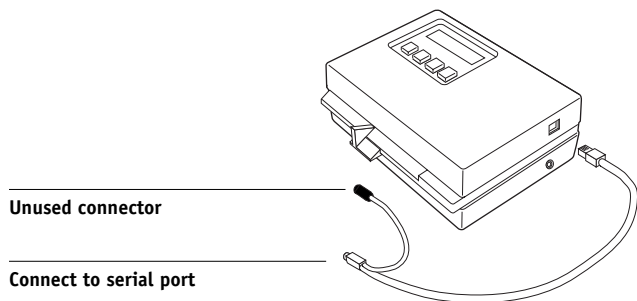

Square connector

3. **Attach the connector to the computer.**

    For a Windows computer, insert the 8-pin mini-DIN end of the interface cable into the 9-pin DB9 Connector cable adapter. Insert the 9-pin end into the COM1 or COM2 port on the computer and tighten the screws. If the available port on your computer is 25-pin, you must use the 8-pin-to-25-pin adapter.

Unused connector

Connect to computer

Connect to adapter

Square connector

Interface cable

For a Mac OS computer, connect the 8-pin mini-DIN plug directly into the serial port of the computer.

Unused connector
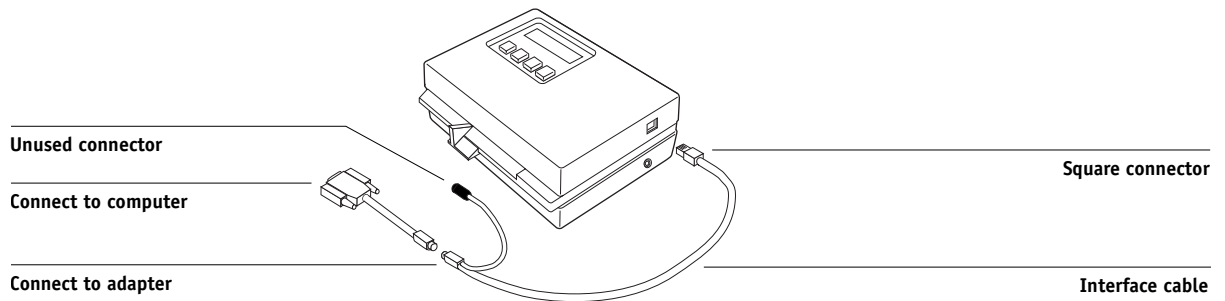
Connect to serial port

NOTE: For Mac OS computers with a USB port (for example, an iMac), you need an adapter to connect the DTP32 to your computer. For information on supported adapters, see the X-Rite, Inc. web site (www.x-rite.com).

4. **Plug the small connector on the adapter cable into the side of the X-Rite DTP32 and plug the AC adapter into a wall outlet.**

Small connector

AC adapter
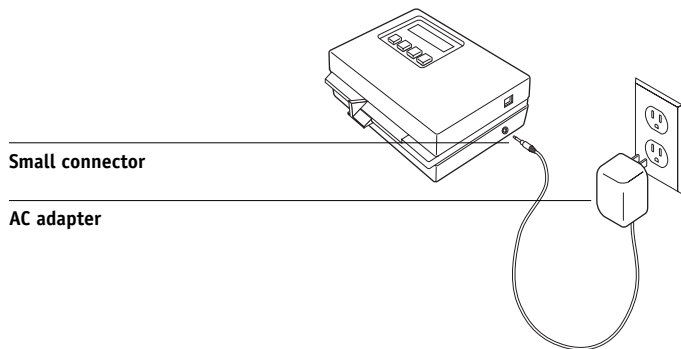
5. **Turn on the computer.**

6. **Calibrate the DTP32 (see the following section).**

7. **Calibrate the Fiery using ColorWise Pro Tools (see page 2-21).**

Calibrating the DTP32

You will need the black-and-white X-Rite Auto-Cal Strip included with the densitometer. Calibrating the densitometer does not require ColorWise Pro Tools.

TO CALIBRATE THE X-RITE DTP32

1. **Connect the densitometer to the computer and supply power (see page A-8).**

2. **From the Main Menu on the X-Rite DTP32 display, press the p1 key once to reach p2.**

3. **Press the cal key.**

   Calibrating motor speed is displayed, followed by the words INSERT CAL STRIP.

4. **Insert the arrow end of the X-Rite Auto-Cal Strip into the 35mm slot on the front of the X-Rite DTP32 until it stops or the roller starts pulling the strip.**

   Reading appears momentarily, followed by the density values and CALIBRATION OK. The densitometer automatically returns to the MAIN MENU.

   If UNRECOGNIZABLE STRIP appears, repeat the process or try cleaning the strip (see the X-Rite DTP32 Operating Manual).

5. **Start ColorWise Pro Tools and calibrate the Fiery (see the following section).**

   Recalibrate the DTP32 at least once per month. For critical color, calibrate the densitometer every time you calibrate the Fiery. The DTP32 may also warn periodically that it requires calibration.

B

Appendix B: Importing density measurements

This appendix describes Simple ASCII File Format, which can be used to import density measurements from measurement devices. To use your own measurement data from an alternate measurement instrument, record your individual readings in a text file and structure it as follows.

Simple ASCII Import File Format (SAIFF)

This format describes **Status T** measurement data and is for import into the ColorWise Pro Tools Calibrator. The three possible file formats are:

• 1D Status T density for EFI 34 patch page

• 1D Status T density for EFI 21 patch page

• 1D Status T density for other pages (maximum of 256 patches per ink)

The file format is ASCII and has no tabs. A single space or multiple spaces are used as delimiters. Blank lines are not allowed. Each line in the file represents four patches (C, M, Y, K) of a specific ink value. Comments may be on any line in the file, and these lines start with a pound sign (#) followed by a space. A line with a pound sign followed by any character other than a space has been reserved. Comments must be on an entire line by themselves.

Each line of data contains five values. The first number is the sequential patch number (for EFI 34 and EFI 21 pages) or the ink value percentage (for other pages). The four values that follow are the density values of C, M, Y, and K of the corresponding patch. Lines are ordered either by increasing sequential patch numbers or by increasing the ink percentage.

For Windows computers, the file extension must be .cm1. For Mac OS computers, the file type must be 'TEXT'.

Measurement data in EFI 34 and EFI 21 are paper-relative. For other pages, if the first line corresponds to zero ink value, the Calibrator assumes that the measurement data is absolute and adjusts it to become paper-relative by subtracting the density values of the first line from the remaining patches.

Example of 1D Status T density for EFI 34 patch page

This file format is used to specify the Status T density measurements of the EFI 34 patch page. The value in the first column is the patch number. The first patch must be 1 and the last must be 34.

```
#!EFI 3
# EFI ColorWise 2.0 Data
type: 1DST34
# Cyan   Magent Yellow Black
1 0.0300 0.0400 0.0200 0.0400
2 0.0600 0.0700 0.0800 0.0700
3 0.1000 0.1000 0.1000 0.1000
(…more data…)
33 1.6700 1.3400 0.8900 1.6700
34 1.7200 1.4300 0.9300 1.7500
```

Example of 1D Status T density for EFI 21 patch page

This file format is used to specify the Status T density measurements of the EFI 21 patch page. The value in the first column is the patch number. The first patch must be 1 and the last must be 21.

```
#!EFI 3
# EFI ColorWise 2.0 Data
type: 1DST21
# Cyan   Magent Yellow Black
1 0.0300 0.0400 0.0200 0.0400
2 0.0600 0.0700 0.0800 0.0700
3 0.1000 0.1000 0.1000 0.1000
(…more data…)
20 1.6700 1.3400 0.8900 1.6700
21 1.7200 1.4300 0.9300 1.7500
```

B

Example of 1D Status T density for an arbitrary page

This file format is used to specify the Status T density measurements of a user-defined patch page. The value in the first column is the ink/toner percentage of the patch. The first percentage must be 0 and the last percentage must be 100. The percentages must increase in between.

```
#!EFI 3
# EFI ColorWise 2.0 Data
type: 1DST
# percnt Cyan Magent Yellow Black
0.0000 0.0300 0.0400 0.0200 0.0400
0.3922 0.0600 0.0700 0.0800 0.0700
1.1765 0.1000 0.1000 0.1000 0.1000
(…more data…)
98.0000 1.6700 1.3400 0.8900 1.6700
100.0000 1.7200 1.4300 0.9300 1.7500
```

Glossary

additive color model
A system in which colors are produced by combining red, green, and blue light (the additive primaries). An RGB video monitor is based on an additive color model.

additive primaries
Red, green, and blue light that is used in additive color systems. When added together in proper amounts, these colors of light produce white.

artifact
A visible defect in an image, usually caused by limitations in the input or output process (hardware or software); a blemish or error.

banding
Visible steps between shades in a color gradient.

bit depth
Amount of information used for each pixel in a raster image. Black and white images require only one bit per pixel. Grayscale images with 256 shades of gray require 8 bits (or 1 byte) per pixel. Photographic quality color images can require 24 bits per pixel (RGB images) or 32 bits per pixel (CMYK images).

bitmap
An image comprised of small squares arranged in a grid. Each square in the grid is a pixel. The number of pixels per inch defines the resolution of a bitmap.

blasting
An undesirable effect that occurs when excess amounts of toner, possibly combined with certain types of paper stock, cause objects in an image to spread beyond its boundaries as defined in the file.

BMP
A graphics file format established by Microsoft and native to the Windows operating system.

calibration
The process of ensuring that a device behaves consistently with respect to a set of specifications.

CMS
See color management system.

CMYK
A subtractive color model that uses cyan, magenta, yellow, and black, or process colors, used in color printing; a color model used in the printing of colors in four-color process printing.

color channel
A single-color image that can be edited separately from the other color channels comprising a color space—for example, the red channel of an RGB image.

color gamut
See gamut.

color management system (CMS)
System used to match color across different input, display, and output devices.

color rendering dictionary
See CRD (color rendering dictionary).

color separation
The process of separating a color image into the color components for printing—cyan, magenta, yellow, and black. Also used to refer to the four sheets of film that result from the process of separating a color image.

color space
A model for representing color in terms of measurable values, such as the amount of red, green, and blue in an image. RGB and CMYK color spaces correspond to color devices—monitors and copier/printers respectively. Other color spaces, such as CIE Lab, are based on mathematical models and are device-independent. They are not based on the color response of a particular device. *See* gamut.

colorant
An ink, dye, toner, paint, or other pigment that modifies the color of media to which it is applied.

ColorWise
See ColorWise color management.

ColorWise color management
Fiery ICC-open color management solution, which is an easy-to-use system that addresses the needs of both casual and experienced color management users.

composite printer
Any output device that can print directly in color without first creating color separations. A composite print can be used as an early proof of an offset print job.

continuous tone (contone)
Describes a photographic image that contains gradient tones from black to white (such as a 35mm transparency or a photograph). Continuous tones cannot be reproduced in that form for printing, but must be screened to translate the image into dots.

continuous tone (contone) image
An image containing fine gradations of tones, such as a photographic image.

CRD (Color Rendering Dictionary)
A feature of color management systems and PostScript Level 2 and PostScript 3 color copier/printers that maintains the best possible translation of color from one color device to another. A color rendering dictionary (CRD) is used by the color management system or the copier/printer's PostScript interpreter when converting data between color spaces. The Fiery includes several CRDs, each of which provides a different color rendering style.

custom color system

A system of named color swatches that can be matched on press using process or spot colors. PANTONE and TruMatch are examples of custom color systems.

DCS (Desktop Color Separation)

A data file standard defined by Quark, Inc., to assist in making color separations with desktop publishing system; five files are created, four color files (one each for C, M, Y, and K) and a composite color preview file of the color image. It allows an image-editing application to perform color separation and pass it through to final output with its integrity intact.

densitometer

An instrument commonly used in the graphic arts industry to measure density according to a specified standard.

density

A measurement of the light-absorbing quality of a photographic or printed image.

desktop color separation

See DCS.

DIC

A Japanese standard of specifications for separations, proofs, and color printing.

EPS or EPSF (Encapsulated PostScript)

A PostScript file format designed to be embedded in another PostScript stream.

Euroscale

A European standard of specifications for separations, proofs, and color printing.

flexography

A printing technology that uses flexible raised-image plates. Flexography can be used to print on non-flat materials such as cans.

four-color printer

A printing device that uses cyan, magenta, yellow, and black ink or toner.

gamma

A numeric value representing the relationship (gamma curve) between the input and output values of a color device. If gamma equals 1, input values are mapped exactly to output values.

gamut

A range of colors. A device gamut is the range of colors that a device, such as a copier/printer, can produce. An image gamut is the range of colors in a particular image.

gamut mapping

The conversion of color coordinates from one device's gamut to another—usually accomplished with algorithms or look-up tables.

GDI (Graphics Device Interface)
Graphics and display technology used by computers running Windows. GDI applications rely on GDI (rather than the PostScript language) to send text and pictures to copier/printers.

GIF (Graphics Interchange Format)
A standard developed by CompuServe for bitmap graphics of up to 256 colors and used for posting photographic images on the Internet or intranet pages; rarely used for professional printing.

gradient
A smooth transition between two different colors or between two shades of a color.

Graphics Device Interface
See GDI.

Graphics Interchange Format
See GIF.

gravure
A printing technology that uses an etched cylinder that has been immersed in ink. The ink that remains in the etched areas is applied to the paper. The non-etched surfaces of the cylinder are non-printing areas.

gray component replacement (GCR)
In shadow, midtone, and quarter-tone areas where all three process colors (C, M, Y) overprint, the gray components of those colors are reduced and replaced by black. This improves wet ink trapping and reduces ink costs in process color printing.

halftoning
A method for representing an original continuous tone image using a pattern of dots, lines or other patterns.

HSB
A color model where each color is represented by its hue, saturation, and brightness components; supported by most color applications.

ICC profile
An industry standard color profile format developed by the International Color Consortium (ICC) that describes the color capabilities, including the gamut, of a color device based on the differences between an ideal and the current device. The ideal is often provided by the manufacturer as a color reference file. ICC profiles are implemented on Mac OS computers in ColorSync and on Windows computers in Image Color Matching (ICM). The Fiery color management system, ColorWise, supports ICC profiles.

imagesetter
Raster-based film output device; a high-resolution laser output device that writes bitmapped data onto photosensitive paper or film.

JPEG
A graphics file format defined by the Joint Photographic Experts Group committee of International Standards Organization (ISO); a standard for digital compression of still image graphic data.

metamerism
Phenomenon in which two colors composed of different combinations of light wavelengths appear identical under a specific light source, but may look different under other light sources. The colors are called "metamers."

moiré
An undesirable pattern in images made using halftone screens. Moiré can be caused by the improper line frequency of the screens, improper screen angles, improper alignment of halftone screens, or by the combination of a halftone screen with patterns in the image itself.

named color
A color that is defined according to a custom color system. For example, PANTONE 107 C is a named color.

office applications
Software applications commonly used for business purposes, including presentation applications, spreadsheets, and word processing programs.

offset lithography
Printing in which ink is transferred from printing plates to a rubber blanket and then from the blanket to paper.

output
See output profile.

output profile
The output profile describes the color characteristics of a printing device. It consists of both a profile for your copier/printer and a calibration target that defines the expected density response of the copier/printer.

phosphor
Material used in making computer monitors; phosphors glow and emit red, green, and blue light when struck by an electron beam, thus creating an image.

photographic rendering
A color rendering style that preserves tonal relationships in images. Unprintable colors are mapped to printable colors in a way that retains differences in lightness, sacrificing color accuracy as necessary.

pixel

The smallest distinct element of a raster image. The term is a combination of the words "picture" and "element."

PostScript

A device-independent page description language developed by Adobe, which is used to print and display pictures and text. PostScript 3 includes many enhancements to older versions of PostScript, including improved image quality and color with Enhanced Image Technology, faster performance with Advanced Page Processing, and ease of use and setup with NetWorks System.

PPD (PostScript Printer Description file)

A file containing information about a particular PostScript print device's capabilities and restrictions. The information in the PPD is presented via the printer driver.

prepress proof

A print made from a set of film separations or other file to simulate the results of printing. A prepress proof is the last opportunity to catch problems before the print job goes to press.

presentation graphics rendering

A color rendering style that creates saturated colors but does not match printed colors precisely to displayed colors. It is appropriate for bright saturated colors used in illustrations and graphs.

process colors

The four colors used in printing to simulate full-spectrum color images: Cyan, Magenta, Yellow, blacK (CMYK).

QuickDraw

Graphics and display technology built into Mac OS computers. QuickDraw applications rely on QuickDraw (rather than the PostScript language) to send text and pictures to copier/printers.

raster image

Electronic representation of a page or image using a grid of points called pixels.

rendering intent

The style of color rendering, or gamut mapping, designed for a particular type of color job. An example of a rendering intent is Photographic rendering—also referred to as Image rendering or Contrast rendering—which is designed for photographic images.

resolution

The number of pixels per inch (ppi) in a bitmap image or the number of dots per inch (dpi) that a device can render.

RGB

An additive color model that makes a range of colors by combining red, green, and blue light, called the additive primaries. Commonly used to refer to the color space, mixing system, or monitor in color computer graphics.

Simulation
See simulation profile.

simulation profile
The simulation profile describes the color characteristics of another print device, such as a printing press, that you want the Fiery to simulate.

solid color rendering
A color rendering style intended for use when color accuracy is crucial. Unprintable colors are mapped to the closest printable colors. Solid color rendering does the best job of preserving the saturation of displayed colors.

source color space
The color environment of the originating source of an image, including scanners and color monitors.

source profile
A profile used by the color management system to determine the characteristics of the color values specified in a source digital image.

spectral light
The wavelengths of electromagnetic radiation emitted by a given light source that can be seen by the human eye.

spectrophotometer
An instrument commonly used in the graphic arts industry to measure spectral light according to a specified standard.

spot color
A color that is printed on its own separation plate when separations are specified. A spot color is printed using a custom ink for that color, in contrast to process colors that are printed using combinations of cyan, magenta, yellow, and black.

Status T
A spectral response for graphic arts reflection densitometers defined by ANSI (the American National Standards Institute).

subtractive color model
A system in which color is produced by combining colorants such as paint, inks, or dyes on media such as paper or transparent film or acetate. All printing devices use the subtractive color model.

subtractive primaries
Cyan, magenta, and yellow colorants used in subtractive color systems for color printing. Combining the subtractive primaries produces darker colors. Black is added to the subtractive primaries to compensate for deficiencies of the toners or inks, and for more efficient black printing.

substrate
In printing, the material upon which the job is printed.

SWOP
The abbreviation for Specifications for Web Offset Publications. A standard of specifications for separations, proofs, and color printing on a web offset press (*not* a sheet fed press).

undercolor removal (UCR)
In shadow areas where all three process colors (C, M, Y) overprint, the amounts of those colors are reduced and replaced by black. This improves wet ink trapping and reduces ink costs in process color printing.

vector graphic
Graphic illustration created on computers where picture objects are defined mathematically as lines or curves between points. These mathematical definitions are interpreted by an image language such as PostScript. Vector graphics include artwork created with illustration applications (such as Illustrator or FreeHand) and page layout applications (such as PageMaker).

white point
The color temperature of any white light source, typically expressed in degrees Kelvin (for example, 6500 K, typical for the white of a monitor).

workflow
The path a print job follows from creation to destination. A workflow may originate with an RGB scan imported to the client workstation and opened on the desktop in an image processing application, such as Photoshop. After adjustments are made to the scanned image, it is evaluated on a color proofing device for eventual color printing on the same device or on press.

Index