



Fiery® EXP50 Color Server



Color Printing

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45055385

24 March 2006

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INTRODUCTION

This document explains how to manage color output on the Fiery EXP50 Color Server and provides information about calibration and color profiles.

This document is part of a set that includes documents for users and system administrators. For a complete description of your Fiery EXP50 Color Server, see the other documents available at your site.

Terminology and conventions

This document uses the following terminology and conventions.

Term or convention	Refers to
Aero	Fiery EXP50 (in illustrations and examples)
Command WorkStation	Command WorkStation, Windows Edition and Command WorkStation, Macintosh Edition
Digital press	DocuColor 5000 digital press
Fiery EXP50	Fiery EXP50 Color Server
Mac OS	Apple Mac OS X
Titles in <i>italics</i>	Other documents in this set
Windows	Microsoft Windows 2000, Windows XP, Windows Server 2003
	Topics for which additional information is available by starting Help in the software
	Tips and information
	Important information
	Important information about issues that can result in physical harm to you or others

About this document

This document is organized to supply you with key information about managing the color output of your Fiery EXP50.

This document covers the following topics:

- Installing and configuring ColorWise Pro Tools.
- Using Color Editor, Profile Manager, and ColorSetup Tools.
- Overview of calibration and description of how to calibrate the Fiery EXP50 using various ColorWise Pro Tools Calibrator methods.
- Setting ColorWise print options from Windows and Mac OS computers.
- Overview of color measurement instruments, available as separately purchased options.
- Descriptions of Simple ASCII File Format (SAIFF), which can be used to import toner density measurements from measurement devices.

NOTE: The *Glossary* defines words in bold, for example, **output profile**, that appear throughout this document. Color terms and concepts, such as “color space,” “spot color,” “gamut,” and “source profile,” are used throughout this document. If you are new to desktop color, or if any terms are unfamiliar, see the *Glossary*.

Key features of ColorWise

ColorWise is the **color management system (CMS)** built into the Fiery EXP50 and designed to provide both casual and expert users with the best color output for a variety of purposes. The ColorWise default settings provide high-quality, out-of-box color from many Windows and Mac OS applications. This allows casual users to achieve quality output without knowing about or changing any color settings on the Fiery EXP50.

For consistent color, calibrate the Fiery EXP50 on a regular basis. ColorWise Pro Tools includes an easy-to-use calibrator, which allows you to calibrate using an optional **spectrophotometer** or **densitometer** (see “Calibration” on page 31).

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

- Set the behavior of **CMYK** printing to emulate **DIC**, **Euroscale**, **SWOP** and so on, offset press standards.
- Match PANTONE and other **spot colors** for the best match when printing using four-color press conditions or 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 color conversion of RGB data with no source information.
- Determine whether RGB data is converted into the full gamut of the digital press or is first converted into the gamut of another device, such as a press standard. This feature is useful for making one device behave like another. It also allows you to evaluate the appearance of an RGB file under different printing conditions without having to convert the RGB file to CMYK first.

ColorWise color management (ColorWise) offers an open color architecture, allowing users to customize the Fiery EXP50 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. Note that ICC specification version 4 profiles (profile version 4.2.0.0) are supported as well as version 2. Downloading ICC profiles to the Fiery EXP50 enables the Fiery EXP50 to simulate a custom press (or another digital press), as well as accurately print colors from a particular monitor or scanner. In addition, you can create customized ICC profiles for the digital press.

ColorWise also allows you to use any **Status T** densitometer by importing data in a standard file format (see “Importing Density Measurements” on page 78). In this case, it is important to note that the quality of the instrument used determines the quality of the **calibration**.

COLORWISE PRO TOOLS

The ColorWise default settings provide high-quality out-of-box color from many Windows and Mac OS applications. This allows casual users to achieve quality output without knowing about or changing color settings on the Fiery EXP50. The ColorWise color management system (CMS) also allows expert users to obtain the best color output. ColorWise Pro Tools allows users to customize settings to achieve the best output for a variety of purposes.

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

- Calibrator (calibrate the Fiery EXP50 in various ways)
- Color Editor (customize simulation and output profiles)
- Profile Manager (manage profiles)
- Spot-On (define CMYK equivalents for spot colors)

Spot-On is offered as part of the Graphic Arts Package. For more information on Spot-On, see *Graphic Arts Package*.

- Color Setup (set defaults for ColorWise print options)

About this chapter

This chapter describes the procedures for installing, configuring, and using ColorWise Pro Tools on Windows and Mac OS computers.

Platform	To do this	See
Windows	Install ColorWise Pro Tools	page 12
	Install the ICC profiles	page 12
	Configure the connection	page 14
	Modify the configuration	page 15
Mac OS	Install ColorWise Pro Tools	page 16
	Install the ColorSync profiles	page 17
	Configure the connection	page 19
	Modify the configuration	page 21
Windows and Mac OS	Use Calibrator	page 21
	Use Color Editor	page 21
	Use Profile Manager	page 23
	Use Spot-On	page 28
	Use Color Setup	page 29

Setting up ColorWise Pro Tools on a Windows computer

The following sections describe how to install ColorWise Pro Tools and other files and how to configure the connection on a Windows computer.

Installing ColorWise Pro Tools

All installation of user software on a Windows computer is done through the Fiery User Software Installer. The procedures in *Utilities* describe installing from the User Software DVD or the network.

To use ColorWise Pro Tools on a Windows computer, you must install Sun Java 5. If this file is not installed on your computer, the ColorWise Pro Tools installer automatically initiates the installation process. Follow the on-screen instructions.

Installing the ICC profiles

You can copy additional ICC profiles from the Fiery EXP50 to your computer. Use the ICC profiles with applications that support ICC standards, such as Adobe Photoshop. For most ICC-aware applications, you must install the files in a folder named Color in the System Folder. For use with ColorWise Pro Tools, copy the files to a folder of your choice.

TO INSTALL THE ICC PROFILES ON A WINDOWS COMPUTER

- 1 Browse for the Fiery EXP50 over the network, using either the IP address or the DNS server name.**
- 2 Enter user name and password if required.**
Check with your Network Administrator to see if this is required.
- 3 Double-click the PC_User_SW directory.**
- 4 Open the ICC folder.**
- 5 Windows 2000: Copy the profiles to the Winnt\System32\Color folder.**

If a folder named “Color” does not exist in the System32 folder, create one and copy the profiles into it.

Windows XP or Windows Server 2003: Right-click the profile that you want, and then click Install Profile.

The profiles are installed automatically to the Windows\System32\spool\drivers\color folder on your computer.

Color files

You can copy additional color files from the Fiery EXP50. Many of the files are PostScript files that you can download and print using Downloader or Command WorkStation.

Windows Color Files folder **CMYK Color Reference.ps:** An 11-page, Letter-size PostScript file used for reference when defining CMYK colors in applications.

PANTONE Book.ps: A 19-page, Letter-size PostScript file that indicates the closest equivalent of PANTONE coated colors that the Fiery EXP50 and the DocuColor 5000 digital press can produce. The method used to print the Pantone.ps file differs depending on the Spot Color Matching setting. For more information, see “[ColorWise Print Options](#)” on page 48.

RGB page 01.doc: A file you can print from Microsoft Word 97 or later to view available RGB colors.

RGB page 02.ppt: A file you can print from PowerPoint 6.0 or later to view available RGB colors.

Color Bars folder (inside the Windows Color Files folder) **FieryColorBar.eps:** Used for the Control Bar option. For more information about Control Bar, see *Graphic Arts Package*.

PS Files folder (inside the Windows Color Files: Calibration Files folder) **Custom21.ps, Custom34.ps, Standard21.ps, and Standard34.ps:** PostScript files of color patches for obtaining measurements.

The numbers in the file names refer to the number of patches on the page. The Custom files allow you to download measurement patches that incorporate the current calibration set of the digital press. The Standard files allow you to download standard measurement patches that bypass the current calibration set of the digital press.

NOTE: These files are provided for expert users and should not be used for day-to-day calibration.

Halftone Calibration Files folder (inside the Windows Color Files: Calibration Files folder) Images of measurement pages for various calibration instruments and page sizes, used for calibrating the Fiery EXP50 for different halftone screens. Files are provided for Adobe Photoshop and for other applications. For more information about halftone calibration, see *Graphic Arts Package*.

Configuring the connection

The first time you start ColorWise Pro Tools, you must configure the connection to the Fiery EXP50.

BEFORE YOU BEGIN

- **Print the Configuration page from Command WorkStation and note the IP address of the Fiery EXP50.**

This page contains information you need when configuring the connection, such as the IP address. For TCP/IP installations, you can use the Domain Name Server (DNS) name of the Fiery EXP50 instead of the IP address. Make sure the Fiery EXP50 is listed in a DNS used by your network. For more information, see your Windows system documentation.

TO CONFIGURE THE CONNECTION FOR COLORWISE PRO TOOLS

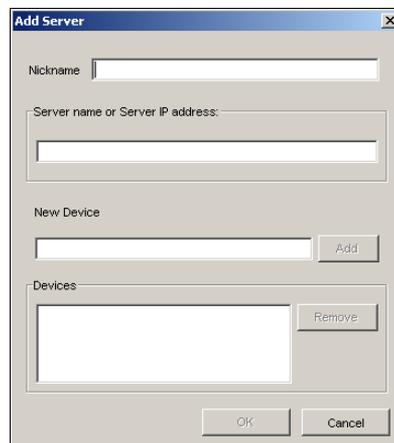
- 1 **Start ColorWise Pro Tools.**
- 2 **If the Choose Printer Device dialog box appears, click Add.**
- 3 **Enter the appropriate information for the Fiery EXP50.**

Nickname: Type a name for the Fiery EXP50. This name does not have to match the actual Server Name of the Fiery EXP50.

NOTE: The nickname cannot contain the following characters:
[] _ " ' <space> <tab>

Server Name or Server IP address: Type the IP address (or DNS name) of the Fiery EXP50.

New Device: Type the name of the device the Fiery EXP50 is connected to: DC5000.

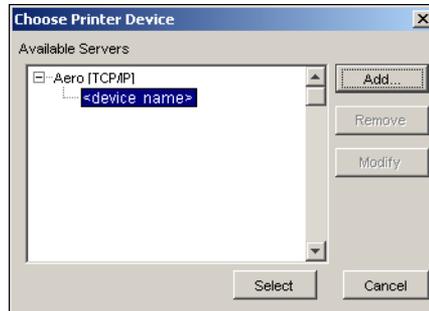


The screenshot shows a standard Windows-style dialog box titled "Add Server". It features a title bar with a close button (X). The dialog contains the following elements from top to bottom:

- A text input field labeled "Nickname".
- A text input field labeled "Server name or Server IP address:".
- A text input field labeled "New Device" with a small "Add" button to its right.
- A text input field labeled "Devices" with a "Remove" button to its right.
- At the bottom, there are "OK" and "Cancel" buttons.

- 4 When you have typed all the information, click **Add**.
- 5 With the device name selected in the **Devices** list, click **OK**.

The Fiery EXP50 appears in the list of Available Servers. The first line of the entry displays the nickname you assigned the Fiery EXP50, followed by the protocol. The second line displays the device name.



- 6 With the device name selected in the list of Available Servers, click **Select**.

The ColorWise Pro Tools main window appears.

Editing the configuration

Edit the configuration whenever a change to your Fiery EXP50 or network occurs, such as a server name or IP address. Change the specific Fiery EXP50 Setup information before you configure the connection.

TO EDIT THE CONFIGURATION

- 1 To add a new Fiery EXP50, click **Add**. Configure the **Add New Server** dialog box as outlined in steps 3 through 5 in the previous procedure.
- 2 To remove a Fiery EXP50, select the Fiery EXP50 by its nickname and click **Remove**.
- 3 To modify information, select the Fiery EXP50 by its nickname and click **Modify**. Edit the information in the **Modify Server Settings** dialog box and click **OK**.

The list of Available Servers reflects your modifications.

Setting up ColorWise Pro Tools on a Mac OS computer

The following sections describe how to install ColorWise Pro Tools and other files and how to configure the connection on a Mac OS computer.

Installing ColorWise Pro Tools on a Mac OS computer

Before you begin each installation, determine where you want to install each item on your hard disk. Otherwise, the software is placed in the “Fiery” folder by default.

TO INSTALL COLORWISE PRO TOOLS ON A MAC OS COMPUTER FROM THE USER SOFTWARE DVD

- 1 **Insert the User Software DVD into the DVD drive.**
- 2 **Browse to the folder for your operating system.**
- 3 **Double-click the ColorWise Pro Tools installer icon.**
- 4 **Follow the on-screen instructions.**
- 5 **If prompted, click Quit to close the installer.**

TO INSTALL COLORWISE PRO TOOLS ON A MAC OS COMPUTER OVER THE NETWORK

- 1 **Choose Connect to Server from the Go menu.**
- 2 **Type smb:// followed by the IP address of the Fiery EXP50 and click Connect.**
If you cannot locate the Fiery EXP50, contact your network administrator.
- 3 **Enter user name and password if required.**
Check with your Network Administrator to see if this is required.
- 4 **Double-click the icon for the Mac_User_SW directory.**
- 5 **Open the OS X folder.**
- 6 **Double-click the ColorWise Pro Tools installer icon.**
- 7 **Follow the on-screen instructions.**
- 8 **If prompted, click Quit to close the installer.**

Installing the ColorSync profiles

You can copy additional ICC profiles from the Fiery EXP50 to your computer. Use the ICC profiles with applications that support ICC standards, such as Photoshop. For most ICC-aware applications, you must install the files in a folder named Profiles in the <Startup disk>: Library: ColorSync folder.

For use with ColorWise Pro Tools, you can copy the files to a folder of your choice.

TO INSTALL THE COLORSYNC PROFILES ON A MAC OS COMPUTER

- 1 Choose Connect to Server from the Go menu.**
- 2 Type smb:// followed by the IP address of the Fiery EXP50 and click Connect.**

If you cannot locate your Fiery EXP50, contact your network administrator.

- 3 Enter user name and password if required.**

Check with your Network Administrator to see if this is required.

- 4 Double-click the Mac_User_SW directory.**
- 5 Open the ColorSync folder.**
- 6 Install the profiles into Library: ColorSync: Profiles.**

Once you install the ColorSync files, see the ColorSync documentation for setting ColorSync profiles, such as EFIRGB.

Color files

You can copy additional color files from the User Software DVD. Many of the files are PostScript files that you can download and print using Downloader or Command WorkStation.

Mac Color Files folder

CMYK Color Reference.ps: An 11-page, Letter-size PostScript file to use for reference when defining CMYK colors in applications.

PANTONE Book.ps: A 19-page, Letter-size PostScript file that indicates the closest equivalent of PANTONE coated colors that the Fiery EXP50 and the DocuColor 5000 digital press can produce. The method used to print the PANTONE Book.ps file differs depending on the Spot Color Matching setting. For more information, see “ColorWise Print Options” on page 48.

RGB page 01: A file you can print from Microsoft Word 97 or later to view available RGB colors.

RGB page 02: A file you can print from PowerPoint 6.0 or later to view available RGB colors.

Color Bars folder (inside the Mac Color Files folder)

FieryColorBar.eps: Used for the Control Bar option. For more information about Control Bar, see *Graphic Arts Package*.

PS Files folder (inside the Mac Color Files: Calibration Files folder)

Custom21.ps, Custom34.ps, Standard21.ps, and Standard34.ps: PostScript files of color patches for obtaining measurements.

The numbers in the file names refer to the number of patches on the page. The Custom files are provided to allow you to download measurement patches that incorporate the currently installed calibration set. The Standard files are provided to allow you to download standard measurement patches that bypass the currently installed calibration set.

NOTE: These files are provided for expert users and should not be used for day-to-day calibration.

Halftone Calibration Files folder (inside the Mac Color Files: Calibration Files folder)

Images of measurement pages for various calibration instruments and page sizes, used for calibrating the Fiery EXP50 for different halftone screens. Files are provided for Adobe Photoshop and for other applications. For more information about halftone calibration, see *Graphic Arts Package*.

Configuring the connection

The first time you start ColorWise Pro Tools, you must configure the connection to the Fiery EXP50.

NOTE: ColorWise Pro Tools is supported only over TCP/IP networks.

BEFORE YOU BEGIN

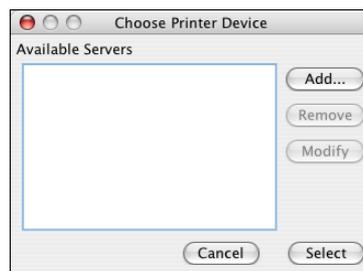
- **Print the Configuration page from Command WorkStation and note the IP address of the Fiery EXP50.**

This page contains information you need when you configure the connection. For TCP/IP installations, you can use the Domain Name Server (DNS) name of the Fiery EXP50 instead of the IP address. Make sure the Fiery EXP50 is listed in a DNS used by your network. For more information, see the documentation that accompanies your Macintosh system.

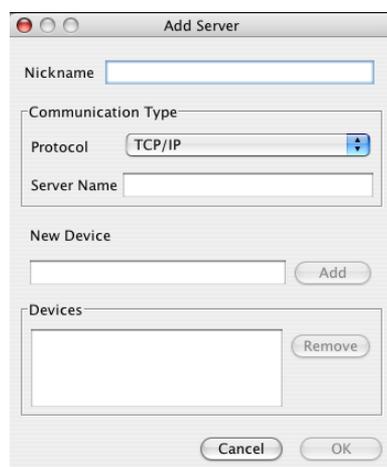
TO CONFIGURE THE CONNECTION FOR COLORWISE PRO TOOLS

- 1 **Double-click the ColorWise Pro Tools icon.**

The Choose Printer Device dialog box appears.



- 2 **If the No Servers Configured dialog box appears, click OK. If the Choose Printer Device dialog box appears, click Add.**



3 Enter the appropriate information for the Fiery EXP50.

Nickname: Type a name for the Fiery EXP50. It does not have to match the actual server name of the Fiery EXP50.

NOTE: The nickname cannot contain the following characters:
[] _ " ' <space> <tab>

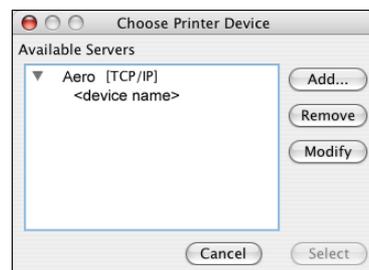
Protocol: TCP/IP is the only supported network protocol, so no selection is required.

Server Name: Type the IP address (or DNS or host name) of the Fiery EXP50.

New Device: Type the name of the device the Fiery EXP50 is connected to: DC5000. This device name appears in the Printer Setup section of the Configuration page.

4 When you have typed all the information, click Add.**5 With the device name selected in the Devices list, click OK.**

The Fiery EXP50 appears in the list of Available Servers. The first line of the entry displays the nickname you assigned the Fiery EXP50, followed by the protocol. The second line displays the device name.

**6 With the device name selected in the list of Available Servers, click Select.**

The ColorWise Pro Tools main window appears.

Editing the configuration

Edit the configuration whenever a change to your Fiery EXP50 or network occurs, such as a server name or IP address. Change the specific Fiery EXP50 Setup information before you configure the connection.

TO EDIT THE CONFIGURATION

- 1 To add a new Fiery EXP50, click **Add**. Configure the **Add Server** dialog box as outlined in steps 3 through 5 in the previous procedure.
- 2 To remove a Fiery EXP50, select the Fiery EXP50 by its nickname and click **Remove**.
- 3 To modify information, select the Fiery EXP50 by its nickname and click **Modify**. Edit information in the **Modify Server Settings** dialog box and click **OK**.

The list of Available Servers reflects your modifications.

Using ColorWise Pro Tools

ColorWise Pro Tools gives you flexible control of color printing by allowing you to calibrate the Fiery EXP50, customize simulation and output profiles, manage profiles on the Fiery EXP50, manage spot colors, and set default values for ColorWise print options.

Using Calibrator

ColorWise Pro Tools Calibrator allows you to calibrate the Fiery EXP50 using one of a number of measurement methods. For information about calibrating the Fiery EXP50, see [page 31](#).

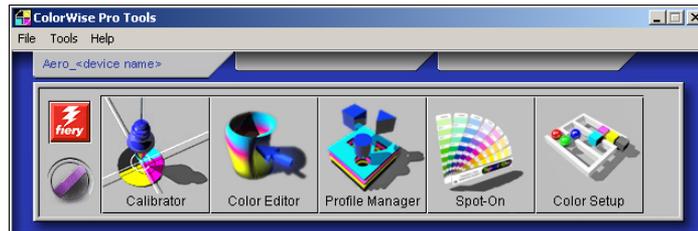
Using Color Editor

ColorWise Pro Tools Color Editor allows you to create custom profiles by editing existing simulation or output profiles, and then saving the changes as a new profile. Use Color Editor to fine-tune a profile on the Fiery EXP50 to meet your exact specifications. Access Color Editor directly, by clicking its icon in the ColorWise Pro Tools main window, or indirectly, through the Profile Manager.

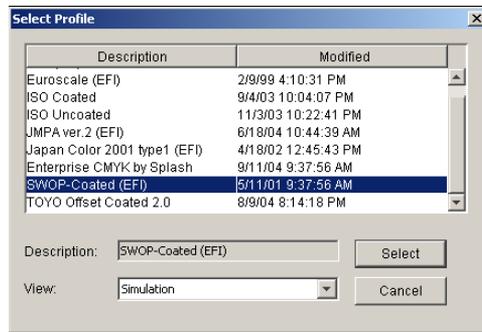
NOTE: You cannot edit source profiles. Only simulation and output profiles can be customized.

To USE COLOR EDITOR

- 1 Start ColorWise Pro Tools and connect to the Fiery EXP50.

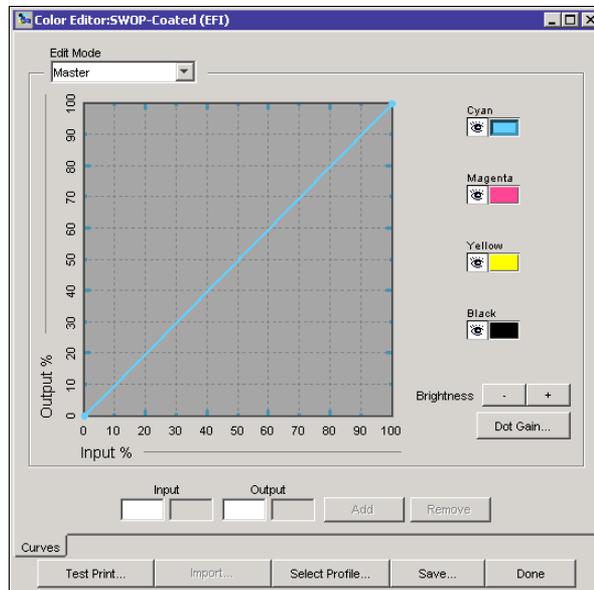


- 2 Click Color Editor.



Simulation lists the simulation profiles resident on the Fiery EXP50. Output lists the output profiles resident on the Fiery EXP50.

- 3 Select a profile and click Select.



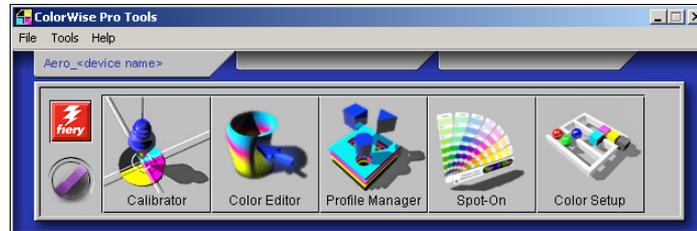
For more information about Color Editor, see ColorWise Pro Tools Help.

Using Profile Manager

ColorWise Pro Tools Profile Manager allows you to manage and edit ICC profiles.

TO USE PROFILE MANAGER

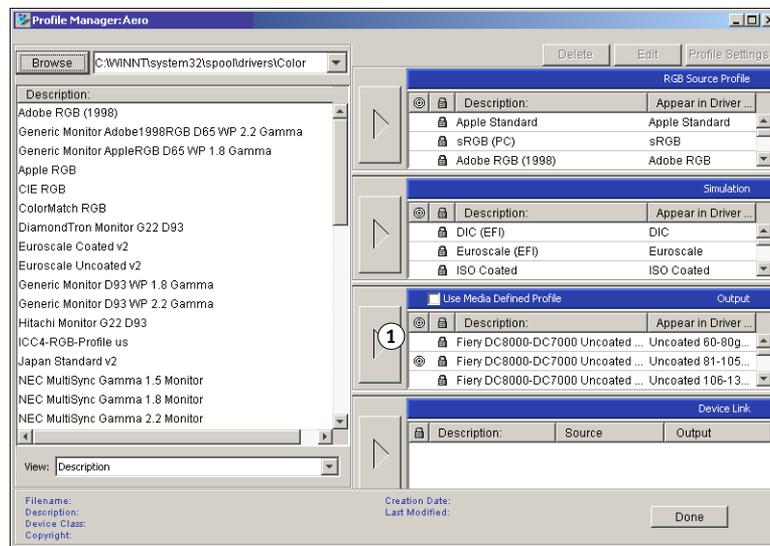
- 1 Start ColorWise Pro Tools and connect to the Fiery EXP50.



- 2 Click Profile Manager.

The Profile Manager window appears.

1 Output profiles



- 3 Click any profile to select it.

Information about the profile, such as its creation date and ICC specification version, appears at the bottom of the window. Note that ICC specification version 4 profiles (profile version 4.2.0.0) are supported as well as version 2.



For more information about Profile Manager, see ColorWise Pro Tools Help.

For information about the Use Media Defined Profile option, see the following section.

For more information about using Device Link Profiles, see [page 24](#).

Setting the default profiles

Use Profile Manager to set a default RGB source profile, simulation profile, or output profile. The default RGB source and simulation profiles that you set are applied to all print jobs sent to the Fiery EXP50, unless you override them using print options. The same is true of the default output profile that you set, unless you select the Use Media Defined Profile option.

The Use Media Defined Profile option indicates whether or not to automatically apply the output profile associated with the media type used in a print job. For more information, see the following section.

Using media-defined output profiles

Instead of having Profile Manager apply a default output profile to all your print jobs, you can keep the Use Media Defined Profile option selected. This option automatically applies the output profile predefined for the media type in your print job. If your job contains mixed media, this option can apply different output profiles predefined for the different media.

The Use Media Defined Profile option in Profile Manager is selected by default. It is applied to all print jobs sent to the Fiery EXP50, unless a user overrides it for an individual job by changing settings in the printer driver.

TO USE MEDIA-DEFINED OUTPUT PROFILES

- 1 **Start ColorWise Pro Tools and click Profile Manager.**
- 2 **Select Use Media Defined Profile in the Output bar of Profile Manager.**

Changing the setting for the Use Media Defined Profile option in Profile Manager automatically changes the same setting in Color Setup. For more information, see “Using Color Setup” on page 29.

About Device Link Profiles

The Fiery EXP50 supports the use of Device Link Profiles. A Device Link Profile describes the conversion from one color space to another. Device Link Profiles are restrictive because they define the complete conversion from a source device to a destination device. When you print using a Device Link Profile, you do not choose a source profile or an output profile because the Device Link Profile specifies both. ColorWise supports two kinds of Device Link Profiles: RGB source to CMYK destination and CMYK source to CMYK destination.

When you use a Device Link Profile, it bypasses most ColorWise color management since the information needed to convert from the source to destination is fully contained in a Device Link Profile.

NOTE: Depending on your job’s workflow, you may not need to use Device Link Profiles.

Installing Device Link Profiles

If you are an administrator, you can download Device Link Profiles to the Fiery EXP50 using Profile Manager. You must associate a Device Link Profile with:

- An RGB Source Profile or a CMYK Simulation Profile setting and
- An Output Profile setting

The Device Link Profile is enabled when these two settings are selected.

You can enable a Device Link Profile in three ways:

- In ColorWise Pro Tools Color Setup, select the default settings for RGB Source Profile, CMYK Simulation Profile, and Output Profile. These settings apply to all jobs unless overridden for a particular job.
- Using Expert Color Settings in the Fiery EXP50 printer drivers to select the settings for RGB Source Profile, CMYK Simulation Profile, and Output Profile when you print a job.
- Using Command WorkStation Job Properties, override the settings for RGB Source Profile, CMYK Simulation Profile, and Output Profile for a specific job.

For more information about enabling Device Link Profiles using Color Setup, see [page 30](#).

For more information about enabling Device Link Profiles using Expert Color Settings in the Fiery EXP50 printer driver see [page 65](#).

To DOWNLOAD DEVICE LINK PROFILES USING PROFILE MANAGER

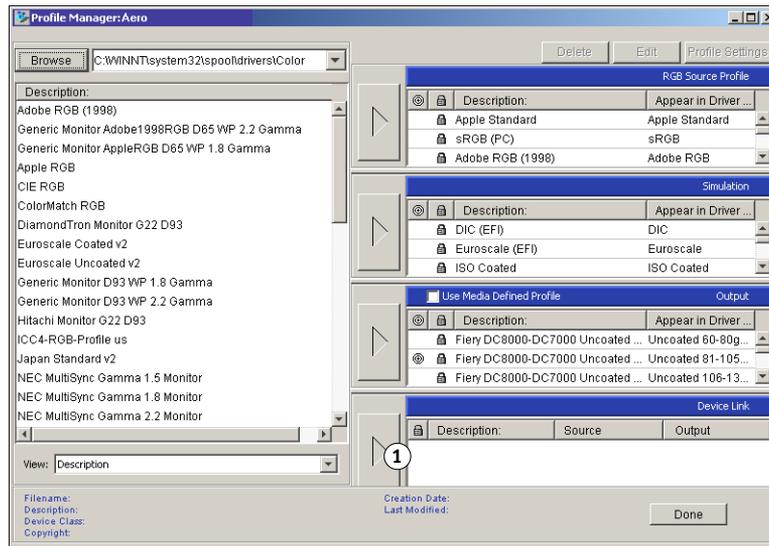
1 In Profile Manager, if you do not see the Device Link Profile in the Description list, select the folder that contains the Device Link Profile by clicking Browse in the upper-left corner.

2 Click OK to add the folder contents to the Description list.

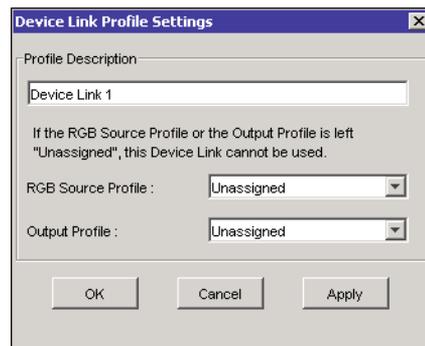
The Device Link Profile is added to the Description list.

3 To add the Device Link Profile to the Device Link panel, select the Device Link Profile in the Description list and click the green arrow pointing to the Device Link panel.

1 Device Link Panel



The Device Link Profile Settings dialog box appears. To assign settings, see the following procedure.



Assigning Device Link Profile settings

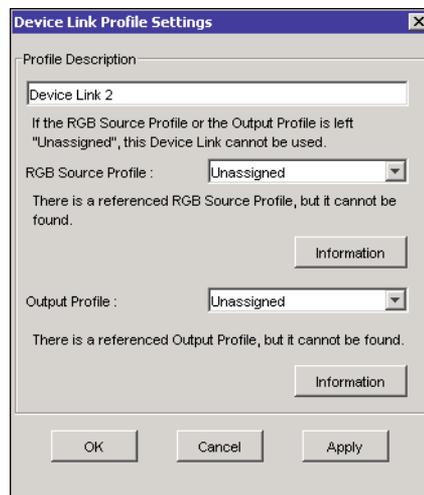
The following Device Link Profile Settings dialog box images depict an RGB Source profile description. If you use a CMYK Simulation profile, the screen will reflect a CMYK Simulation profile description instead of an RGB Source profile description.

TO ASSIGN DEVICE LINK PROFILE SETTINGS

- 1 After you download the Device Link Profile using Profile Manager and add it to the Device Link Profile panel, select the source and output profiles for this Device Link Profile in the Device Link Profile Settings dialog box.

If the Device Link Profile already has a source and output referenced, the Output and Source Profiles automatically appear.

If the source or output profile referenced in the Device Link Profile is not found on the Fiery EXP50, the source profile will show “Unassigned” and a message appears, stating that the source or output profile cannot be found.

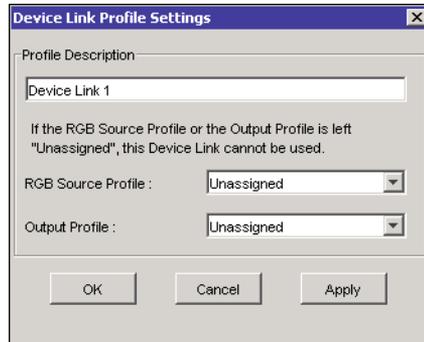


Click Information to find out more about the missing profile.

If you install the source or output profile to the Fiery EXP50 that matches the missing profile referenced in the Device Link Profile, the “Unassigned” setting is automatically updated.

NOTE: If the source or the output setting is unassigned, the Device Link Profile cannot be used. You must make the selection settings.

- 2 If the Device Link Profile does not have a source or output assigned, select a Profile Description name, and the source and output profiles for the Device Link Profile.



- 3 When you are finished assigning settings to the Device Link Profile, click OK.

Modifying Device Link Profiles

To modify the Device Link Profile settings, use the following procedure.

TO MODIFY A DEVICE LINK PROFILE SETTING

- 1 Double-click the Device Link Profile in the Device Link panel.
The Device Link Profiles Settings dialog box appears.
- 2 Enter the new Source and Output profiles.
- 3 Click Apply and then click OK.

NOTE: You cannot edit the Device Link Profile in ColorWise Pro Tools. You must use the application that was used to create the Device Link Profile.

Using Spot-On

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 allows you to maintain multiple Spot Color Dictionaries for each output profile on the Fiery EXP50.

NOTE: To use the Spot-On features with named colors, you must enable the Spot Color Matching print option. For more information about this option, see [page 60](#).

NOTE: Spot colors identified by names are printed with their defined CMYK values. The edits to the output profile made with Color Editor do not affect how spot colors print.

Using Color Setup

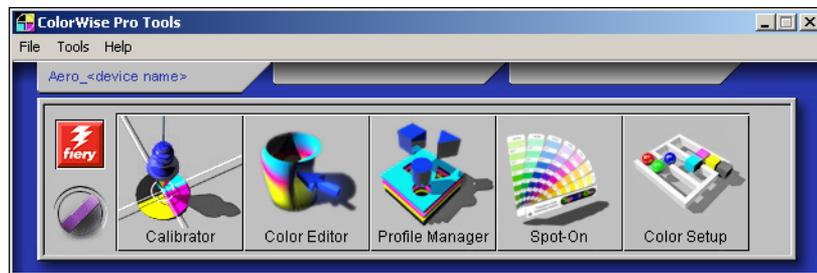
ColorWise Pro Tools Color Setup allows you to set default values for the ColorWise print options and print settings for the Fiery EXP50.

These settings are applied to all print jobs sent to the Fiery EXP50, 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. In addition, the defaults set in Color Setup are automatically reflected in other Fiery EXP50 tools that list default settings.

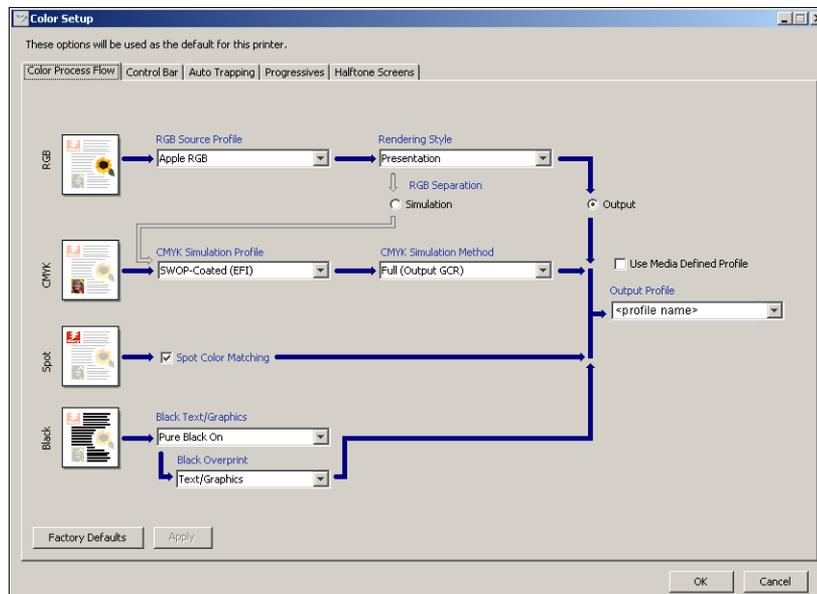
The options in Color Setup are arranged in a pattern representing the flow of color processing that takes place on the Fiery EXP50. To reset the Fiery EXP50 to its factory default settings, click Factory Default in the lower-left corner of the Color Setup window.

TO USE COLOR SETUP

- 1 Start ColorWise Pro Tools and connect to the Fiery EXP50.



- 2 Click Color Setup.



For information about the Control Bar, configurable Auto Trapping, Progressives, and Halftone Screens features in Color Setup, see *Graphic Arts Package*.

Using Color Setup to enable Device Link Profiles

You can enable device link profiles by using Color Setup.

For information about installing and assigning Device Link Profiles, see [page 25](#).

TO USE COLORWISE COLOR SETUP TO ENABLE DEVICE LINK PROFILES

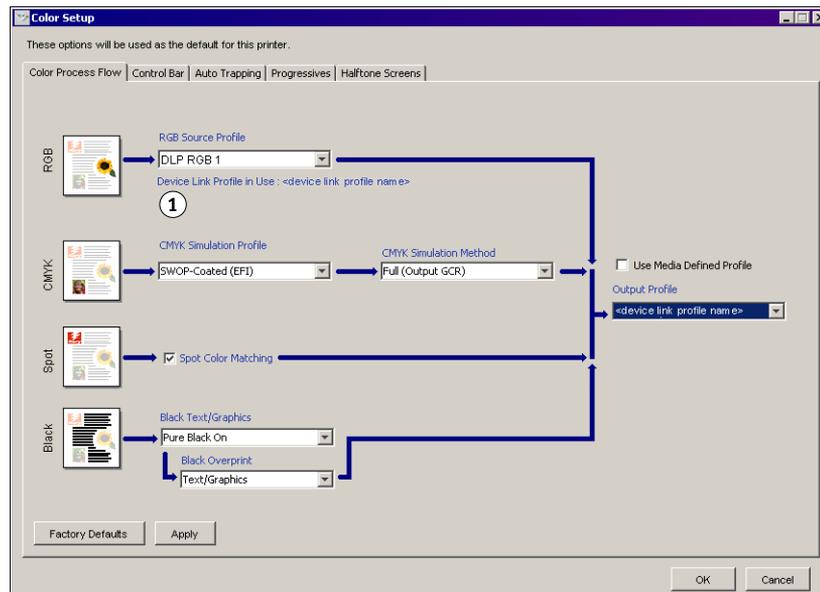
- 1 **Open Color Setup from ColorWise Pro Tools.**
- 2 **Select the RGB Source profile or the CMYK Simulation profile and the Output Profile.**

When you select a source and output combination that is defined as a Device Link Profile, the Device Link Profile is automatically activated.

When the Device Link Profile is selected, the Color Process workflow updates and some of the Fiery print options may not appear.

You will see the message “Device Link Profile in use” under the RGB Source Profile or CMYK Simulation Profile.

1 Device Link Profile in use



- 3 **Click OK to exit Color Setup.**

CALIBRATION

Calibrating the Fiery EXP50 ensures consistent and reliable color output. Calibrate the Fiery EXP50 using ColorWise Pro Tools Calibrator with a densitometer or a spectrophotometer.

This document uses the following terminology for color measurement instruments:

Term	Refers to
DTP32	X-Rite DTP32 automatic densitometer
DTP41	X-Rite DTP41 automatic spectrophotometer
ES-1000	Spectrophotometer ES-1000 hand-held spectrophotometer

About this chapter

This chapter describes the procedures for calibrating the Fiery EXP50 using ColorWise Pro Tools Calibrator with various color measurement instruments. The following table provides the location of each procedure.

Calibration method	See
DTP32 with Calibrator	page 36
DTP41 with Calibrator	page 38
ES-1000 with Calibrator	page 41

If you defined a custom halftone screen, you must calibrate the Fiery EXP50 for that halftone screen before you print a job with it. For more information, see *Graphic Arts Package*.

This chapter also describes important concepts and suggestions for understanding calibration. The following table provides the location of each description.

For more information about	See
An overview of calibration	page 44
How calibration works	page 45
Scheduling calibration	page 46
Checking calibration status	page 47

NOTE: The procedures described in this chapter are fundamentally the same for Windows and Mac OS computers. Illustrations from a Windows computer are used in this chapter.

Calibrating with ColorWise Pro Tools Calibrator

ColorWise Pro Tools Calibrator allows you to calibrate the Fiery EXP50 using the measurement method of your choice.

Changing calibration has the potential to affect *all* jobs for *all* users, so consider limiting the number of people authorized to perform calibration. Set an Administrator password to control access to calibration (see *Configuration and Setup*).

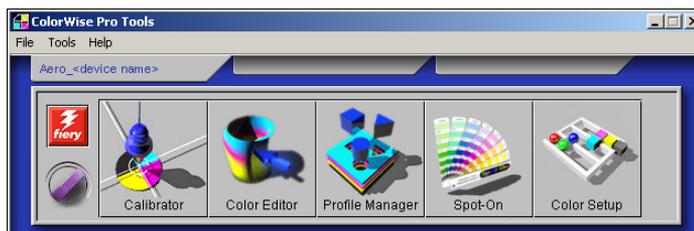
NOTE: Multiple users can be connected to one Fiery EXP50 with ColorWise Pro Tools, but only one user at a time can use Calibrator. If you try to calibrate when another user is using ColorWise Pro Tools to calibrate, an error message appears.

Starting Calibrator

Start Calibrator from the ColorWise Pro Tools main window.

TO CALIBRATE THE FIERY EXP50 USING CALIBRATOR

- 1 Start ColorWise Pro Tools and connect to the Fiery EXP50.

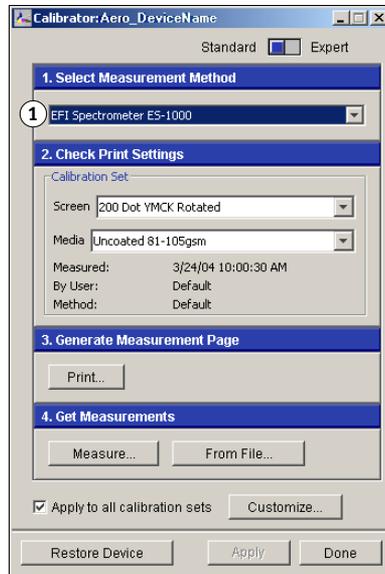


For information about configuring the connection to the Fiery EXP50, see pages 14 and 19.

- 2 Click Calibrator.

3 Choose a method from the Select Measurement Method menu.

1 Calibration methods

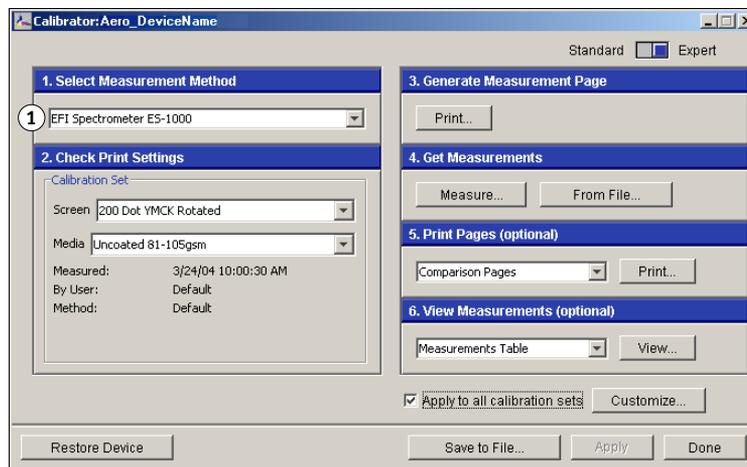


Procedures for each calibration method are described in subsequent sections of this chapter.

Expert mode

Calibrator provides two modes: Standard and Expert. You can perform all essential calibration tasks while in Standard mode. Expert mode offers two additional options: Print Pages and View Measurements.

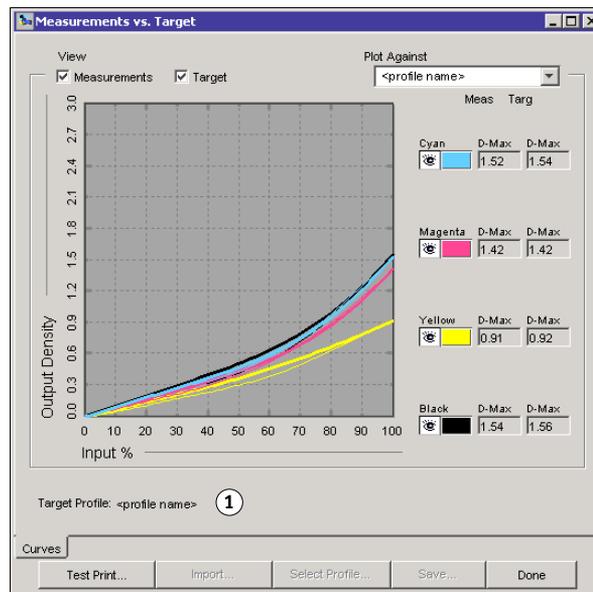
1 Calibration methods



With the Print Pages option, print Comparison Pages showing the results of the new measurements with any profile associated with the currently selected calibration set. You can create a custom Comparison Page and save it as a PostScript or Encapsulated PostScript (EPS) file called CALIB.PS. Next, print the file to the Hold queue of the Fiery EXP50 from your application, or download it to the Hold queue with Downloader. You can also create a CALIB.PS file by renaming any job in the Hold queue using Command WorkStation (see *Utilities*).

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

1 Output profile name



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, the curves displayed also change when you switch profiles.

Applying measurements to multiple calibration sets

Calibrator provides an option (Apply to All Calibration Sets) that allows you to copy the measurements from the calibration you are currently performing to all calibrations sets on the server. This option is only available if the Fiery EXP50 has more than one calibration set. It is selected by default.

If you clear the Apply to All Calibration Sets option, you can choose to apply the current calibration to a selected subset of the calibration sets on the server. You specify which sets by clicking Customize next to the Apply to All Calibration Sets option. If any of the selected calibration sets are not associated with an output profile, you receive a warning but can choose to apply the calibration measurements to that set anyway.

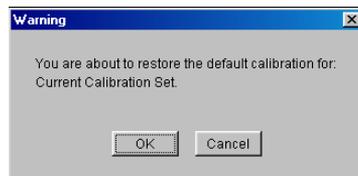
The calibration measurements are copied to the specified calibration sets at the end of the calibration process when you click Apply.

Restoring default calibration measurements

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

TO RESTORE DEFAULT CALIBRATION MEASUREMENTS

- 1 In the Calibrator dialog box, click **Restore Device**.
- 2 Click **OK** to restore the preset default calibration set.



NOTE: If Apply to All Calibration Sets is selected, all calibration sets on the server are restored. If Apply to All Calibration Sets is not selected, Restore Device applies only to the calibration sets selected under Customize.

Calibrating with the DTP32

Using the DTP32 densitometer, you can measure color patches generated by the digital press and automatically download the measurements to the Fiery EXP50.

NOTE: Before you use ColorWise Pro Tools and the DTP32 to calibrate the Fiery EXP50, follow the instructions on [page 70](#) to calibrate the DTP32.

TO CALIBRATE THE FIERY EXP50 USING THE DTP32

1 Start Calibrator.

For instructions, see [page 32](#).

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

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

If more than one option appears, choose the appropriate calibration set for the type of media and screen you 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. You do not need to make any new associations.

4 Click Print in the Generate Measurement Page pane.

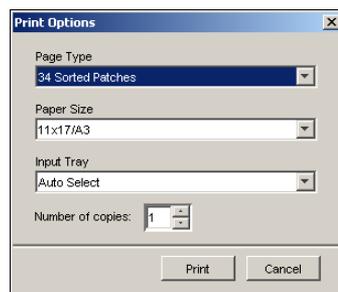
The Print Options dialog box appears.

5 Choose the appropriate options and click Print.

Page Type: Choose 21 or 34 Sorted Patches.

Paper Size: Automatically set to LTR/A4 for 21 Sorted Patches. Choose 11x17/A3 or 12x18/SRA3 for 34 Sorted Patches.

Input Tray: Specify the paper source.



6 Retrieve the measurement page from the digital press.

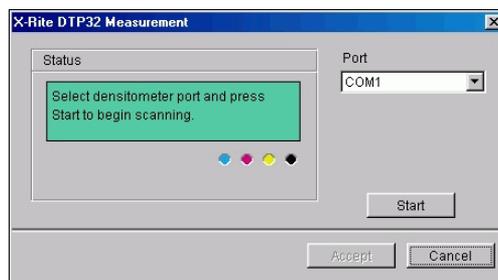
7 Click Measure in the Get Measurements pane.

The Measurement Options dialog box displays the specified Page Type and Paper Size options.

8 Click Measure.

Follow the on-screen instructions to feed the measurement page through the 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 dialog box to implement the new calibration set.

12 Click OK in the Information dialog box.

This completes the calibration process.

Calibrating with the DTP41

Using the DTP41 spectrophotometer, you can measure color patches generated by the digital press and automatically download the measurements to the Fiery EXP50.

NOTE: Before you use ColorWise Pro Tools and the DTP41 to calibrate the Fiery EXP50, follow the instructions on [page 74](#) to calibrate the DTP41.

TO CALIBRATE THE FIERY EXP50 USING THE DTP41

1 Start Calibrator.

For instructions, see [page 32](#).

2 Choose X-Rite DTP41 as the measurement method.

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

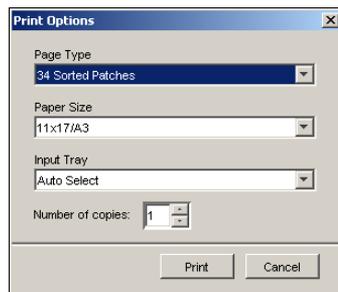
If more than one option appears, choose the appropriate calibration set for the type of media and screen you use most often.

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. You do not need to make any new associations.

4 Click Print in the Generate Measurement Page pane.

The Print Options dialog box appears.

5 Choose the appropriate options and click Print.



Page Type: Choose 21 or 34 Sorted Patches.

Paper Size: Automatically set to LTR/A4 for 21 Sorted Patches. Choose 11x17/A3 or 12x18/SRA3 for 34 Sorted Patches.

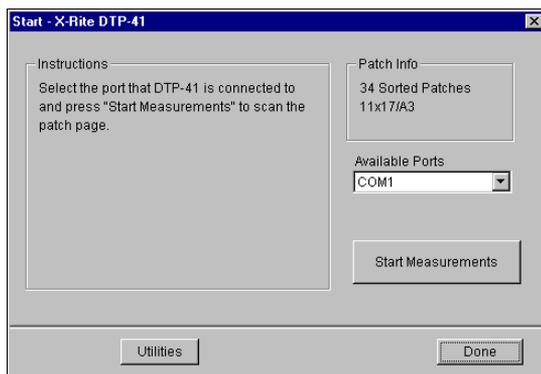
Input Tray: Choose the paper source for printing the measurement page.

6 Retrieve the measurement page from the digital press.

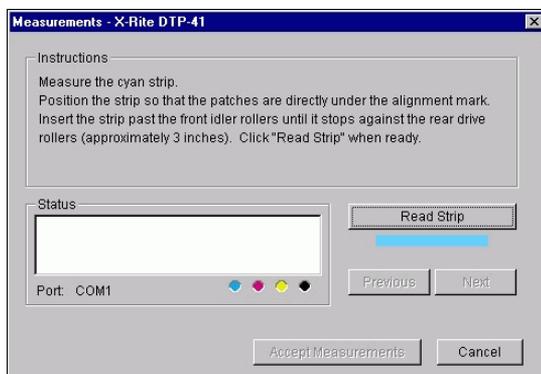
7 In the Get Measurements pane, click Measure.

The Measurement Options dialog box displays the specified Page Type and Paper Size options.

- 8 Click Measure.
- 9 If necessary, choose the appropriate COM port for the DTP41 from the Available Ports menu, and then click Start Measurements.



- 10 Feed the measurement page into the DTP41, starting with the cyan strip.



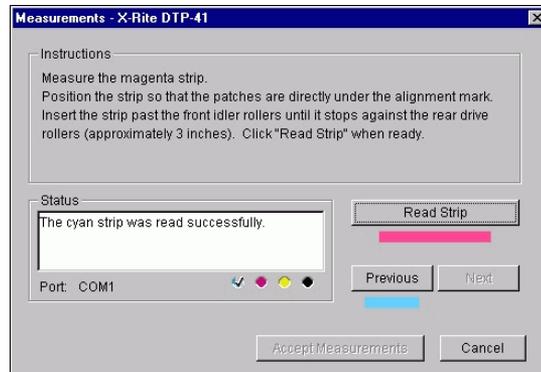
Align the page in the measurement page slot of the DTP41 so that the appropriate color column is centered below the alignment mark (see the diagram on [page 71](#)). Insert the page about three inches, past the front idler rollers, until it rests against the rear drive rollers and you feel resistance.

- 11 Click Read Strip.

The DTP41 pulls the measurement page through automatically.

After 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 the color was measured successfully.

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 Click **OK** in the Measure dialog box.
- 15 Click **Apply** in the Calibrator dialog box to implement the new calibration set.
- 16 Click **OK** in the Information dialog box.

This completes the Fiery EXP50 calibration process.

Calibrating with the ES-1000

Use ColorWise Pro Tools in conjunction with the ES-1000 spectrophotometer to calibrate the Fiery EXP50.

NOTE: Before you use ColorWise Pro Tools and the ES-1000 to calibrate the Fiery EXP50, follow the instructions on [page 77](#) to set up and calibrate the ES-1000.

TO CALIBRATE THE FIERY EXP50 USING THE ES-1000

1 Start Calibrator.

For instructions, see [page 32](#).

2 Choose ES-1000 as the measurement method.

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

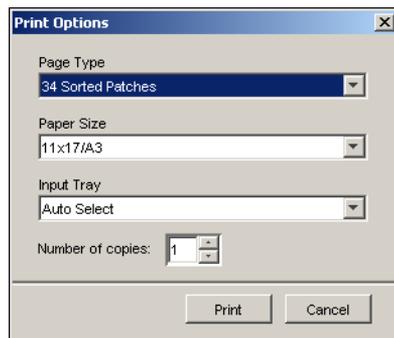
If more than one option appears, choose the appropriate calibration set for the type of media and screen you use most often.

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. You do not need to make any new associations.

4 Click Print in the Generate Measurement Page pane.

The Print Options dialog box appears.

5 Choose the appropriate options and click Print.



Page Type: Choose 21 or 34 Sorted Patches or 21 or 34 Randomized Patches. Sorted patches are printed on the page in the 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.

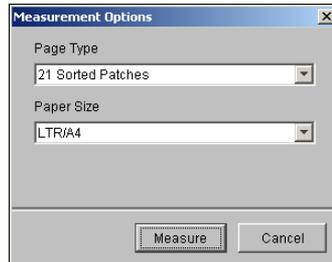
Paper Size: Automatically set to LTR/A4 for 21 patches. Choose 11x17/A3 or 12x18/SRA3 for 34 patches.

Input Tray: Automatically set to Auto Select.

6 Retrieve the printed measurement page from the digital press.

7 Click Measure in the Get Measurements pane.

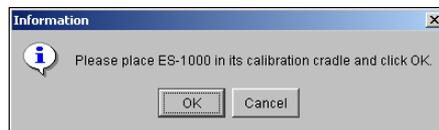
The Measurement Options dialog box appears.



Page Type is automatically set to the type that you selected in [step 5](#).

8 Check the settings and click Measure.

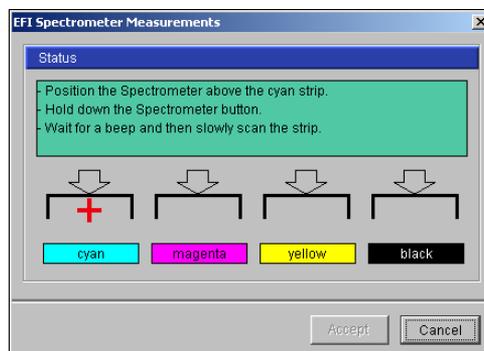
The Information dialog box appears.

**9 Place the ES-1000 in the calibration cradle.**

When you place the ES-1000 in the calibration cradle, white point calibration is used to calibrate the spectrophotometer and compensate for gradual drifts in the instrument. Make sure the sample aperture is in full contact with the white tile on the calibration cradle. If you do not place it correctly in the calibration cradle, the spectrophotometer does not return accurate measurements.

10 Click OK.

The Measurements dialog box appears. Instructions for measuring the strips appear in the Status field.



- 11 For a more accurate measurement, place several sheets of plain white paper beneath the Measurement Page.**

The extra sheets block underlying colors from being read by the instrument.

- 12 Orient the Measurement Page so that strips are horizontal and the scan direction (indicated by the arrows at the beginning of each strip) is left to right.**
- 13 Hold the ES-1000 with its length perpendicular to the scan direction, and place the sample aperture in the white space at the start of the specified color.**
- 14 Press and hold the Measure button and wait for a beep or wait for the background color in the dialog to change from green to white.**

NOTE: To hear a beep with a Windows compatible computer, you must install a sound card and speaker(s). You may have to turn up the volume on your computer to hear the beep.

- 15 After you hear a beep or see the dialog background color change, slide the ES-1000 at a slow but consistent pace across the strip.**

Take about five seconds to slide the length of the strip.

- 16 Release the button when all the patches in the strip have been measured and you reach the white space at the end of the strip.**

When a strip is measured successfully, the dialog background color changes to green, and the cross hair moves to the next color. If the strip is not measured successfully, the dialog background color changes to red, and a message directs you to try again.

- 17 Repeat steps 13 through 16 until all the strips are measured.**

NOTE: You must measure in the order outlined in the Status field.

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

- 19 Click Apply in the Calibrator dialog box.**

The new calibration measurement is applied.

- 20 Click OK in the Information dialog box.**

This completes the Fiery EXP50 calibration process.

Understanding calibration

The following sections describe important concepts and suggestions for understanding calibration.

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 digital press.
- Calibration sets are sets of measurements that combine media and screen options provided for Calibrator.
- Each output profile contains a calibration target that describes the expected behavior of the digital press.

After you calibrate the Fiery EXP50, a calibration set is stored. This calibration set is 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.

If you change the calibration after a saved job has been processed (RIPped), you do not have to reprocess (reRIP) the job. The new calibration affects the job without reprocessing.

NOTE: Changing calibration has the potential to affect *all* jobs for *all* users, so consider limiting the number of people authorized to perform calibration. Set an Administrator password in Fiery EXP50 Setup to control access to calibration (see [Configuration and Setup](#)).

How calibration works

Although the needs of most users are met by the default calibration set, the Fiery EXP50 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 EXP50.
- Ensure consistent color quality over time.
- Produce consistent output across Fiery EXP50 servers.
- Achieve better color matches when reproducing **spot colors**, such as PANTONE colors or other **named color** systems.
- Optimize the Fiery EXP50 for using ColorWise rendering styles (CRDs), CMYK simulations, and ICC profiles.

Success in obtaining satisfactory print quality from the Fiery EXP50 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 obtain consistent printed color.

Even with a calibrated system, toner density is affected by the settings of digital press, humidity, and temperature. Density also tends to drift over time. Uneven toner density on paper affects calibration results. Regular measurement detects day-to-day variations in density, gradation, and color reproduction, and calibration corrects them.

Calibration works by creating calibration curves on the Fiery EXP50 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 are made to the initial data. Transfer functions are often graphed as input or output curves.

The Fiery EXP50 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 digital press when it prints solid cyan, magenta, yellow, and black, and graduated tints of those colors.

To create a measurement file, print a page of color patches. Measure the patches using a color measurement instrument connected to a computer on the network. The new measurements are automatically downloaded to the Fiery EXP50.

Output profiles and calibration sets

Output profiles and calibration sets define desired calibration results. One or more output profiles and calibration sets are provided with the Fiery EXP50. When you calibrate the Fiery EXP50, 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 about output profiles, see [page 55](#).

Scheduling calibration

Calibrate the Fiery EXP50 at least once a day, depending on the volume of print jobs. If it is very important to maintain consistent color, or your digital press is subject to wide fluctuations in temperature or humidity, calibrate every few hours. For optimal performance, calibrate whenever there is a noticeable change in print quality or printing results are not as expected.

If you must split a print job into two or more batches to print at different times, it is important to calibrate before you print each batch. You should also calibrate the Fiery EXP50 after digital press maintenance. However, because the digital press may be less stable immediately after maintenance, wait until you have printed approximately 50 pages before you calibrate.

NOTE: Because printed output from the digital press is very sensitive to changes in temperature and humidity, do not install the digital press near a window, in direct sunlight, or near a heater or air conditioner. Paper is also sensitive to climate changes. Store it in a cool, dry, stable environment, and keep reams sealed until they are used.

To monitor print quality, print the following color pages:

- Color Charts (from Command WorkStation)
- Color reference pages included on the User Software DVD (see [pages 12 and 17](#))

These pages include fully saturated color patches and pale tints of cyan, magenta, yellow, and black. Images with skin tones offer a good basis for comparison. Save and periodically compare the pages you print. If a noticeable change in appearance occurs, calibrate the Fiery EXP50.

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

If the solid density patches (100% cyan, magenta, yellow, or black) look less saturated over time, show the pages to your digital press service technician to determine whether adjusting the digital press can improve output.

Checking calibration status

To verify whether the Fiery EXP50 is calibrated, which calibration set and output profile were used, and when the digital press was last calibrated, perform the following:

- Print a Configuration page or Test Page from Command WorkStation.
- Select a calibration set in Calibrator. The last calibration and the user who performed it are displayed.

COLORWISE PRINT OPTIONS

The **ColorWise** color management system provides print options that affect the output of objects in various color spaces. By specifying the appropriate settings for each print option, you can obtain the expected results for your jobs.

About this chapter

This chapter provides an overview of the ColorWise management system that controls color on the Fiery EXP50 (see [page 49](#)) and detailed explanations of each print option. For the location of each print option, see the following table.

ColorWise print option	See
Auto Trapping	page 50
Black Detection	page 50
Black Overprint	page 51
Black Text/Graphics	page 51
Combine Separations	page 55
CMYK Simulation Profile	page 53
CMYK Simulation Method	page 54
Output Profile	page 55
Rendering Styles	page 56
RGB Separation	page 57
RGB Source Profile	page 57
Simulate Overprinting	page 59
Spot Color Matching	page 60

This chapter also provides information about **PostScript** printer drivers and instructions for setting the ColorWise print options for Windows and Mac OS computers. For information about printer drivers, see [page 61](#).

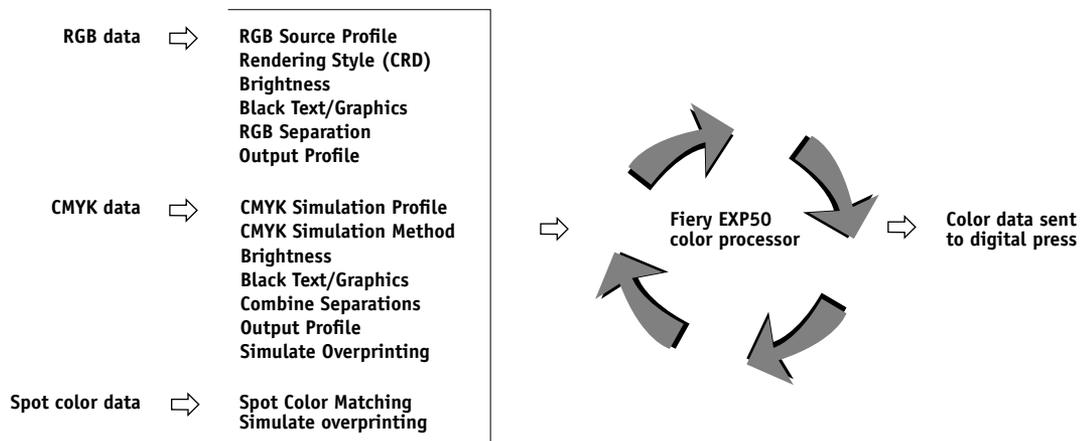
Managing color on the Fiery EXP50

To modify Fiery EXP50 printing behavior, do any of the following:

- Specify ColorWise options for an individual print job using the menus that appear in the printer driver.
- Specify most ColorWise options as server defaults from Color Setup in ColorWise Pro Tools (see page 29). You can also set default values from Fiery EXP50 Setup, as described in *Configuration and Setup*. The defaults apply to all subsequent print jobs unless you override them.
- Specify ColorWise options, particularly default **ICC profile** settings and calibration options, from ColorWise Pro Tools. These options include default Simulation Profile (see page 53), Simulation Method (see page 54), default Source Profile (see page 57), RGB Separation (see page 57), and associated calibration set (see page 32).

Applications allow you to generate color data for the Fiery EXP50 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 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 EXP50 allows you to control the printing of mixed-color documents with features that apply specifically to RGB, CMYK, or spot color data.

The following diagram illustrates the print options in the Fiery EXP50 color management process that affect color data conversions. You can access these print options when you send a print job to the Fiery EXP50. 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: With PostScript 3 color, RGB Source Profile affects all CIEBasedABC color spaces (if the source space is RGB). For example, if you send CMYK data to the Fiery EXP50 in CIEBasedDEFG format by choosing PostScript Color Management in Photoshop, the setting for the Rendering Style print option, which normally affects only RGB data, also affects this CMYK data.

ColorWise print options

The following sections provide detailed explanations of the ColorWise print options and how these options affect print jobs.

NOTE: For information about the following print options, see *Graphic Arts Package*.

- Halftone Screen
- Paper Simulation
- Substitute Colors

Auto Trapping

Trapping is a technique where the size of objects is modified so that colors printed next to each other overlap slightly, in order to prevent white spaces between two colors. These white spaces, or “hollows,” can be caused by factors such as misregistration, the physical properties of the toners, and the stiffness of the media.

If you enable the Auto Trapping option, trapping is applied to the objects in a job.

The Fiery EXP50 is shipped with trapping values that are optimized for a Fiery-driven print device using regular paper. If these values do not provide the results necessary for the media that you use, and if Graphic Arts Package, Premium Edition is configured on the Fiery EXP50, you can modify the values to meet your requirements. For more information, see *Graphic Arts Package*.

Black Detection

The Black Detection option allows you to specify whether or not to detect black-and-white pages before printing your job. To use this option, set Color Mode to CMYK, Standard Color, or Expert Color.

- **Off:** Select Off if your job consists of black-only text pages combined with a significant number of color pages.
- **On:** Select On if you are printing a predominantly black-and-white job.

NOTE: This feature is not available with the PCL driver.

Black Overprint

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

- **Text:** Black text overprints colored backgrounds, eliminating white gaps and reducing the halo effect or misregistration of colors. Choosing this setting automatically sets the Black Text/Graphics option to Pure Black On.
- **Text & Graphics:** Black text and graphics overprint colored backgrounds, eliminating white gaps and reducing halo effects or misregistration of colors. Choosing this setting automatically sets the Black Text/Graphics option to Pure Black On.
- **Off:** Black text or text/graphics knocks out colored backgrounds.

NOTE: Before sending the print job to the digital press, PostScript applications may perform their own black overprint conversions.

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

- With Black Overprint set to Text or Text & Graphics, the final text or text/graphic portions of the page are overprinted, or combined with the underlying color. Black colors generated by applications (for example, RGB=0, 0, 0 or CMYK=0%, 0%, 0%, 100%) are printed using the black toner. This means that black text and line art does not exhibit halftone artifacts (as long as the digital press is calibrated correctly). No transition in cyan and magenta toners occurs. The quality of the output is improved, since it does not show artifacts near the edges of the text defined in the RGB color space (RGB=0, 0, 0).
- With Black Overprint Off, the border of the text or text/graphics 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 due to the practical limitations of the digital press.

NOTE: Setting Black Overprint to Text/Graphics allows black text or graphics to overprint color backgrounds (see “[CMYK Simulation Method](#)” on page 54).

NOTE: The reproduction of CMYK components is affected by the CMYK Simulation setting and calibration curve when CMYK is not 0%, 0%, 0%, 0%.

Black Text/Graphics

The Black Text/Graphics option affects black text and **vector graphics**. Under most circumstances, set this option to Pure Black On. When Black Text/Graphics is set to Pure Black On, black colors generated by applications (for example, RGB=0, 0, 0 or CMYK=0%, 0%, 0%, 100%) are printed using black toner only. The black text and line art do not exhibit halftone **artifacts** (as long as the digital press is calibrated correctly) and are not misregistered, since one toner is used. In addition, this setting eliminates **blasting**. This option is automatically set to Pure Black On when the Black Overprint option is selected.

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 Black Text/Graphics option with black data defined in different color spaces.

NOTE: Use the Black Text/Graphics option only when printing composites, not when printing separations.

Color	Black Text/Graphics = Normal	Black Text/Graphics = Pure Black On or Rich Black On
RGB=0,0,0 (all other RGB values are unaffected by the Black Text/Graphics setting)	RGB=0,0,0 is printed according to the definition for RGB=0,0,0 in the output profile. This may be a rich black using all toners if the output profile specifies a rich black, or may be K-only if the output profile specifies K-only for RGB=0,0,0. The output is affected by the calibration curve.	RGB=0,0,0 is printed as K-only, using the black toner (Pure Black) or 100% K plus 50% Cyan (Rich Black) using black and cyan toners. All other RGB values are unaffected by the Black Text/Graphics setting.
CMYK=0%,0%,0%,100% (all other CMYK values are unaffected by the Black Text/Graphics setting)	CMYK=0%,0%,0%,100% may be printed as K-only or as a rich black using all toners, depending on the CMYK Simulation Profile and CMYK Simulation Method settings. For Quick and Full (Source GCR), CMYK=0%,0%,0%,100% prints as K-only and the amount of black toner is limited by the simulation profile and the calibration curve. For Full (Output GCR), CMYK=0%,0%,0%,100% prints as K-only and the amount of black toner is limited by the simulation profile and the calibration curve. If CMYK Simulation is set to ColorWise Off, it disables the simulation profile and the calibration curve. In this case, the black toner is not limited by the calibration curve.	CMYK=0%,0%,0%,100% is printed as K-only, using the black toner (Pure Black) or 100% K plus 50% Cyan (Rich Black) using black and cyan toners, regardless of the CMYK Simulation Profile and CMYK Simulation Method settings. All other CMYK values are unaffected by the Black Text/Graphics setting. If CMYK Simulation is set to ColorWise Off, it disables the simulation profile and the calibration curve. In this case, the black toner is not limited by the calibration curve.
Spot Colors (unaffected by the Black Text/Graphics setting)	Standard spot color processing	Standard spot color processing

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 EXP50. These elements are not affected by the Black Text/Graphics option. For more information, see *Fiery Color Reference*. 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 3 printer driver for Windows 2000/XP/Server 2003. To print this single-color black at the maximum toner density of the digital press, set Black Text/Graphics to Pure Black On.

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.

You can view an unlimited number of custom simulations created using ColorWise Pro Tools. The number of custom simulations is limited by the available disk space on the Fiery EXP50.

If you are printing with the PostScript driver and have Two-Way Communication enabled, the name of each downloaded or custom profile appears in the CMYK Simulation Profile menu. If Two-Way Communication is not enabled, downloaded or custom profiles appear as Simulation-1 through Simulation-10. For more information about Two-Way Communication, see *Printing from Windows* or *Printing from Mac OS*.

The None setting sends your original CMYK data to the digital press in its calibrated state, without conversions to simulate another printer. The ColorWise Off setting sends your original CMYK data to the digital press in an uncalibrated state, without conversions to simulate another printer.

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 EXP50 with the CMYK Simulation Profile setting.
- For images that were separated for **SWOP**, choose SWOP as the CMYK Simulation Profile setting.

To properly simulate a printed image that was separated using an ICC profile, the same profile must be present on the Fiery EXP50. For more information about downloading ICC profiles to the Fiery EXP50, see [page 12](#).

CMYK Simulation Method

The CMYK Simulation Method allows you to define your preferred CMYK-to-CMYK conversion technique.

- **Quick** applies one-dimensional transfer curves to adjust output densities in the cyan, magenta, yellow, and black channels. This technique leads to eye-pleasing color output from your digital press because pure primary colors are not “contaminated” by other **colorants**. While it is the fastest simulation method and perfect for drafts, avoid using it for final documents that are used as press proofs. Other techniques offer the color simulation accuracy required by proofing applications.
- **Full (Source GCR)** provides a complete and accurate simulation based on colorimetric transformations. Hues are preserved, even for primary colors. The **Gray Component Replacement (GCR)** level that was specified in the original (source) document is also preserved for K-only text and graphics. Processed black expressed in CMY is reproduced using CMY toner. Full (Source GCR) is recommended for the highest quality press proofing applications.
- **Full (Output GCR)** is a complete and accurate simulation method based on colorimetric transformations. Hues are preserved, even for primary colors. With this method, the Gray Component Replacement (GCR) level that was specified in the original document is not preserved. Instead, all CMYK data is re-separated using the GCR level specified by the output profile. This simulation technique is similar to traditional ICC color matching methods and is more appropriate than Full (Source GCR) for full color printing designed for the press, but reproduced on your digital press.

NOTE: The black color of your print job is preserved when C=M=Y=0. K-only text and graphics are reproduced using K toner only. Processed black expressed in CMY is reproduced using CMY toner, which expresses richer black than you can achieve with Full (Source GCR).

NOTE: When you specify Pure Black On for Black Text/Graphics and Full (Output GCR) for CMYK Simulation Method, the black text and graphics in your document are printed with 100% black-only toner.

Combine Separations

The Combine Separations setting specifies how to print separated CMYK data. With the Graphic Arts Package, you can combine an unlimited number of spot color separations along with the CMYK separations.

- **Off** prints each separation individually.
- **On** combines separations as a single, composite-color document, and automatically makes the settings for the following print options: Color Mode (CMYK), Black Text/Graphics (Normal), Black Overprint (Off), and Spot Color Matching (Off).

For information about using the Combine Separations option with applications such as Photoshop, see *Fiery Color Reference*.

Output Profile

Because the output profile is applied to all data in the print job, make sure the profile you select is the right one for your job. The default output profile consists of a profile for your digital press that describes its color characteristics and a **calibration target** that describes the expected behavior of the digital press.

Use the ColorWise Pro Tools Profile Manager to download your own output profile to the Fiery EXP50 (see “Using Profile Manager” on page 23). Downloaded output profiles are at first associated with the calibration target that is tied to the default output profile. You can edit calibration target D-Max values separately.

If you are printing with the PostScript driver and have enabled Two-Way Communication, the name of each downloaded or custom profile appears in the Output Profile menu. If Two-Way Communication is not enabled, downloaded or custom profiles appear as Output-1 through Output-10. For more information about Two-Way Communication, see *Printing from Windows* or *Printing from Mac OS*.

Select the Use Media Defined Profile setting to automatically apply the output profile associated with the media type used in a print jobs rather than setting a specific output profile. For more information, see “Using media-defined output profiles” on page 24.

Select the Use Server’s Default setting to use the default Output Profile set in Color Setup. For more information about Color Setup, see “Using Color Setup” on page 29.

Rendering Styles

The Rendering Style option specifies a CRD for color conversions. To control the appearance of images, such as prints from office applications or RGB photographs from Photoshop, select the appropriate rendering style. The Fiery EXP50 allows you to choose from the four rendering styles currently found in industry standard ICC profiles.

Fiery EXP50 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. This style preserves tonal relationships in images.	Photographs, including scans and images from stock photography CDs and digital camera images.	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. This style is similar to the Photographic rendering style.	Artwork and graphs in presentations. In many cases, this style can be used for mixed pages that contain presentation graphics and photographs.	Saturation, Graphics
Relative Colorimetric: Provides white-point transformation between the source and destination white points. For example, the bluish white color (gray) of a monitor is replaced by paper white. This style avoids visible borders between blank spaces and white objects.	Advanced use when color matching is important, but you prefer white colors in the document to print as paper white. This style may also be used with PostScript color management to affect CMYK data for simulation purposes.	Relative Colorimetric
Absolute Colorimetric: Provides <i>no</i> white point transformation between the source and destination white points. For example, the bluish white color (gray) is not replaced by paper white.	Situations when exact colors are needed and visible borders are not distracting. This style may also be used with PostScript color management to affect CMYK data for simulation purposes.	Absolute Colorimetric

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 are used by the Fiery EXP50 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 digital press (**output**) or is first converted into the gamut of another digital printer or press standard (**simulation**). This feature helps make one device behave like another for RGB data. For example, if a high-quality ICC profile is available for another print device, the digital press can simulate the behavior of that device.

RGB Separation is also useful for prepress applications. For example, it allows you to 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, convert the file to CMYK, using the same CMYK simulation profile you used during the experimentation.

NOTE: Use the RGB Separation print option in conjunction with the Output Profile or CMYK Simulation Profile print options.

- **Output** converts all RGB colors into the CMYK color space of your digital press (when set to the printer’s default), or a customized CMYK color space for your digital press (when set to Output 1-10).
- **Simulation** converts all RGB colors into the CMYK color space for a specified simulation (select the desired simulation with the CMYK Simulation Profile print option).

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 occurs on the Fiery EXP50. Commonly used monitor color spaces are available from the printer driver and the Fiery EXP50. For others, use ColorWise Pro Tools Profile Manager to download custom monitor or scanner profiles.

When you specify a setting other than None for the RGB Source Profile, the Fiery EXP50 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 None.

When you specify a setting other than None, since the color space definitions are overridden, the output from the Fiery EXP50 is consistent across platforms. The Fiery EXP50 RGB Source Profile options are as follows:

- **EFIRGB** specifies an EFI-defined color space recommended for users who have no detailed information about their RGB data.
- **sRGB (PC)** specifies the definition of a Windows computer monitor profile used as the default.
- **Apple Standard** specifies the definition of a Mac OS computer monitor profile used as the default.
- **Adobe RGB (1998)** is an Adobe-defined color space, used in pre-press as the default working space in Photoshop 5.
- **ECI-RGB** is the European Color Initiative (ECI) recommended space for use as an RGB working color space and color data exchange format for ad agencies, publishers, reproduction and printing houses.
- **Splash RGB D65** is the default RGB color space recommended for Splash users who have no detailed information about their RGB data. You must have Two-Way Communication enabled to select Splash RGB D65. For more information about Two-Way Communication, see *Printing from Windows* and *Printing from Mac OS*.
- **Sources 1-10** specify the definitions you download as RGB source profiles.

If you are printing with Two-Way Communication enabled, the name of each downloaded profile appears in the RGB Source Profile setting menu. If you are printing without Two-Way Communication enabled, downloaded profiles appear as Source-1 through Source-10. For more information about Two-Way Communication, see *Printing from Windows* and *Printing from Mac OS*.

- **None** instructs the Fiery EXP50 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 is *not* independent of the file type. For example, RGB EPS files looks 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 “Rendering Styles” on page 56). 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.

Simulate Overprinting

When overlapping objects are printed, the foreground object can either overprint or knock out the background object. With overprinting, the color of background object shows through the foreground object where they overlap, and the resulting color is a combination of the colors of the two objects. With a knock-out, the foreground object hides the background object where they overlap.

The Simulate Overprinting print option allows you to simulate overprinting when the source file specifies overprinting. For this simulation, the overlapping objects are converted to their CMYK equivalents before color management and processing, and the area of overlap is recreated as a third object whose color is a combination of the colors of the two objects.

By default, the Simulate Overprinting print option is Off.

The Simulate Overprinting print option is supported for PDF jobs and PPML jobs with PDF Resources.

Spot color overprinting

The simulation of spot color overprinting is achieved by converting spot colors to their CMYK equivalent before color management. Therefore, the Spot Color Matching option has no effect when Simulate Overprinting is enabled. If Spot-On is used to define spot colors, the spot color definition in the Spot-On dictionary does not apply in a Simulate Overprinting job.

Black Overprint

When the Black Overprint option is selected (for either text or text and graphics), black objects overprint their background objects, regardless of whether the source file specifies that the object overprints or knocks out. However, if Simulate Overprinting is enabled as well, it affects any black objects that are specified to overprint, before the Black Overprint option is considered. If a black object is specified to overprint another object, the two objects are converted to their CMYK equivalents and the overprinted area creates a third object whose color is not pure black. This overprinted area is not affected by the Black Overprint option because that option affects only black objects. Therefore, when Simulate Overprinting and Black Overprint are both applied to a job, Black Overprint affects only black objects specified to knock out objects they overlap.

Spot Color Matching

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

- **On:** The Fiery EXP50 uses a built-in table to generate the closest CMYK matches of spot colors your digital press can produce. (New tables are generated when you add new output profiles.)

With the Graphic Arts Package, the Fiery EXP50 uses the CMYK matches determined through Spot-On (see *Graphic Arts Package*).

- **Off:** The Fiery EXP50 processes the spot color as CMYK data and 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.

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

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 53](#)).

For a PDF job that includes spot colors that are not included in the built-in table, setting Spot Color Matching to On retains the original spot colors. The Fiery EXP50 references the built-in table to generate the closest CMYK matches of the original spot color.

NOTE: Use Spot Color Matching only when printing composites, not when printing separations.

Spot Color Matching and the PANTONE Coated Color Reference

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

- **On:** The Fiery EXP50 uses a built-in table or, with Spot-On, the Spot-On color dictionaries to generate the best matches for the PANTONE colors that your digital press can produce. The PANTONE number is displayed below each swatch.
- **Off:** The Fiery EXP50 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.

Printer drivers and print options

The printer driver writes a PostScript file containing the instructions generated by your application and the settings for the ColorWise print options you selected. The printer driver then sends the PostScript file to the Fiery EXP50. The Fiery EXP50 performs PostScript processing and color conversions and sends raster color data to the digital press.

Setting print options for Windows

This section explains how to set color management print options with the Adobe and Microsoft PostScript printer drivers for Windows, PostScript 3 printer drivers that take full advantage of the color features of the Fiery EXP50.

Before you proceed, do the following:

- Install the printer driver and the Fiery EXP50 PPD (see *Printing from Windows*).
- Set up the Fiery EXP50 for printing (see *Printing from Windows*).

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

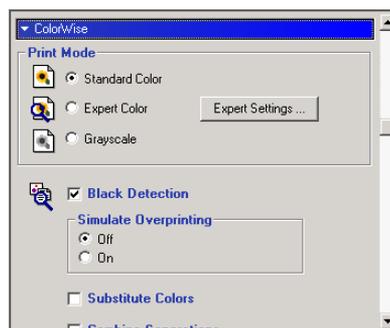
Use the following procedure to set the color options for Windows computers.

TO SET PRINT OPTIONS FOR WINDOWS COMPUTERS

- 1 Choose **Print** in your application.
- 2 Select **Fiery EXP50** as your printer and click **Properties**.

In the Properties dialog box, the Fiery Printing tab is displayed.

- 3 Click the **ColorWise** print option bar.

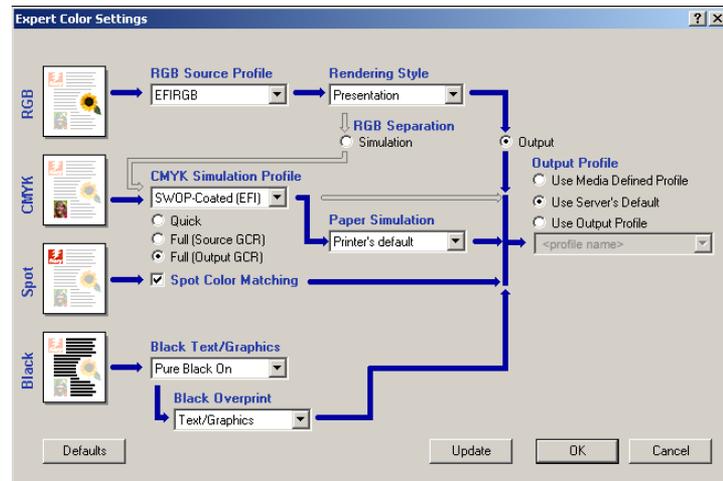


- 4 Specify the settings for the print options in the ColorWise window.

For information about ColorWise print options, see [page 50](#).

5 Click Expert Settings.

The Expert Color Settings dialog box appears.



This dialog box displays most of the ColorWise print options for the Fiery EXP50.

6 Click Update to display the current Fiery EXP50 settings.

If the Update button does not appear, make sure that Two-Way Communication is set up. For information about enabling Two-Way Communication, see *Printing from Windows*.

7 Specify the settings for the main ColorWise print options.

For most users, the default settings provide adequate color control. For information about individual print options, see [page 50](#).

Setting color management print options for Mac OS

This section explains how to set color management print options with the printer drivers for Mac OS.

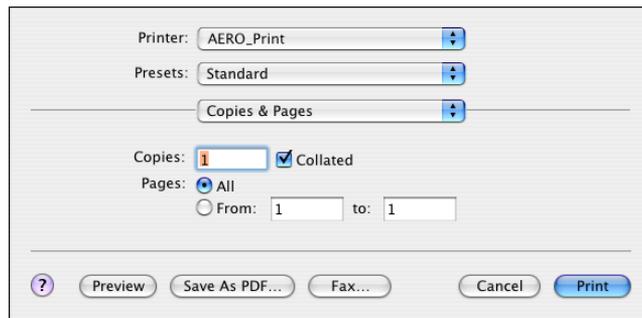
Before you proceed, do the following:

- Install the Fiery EXP50 PPD (see *Printing from Mac OS*).
- Set up the Fiery EXP50 for printing (see *Printing from Mac OS*).

TO SET PRINT OPTIONS FOR MAC OS X COMPUTERS

1 Choose Print in your application.

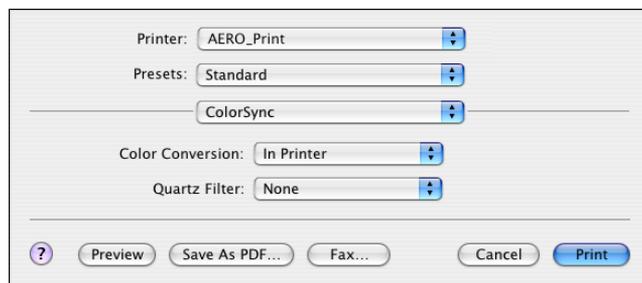
The Print dialog box appears.



2 For Mac OS X v10.3 and later, choose ColorSync from the drop-down list.

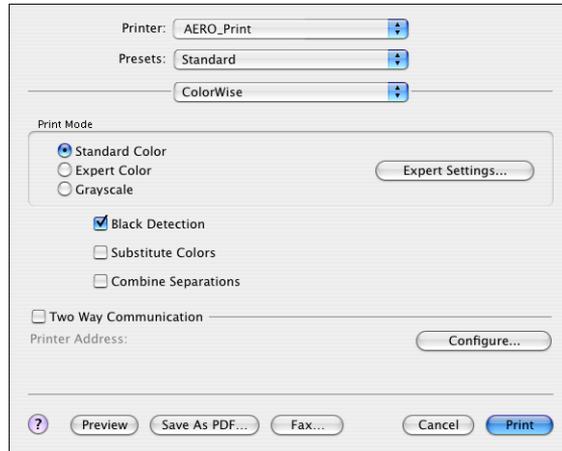
The ColorSync pane appears.

3 Choose In Printer from the Color Conversion menu.



4 Choose ColorWise from the drop-down list.

The ColorWise pane appears.



5 Select Two-Way Communication.

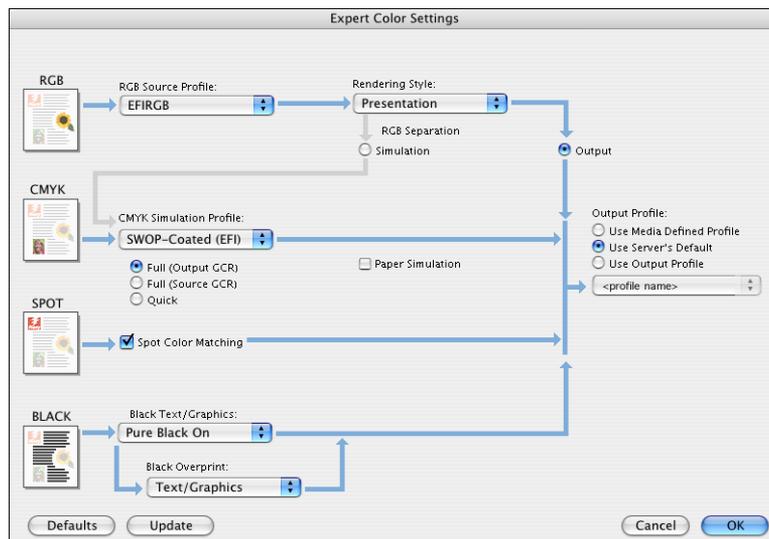
For information about enabling Two Way Communication, see *Printing from Mac OS*.

6 Specify the settings for print options in the ColorWise pane.

For information about ColorWise print options, see page 50.

7 Click Expert Settings in the Print Mode pane.

The ColorWise Expert Settings dialog box appears.



8 Choose settings for the main ColorWise print options.

For information about ColorWise print options, see [page 50](#).

9 Click OK.

The ColorWise pane reappears.

10 Click Print.**Using Expert Color Settings to enable Device Link Profiles**

When you print a job, you can enable Device Link Profiles by using the Fiery EXP50 printer driver if you have Two-Way Communication enabled. When you enable a Device Link Profile, you will be able to see the Device Link Profile in use in Expert Color.

NOTE: If you do not have Two-Way Communication enabled, and you select an RGB Source Profile and Output Profile that corresponds to a Device Link Profile, the Device Link Profile will be activated, although you will not see the Device Link Profile in use in Expert Color.

For information about installing and assigning Device Link Profiles, see [page 24](#).

NOTE: The procedures for enabling Device Link Profiles using Expert Color Settings for Windows and Mac OS X are similar. The following illustrations use Windows screens. Any differences are noted.

TO USE THE FIERY EXP50 PRINTER DRIVER TO ENABLE DEVICE LINK PROFILES**1 Enable Two-Way Communication.**

For more information about enabling Two-Way Communication, see *Printing from Windows* or *Printing from Mac OS*.

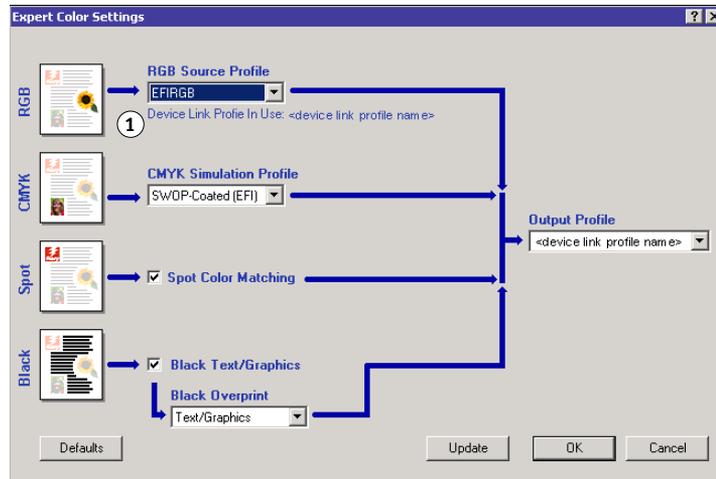
2 Choose Print from your application.**3 Click the ColorWise print option bar in the Fiery EXP50 printer driver.****4 Select Expert Color.**

5 Choose the Source Profile and the Output Profile.

When you choose a Source Profile and Output Profile source combination that is defined in a Device Link Profile, the Device Link Profile is automatically enabled.

When the Device Link Profile is chosen, the Color Process workflow updates and some options may not appear. You will see the message “Device Link Profile in use” under the RGB Source Profile or CMYK Simulation Profile.

1 Device Link Profile in use



6 Click OK to exit Expert Color.

7 Click OK to send your job.

COLOR MEASUREMENT INSTRUMENTS

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

- DTP32 densitometer
- DTP41 spectrophotometer
- ES-1000 hand-held spectrophotometer

Using the DTP32

ColorWise Pro Tools is designed to work with the DTP32 densitometer, which feeds color measurements to the Fiery EXP50 automatically.

NOTE: You can input measurements from other densitometers using a simple ASCII file format (see [“Importing Density Measurements”](#) on page 78).

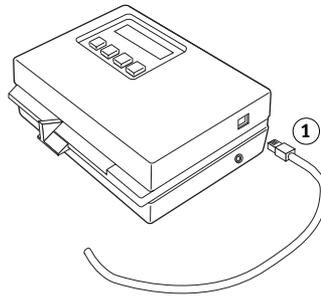
Setting up the DTP32

Before you calibrate the Fiery EXP50 using the DTP32, you must connect, configure, and calibrate the DTP32 to prepare for measuring the printed patches (see [“Calibrating the DTP32”](#) on page 70). For additional information about setting up and using the DTP32, see the documentation that accompanies the DTP32.

To CONNECT THE 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 DTP32.

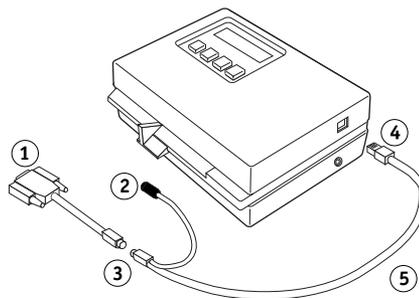
1 Square connector



3 Attach the connector to the computer.

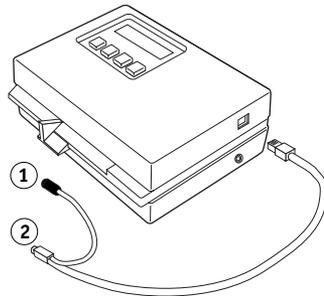
For a Windows computer, insert the 8-pin mini-DIN end of the interface cable into the 9-pin DB9 Connector cable adapter. Insert the 9-pin end into the COM1 or COM2 port on the computer and tighten the screws. If the available port on your computer is 25-pin, you must use the 8-pin-to-25-pin adapter.

- 1 Connect to computer
- 2 Unused connector
- 3 Connect to adapter
- 4 Square connector
- 5 Interface cable



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

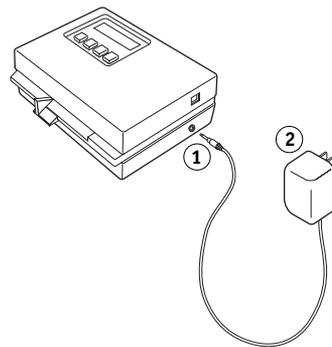
- 1 Unused connector
- 2 Connect to serial port



NOTE: For Mac OS computers with a USB port, you need an adapter to connect the DTP32 to your computer. For information about 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 DTP32 and plug the AC adapter into a wall outlet.

- 1 Small connector
- 2 AC adapter



- 5 Turn on the computer.
- 6 Calibrate the DTP32 (see the following section).
- 7 Calibrate the Fiere EXP50 using ColorWise Pro Tools and the DTP32 (see [page 36](#)).

Calibrating the DTP32

You need the black-and-white X-Rite Auto-Cal Strip included with the DTP32. Calibrating the DTP32 does not require ColorWise Pro Tools.

To CALIBRATE THE DTP32

- 1 **Connect the DTP32 to the computer and supply power (see [page 68](#)).**
- 2 **From the Main Menu on the DTP32 display, press the p1 key once to reach p2.**
- 3 **Press the cal key.**

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

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

Reading appears momentarily, followed by the density values and CALIBRATION OK. The DTP32 automatically returns to the MAIN MENU.

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

Recalibrate the DTP32 at least once per month. If it is important to maintain consistent color, calibrate the DTP32 every time you calibrate the Fiery EXP50. The DTP32 may also warn periodically that it requires calibration.

Using the DTP41

ColorWise Pro Tools Calibrator supports the DTP41 spectrophotometer, a device that measures density and color data. The DTP41 communicates directly with ColorWise Pro Tools Calibrator, sending measurements to the Fiery EXP50 automatically.

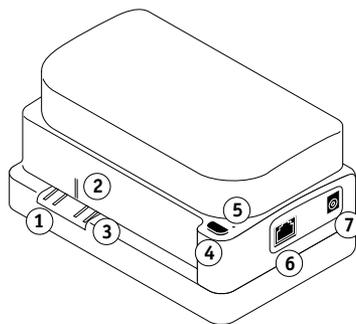
Setting up the DTP41

Before you calibrate the Fiery EXP50, you must connect, configure, and calibrate the DTP41 to prepare for measuring the printed patches. For additional information about setting up and using the DTP41, see the documentation that accompanies the DTP41.

TO CONNECT THE DTP41 TO THE COMPUTER

- 1 Turn off the computer.
- 2 Unpack the 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 DTP41.

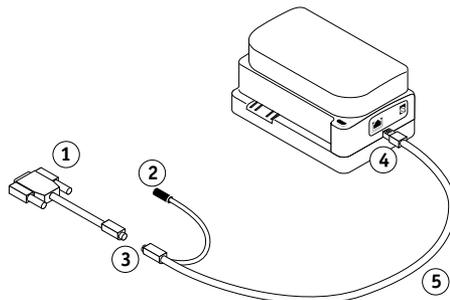
- 1 Measurement page slot
- 2 Alignment mark
- 3 Calibration strip entrance
- 4 Instrument button
- 5 LED indicator
- 6 Serial interface connection
- 7 Power input



- 4 Attach the connector to the computer.

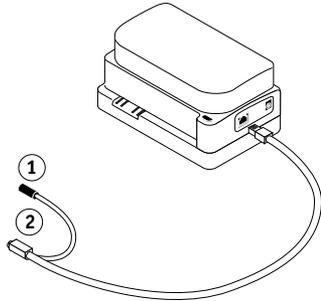
For a Windows computer, insert the 8-pin mini-DIN end of the interface cable into the 9-pin DB9 Connector cable adapter. Insert the 9-pin end into the COM1 or COM2 port on the computer and tighten the screws. If the available port on your computer is 25-pin, you must use the 8-pin-to-25-pin adapter.

- 1 Connect to computer
- 2 Unused connector
- 3 Connect to adapter
- 4 Square connector
- 5 Interface cable



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

- 1 Unused connector
- 2 Connect to serial port

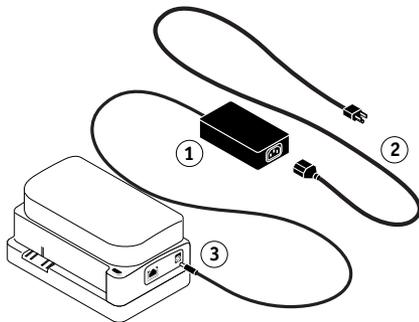


NOTE: For Mac OS computers with a USB port (for example, an iMac), you need an adapter to connect the DTP41 to your computer. For information about supported adapters, see the X-Rite, Inc. web site (www.x-rite.com).

5 Use the AC adapter to provide power.

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

- 1 AC adapter
- 2 Power cord
- 3 Small connector



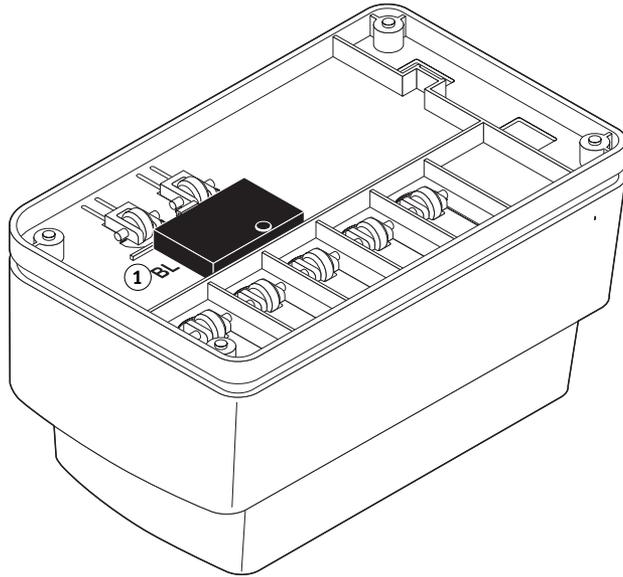
6 Turn on the computer.

7 Calibrate the DTP41 using ColorWise Pro Tools (see the following section).

8 Calibrate the Fiery EXP50 using ColorWise Pro Tools and the DTP41 (see [page 38](#)).

NOTE: To calibrate the Fiery EXP50 using the DTP41, make sure that the black box mounted on the back of the densitometer is set to the “BL” position as shown in the following illustration.

1 Black box set to BL position



Calibrating the DTP41

For the best color accuracy, calibrate the DTP41 every time you calibrate the Fiery EXP50. Initiate the calibration sequence in ColorWise Pro Tools Calibrator as part of the process of Fiery EXP50 calibration. The computer may also prompt you to calibrate the DTP41.

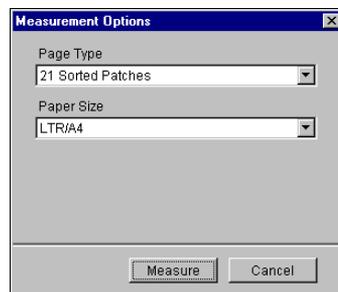
You can also initiate calibration of the DTP41 using the Instrument button on the DTP41. For more information about this method, see the documentation that accompanies the DTP41.

Multiple users can connect to one Fiery EXP50 server with ColorWise Pro Tools, but only one user at a time can use Calibrator. If you try to calibrate when another user is already using Calibrator, an error message appears.

You need the Color Reflection Reference strip that is included with the DTP41. Remove the strip from the protective envelope, handling it by the edges only. Keep the strip free of dust and smudges and always store it in the protective envelope.

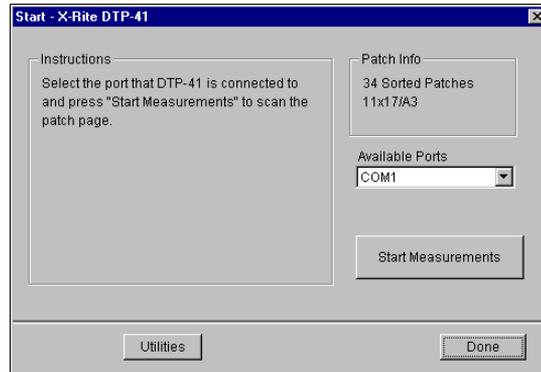
TO CALIBRATE THE DTP41

- 1 **Connect the DTP41 to the computer and supply power (see [page 71](#)).**
- 2 **Start Calibrator.**
For instructions on starting Calibrator, see [page 32](#).
- 3 **Choose DTP41 as the measurement method.**
- 4 **Click Measure in the Get Measurements pane.**
- 5 **Click Measure in the Measurement Options dialog box.**



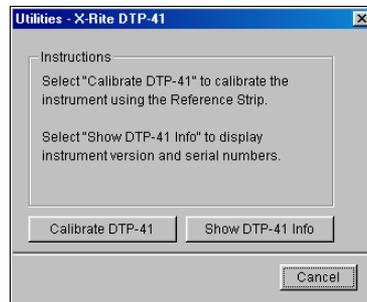
6 Choose the appropriate COM port for the DTP41 from the Available Ports menu.

The Instructions field displays instructions for selecting the port.



7 Click Utilities.

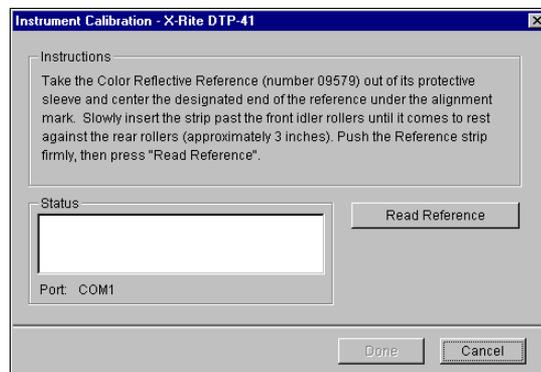
The Utilities dialog box appears.



To view version and serial number information, click Show DTP-41 Info, and then click Done.

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 71](#)).**

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

- 11 **Click Read Reference.**

The DTP41 pulls the calibration strip through automatically.

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

- 12 **Click Done to close the Instrument Calibration dialog box.**

- 13 **Close the Utilities dialog box.**

This completes DTP41 calibration.

Your computer prompts you when the DTP41 requires calibration. When the prompt message appears, click Calibrate Now and follow the instructions, starting with [step 8](#) on [page 75](#).

After calibrating the DTP41, calibrate the Fiery EXP50 (see [page 38](#)).

Using the ES-1000

The 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 EXP50.

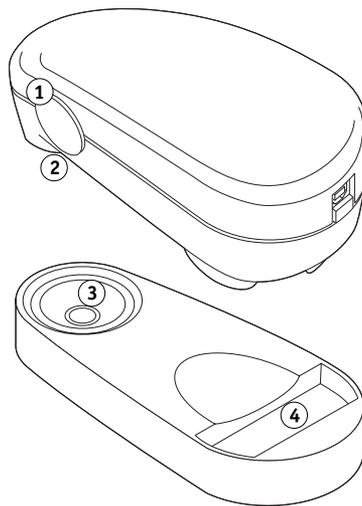
The ES-1000 is available as a separately purchased option.

Setting up the ES-1000

To use the ES-1000 for calibration purposes, you must set it up for use with your computer. For complete instructions on setting up and calibrating the ES-1000, see the documentation that accompanies the ES-1000.

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

- 1 Measure button
- 2 Sample aperture
- 3 White tile reference
- 4 Cradle



Calibrating the ES-1000

When you place the ES-1000 in the calibration cradle, white point calibration is used to calibrate the spectrophotometer. Make sure the sample aperture is in full contact with the white tile on the calibration cradle.

IMPORTING DENSITY MEASUREMENTS

This chapter describes Simple ASCII File Format (SAIFF), which you can use 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 then structure the file as follows.

Simple ASCII Import File Format

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

- 1D Status T density for EFI 21 patch page
- 1D Status T density for EFI 34 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. Comment lines must 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 a line by themselves.

Each line of data contains five values. The first number is the sequential patch number (for EFI 21 and EFI 34 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 21 and EFI 34 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 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
```

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 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
# percent 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
```

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