



Fiery Color Profiler Suite

Contents

Fiery Color Profiler Suite	9
What's new in this version	10
Dongle and license requirements for Color Profiler Suite	10
Demo mode	10
Troubleshoot "Dongle not found" message	11
Troubleshoot "Dongle not licensed" message	11
Download a Color Profiler Suite license	11
Activate a Color Profiler Suite license	12
Update Color Profiler Suite	13
Set general preferences	13
Automatically check for updates	13
Set dE calculation method preferences	13
Set the reference for test page control bar	14
Set Color Profiler Suite version	14
Calibrate the spectrophotometer	14
Fiery Express Profiler	15
Create calibration and profile in Express Profiler	15
Set Express Profiler preferences	16
Fiery Printer Profiler	17
Profile a Fiery Server	17
Profile a Fiery XF server	18
Profile a remote, non-Fiery, or non-CMYK printer (Save as PDF)	19
Select a printer for printing patch pages	20
Select a Fiery Server or Fiery XF server	20
Save patch pages as a PDF	20
Set up calibration	20
Set up calibration for a Fiery Server	21
Set up calibration for a Fiery XF server	21
Print pages for calibration	21
Review calibration measurement results	22
Print patch pages for profiling	22
Set patch options	23

Set ink and toner for profiles	23
Set object type for patches	23
Use a patch ID to select a patch page to measure	24
Select the patch ID for your patch pages	24
Create a new patch ID if no ID exists for your patch pages	24
Remove a Patch ID from the list	25
Import measurements for creating a profile	25
Import measurements from one or more IT8 files	25
Import measurements from an ICC profile	25
Summary of measurements	26
Choose data for averaging measurements	26
Apply profile settings	27
Load existing settings	27
Set maximum GCR	27
Set profile optimization	27
Set viewing condition	28
Set gamut mapping	28
Specify separation settings	29
Save a profile in Printer Profiler	30
Create profiles based on the new profile	31
Set Printer Profiler preferences	31
Set calibration check tolerance	31
Set measurement check tolerance	31
Fiery Monitor Profiler	32
Prepare to use Monitor Profiler	32
Profile with the Easy method	32
Profile with the Advanced method	33
Calibrate and set up the spectrophotometer	33
Measure and set luminance	34
Measure and set gamma	34
Measure and set the white point	35
Measure profiling patches	36
Compare before and after measurements	36
Save a profile in Monitor Profiler	36
Fiery Device Linker	37
Optimize a device link (iterative match to a standard)	37

Optimize spot colors	38
Match to a production printer	39
Select profiles to create a device link profile	39
Select profiles for matching an industry standard	39
Select profiles for matching a proofing printer to a production printer	40
Select profiles for creating a custom device link profile	40
Specify profile settings in Device Linker	41
Print patch pages for optimization	41
Check Device Linker measurement results and iterate	42
Save and install device link profiles	42
View device link profile information	43
Fiery Print Matcher	44
Create a common calibration and output profile	44
Create a new common calibration	45
Review calibration results	45
Create a common output profile	45
Update a common calibration	46
Create a new common device link profile	46
Print calibration pages	47
Print profiling pages	47
Specify output profile settings	48
Set profile optimization	48
Set viewing condition	49
Specify device link profile settings	49
Fiery Profile Inspector	50
Display profiles	50
Work with profile models in Profile Inspector	50
Set environment and display style for profile models	52
Display measurements from a file	52
Point information	53
Measure a color with an instrument	53
Fiery Profile Editor	54
Open a profile for editing	54
Select rendering intent	54
Save a profile in Profile Editor	55

Output profile settings	55
Reference image	56
Reference image tools	56
Open a reference image file	56
Select source profile to display reference image	57
Preview output media color	57
View source, original output, and edited output views	57
Display color information for a source color	58
Set the color model for representing color values	58
Set method for calculating Delta E	58
Edit colors and the Edit List	59
Edit color globally	59
Edit output curves	60
Edit the colors in a hue	60
Set hue and saturation of the output	60
Select output hue using Profile Cross Section	61
Edit a selected color	61
Set hue, lightness, and chroma of the output color	61
Set color space coordinates	62
Select output color using Profile Cross Section	62
Edit a node	63
Highlight affected colors	63
Set node and color coordinates	63
Select output node using Profile Cross Section	64
Adjust white point (media color)	64
Sample a color with a measuring instrument	65
Fiery Auto Verifier	66
Configure automatic test pages	66
Turn off automatic test pages	66
Measure test pages	67
Record test results	67
Fiery Color Verification Assistant	68
Run verification tests	68
View test results	69
Generate labels and reports	69
Set Color Verification Assistant preferences	70

Set printer and device tolerances	70
Set color matching tolerances	71
Tests in Color Verification Assistant	71
CMYK Verification test	71
RGB Verification test	71
Output Profile test	72
Printer Consistency test	72
Measurement Device test	72
Job settings for color matching	72
Status messages	73
Manage notifications	73
Measuring a measurement page	75
Calibrate the instrument	75
Measure with ES-2000 or ES-1000	75
Measure with iO2 and ES-2000 or iO and ES-1000	76
Measure with i1 iSis	77
Measure pages (any instrument)	77
Measurement errors	77
Check measurements after you measure a page	78
Remeasure a strip	78
Select a profile	79
Add and remove locations in the From list	79
Unlock a profile in Color Profiler Suite	80
Rendering intents	81
Add a Fiery Server	82
Add a Fiery XF Server	83

Fiery Color Profiler Suite

Fiery Color Profiler Suite lets you create a color profile that is fully compliant with International Color Consortium (ICC) standards. It can also evaluate, edit, and test color profiles.

Color Profiler Suite comes with an EFI ES-2000 Spectrophotometer, which is a measurement instrument used to create profiles.

Color Profiler Suite offers a number of modules.

These modules help you create profiles:

- Express Profiler - Creates a profile and calibration setting for a Fiery-driven printer, and creates a virtual printer or a preset that lets you print with the new calibration and profile right away. This is the fastest way to profile a Fiery-driven printer if you can accept the default profile settings.
- Printer Profiler - Creates a profile of any RGB or CMYK printer, and can create new profiles from existing profiles. For Fiery-driven printers, a calibration setting can also be created. This module gives you full control over profile settings such as gamut mapping and separation.
- Monitor Profiler - Creates profiles of CRT and LCD monitors.
- Device Linker - Creates a device link profile and optimizes device link profiles and spot colors.
- Print Matcher - Creates profiles that match the color outputs of multiple Fiery-driven printers (each Fiery Server must run System 10 software or later).

These modules help you evaluate profiles:

- Profile Inspector- Displays three-dimensional models of RGB, CMYK, and Named Color ICC profiles in Lab color space, which lets you compare profiles.
- Profile Editor - Lets you edit output profiles. You can make global changes to an output profile or select specific areas to edit.
- Verifier - Lets you compare two sets of color values for quality control.
- Auto Verifier - Lets you print color test pages automatically and measure the pages for quality control.

Color Profiler Suite also includes Color Verification Assistant, a utility for verifying a job's color output. You open Color Verification Assistant in Command WorkStation.

What's new in this version

This version of Color Profiler Suite introduces new features.

Note: This version requires a new license. If you are upgrading from an earlier 4.x version and your SMSA (support) contract is current, Color Profiler Suite downloads a new license automatically from the EFI licensing server. If Color Profiler Suite cannot connect to the licensing server, see [Download a Color Profiler Suite license](#) on page 11.

- Express Profiler is a new module that lets you quickly create a calibration setting and an output profile for a Fiery-driven printer. Express Profiler also creates a virtual printer or preset configured with the new output profile so that you can immediately print a job using the new calibration setting and profile.
- Printer Profiler lets you calibrate before profiling, using either a new calibration setting or an existing one.
- Verifier contains new support for:
 - Fogra PSD (Process Standard Digital) Print Check
 - The latest IDEAlliance ISO 12647-7 Control Wedge 2013
 - The latest GRACoL and SWOP 2013 characterization data

Dongle and license requirements for Color Profiler Suite

Using Color Profiler Suite's full functionality requires a spectrophotometer that has an activated license connected to the computer that has the software. (The spectrophotometer serves as a dongle.)

Note: You can use the Konica Minolta FD-5BT spectrodensitometer in place of the EFI ES-2000 spectrophotometer as a dongle and as a measurement instrument. Contact your EFI representative for more information about this instrument and license.

An activated spectrophotometer license is valid for that spectrophotometer only, and you can use only that spectrophotometer with that license.

If you connect the spectrophotometer before starting Color Profiler Suite for the first time, Color Profiler Suite automatically downloads and installs the license when the application starts.

Note: If Color Profiler Suite cannot connect to the Internet, see [Download a Color Profiler Suite license](#) on page 11.

If you connect a spectrophotometer that is unlicensed, you must activate the license.

If no spectrophotometer is connected, or you do not want to activate the license, you can run in Demo mode.

Demo mode

If no licensed spectrophotometer is connected to the computer, Color Profiler Suite can run in Demo mode.

The following apply in Demo mode:

- Express Profiler, Monitor Profiler, Verifier, Auto Verifier, and Color Verification Assistant are unavailable.
- You cannot save profiles in Device Linker or Print Matcher.
- You can save profiles in Printer Profiler and Profile Editor only in a locked (.xcc) format. Locked profiles are usable only in Color Profiler Suite on the computer that saved them. You must use a licensed version of Color Profiler Suite on the computer to unlock the file. (Unlocking the file converts it to standard ICC profile format.)

Troubleshoot "Dongle not found" message

If no licensed spectrophotometer is connected when Color Profiler Suite starts, the "Dongle not found" window appears.

Note: If a licensed spectrophotometer is connected but the "Dongle not found" message appears, you may need to activate the Color Profiler Suite license.

- Click one of the following:
 - **Download License** - Downloads the license from the EFI license activation website. You can download the license from any computer that is connected to the Internet, even if Color Profiler Suite is not installed.
 - **Activate License** - Activates a license that is already on your desktop.
 - **Run in Demo mode** - Runs Color Profiler Suite in Demo mode.

Troubleshoot "Dongle not licensed" message

If a "Dongle not licensed" message appears and a spectrophotometer is connected, the license might not be available and activated.

Problem	Action
There was no Internet connection when Color Profiler Suite first started, so no license was downloaded.	If Color Profiler Suite started without an Internet connection, connect to the Internet, start Color Profiler Suite, and then click Download License .
You downloaded the license, but it is not on the computer's desktop.	Move or copy the license to the computer's desktop.
You have not activated the license.	If you already downloaded the license and the license file is on the desktop, click Activate License .
You have activated the license but it is for a different spectrophotometer than the one that is connected.	Connect the spectrophotometer associated with the license.
Color Profiler Suite does not recognize the license although you are sure it is the correct license for your spectrophotometer.	If the problem persists and you are sure you have the correct license, contact EFI Technical Support.

If you want to use Color Profiler Suite with no license or no spectrophotometer, click **Run in Demo Mode**.

Download a Color Profiler Suite license

Your computer downloads a license from the Internet. If the computer has no Internet connection, you can download the license from another computer and move it to the computer that has Color Profiler Suite installed.

Note: You can use the Konica Minolta FD-5BT spectrodensitometer in place of the EFI ES-2000 spectrophotometer as a dongle and as a measurement instrument. Contact your EFI representative for more information about this instrument and license.

To download the Color Profiler Suite license, you must have the EFI ES-2000 serial number or License Activation Code.

- The EFI ES-2000 serial number is a 7-digit number on the EFI ES-2000 cradle and is part of the serial number on the EFI ES-2000 instrument.
- The License Activation Code is on the license card in the Color Profiler Suite media pack.

1 Do one of the following:

- In the Color Profiler Suite main window, click **Help > Download License**.
- Open a browser and go to activation.efi.com/cps.

2 After the EFI License Fulfillment page opens, enter the EFI ES-2000 serial number or the License Activation Code, and then click **Submit**.

Note: If you use the EFI IS-2000 serial number, enter only the 7-digit string shown on the cradle. Omit the other numbers that are part of the serial number on the instrument.

3 Do one of the following:

- **Save to File** - Saves the license to the specified location.

Note: The license file must be on the desktop for activation to occur. After activation, Color Profiler Suite copies the file to a location on your hard disk.

- **View License File** - Lets you view the license file, and then save it or send it in an e-mail message.
- **Send by email to** - Sends the license to the email address you enter. (This is useful if you want to use Color Profiler Suite on another computer.)

4 If you want to use Color Profiler Suite on a computer that has no Internet connection, copy the license file to portable media and then copy the license file to the other computer's desktop.

Activate a Color Profiler Suite license

The downloaded Color Profiler Suite license file must be on the computer's desktop for activation. To activate the license on that computer, you must connect the correct spectrophotometer. If no spectrophotometer is connected, the Demo mode message appears.

If your computer has no Internet access, you must copy the license file to the desktop of the computer that has Color Profiler Suite installed.

1 Connect the licensed spectrophotometer to the computer.

2 Do one of the following:

- In the Color Profiler Suite main window, click **Help > Activate License**.
- Click **Activate License** in the **Dongle Not Licensed** window.

Update Color Profiler Suite

The Color Profiler Suite Updater checks for updates and lets you download and install them. You can also schedule checking for updates every time you start Color Profiler Suite, monthly, or never.

Note: To qualify for upgrades that add new features, Color Profiler Suite requires a current Software Maintenance and Support Agreement (SMSA). Your SMSA renewal date is displayed in the Color Profiler Suite Updater. If your SMSA is expired, click **Renew Now** to renew your SMSA.

If the Updater finds an update, you can download and install it.

- 1 Click **Help > Check for Updates**.
- 2 If you want to schedule automatic checks for updates, click **Every time, Monthly, or Never**.
- 3 If you want to check for updates now, click **Check Now**.
- 4 To install an update, click **Download and Install** and follow the on-screen instructions.

Set general preferences

The General tab lets you set preferences that apply to all modules of Color Profiler Suite.

Automatically check for updates

The Updater checks for updates of the software and documentation on the EFI web site and allows you to download and install them. You can set a preference to determine how often the Updater runs.

- 1 In Color Profiler Suite, click **Edit > Preferences**.
- 2 Click the preferred frequency in the **Automatically check for updates** list.
 - **Every time** - The Updater runs whenever you open Color Profiler Suite.
 - **Monthly** - The Updater runs whenever you open Color Profiler Suite if more than a month has passed since the last check.
 - **Never** - The Updater does not run automatically. You can run the Updater manually.

Set dE calculation method preferences

There are many ways to calculate dE, the numerical difference between two colors. You can use the Preferences tab to set how Color Profiler Suite calculates dE. (People also refer to dE as Delta E, also written as ΔE .)

Tolerance values are in units of dE and the calculation method: for example, 0.5 dE 94.

You can set which method Color Profiler Suite uses to interpret all dE values that you specify in Color Profiler Suite.

- 1 In Color Profiler Suite, click **Edit > Preferences**.

2 Click one of these calculation methods in the **dE Calculation Method** list:

- **dE ab** - The standard CIE method. The color difference is the distance between the two colors, calculated in three-dimensional Lab color space.
- **dE 94** - A variant of CIELAB that CIE TC1-29 recommends as the color difference formula. For graphic arts applications, this method uses $K1 = 0.045$ and $K2 = 0.015$.
- **dE 2000** - A variant of CIELAB that CIE recommended in 2000. This method uses $KL = KC = KH = 1.0$.
- **dE CMC** - The ratio of differences in lightness to chroma and to hue calculated using the ISO standard ISO 105-J03. Values for lightness and chroma weights are 1.0 for use with perceptibility data.

Set the reference for test page control bar

In Fiery Color Profiler Suite, you can print a test page to check your results. For example, when you create a new profile, you can print a test page using the new profile. The CMYK reference used for the control bar on the test page is set in **Preferences**. You can choose from several international references.

- 1 In Color Profiler Suite, click **Edit > Preferences**.
- 2 Click the reference in the **Control bar definition** list.

Set Color Profiler Suite version

If your computer has multiple versions of Color Profiler Suite installed on your computer, you can set which version to use when you open Color Profiler Suite from Command WorkStation.

When Command WorkStation and Color Profiler Suite are installed on the same computer, you can open a Color Profiler Suite module from within Command WorkStation to perform various tasks. For example, you can select a job in Command WorkStation and open Fiery Color Verification Assistant to perform color verification of the job.

If multiple versions of Color Profiler Suite are installed on your computer as well as Command WorkStation v5.4 or later, you can set an option in Color Profiler Suite to determine which version of Color Profiler Suite to open.

Note: A message appears when you open Color Profiler Suite from Command WorkStation for the first time.

- 1 In Color Profiler Suite, click **Edit > Preferences**.
- 2 Click the preferred version in the list.

Calibrate the spectrophotometer

For reliable measurements, you must calibrate the spectrophotometer before measuring. You cannot continue with the measurement if you cannot calibrate the spectrophotometer successfully.

- 1 Place the spectrophotometer in its cradle, and then press the button on the spectrophotometer or click **Calibrate** on the screen.
- 2 If calibration fails, make sure the white tile on the cradle is uncovered and the white tile and instrument aperture are clean, and then repeat the calibration.

Next steps

If calibration succeeds, you can continue with your measurements.

Fiery Express Profiler

With Express Profiler, you can quickly create a calibration setting and an output profile for a printer connected to a Fiery Server. Express Profiler also creates a virtual printer or server preset configured with the new output profile so that you can immediately print a job using the new output profile.

Note: If the Fiery Server runs System 10 software or later, Express Profiler creates a server preset. Otherwise, Express Profiler creates a virtual printer.

Express Profiler does not run in unlicensed (Demo) mode.

Create calibration and profile in Express Profiler

To create a calibration and an output profile, you specify the Fiery Server and then print and measure a calibration page and a profiling measurement page.

Before you begin

Settings for printing the calibration and profiling measurement pages are set in Preferences. Check these settings the first time that you use Express Profiler and change them if necessary.

- 1 In Color Profiler Suite, start Express Profiler.
- 2 In the Welcome window, click **Select Fiery Server** and select the Fiery Server from the list.
If the Fiery Server is not in the list, click the plus sign to add it using the IP address or by searching.
- 3 Type a name for **Description** and click **Next**.
This name will be used for the calibration, the output profile, and the virtual printer or server preset that you will create.
- 4 Select any job settings needed to print the warm-up pages and the calibration page and click **OK**.
The same job settings will be used to print the profiling measurement page.
- 5 Click **OK**, retrieve the pages from the printer, and follow the on-screen instructions to measure the calibration page.
A new calibration setting is created.
- 6 Click **OK**, retrieve the profiling measurement page from the printer, and follow the on-screen instructions to measure the page.
After you finish measuring the page, the profile is created and installed on the Fiery Server.
- 7 Click **Test Print** to print a test page using the new profile.
- 8 Click **Done**.

A virtual printer or server preset with the same name as the output profile is created. To print a job using the new output profile and calibration setting, print to this virtual printer or apply the server preset to the job.

Set Express Profiler preferences

The Express Profiling tab lets you set how the calibration and profiling measurement pages are printed in Express Profiler. When you configure these settings before profiling, you do not need to select them each time you create a profile.

1 In Color Profiler Suite, click **Edit > Preferences**.

2 In the Express Profiling tab, select the settings.

3 Click the measurement instrument in the **Instrument** list.

If you want to make specific settings for the measurement instrument, click **Settings**.

4 Click a patch layout in the **Profiling patch layout** list.

ICC standard targets are the basis for some of the common patch layouts:

- **46** - Provides the fastest profiling method using a handheld instrument. With this layout, additional data is mathematically calculated to ensure the quality of the resulting profile.
- **234** - Is fast to use and produces high-quality results with most printers that have a smooth color response.
- **928** - Produces high-quality results on most printers. If you are unsure of your printer's color response, use the 928-patch layout to ensure higher quality.
- **1485** or **1485 random** - Comes from the European Color Initiative and incorporates two versions of IT8 targets. The random layout helps to reduce potential bias caused by color variation across the page.
- **1617** or **1617 random** - Are similar to the 928-patch layouts but provide more data. The random layout helps to reduce potential bias caused by color variation across the page.
- **4028** - Provides maximum color precision, the same level of precision as factory-supplied profiles from EFI.

5 Click a patch layout in the **Calibration patch layout** list.

A greater number of patches yields more measurement data, which may produce better results. However, more patches take longer to measure.

Sorted patches are printed on the page in the order of their hue and saturation levels. **Random** patches are printed on the page in random order, to help compensate for density inconsistencies on different areas of the page.

6 Click a paper size in the **Paper Size** list, or click **Custom** to set a custom page size.

7 To print warm-up pages before printing the calibration page, specify **Number of warmup pages**.

A warmed-up printer usually prints more consistently. If the printer has been idle, print 5-10 warm-up pages

Fiery Printer Profiler

Fiery Printer Profiler can create custom output profiles for most RGB and CMYK printers: Fiery-driven, Fiery XF server-driven, Splash-driven, inkjet, non-Fiery, and printing presses. Use Printer Profiler with a measurement instrument (such as the spectrophotometer included with Color Profiler Suite) to create an output profile to describe the gamut, or range of reproducible color, of a printer.

The profiles created are fully compliant with International Color Consortium (ICC) standards, so that you can use them with industry standard applications and platforms. You can create a new calibration setting before profiling. You can choose to print patch pages and measure them immediately or later. With Printer Profiler, you can also import existing measurements, from files or ICC profiles, and modify the gamut mapping and black controls before saving a new profile.

To generate a profile, you print pages of color patches (to show the color behavior of a printer), measure the patches, and then create a profile using the measured values. You can start Printer Profiler at any point in this process.

- **Print Patches** - Start here if you want to create a new profile and optionally, a new calibration setting, and have not printed a patch page.
- **Measure Profiling Patches** - Start here if you have patch pages that were printed earlier or on a printer at another location. Using a measurement instrument, record spectral measurements of each color patch
- **Convert Measurements to Profile** - Start here if you want to import measurements from an IT8 file that contains spectral or colorimetric data or from an existing ICC profile. Apply gamut mapping and separation settings to create an ICC profile that describes the gamut of your printer.

Profile a Fiery Server

You can create a profile for a printer connected to a Fiery Server. The Fiery Server must be accessible from your computer over the network.

- 1 In Color Profiler Suite, start Printer Profiler and click **Print Patches**.
- 2 In the Welcome window, click **Select Fiery Server**, select the Fiery Server from the list.
If the Fiery Server is not in the list, click the plus sign to add it using the IP address or by searching.
- 3 For calibration, click the appropriate option.
 - **Create new calibration setting** - If you are profiling a new paper type for the Fiery Server.
 - **Use existing calibration setting** - If you are profiling a paper that is very similar to a paper whose output profile already exists on the Fiery Server. In this case, select the calibration setting that is associated with that profile.
Select **Skip calibration** only if this calibration setting is up-to-date. (The Fiery Server was calibrated recently for this calibration setting.) In this case, go to step 8.
- 4 Select the instrument, patch layout, and paper size for printing the calibration page. We also recommend warming up the printer by printing at least 10 warmup pages.

5 Specify print settings and click **OK**.

Specify settings that affect color, such as halftone, but do not change any settings on the Color tab. The calibration page and the profiling page will be printed with the same settings.

6 Retrieve the pages from the printer and follow the on-screen instructions to measure the calibration page. (Discard any warmup pages.)

7 View the measurement results and click **Next**.

8 Select the instrument, patch layout, and paper size for printing the profiling measurement pages.

If you want to measure multiple sets of pages and then average the measurements into one set of data for creating the profile, specify the number of page sets to print.

9 Save the measurement page ID.

10 Retrieve the measurement pages from the printer and follow the on-screen instructions to measure them.

11 Save the measurements.

12 In the **Summary** window, check the results.

Click **Average measurements** to view all measurement sets and proceed to measuring the next set, if any.

13 In the **Apply Settings** window, select the profile settings or import settings from an existing profile.

14 In the **Save Profile** window, specify the desired settings. Confirm that **Install on Fiery Server** is selected and that the correct Fiery Server is selected.

The profile is created when you click **Next**.

The profile is installed on the Fiery Server.

Profile a Fiery XF server

You can create a profile for a printer connected to a Fiery XF server. The Fiery XF server must be accessible from your computer over the network.

For more information about Fiery XF servers, see the documentation that accompanies Fiery XF.

1 In Color Profiler Suite, start Printer Profiler and click **Print Patches**.

2 In the Welcome window, click **Select XF Server** and select the Fiery XF server from the list. Under Printer description, select the printer to profile.

If the server is not in the list, click the plus sign to add the server using the IP address or by searching.

3 Select ink, media, and calibration set appropriate for the printer and the paper that you are using.

4 Select the settings for creating the measurement pages.

- If desired, click **Settings** to select the settings for the measurement instrument.
- If desired, for a four-color (CMYK) printer, click **Expert Settings** to adjust the maximum densities for CMYK. For printers that support more than four colors, click **Expert Settings** to adjust the settings for the additional colors.

5 Save the measurement page ID.

6 Specify print settings and click **Print**.

- 7** Retrieve the measurement pages from the printer and follow the on-screen instructions to measure the measurement pages.
- 8** Save the measurements.
- 9** In the Summary window, check the results.
Click the Help icon for more information about inspecting measurements and averaging measurements.
- 10** In the Apply Settings window, select the profile settings or import settings from an existing profile.
- 11** In the Save Profile window, specify the desired settings and confirm that **Install on XF Server** is selected.
The profile is created and installed on the Fiery XF server.

Profile a remote, non-Fiery, or non-CMYK printer (Save as PDF)

You can profile a printer that is not connected to a Fiery Server or Fiery XF server or that has a color space other than CMYK by using the Save as PDF option.

Instead of printing the patch pages in Printer Profiler, you save them to a PDF file. You must print the PDF file manually before you can measure the patch pages in Printer Profiler.

- 1** In Color Profiler Suite, start Printer Profiler and click **Print Patches**.
- 2** In the **Welcome** window, click **Save as PDF** and select the color space of the printer.
- 3** Select the instrument, patch layout, and paper size for creating the measurement pages.
If desired, click **Expert Settings** to adjust the maximum densities for the colorants and the patch object type for CMYK or RGB.
- 4** Save the measurement page ID.
- 5** Save the PDF file.
The file is saved in My Documents\Fiery Color Profiler Suite 4\Patch Pages (Windows) or Documents / Fiery Color Profiler Suite 4/Patch Pages (Mac OS X).
- 6** Print the PDF file on your printer and retrieve the measurement pages.
- 7** Return to Printer Profiler and follow the on-screen instructions to measure the measurement pages.
- 8** In the **Summary** window, check the results.
- 9** In the **Apply Settings** window, select the profile settings or import settings from an existing profile.
- 10** In the **Save Profile** window, specify the desired settings.
- 11** Select **Save on local drive**.
The profile is created when you click **Next**.

Select a printer for printing patch pages

To create a profile, you print patch pages to measure. To profile a non-Fiery printer or a printer that is not connected to your computer, you can save the pages as a PDF and print them outside of Printer Profiler.

- If you select a Fiery Server, Printer Profiler retrieves the manufacturer, model, and color space from the Fiery Server. Printer Profiler also retrieves other settings used in creating the profile.

The Color Space setting is the printer's preferred color space for creating an output profile. If you are creating a profile to simulate the output of another printer, you may want to set the color space of the printer that you are simulating.

- If you set a Fiery XF server, you must also specify a printer that is set up in Fiery XF. (A Fiery XF server can have multiple printers connected to it.) Printer Profiler also retrieves other settings used in creating the profile from the Fiery XF server.

If the printer is not the linearization device, the printer settings automatically transfer to the linearization device. The linearization device is the printer that is always used for profiling in Fiery XF.

If your printer is not in the list, make sure that the EFI Media Profiles folder contains an appropriate base linearization file (*.EPL). You can create a new base linearization file for your printer in Fiery XF Color Tools, if necessary.

- If you save the file as PDF, you set CMYK or RGB as the printer color space.

Select a Fiery Server or Fiery XF server

You can set a printer that has a connection to a Fiery Server or Fiery XF server.

- 1 In Color Profiler Suite, start Printer Profiler and click **Print Patches**.
- 2 In the Welcome window, click **Select Fiery Server** or **Select XF Server** and then click a server in the list.
If you click **Select Fiery Server**, the list contains recently selected servers connected through Command WorkStation (if Command WorkStation is installed on your computer).
- 3 If the Fiery Server or Fiery XF server does not appear in the list, click the plus sign (+) and select a server from the network.
- 4 In the Printer description area, confirm the settings that appear or select new setting from the list.

Save patch pages as a PDF

Saving patch pages as a PDF lets you print them later or print them from a printer that is not on your network.

- 1 In Color Profiler Suite, start Printer Profiler and click **Print Patches**.
- 2 In the Welcome window, click **Save as PDF**.
- 3 In the **Color Space** list, click the color space of the printer you are profiling.

Set up calibration

Printer Profiler lets you set the type of calibration for the printer that you are profiling. Some printers use the printer's current calibration state and require no calibration setup.

Set up calibration for a Fiery Server

Fiery calibration uses a calibration that specifies the target density values (the calibration target) for a Fiery Server.

For best results, when you create a new profile, create a new calibration setting to be used with the new profile. It will include a calibration target based on the current state of the printer.

If you do not create a new calibration setting, you can use an existing calibration with the new profile, but only if the paper that you are profiling is very similar to paper of the existing calibration. For example, if the new paper is a coated, heavy paper, the existing calibration must be for a coated, heavy paper. If the paper is not very similar, the calibration target is not appropriate for the paper.

- In the Calibration Setup window, click one of the following:
 - **Create new calibration setting** - Prints and measures a set of patches without calibration applied and calculates an appropriate calibration target. In this case, the new profile is associated with the new calibration setting.
 - **Use existing calibration setting** - Uses the selected calibration setting to print and measure patches, unless you select **Skip calibration**. In this case, the new profile is associated with the selected calibration setting. Skip calibration only if the calibration is up-to-date.

Set up calibration for a Fiery XF server

When you profile a printer connected to a Fiery XF server, you specify the ink type, media name, and the calibration set (base linearization).

- In the Calibration Setup window, set the following:
 - **Ink type** - If the printer supports more than one type of ink, set the ink type for profiling.
 - **Media name** - Sets the combination of media type and calibration set. A calibration set specifies a base linearization file that is associated with a media profile.
 - **Calibration set** - Set print conditions that adjust the printer behavior to the media.
Print conditions include resolution, halftone settings, color mode, print direction, and media profile. You must specify a calibration set because a media name can be associated with more than one calibration set.

Print pages for calibration

The **Calibration print settings** window lets you specify calibration pages.

Color patches are printed on the calibration page according to the measurement instrument, layout, and paper size that you specify. You can also set the number of warmup pages to print. (Warmup pages are extra pages that you can discard.)

A greater number of patches yields more measurement data, which may produce better results. However, more patches take longer to measure.

- **Sorted** patches are printed on the page in the order of their hue and saturation levels.
- **Unsorted** patches are printed on the page in random order, to help compensate for density inconsistencies on different areas of the page.

1 Select the **Instrument**, **Patch layout**, and **Paper size** to use for printing the calibration page.

- 2 (Optional) To make specific settings for the instrument, click **Settings**.
- 3 Click **Set number of warmup pages** and then set a number.

Review calibration measurement results

After taking calibration measurements, you can review the resulting maximum density (D-Max) values of the calibration target.

- 1 Review the calibration results, and click **Next**.
- 2 If any results are questionable, click **Reprint** next to the results to reprint and remeasure a calibration page.

Print patch pages for profiling

To create a profile in Printer Profiler, you must specify print options and other settings for sending the patch pages to the printer.

If you plan to print multiple sets of patch pages and average the measurements, you can specify the number of sets. (You can use the average of the measurements to create the profile.)

You are prompted to save the ID for the measurement pages before printing. You can change the file name, but do not change the folder location. The Patch ID is assigned to and printed on the patch pages.

Note: Before you print the pages, you can specify other print settings, such as media and halftone. Do not change any color management settings.

- 1 Connect the measurement instrument to your computer.
- 2 In the Print Settings window, click the measurement instrument in the **Instrument** list.
- 3 If you want to make specific settings for the measurement instrument, click **Settings**.
- 4 Click a patch layout in the **Patch Layout** list.

ICC standard targets are the basis for some of the common patch layouts:

- **46** - Provides the fastest profiling method using a handheld instrument. With this layout, additional data is mathematically calculated to ensure the quality of the resulting profile.
- **234** - Is fast to use and produces high-quality results with most printers that have a smooth color response.
- **928 (IT8.7/3)** - Produces high-quality results on most printers. If you are unsure of your printer's color response, use the 928-patch layout to ensure higher quality.
- **1485 (ECI 2002)** or **1485 random (ECI 2002)** - Comes from the European Color Initiative and incorporates two versions of IT8 targets. The random layout helps to reduce potential bias caused by color variation across the page.
- **1617 (CGATS IT8.7/4)** or **1617 random (CGATS IT8.7/4)** - Are similar to the 928-patch layouts but provide more data. The random layout helps to reduce potential bias caused by color variation across the page.
- **4028** - Provides maximum color precision, the same level of precision as factory-supplied profiles from EFI.

Note: To use a patch layout that is not available in Printer Profiler, you can print and measure patch pages with Verifier and then import the measurements in Printer Profiler.

- 5 Click a paper size in the **Paper Size** list, or click **Custom** to set a custom page size.
In Fiery XF, the media size is set up for the printer in System Manager.
- 6 Click **Expert Settings** to specify settings for the patches:
 - If you are creating a CMYK profile, you can change the ink or toner limits on your printer and specify the object type for the patches.
 - If you are creating an RGB profile, you can specify the object type for the patches.
- 7 To print multiple sets of patch pages and measure them, specify **Number of sets**.
- 8 Click **Next** and save the ID for the measurement pages.

Set patch options

Before you print patches, you can set options such as ink limits and the patch object type. The options you can set depend on the type of profile you are creating: CMYK, CMYK with additional colors, or RGB.

For a CMYK profile, you can set options for ink or toner limits and the patch object type. For a profile for CMYK plus additional colors, you can set options for handling the additional colors. For an RGB profile, you can set the patch object type.

- If you profile a Fiery-driven printer connected to the network, the Fiery Server provides the default settings for these options.
- If you profile a Fiery XF-driven printer, Printer Profiler extracts the settings from the base linearization file. We recommend that you do not change these settings.

Set ink and toner for profiles

You can set ink and toner for profiles for CMYK only and profiles for CMYK plus additional colors.

- 1 In the Print Settings window, click **Expert Settings**.
- 2 To create a profile for CMYK, set the ink or toner limits for printing patch pages.

Note: We recommend that you print with the default values unless your printer has problems printing with those levels.

- 3 To create a profile for CMYK plus additional colors, set how the additional colors are added to CMY and how the transition from CMY to the additional colors occurs.

For each additional color, you can set ink or toner limit, purity (amount of CMY that is retained at the maximum coverage), and a gamma value for the tonal value increase.

Note: Ink or toner limits for CMY are not adjusted when the printer supports additional colors.

Set object type for patches

For a CMYK or an RGB profile, you can set the patch object type as either bitmap or vector graphics. We recommend that you keep the default setting (bitmap images).

Note: Be sure to print the patches using the same object type as the actual jobs you will print using the profile that you are creating.

- 1 In the Print Settings window, click **Expert Settings**.
- 2 Under **Create Patches As**, click one of these object types:
 - **Bitmap images** - Sets image objects with color behavior similar to Adobe Photoshop images.
 - **Vector graphics** - Sets vector graphics with color behavior similar to Adobe Illustrator or Adobe Freehand illustrations.

Use a patch ID to select a patch page to measure

Each set of patches receives a tracking ID that lets you set which patch pages to measure. (The ID is printed on the patch pages.) The tracking ID uniquely identifies the set, including all profile information and whether it contains one page or more.

If you already have patch pages to measure when you start Printer Profiler, you can proceed directly to measuring the patch pages. In this case, you must select the patch page ID from a list that contains recently assigned Patch IDs. Information for the selected Patch ID appears in the Patch settings field. You can check that a patch ID is correct by checking the date and time that appear with the patch settings.

If the patch ID does not appear in the list, you can create a new patch ID. The patch ID may not appear in the list for one of the following reasons:

- You already measured the patch pages and created the profile. Printer Profiler removes the Patch ID from the list after measuring and saving the corresponding patch pages.
- You created the patch pages in another application or on another computer.
- You deleted the patch page files before measuring them or saving the measurements.
- The first time you use Printer Profiler, no patch pages have been created.

Note: Alternatively, if the patch page ID does not appear in the list, you can measure the patch pages in another application, save the measurements as an IT8 file, and import the measurements into Printer Profiler.

Select the patch ID for your patch pages

To measure a set of patch pages, you first select a patch ID.

- 1 In Color Profiler Suite, start Printer Profiler and click **Measure Profiling Patches**.
- 2 Click the patch ID in the list.

Create a new patch ID if no ID exists for your patch pages

You can create a new patch ID for existing patch pages by starting to print another set of patch pages and then canceling the print job.

- 1 In Color Profiler Suite, start Printer Profiler and click **Print Patches**.
- 2 Select the printer that matches the name printed on the patch pages and click **Next**.
- 3 Click **Next** to accept the default calibration.
- 4 Select the instrument, patch layout, paper size, and number of sets to match the information on the patch pages.

- 5 Click **Expert Settings** and choose the settings that match the information on the patch pages.
- 6 Click **Next** and save the measurement page ID.
- 7 In the Job Properties window, click **Cancel**.
- 8 Click **Cancel** in the Print Settings window.
- 9 In the Printer Profiler main window, click **Measure Profiling Patches**.
The Patch ID that you created appears in the Patch ID list.

Remove a Patch ID from the list

You delete a patch ID by deleting its corresponding file.

- 1 In Color Profiler Suite, start Printer Profiler and click **Measure Profiling Patches**.
- 2 Click **Manage patch page list** in the Select Patch ID list.
- 3 Delete the corresponding file from the folder.

Import measurements for creating a profile

If you already have measurements in either an IT8 file or an existing ICC profile, you can use those measurements to create a profile. This is a simple way to update an existing profile's settings without changing its measurement data.

You can import measurements from one or more IT8 files or from a single profile. If you import measurements from more than one file, Printer Profiler uses the average of the imported measurement sets to create the profile. You may want to use the average of multiple measurements if printer output is inconsistent or to create a common profile for multiple printers.

If the import measurements are in the wrong format, a warning appears. The measurement file or files do not contain enough information to create a valid profile. The files must meet these requirements:

- Measurement files must conform to the CGATS.17 format.
- All of the files together must contain a sufficient number of measurements.

Import measurements from one or more IT8 files

You can import measurements from one or more IT8 files.

- 1 In Color Profiler Suite, start Printer Profiler and click **Convert Measurements to Profile**.
- 2 Click **Measurement File**, and then click **Next**.
- 3 Select one or more files, and then click **Open**.

Import measurements from an ICC profile

If you import measurements from an ICC profile, you can import from only one ICC profile at a time. You cannot average the measurements from two ICC profiles.

- 1 In Color Profiler Suite, start Printer Profiler and click **Convert Measurements to Profile**.

- 2 Click **ICC Profile**, and then click **Next**.
- 3 Click the file, and then click **Select**.
- 4 If the Missing Information window appears, do one of the following:
 - If you know the manufacturer or model, specify the manufacturer and model for the printer associated with the profile.
 - If you do not know the manufacturer or model, specify the generic settings.

Summary of measurements

After measurement data is available, the Summary window displays a summary of information about the measurements and the conditions used to create them. The dE (Delta E) values in the **Average Measured Variation** or the **Maximum Measured Variation** fields summarize the variation in measurements of the same color.

If a dE value is displayed in red, it is because the variation appears to be significant. The variation does not necessarily indicate an error, but consider these values for realistic expectations. Your profile cannot be any more accurate than what has been measured.

You may want to produce some test prints to check that the output of your printer is behaving as you expect.

You can also:

- Check for potential problems with the measurement data by viewing the color space that the measurements represent in Profile Inspector.
- View a list of multiple sets of measurement values and add or delete measurement sets to include in the average.

Choose data for averaging measurements

If you have sets of measurements from multiple sets of patch pages, Printer Profiler calculates an average of the measurements to create the profile. You can add or remove measurement sets to include or exclude the data in the average.

- 1 In the Summary window, click **Average measurements**.
- 2 Do one of the following:
 - To add a file to the list, click **Import measurement**, browse to select the file, and then click **Open**.
 - To remove a file, deselect the check box next to the file in the list.

Apply profile settings

After you make or import measurements in Printer Profiler, the Apply Settings window lets you set the profile's gamut mapping, separation settings, profile optimization, and viewing condition. You can also load existing settings from a preset (saved settings) or from a profile.

Load existing settings

If you want, you can apply the settings from an existing profile or choose an existing preset (saved settings).

- 1 In the Apply Settings window, click a profile in the **Settings** list or click one of these presets:
 - **Generic CMYK** - Default settings for a CMYK printer
 - **EFI VUTEk TX3250r Direct Print** - For VUTEk direct media
 - **EFI VUTEk TX3250r Transfer Print** - For VUTEk transfer media
 - **Inkjet Default** - For lowest dE (Delta E) when profiling an inkjet printer. This is for a profile used for printing proofs.
 - **Toner** - Generic black generation for lowest dE when profiling a toner-based printer.
- 2 If a profile does not appear, click **Import Settings** in the **Settings** list to locate and select the profile.

Set maximum GCR

The **Maximum GCR** option automatically sets the separation (black control) settings to maximize the GCR (gray component replacement) of the profile.

Maximum GCR can help to improve the gray balance of prints, achieve better compliance with industry color standards, and maximize the output gamut.

- In the **Apply Settings** window, click **Maximum GCR**.

Set profile optimization

The **Optimize colorimetric precision** option uses optimization to improve colorimetric precision and reduce dE (Delta E) values.

Increasing colorimetric precision can result in less smooth color transitions. Use this option for profiles that are used for printing proofs or for press certification but not for production workflows, where color perception is more important than precision.

- In the **Apply Settings** window, click **Optimize colorimetric precision**.

Set viewing condition

You can set the color of ambient light used when obtaining color measurements.

- In the **Apply Settings** window, do one of the following:
 - Click a setting in the **Lighting value** list.
 - Click the plus sign (+) to create your own setting, either by using a measurement instrument or by specifying the XYZ value.

Set gamut mapping

An output profile contains information for different types of gamut mapping with different rendering intents. Gamut mapping settings control how gamut mapping occurs.

The Edit Gamut Mapping window displays the colorimetric mapping, saturation blending, and perceptual mapping used for gamut mapping. These settings apply to both RGB and CMYK profiles.

- Colorimetric mapping applies to the Absolute Colorimetric and Relative Colorimetric rendering intents. It determines how an output color is matched to a source color.
- Saturation blending applies to the Saturation rendering intent.
- Perceptual mapping applies to the Perceptual rendering intent.

The default settings for the gamut mapping options are recommended for most profiles.

- 1 In the Apply Settings window, click **Edit Gamut Mapping**.
- 2 Click one of the following in the Colorimetric Mapping list:
 - **Closest dE (Delta E)** - Sets the output color value that is closest to the source color value numerically. This setting generally produces the most visually appealing color.
 - **Closest dE Enhanced Shadows** - Sets the output color value that is closest to the source color value numerically, except that it adjusts color values in shadow regions to provide smoother gradations. This setting may enhance results when profiling on media with a small gamut.
 - **Constant Hue** - Sets the output color value closest to the source color value in the same hue. This setting might produce more desirable output than Closest dE. For example, a blend from pure white to pure blue is smoother with this setting. Photographic images with a wide range of sky blue tones also reproduce better.
- 3 Click one of the following in the Saturation Blending list:
 - **Enhance Gamut Blending** - Generates smooth transitions through the entire gamut, making larger adjustments for colors farther from the neutral axis.
 - **Use Presentation Method from EFI Profiler 1.5** - Preserves continuity if you have used EFI Color Profiler v1.5 to create profiles and want to match the profile you are creating now with your existing profiles.
 - **CIECAM saturation** - Produces more natural colors when using the Saturation rendering intent, based on the latest CIE color appearance model.

4 Click one of the following in the Perceptual Mapping list:

- **EFI Photographic** - Matches Fiery workflows.
- **Perceptual** - Standard ICC mapping.
- **CIECAM presentation** - Produces more natural colors when using the Presentation rendering intent, based on the latest CIE color appearance model.

Specify separation settings

Separation settings control how to handle black in the output. You can edit black controls for CMYK profiles. If you are making an RGB profile, separation settings do not appear.

Note: Change the separation settings only if the default settings do not provide satisfactory results. If you are profiling a Fiery Server, the default settings are the optimal settings for this type of Fiery Server.

1 In the Apply Settings window, click **Edit Black Controls**.

2 Set the following values in the Edit Black Controls window:

- **Maximum Total Ink** - Sets the total amount of ink allowed for the four channels: Cyan, Magenta, Yellow, and Black. The maximum value is 400%, which is 100% for each channel. Different types of output devices have standard maximum total ink values. The default setting is a value appropriate for the type of printer being profiled. We recommend you start with the default.
- **Maximum Black Ink** - Sets the total amount of ink that is allowed for black. You might reduce this value from 100% if that value produces undesirable effects, such as an unwanted difference between black and other colors. The default setting is a value appropriate for the type of printer being profiled. We recommend you start with the default.
- **Black Start** - Sets the minimum percentage of ink at which black is introduced into the mix of inks making up a specific shade of color. You might adjust this value to adjust the stability of the gray balance or to reduce graininess in highlights when the black screen is grainy.
- **Black Generation** - Also known as black transition. Sets the extent to which black ink is substituted for mixes of cyan, magenta, and yellow. Using one ink instead of three reduces moisture content in the underlying substrate when printing on a press and reduces cost, because black ink is less expensive than color inks. If black generation is set to a lower value, only neutrals and pastels have color removed to be replaced by black. If black generation is set to a higher value, more saturated colors are also affected.

Set Black Start before setting Black Generation. Black Generation controls black output from the Black Start to the Maximum Black Ink value.

- **Increase black in shadows** - On some printers, adding cyan, magenta, and/or yellow to black ink can cause the black value to become lighter, rather than darker and richer. Adjusting this setting can make shadows appear more pleasing on those printers.

- **Maximum CMYK density ratio** - Affects rendering of the dark point of an ICC profile.

If this option is not selected, the dark point is determined automatically. Automatic selection works well in most general applications.

This option lets you specify the amount of black in the dark point. A ratio of 0% means that the dark point of the profile contains K only. A ratio of 30% means that the dark point contains 70% K plus additional percentage (to Maximum Total Ink) of CMY. 100% does not necessarily mean the same as Off. This option works well in situations where 100% K is darker than 400% CMYK.

Maximum CMYK density ratio affects Maximum Black Ink. The range of Maximum CMYK density ratio is (100 - Maximum Black Ink) to 100.

- **Black Width** - Controls the distance from the neutral axis at which black generation is applied. A higher value uses more black off-axis; a lower value does not extend black generation as far out from the neutral axis.
- **Black Amount to Extend Gamut** - For most printers, the default value is 100%. When so much black is used that black halftones give a grainy appearance to saturated colors, reduce the amount of black used here to reduce the grainy appearance.

Save a profile in Printer Profiler

The Save Profile window lets you save a profile and include a description and other information. You can save the profile locally or install it on a Fiery Server or Fiery XF server.

Note: In Demo mode, you can save a profile in locked format and use it within Fiery Color Profiler Suite but not with other applications. To use the profile with other applications, you must activate the license for Fiery Color Profiler Suite.

- 1 In the Print Settings window, type the profile's description.
- 2 Optionally, type any comments that you want to store with the profile.
- 3 Type the name of the media associated with the profile.
For example, type the manufacturer and brand name of the paper used to print the patch pages.
- 4 Do one of the following:
 - To install the profile on a Fiery Server, click **Install on Fiery Server** and click the Fiery Server in the list.
If the Fiery Server that you want does not appear in the list, click the plus sign (+) and select it from the network.
 - To install the profile on the Fiery XF server that you selected when you started, click **Install on XF Server**.
 - To save the profile locally, click **Save on local drive**.
- 5 Click **Next**.
- 6 If you save the profile locally, navigate to the profile's new location, type a file name, click the ICC profile type (v2.0 or v4.0), and then click **Save**.

Create profiles based on the new profile

You can use the new profile to create a profile that has the same measurement data but with different settings, or create a device link profile that uses the new profile as its destination.

- Do one of the following:
 - To create a profile that has the same measurement data but different settings, click **Change Settings**, which returns you to the Apply Settings window.
 - To create a device link profile that uses the new profile as a destination, click **Device Link**.

Set Printer Profiler preferences

The Printer Profiler tab lets you set tolerance for calibration and measurement checks. These settings are specific to Printer Profiler.

Set calibration check tolerance

Printer Profiler can check whether profiling measurements match expected values (based on the current calibration). You set how much mismatch to allow without generating a warning.

- 1 In Color Profiler Suite, click **Edit > Preferences**.
- 2 In the Printer Profiler tab, select the **Calibration check tolerance** check box.
- 3 Enter the tolerance in the **% density** field.

Set measurement check tolerance

Printer Profiler can check whether profiling measurements of the same color in different locations match each other. You set how much mismatch to allow without generating a warning.

- 1 In Color Profiler Suite, click **Edit > Preferences**.
- 2 In the Printer Profiler tab, click the **Measurement check tolerance** check box.
- 3 Enter tolerance values in the **Average dE** and **Maximum dE** fields.

Fiery Monitor Profiler

Fiery Monitor Profiler lets you create a profile of a CRT or LCD monitor, including laptop computer screens. Monitor Profiler uses the spectrophotometer included with Fiery Color Profiler Suite to measure a monitor's color output.

You can use the easy or advanced profiling method.

Note: Monitor Profiler is not available in Demo mode.

Prepare to use Monitor Profiler

It is important to prepare your monitor before using Monitor Profiler.

- 1 Set the display settings of your computer to the optimal resolution and best color quality.
- 2 Turn off any screensaver or other software that might interfere with the display, especially any graphic arts software that might be color managing the display.
- 3 If your monitor has a control to reset the monitor to factory default settings, use it to reset the monitor.

Profile with the Easy method

The Easy method assumes the native monitor settings, and profiles the monitor in its current state.

You might use the Easy method if:

- You want to profile your monitor quickly.
- You want to profile your monitor in its current state or do not have a preferred state.
- Your monitor does not have controls for adjusting brightness, contrast, and RGB color.

- 1 Start Monitor Profiler and click **Easy**.
- 2 Calibrate and set up the spectrophotometer.
- 3 Measure profiling patches.
- 4 Compare before and after measurements.
- 5 Save the profile.

Profile with the Advanced method

The Advanced profiling method lets you specify desired monitor settings and calibrate the monitor to those settings, and then profiles the monitor in its calibrated state. Advanced users can also calibrate a monitor to a specified target.

You might use the Advanced method if you want to:

- Profile your monitor calibrated to specific settings
- Use the monitor to emulate or match another monitor
- Be able to soft proof color on your monitor.

- 1** Start Monitor Profiler and click **Advanced**.
- 2** Select target settings for luminance, gamma, and white point.

If you select the Native setting for luminance, gamma, or whitepoint, Monitor Profiler will skip the calibration of that parameter.

- 3** Calibrate and set up the spectrophotometer.
- 4** Measure and set luminance.
- 5** Measure and set gamma.
- 6** Measure and set the white point.
- 7** Measure profiling patches.
- 8** Compare before and after measurements.
- 9** Save the profile.

Calibrate and set up the spectrophotometer

Before measuring monitor output, you must calibrate and set up the spectrophotometer.

Instrument calibration compensates for gradual drifts in the spectrophotometer. The spectrophotometer must be in its cradle, and the sample aperture must be in full contact with the white tile on the cradle. (If its position in the cradle is incorrect, the spectrophotometer returns inaccurate measurements.)

Note: The serial number on the spectrophotometer and the serial number on the cradle must match for accurate spectrophotometer calibration.

- 1** When instructed by Monitor Profiler, place the spectrophotometer in its cradle, and then click **Next** or press the button on the spectrophotometer.
- 2** If calibration fails, make sure the white tile on the cradle is uncovered and the white tile and instrument aperture are clean. Use a lens cloth and, if available, a lens cleaning solution.
- 3** Place the spectrophotometer on the monitor, using the holder that is included with the spectrophotometer.

The spectrophotometer should lie flat in front of the outline displayed on the screen. The graphic in Monitor Profiler shows the correct position for the spectrophotometer.

Measure and set luminance

You can use Monitor Profiler to measure and set the brightness for the desired luminance.

Luminance describes a monitor's brightness in candelas per square meter (cd/m²). Common luminance values range from 50 to 300. Some recommended luminance values are:

- **CRT** - 100
- **LCD**- 120
- **Aged CRT** - 80 to 90
- **Laptop** - 90

When you calibrate luminance, change only the brightness and no other monitor settings. The brightness control might be a physical button or an on-screen display (OSD) that appears on the monitor.

- 1 Correctly position the spectrophotometer for measuring.
- 2 If you use an OSD, position the OSD away from the spectrophotometer (in a corner of the screen, for example).
- 3 When Monitor Profiler tells you, adjust the brightness to the maximum value and click **Next**.
- 4 Reduce the monitor's brightness until the measured luminance matches the target luminance.

After each time that you adjust the brightness, wait a few seconds to allow the spectrophotometer to measure and display the resulting luminance.

- 5 Click **Next**.

Measure and set gamma

You can use Monitor Profiler to measure and set the contrast for the desired gamma.

Gamma refers to the encoding of the luminance value to compensate for the nonlinearity in human vision, in order to achieve the best image quality for a given bandwidth. Gamma is the relationship of the encoded luminance to the desired output luminance. The gamma value affects the white point, the global ability to display RGB neutrals, and the global darkness and contrast that the monitor can display.

Typical gamma values range from 1.8 to 2.2 depending on the device.

When you calibrate the gamma, change only the contrast and no other monitor settings. The contrast control may be a physical button on the monitor or an on-screen display (OSD) that appears on the monitor.

- 1 Position the spectrophotometer correctly for measuring.
- 2 If you use an OSD, position the OSD away from the spectrophotometer (in a corner of the screen, for example).
- 3 When Monitor Profiler tells you, adjust the contrast to the maximum value and click **Next**.
- 4 Reduce the monitor's contrast until the measured gamma matches the target gamma.

After each time that you adjust the contrast, wait a few seconds to allow the spectrophotometer to measure and display the resulting gamma.

- 5 Click **Next**.

Measure and set the white point

You can use Monitor Profiler to measure and set the white point (RGB) settings that result in the desired white point.

The white point defines the exact white that the monitor displays.

- **Warm White (5000K)** - Also known as D50, is a yellowish white, recommended for image reproduction on CRT monitors. 5000 K is also the recommended viewing light for soft-proofing.
- **Medium White (6500K)** - Also known as D65, is a daylight white, recommended for image reproduction on CRT or LCD monitors if you prefer a white that is cooler than Warm White.
- **Cool White (7500K)** - Is a bluish white, for situations that specifically require a bluish white.

When you calibrate the white point, adjust only the white point and no other monitor settings. The white-point controls might be physical buttons on the monitor or an on-screen display (OSD) that appears on the monitor. After you calibrate the white point, you might need to adjust the brightness.

- 1 Correctly position the spectrophotometer for measuring.
- 2 If you use an OSD, position the OSD away from the spectrophotometer (in a corner of the screen, for example).
- 3 Locate the white point controls on your monitor.
The control labels might be for white point, RGB, or color settings. There might be a single white point control or there might be three controls for Red, Green, and Blue.
- 4 Click **Next**.
- 5 If your monitor has a single white point control:
 - a) Adjust the control until the measured white point value matches the target value as closely as possible. After each adjustment, wait a few seconds for the spectrophotometer to measure and display the results.
 - b) Skip to step 9.
- 6 If you the monitor has three controls for Red, Green, and Blue:
 - a) Find the control with the middle value.
 - b) Set the other two controls to that value as well.
 - c) If these settings result in a noticeable color cast, reduce the dominant color (for example, reduce Red if the cast is reddish) to remove the cast.
 - d) If the color cast persists, set Red, Green, and Blue to 20.
- 7 Do one of the following:
 - If the measured white point value is higher than the target value, either increase Red or reduce Green and Blue together (keeping the same value for Green and Blue), until the measured white point value matches the target value as closely as possible.
 - If the measured white point value is lower than the target value, either reduce Red or increase Green and Blue together (keeping the same value for Green and Blue), until the measured white point value matches the target value as closely as possible.
- 8 Adjust Green and Blue to match the target white point as closely as possible.
You might not be able to match the target value exactly.

- 9 If the measured luminance no longer matches the target value, adjust the brightness control until it does. (Changing the white point can change the luminance.)
- 10 If the measured luminance is still too low at the maximum brightness setting, and your monitor has controls for Red, Green, and Blue, gradually increase all three controls, maintaining the same ratios, until the measured luminance matches the target value.
- 11 Click **Next**.

Measure profiling patches

Monitor Profiler displays a sequence of full-screen color patches that are measured by the spectrophotometer. You use the measurements to create a profile.

- 1 Position the spectrophotometer correctly for measuring.
- 2 Wait while Monitor Profiler displays a sequence of color patches.
This may take several minutes.
- 3 When Monitor Profiler reappears with a message that the measurements were completed, click **Next**.

Compare before and after measurements

Before you save the profile, you can check the measurements captured by Monitor Profiler by observing how a new monitor profile affects the display of a sample image. You can display the sample image using the new or existing monitor profile.

- 1 In the measurement results window, click **Compare before and after** to display the sample image.
- 2 Do one of the following:
 - Click **After** to display the sample image using the new monitor profile.
 - Click **Before** to display the sample image using the existing monitor profile.

Save a profile in Monitor Profiler

You can provide a description for the profile, and save it to your local system. The new profile automatically becomes the default monitor profile.

- 1 In the measurement results window, type a description that helps identify the profile.
- 2 Click **Next**.
- 3 Browse to the location for the new profile, type a file name, and click **Save**.

Monitor Profiler saves the profile in ICC v2.0 format.

Fiery Device Linker

Fiery Device Linker can address common situations where device link profiles can provide a solution. Device Linker also lets you simply create a device link profile using two to four profiles. In addition, you can optimize spot color definitions through iterative measurement of actual color output.

Device Linker offers these options:

- **Optimize a device link (iterative match to a standard)** - Matches the output of your Fiery-driven printer to an industry standard (for example, SWOP). Device Linker creates a device link profile using a CMYK source profile that simulates the standard as the source profile and an output profile of the Fiery Server as the destination profile. Using measurements of the actual color output, Device Linker can optimize the resulting device link profile to target the color values that the standard specifies. With additional iterations of color measurements, you can fine-tune the optimization. Device Linker installs the profile on the Fiery Server.
- **Optimize spot colors** - Optimizes the spot color definitions on your Fiery Server. Device Linker loads the spot color definitions that reside on the Fiery Server. Using measurements of the actual color output, Device Linker can then optimize the spot color definition. With additional iterations of color measurements, you can fine-tune the optimization.
- **Match to a production printer** - Matches the output of a printer used for proofing to a production printer. Device Linker creates a device link profile for the proofing printer that attempts to match the color space of the production printer. You can save the resulting profile or install it on a Fiery Server.
- **Create a custom device link** - Creates a device link profile from specified source and destination profiles. Optionally, you can include one or two intermediate profiles. You can save the resulting profile or install it on a Fiery Server.

Optimize a device link (iterative match to a standard)

To match your Fiery-driven printer to an industry standard, create a device link profile that simulates the standard as its source profile. Device Linker can optimize the device link profile to target the color values that the standard specifies.

Before you begin

Be sure that a CMYK source profile that simulates the target standard is installed on the Fiery Server. Use Printer Profiler to calibrate and profile the Fiery Server before you create the device link profile.

Device Linker creates a device link profile and lets you further optimize for your printer by measuring a patch page to determine the current state of your printer and incorporating the measurements into the device link conversion. You can repeat the printing and measuring of the patch page to progressively fine-tune the optimization with each iteration.

If iterative optimization does not result in printed colors that more closely match the standard, it might be for one of the following reasons:


- The printer is not performing up to its capabilities (not reaching the maximum toner or ink densities).
- The printer is not capable of printing to the target standard even performing at its best. The colors in the standard are out of the gamut of the printer.

- 1 In Color Profiler Suite, start Device Linker.
- 2 Click **Optimize a device link (Iterative match to a standard)** and click **Next**.
- 3 Select the Fiery Server.
- 4 Click **Create a new device link profile**, select a source profile that is associated with the target standard (for example, ISO Coated), select the new output profile that you created in Printer Profiler, and click **Next**.
- 5 Click **Next** to accept the default settings.
- 6 Follow the on-screen instructions to print and measure a patch page using the spectrophotometer.
When you print the page, do not change any color settings.
- 7 When the measurement results are displayed, click **Iterate** to further optimize the profile.
With each iteration, you print a patch page using the optimization from the previous iteration and measure the page to determine how closely the colors match the standard.
- 8 Continue to print and measure patch pages until the measured delta E values are within your desired tolerances.
If an iteration results in higher delta E values, delete the iteration and proceed with saving the profile.
- 9 Click **Next** to name the new profile, and then click **Next** to install the profile on the Fiery Server with the associated profile settings.
- 10 Click **Done** to close Device Linker.

If you decide that you would like to further optimize this device link profile, you can perform this procedure again, selecting the same profile to edit rather than creating a new one.

Optimize spot colors

When you optimize spot colors, you select the spot color library that contains the spot colors and the spot colors that you want to optimize. All the spot colors in the selected library appear under Available spot colors.

- 1 In the Welcome window of Device Linker, click **Optimize spot colors** , and then click **Next**.
- 2 Select the Fiery Server in the **Select Fiery Server** list.
- 3 Under **Select output profile**, click the File icon  and select an output profile.
- 4 Select a spot color library in the **Select spot color library** list, and then click **Next**.
- 5 Click a spot color in the **Available spot colors** list, and then click **Add**.
- 6 Continue to add spot colors until all the spot colors you want appear in the **Selected spot colors** list, and then click **Next**.
- 7 Select the measurement instrument, patch layout (if available), and paper size, and then click **Next**.
- 8 Specify print settings and click **Print**.
Do not change any color settings before printing.
- 9 Follow the on-screen instructions to measure the patch page using the spectrophotometer.
- 10 When the measurement results are displayed, click **Iterate** to further optimize the spot colors.
- 11 Continue to print and measure patch pages until the measured delta E values are within your desired tolerances.

- 12** If an iteration results in higher delta E values rather than lower, delete the iteration and proceed with saving and installing the edited spot colors.
- 13** Click **Next** to install the edited spot colors on the Fiery Server.
- 14** Click **Done** to close Device Linker.

Match to a production printer

Device Linker can create a device link profile for the proofing printer that attempts to match the color space of the production printer.

The proofing device (the simulating printer) and production device (the printer being simulated) do not have to be Fiery-driven printers, but they must be profiled before you create the device link profile. The resulting device link profile, when installed on the proofing device, enables it to print output that matches the output of the production device.

If the gamut of the production device is larger than the gamut of the proofing device, the simulated colors are clipped. The simulation of one printer on another printer can only be accurate when the proofing device has a gamut larger than that of the production device.

- 1** Calibrate both printers and check that the measured data closely matches the target densities.
This means that your printers are performing up to their capabilities.
- 2** Use Printer Profiler to create a profile for your proofing device and a profile for your production device.
- 3** In Color Profiler Suite, use Device Linker to create a device link profile.
 - Click **Match to a production printer** in the **Welcome** screen.
 - Select the source profile that you will be using for printing proofs, and select the profiles that you created for your proofing device and production device.
 - For a Fiery-driven proofing printer, install the new device link profile on the Fiery Server. Otherwise, save the new device link profile locally and install it on the proofing device.
- 4** Print test files on the proofing device and production device using the same color settings. For the proofing device, use the new device link profile. For the production device, use the output profile that you created in Printer Profiler.
- 5** Confirm that the proof matches the production output.

Select profiles to create a device link profile


The profiles that you select depend on what you want to achieve. You can create a profile that matches to a standard, matches a proofing printer to a production printer, or creates a custom device link profile.

Select profiles for matching an industry standard

When you match a Fiery-driven printer's output to a standard, you can create a new device link profile or edit a previously optimized device link profile. You will print and measure a patch page one or more times to optimize the device link profile.


- 1** Select the Fiery Server in the **Select Fiery Server** list.

- 2 Click one of the following:
 - To create a new profile, click **Create new device link profile**.
 - To re-optimize an existing device link profile that resides on the Fiery Server, click **Edit previously optimized device link profile**, and then select the profile from the list.
- 3 If you are creating a new device link profile, select the CMYK source profile that simulates the standard under **Select source profile**, and then select an output profile under **Select destination profile**.

To select a profile, click the File icon .


Select profiles for matching a proofing printer to a production printer

When you match a proofing printer a production printer, you select the source profile and the output profiles for the production and proofing printers. The production printer's profile serves as an intermediate profile to create the device link profile.

- 1 Click **Match to a production printer** in the Welcome window, and then click **Next**.
- 2 Under **Select source profile**, click the File icon  and select a source profile.
- 3 Under **Select production printer profile**, click the File icon and select an output profile for the production printer.
- 4 Under **Select proofing printer profile**, click the File icon and select an output profile for the proofing printer.

Select profiles for creating a custom device link profile

When you create a custom device link profile, you select the source and destination profiles. If you want to convert source colors to one or two intermediate color spaces before conversion to the target color space, you can also select one or two intermediate profiles.

- 1 Click **Create a custom device link** in the Welcome window, and then click **Next**.
- 2 Under **Select source profile**, click the File icon  and select a source profile.
- 3 Under **Select destination profile**, click the File icon and select an output profile.
- 4 To add an intermediate profile, click **Insert Intermediate Profile** and select the intermediate profile.
- 5 To add a second intermediate profile click **Insert Intermediate Profile** and select the second intermediate profile.

Specify profile settings in Device Linker

When you create a device link profile using Device Linker, you set rendering intent and separation options that affect how Device Linker maps color values from source to destination. Device Linker saves these settings in the device link profile.

Separation options affect how Device Linker determines the output's C, M, Y, and K components. Some of these options affect color accuracy and are therefore not available when color matching is the goal.

- **Black point compensation** - Scales the lightness of all input colors to fit the range of lightness in the output profile, rather than clipping them. This preserves black gradients, such as shadows. Black point compensation applies to all rendering intents except the Absolute Colorimetric rendering intent.
- **Preserve gray** - Preserves RGB gray (R=G=B) or CMYK gray (CMY=0, K not zero) on the input and does not convert to black-only. This option does not apply if you are creating a device link profile to match two printers or to match to a standard.
- **Preserve clean CMY primaries** - Prints pure cyan, magenta, or yellow input colors as pure cyan, magenta, or yellow. This option applies only if source and destination profiles are both CMYK and you are not creating a device link profile to match two printers or to match to a standard.
- **Black Separation** - Black separation applies only if source and destination profiles are both CMYK and you are not creating a device link profile to match two printers or to match to a standard.

If you select **Preserve from document (Source GCR)** when the total ink limit of the source profile is higher than the total ink limit of the destination profile, the ink limit of the device link profile will be higher than the original ink limit of the destination profile. If you want the ink limit of the device link profile to match the ink limit of the destination profile, select **Same as destination profile (Output GCR)** instead. It is not necessary to match the ink limit of the destination profile when printing to most types of Fiery Server for laser printers.

Note: When you match to a standard, Device Linker automatically sets the options that affect color accuracy.

- 1 In the Rendering Intent pane, click the rendering intent to use with the each link's destination profile.
- 2 Set the separation options as they apply to your device link profile:
 - For **Black point compensation** - Click **Auto-detect** to apply black point compensation only when the input black point is lower (darker) than the output black point. Click **Always** to always apply black point compensation.
 - For **Black Separation** - Click **Same as destination profile (Output GCR)** to re-separate input colors using the black channel of the destination profile. Click **Preserve from document (Source GCR)** to preserve the black channel of the source profile.

Print patch pages for optimization

When you optimize a device link profile or spot colors using Device Linker, you print pages that contain patches of various colors and measure the pages with an instrument. Fewer patches are faster to use, but more patches generally produce higher quality results.

Alternatively, you can load existing measurements.

Note: Before printing a measurement page, you can set print options and other settings for sending the pages to the printer. Do not change any color management settings.

- 1 Connect the measurement instrument to your computer.

- 2 Do one of the following:
 - To measure pages, click the measurement instrument in the **Instrument** menu.
 - To load measurement data from a file, click **Load measurements**, and then click **Next**.
- 3 If you are measuring pages, click **Settings** and specify the instrument's settings.
- 4 Click a setting in the **Patch Layout** menu if it is available.
- 5 Select a setting in the **Paper Size** list for printing the measurement page or click **Custom** and specify a custom page size.
- 6 Click **Next** to print the measurement page.

Check Device Linker measurement results and iterate

After you measure a measurement page to optimize a device link profile or a spot color, information about the measurements and the expected values appears. If you are not satisfied with the results, you can iterate (print and measure another page).

Calculated dE (Delta E) values compare measurement values with expected values. For a device link profile, the standard (CMYK source profile) are the expected values. For a spot color, the spot color library provides the expected values. Lower dE values indicate a closer match to the expected color.

For multiple iterations, dE values for all previous measurements appear so that you can see if the match is improving. You may want to delete an iteration if the results do not show any improvement.

- 1 Do one of the following:
 - If the dE values are acceptable, click **Delete** next to any iteration that you want to delete, and then click **Next** to continue and save the results.
 - If dE values are unacceptable, click **Iterate** to print and measure again to further optimize the match.
- 2 To view spot color measurements in Verifier, click **View**.

Save and install device link profiles

Device Linker lets you process, save, and install the device link profile(s) on a Fiery Server. If you are not creating a device link profile to match to a standard, you can save the device link profile locally.

When you create a device link profile on a Fiery Server, Device Linker automatically sets the profile association settings. (These settings determine how the job enables the device link profile).

If a job specifies the associated source profile as its CMYK Source Profile or RGB Source Profile and the associated destination profile as its Output Profile, the device link profile is enabled for the job.

If an associated source profile or destination profile does not already reside on the Fiery Server, it is installed along with the device link profile, so that it can be selected to enable the device link profile.

- 1 Type the profile's description.
- 2 Optionally, type additional information under **Comments**.

3 Do one of the following:

- If you are not creating a device link profile to match to a standard, click **Install on Fiery Server** and select the Fiery Server from the list.
- If you want to save the profile locally, click **Save on local drive**.

Note: If you are creating a device link profile to match to a standard, the profile is installed on the Fiery Server that you selected previously.

4 Click **Next**.**5** If you are saving the profile locally, navigate to the new profile's location, type a file name, select the ICC profile type (v2.0 or v4.0), and then click **Save**.

Note: The default location for profiles is the folder where the operating system installs profiles.

View device link profile information

After you create a device link profile, Device Linker displays information about the profile.

- If the profile was installed on a Fiery Server, the server name and the associated profile settings appear.
- If the profile was saved to the local computer, the file name and a link to the file location appear.
- If you optimized spot colors, information about the spot colors appears in Device Linker.
You can also print a sample page.
- Click **Print** to print a sample page with the optimized spot colors.

Fiery Print Matcher

Fiery Print Matcher helps obtain consistent color output across a group of up to five Fiery-driven printers. Color results depend on different factors, but Print Matcher uses the Fiery Server color management features to help minimize these differences.

Note: Each Fiery Server must be running System 10 software or later.

Print Matcher provides different methods for matching printers, depending on the characteristics of the printers.

- Common calibration and output profile - For printers of the same model. The calibration curves of these printers are similar enough that Print Matcher can create a calibration goal and output profile that are common to all the printers.
- Common device link profiles - For printers of different models or manufacturers. Device link profiles map each printer's output color space to the common color space between the printers.

Using measurement data from all selected printers, Print Matcher generates either a calibration and an output profile or a device link profile. When you use the calibration and output profile or the device link profile to print a job, you can print to any of the printers with similar color results.

Print Matcher can run in Demo mode and use almost all features. However, you cannot save a resulting calibration or profile to a Fiery Server.

Create a common calibration and output profile

For printers of the same model, Print Matcher uses color measurements from all of the printers to create a common calibration goal and output profile. For a new common calibration, you measure calibration pages and profiling pages for each Fiery Server in the list.

- A calibration goal specifies the target density values for a Fiery Server. The calibration goal specifies the maximum densities of C, M, Y, and K that all of the printers can print.
- The output profile represents the common color space between the printers. In other words, the output profile specifies only the colors that all of the printers can print.

You specify which printers to match by adding to the Fiery Server list during a session and giving the session a name. You use the session name if you update the calibration later. (If you update an existing calibration, you cannot change the list or the session name.)

You can specify just one printer if you want to create a new calibration using a measurement instrument that Print Matcher supports instead of matching printers.

Print Matcher installs the resulting calibration goal and output profile on each Fiery Server.

Note: You can exclude the measurements of one or more printers when calculating the calibration goal. Excluded printers are not profiled. If you exclude a printer from the common calibration, you can include it when you update the common calibration.

Create a new common calibration

Creating a new calibration starts with naming the session, choosing each Fiery Server, and printing a page that you can use to measure the printer's current color output (the maximum densities of C, M, Y, and K).

- 1 Click **Printer Match** in the Fiery Color Profiler Suite window.
- 2 Click **New common calibration**, and then click **Next**.
- 3 Type a name for this session.
- 4 Click the plus sign (+) to add each Fiery Server for each printer that you want to match, and then click **Next**.
- 5 In the **Calibration print settings** window, specify the settings for creating the calibration pages, and click **Next**.
- 6 Specify settings for printing the calibration job and click **Print**.
- 7 Retrieve the printed calibration page and follow the on-screen instructions to measure the page.

Note: You can save the measurements, quit Print Matcher, and then resume this procedure later. Use **Resume measuring session** when you restart Print Matcher.

- 8 Print and measure a calibration page for each additional Fiery Server that you are matching.

Review calibration results

After you review calibration measurements, you can repeat measurements or exclude measurements from the calibration calculations.

Print Matcher does not install the common calibration goal and common output profile on an excluded Fiery Server. If you exclude a printer from the common calibration, you can include it when you update the common calibration at a later time.

- 1 Review the calibration results, and click **Next**.
- 2 If any results are questionable, click **Reprint** next to the results to reprint and remeasure a calibration page for the specific Fiery Server.
- 3 (Optional) If any results are out of the expected range after you repeat the measurement, exclude the Fiery Server by clearing the **Include** check box next to the results.

Create a common output profile

After creating the common calibration and reviewing the results, continue to create the common output profile.

If any results are questionable after you review the results, you can reprint the pages and measure again.

After you save the profile, Print Matcher installs it on each Fiery Server.

- 1 Specify settings for the profiling pages, and then click **Next**.
Profiling pages are printed with the common calibration applied
- 2 After the profiling job is printed, click **OK**.
- 3 Retrieve the profiling pages from the printer and follow the on-screen instructions to measure the pages.

Note: You can save the measurements, quit Print Matcher, and then resume this procedure later. Use **Resume measuring session** when you restart Print Matcher.

- 4 Print and measure profiling pages for each additional Fiery Server that you are matching.
- 5 Review the profiling results, and then click **Next**.
Profiling pages include multiple patches of the same color. The maximum and average dE (Delta E) values summarize the variation in measurements of the same color.
You can click **Inspect measurements** to look at the measurement data in Profile Inspector.
- 6 In the **Apply Settings** window, select the profile settings or import settings from an existing profile, and then click **Next**.
- 7 In the **Save Profile** window, specify the profile description, media, and any comments desired. Click **Next**.
By default, the profile description is the name of the printer matching session.
- 8 To check your printer matching results, click **Test Print** to print a color test page to each Fiery Server.

Update a common calibration

A printer's color output can change over time, so you must update a common calibration periodically to keep the color output consistent. If color consistency is important, we recommend calibrating your Fiery Server at least once a day.

- 1 Click **Printer Match**.
- 2 Click **Update common calibration**, click the printer matching session in the list, and then click **Next**.
- 3 If necessary, click **Update** to reconnect any disconnected Fiery Server in the list, and then click **Next**.
- 4 Specify the calibration page settings, and click **Next**.
Use the same settings that you used when you created the common calibration.
- 5 Specify settings for submitting the calibration job to the specified Fiery Server and click **Print**.
- 6 Retrieve the calibration page from the printer and follow the on-screen instructions to measure the page.
- 7 Print and measure calibration pages for each additional Fiery Server that you are matching.
- 8 Review the calibration results, and then click **Next**.
- 9 Click **Test Print** to print a color test page to each Fiery Server, and check the printer matching results.

Create a new common device link profile

When printers are of different manufacturers or different models, Print Matcher can create a device link profile for each printer that you want to match.

Before you begin

Before you use this method, calibrate each Fiery Server and check that the measured data for each printer closely matches its target densities. If any profile does not produce acceptable color, create a new profile using Printer Profiler.

Print Matcher uses output profile data from each printer to calculate a gamut that is common to all printers. When one of the printers prints the job, it uses only those color capabilities that are common to all printers, regardless of the individual printer's capabilities.

This method uses an existing output profile from the Fiery Server associated with each printer. The output profile from each Fiery Server is the intermediate profile in its device link profile. The destination in all of the device link profiles is the common color space between the printers. The resulting device link profile is installed on each Fiery Server.

- 1 In Fiery Color Profiler Suite, click **Printer Match**.
- 2 Click **New device link**, and then click **Next**.
- 3 Type a name for this session, click the plus sign (+) to add each Fiery Server for the printers that you want to match, and then click **Next**.
- 4 Select a source profile.
A device link profile is created for each printer. Each device link profile uses this source profile. Select the CMYK source profile that you prefer for printing most jobs.
- 5 For each Fiery Server, select the output profile that you created, and then click **Next**.
In each device link profile, the profile of the printer being matched is used as an intermediate profile, and the common color space is the destination.
- 6 In the **Apply Settings** window, select the profile settings and click **Next**.
- 7 In the **Save Profile** window, specify the profile description and any comments desired for each device link profile, and then click **Next**.
The device link profile for each Fiery Server is installed on the corresponding Fiery Server and is associated with the source profile and output profile settings that match the profiles used to create the device link profile.
- 8 To check your printer matching results, click **Test Print** to print a color test page to each Fiery Server.

Print calibration pages

The **Calibration print settings** window lets you specify calibration pages.

Print Matcher lays out color patches on the calibration page according to the measurement instrument and paper size that you specify. You can also set the number of warmup pages to print. (Warmup pages are extra copies of the calibration page that you can discard.) We recommend that you measure the next-to-last copy printed.

- 1 In the **Instrument** menu, click the measurement instrument to use.
- 2 (Optional) To make specific settings for the instrument, click **Settings**.
- 3 Click **Set number of warmup pages** and then set a number.

Print profiling pages

Print Matcher lays out color patches on measurement pages depends on the measurement instrument, patch layout, and paper size that you specify.

Patch layouts differ by the number of patches. Some are based on ICC standard targets.

You can also set the number of warmup pages to print. (Warmup pages are extra copies of the profiling pages that you can discard.) We recommend that you measure the next-to-last copy printed.

Using Expert Settings, you can change the ink or toner limits on your printer and specify the object type for the patches.

- 1 In the **Instrument** menu, click the instrument to use.
- 2 (Optional) To make specific settings for the instrument, click **Settings**.
- 3 Click a patch layout in the **Patch layout** menu.
 - **46** - Provides the fastest profiling method using a handheld instrument. With this layout, additional data is mathematically calculated to ensure the quality of the resulting profile.
 - **234** - Is fast to use and produces high-quality results with most printers that have a smooth color response.
 - **928 (IT8.7/3)** - Produces high-quality results on most printers. If you are unsure of your printer's color response, use the 928-patch layout to ensure higher quality.
 - **1485 (ECI 2002)** or **1485 random (ECI 2002)** - Comes from the European Color Initiative and incorporates two versions of IT8 targets. The random layout helps to reduce potential bias caused by color variation across the page.
 - **1617 (CGATS IT8.7/4)** or **1617 random (CGATS IT8.7/4)** - Are similar to the 928-patch layouts but provide more data. The random layout helps to reduce potential bias caused by color variation across the page.
 - **4028** - Provides the maximum color precision, the same level of precision as factory-supplied profiles from EFI.
- 4 Click **Set number of warmup pages** and then set a number.
- 5 (Optional) Click **Expert settings** and set the following:
 - **Ink or Toner Limits** - Sets ink or toner coverage limits for printing patch pages. We recommend that you print with the default values unless your printer has problems printing with those levels.
 - **Create Patches As**- Sets whether to create patches as bitmaps or vector graphics.

Bitmap images have color behavior similar to Adobe Photoshop images. Vector graphics have color behavior similar to Adobe Illustrator or Adobe Freehand illustrations. We recommend that you keep the default setting (bitmap images).

Specify output profile settings

You can set the gamut mapping, separation settings, profile optimization, and viewing condition for the output profile.

- For gamut mapping options, see [Set gamut mapping](#) on page 28.
- For separation options (black controls, see [Specify separation settings](#) on page 29.

Set profile optimization

The **Optimize colorimetric precision** option uses optimization to improve colorimetric precision and reduce dE (Delta E) values.

Increasing colorimetric precision can result in less smooth color transitions. Use this option for profiles that are used for printing proofs or for press certification but not for production workflows, where color perception is more important than precision.

- In the Apply Settings window, click **Optimize colorimetric precision**.

Set viewing condition

You can set the color of ambient light used when obtaining color measurements.

- In the **Apply Settings** window, do one of the following:
 - Click a setting in the **Lighting value** list.
 - Click the plus sign (+) to create your own setting, either by using a measurement instrument or by specifying the XYZ value.

Specify device link profile settings

In Print Matcher, you can specify and settings for rendering intent and separation options for the device link profile. These settings affect how color values are mapped from source to destination.

Separation options affect how the C, M, Y, and K components of the output are determined.

Black point compensation scales the lightness of all input colors to fit the range of lightness in the output profile, rather than clipping values outside of the range. This adjustment preserves black gradients, such as shadows.

1 Set the rendering intent to use for each link:

- **Source** - Maps source colors to the intermediate profile (the output profile of the specific Fiery Server).
- **Output** - Maps colors from the intermediate profile to the destination (common gamut).

2 Set **Black point compensation**:

- **Auto-detect** - Applies Black point compensation only if the input black point is lower (darker) than the output black point. For the Absolute Colorimetric rendering intent, this is the only setting available.
- **Always** - Applies Black point compensation always.

Fiery Profile Inspector

Fiery Profile Inspector provides an environment for inspecting RGB, CMYK, and named color profiles, displayed as two-dimensional or three-dimensional models in Lab color space. You can display multiple profiles (maximum of five) in contrasting colors for easy visual comparison.

Profile Inspector offers various display styles for profile models and tools for manipulating the models and the environment. You can also view specific color information about the profiles.

Profile Inspector can display data from a measurement file (IT8) plotted in Lab color space. You can also plot individual color measurements taken with a measurement instrument.

Display profiles

You can display a model of one or more profiles (maximum of five) in the modeling area, rendered in Lab color space. Controls let you adjust the background, lighting, opacity, and point size. In particular, you can display multiple models in contrasting colors.

- 1 Do one of the following:
 - Click **File > Open**, and click the profile.
 - Drag an ICC profiles from the desktop to the modeling area.
- 2 Adjust the controls to view the features of the profile model.
- 3 To show or hide a profile model, click the check box next to the profile name in the list.

Work with profile models in Profile Inspector

You can rotate, select points in, zoom, and display an interior cross-section of a model. You can also reset a model to its default position.

Reset a profile model to its default position

You can reset a profile model to its default position.

- Click the **Home** icon .

Rotate a profile model

You can rotate a model horizontally, vertically, or in all three dimensions.

- 1 Click the **Rotate** icon .

2 Do one of the following:

- To rotate the model in three dimensions, click the model off center and drag.
- To rotate the model around the horizontal axis, use the scroll wheel
- To rotate the model around the vertical axis, press the Ctrl key and use the scroll wheel.
- To rotate around the L axis, press the Shift key as you drag the model.

Note: On Mac OS, Horizontal and Vertical scrolls on a mouse that supports these options rotate the model horizontally and vertically, respectively.

Zoom a profile model

You can zoom in and out of a profile model.

1 Click the **Zoom** icon .

2 Do one of the following:

- To zoom in, click the model.
- To zoom out, Alt+click (Windows) or Option+click (Mac OS).
- To zoom a section of the model, drag to create a rectangular area.

Note: To zoom without clicking the Zoom tool, press Ctrl+= or Ctrl+_-.

View an interior slice of a model

The Clip tool lets you pass an invisible vertical plane through the model from front to back, cutting away the portion it passed through. This creates a cutaway view of the model, which is useful when comparing two profiles.

1 Click the **Clip** icon .

2 The first time you use the Clip tool, click to reveal the clipping plane, and then drag up or down to make the clipping plane larger or smaller.

3 After the first time you use the tool, you can do either of the following:

- To display the clipping plane, click near the bottom of the modeling area and drag up. (You may have to do this several times before the clipping plane appears.)
- To move the clipping plane out of the model, click in the modeling area and drag down.

Select points in a profile model

You can choose points to display their color coordinates in the Measurements area. Profile Inspector inverts the selected point's color to indicate that it is selected.

1 Click the **Select** icon .

2 Click the point that you want to select.

Set environment and display style for profile models

You can adjust the background, lighting intensity and display styles for profile models. For display styles, you can set how Profile Inspector plots the model, its color, rendering internet, opacity, and point size.

Note: Background, lighting, how to plot the model, and opacity are unavailable for 2D models.

- Set any of the following options:
 - **Background** - Sets the lightness of the background and the model's saturation.
 - **Lighting** - Sets the intensity of the lighting. When Lighting is off, the model appears flat (no shading).
 - **Plot As**
 - Surface** - Displays the profile as a three-dimensional shape with a continuous surface.
 - Slice** - Displays the profile as a set of two-dimensional surfaces extending from the neutral axis through the primary and secondary hues.
 - Edges** - Displays the profile as the outlines of portions of the profile through the primary and secondary hues as well as the neutral axis.
 - Points** - Displays all input value points.
 - Outline** - Displays profile as outlines of the surface polygons. This is similar to the Surface model, but the polygons are not filled in.
 - Surface + Points** - Displays profile as a combination of the Surface and Points models.
 - **Color** - True Color displays actual colors in their correct locations. Other selections display the entire model in one color.
- Note:** When you compare the gamut of two profiles, you can see the differences more clearly if you display the profiles in contrasting colors.
- **Rendering Intent** - The ICC specification defines several ways of mapping colors from one color space to another, called rendering intent. A profile contains data for multiple rendering intents.
 - **Opacity** - Makes the profile model more or less transparent.
 - **Point Size** - Changes the points' display size.

Display measurements from a file

You can display the measurements in an IT8 file (maximum of five files) in the modeling area, plotted in Lab color space. This allows you to compare the measurements with an existing profile.

- 1 Under Measurements, click the plus sign (+) and then click the file.
- 2 To show or hide the measurements, click the check box next to the file name.

Point information

When you select a point, Profile Inspector displays color information for the point in the lower right corner of the window.

The point information includes:

- **Description** - An internal description of the profile that contains the point.
- **Plotted** - The Lab value for the selected point.

Profile Inspector plots the model in Lab space.

- **Input** - The device-dependent color value associated with the Lab value. The value may be CMYK, RGB, or a string value, depending on the color space of the selected profile.

Measure a color with an instrument

With a measurement instrument (such as the EFI spectrophotometer) that can measure a single color sample, you can measure a color and display the point in the modeling area.

Before you measure a color, you calibrate the instrument and then measure the color. When you measure a color, the Lab values appear in the lower right corner of the window and the measured point appears in the modeling area.

- 1** To calibrate the measurement instrument, click **Instrument > (name of instrument) > Calibrate**.
- 2** Place the instrument on the color you want to measure, and press the button on the instrument.
- 3** To measure another color, place the instrument on the new color, and press the button on the instrument.
- 4** To remove a measured point from the modeling area, select **Instrument > Remove Point**.

Fiery Profile Editor

Fiery Profile Editor lets you modify an existing CMYK or RGB output profile.

- The reference image shows the effects of editing the profile. You can use the default image or select your own.
- The Color Information pane displays the source-to-output mapping of a selected color.
- The Rendering Intent menu shows which rendering intent is currently selected for editing.

Open a profile for editing

You can open a profile for editing at any time. The Editing Profile field displays the file name of the profile currently open for editing.

You can select a profile of the Output class in either the CMYK or RGB color space to edit.

- 1 Do one of the following to open a profile for editing:
 - Click **File > Open Profile for Editing** or **File > Recent Profile**.
 - Drag an ICC profile directly to the Profile Editor window.
- 2 If you are selecting a profile, select the location from which to search for profiles.
- 3 Click the profile and then click **Select**.

Select rendering intent

An output profile contains data for several rendering intents. When you edit a profile, the edit applies to a specific rendering intent. Be sure that you select the desired rendering intent before making an edit.

You can change the default rendering intent when you save a profile.

Profile Editor allows you to copy an edit from one rendering intent to another.

Depending on how a profile was created, it might share data between multiple rendering intents. In this case, an edit in one rendering intent necessarily affects the rendering intents that share common data. Profile Editor informs you if rendering intents share data when you change the Rendering Intent setting.

Absolute Colorimetric and Relative Colorimetric rendering intents always share data. An edit that you make in the Absolute Colorimetric intent is automatically duplicated in the Relative Colorimetric intent and vice versa.

The Absolute Colorimetric rendering intent is the only one that specifies the media whitepoint. Therefore, when you select the Media Whitepoint tool, the Absolute Colorimetric intent is automatically selected.

- Click a rendering intent in the **Rendering Intent** menu.

Save a profile in Profile Editor



When you save an edited profile, you can specify the profile's default rendering intent and its profile descriptor. You can also flatten the profile and either install it on a Fiery Server or save it to your local computer.

Note: By default, Profile Editor saves an edited profile with a new file name, preserving the original file.

The profile descriptor is the profile's name that appears in an application. For example, a program that lets users select from a list of profiles displays the profile descriptors of the available profiles.

Flattening the profile simply removes extra data that only the Profile Editor uses. You can flatten a profile if you do not intend to edit it again. If you do not flatten a profile when you save it, Profile Editor stores the profile's edit list inside a private tag. An unflattened profile is fully ICC-compatible and you can use it the same as a flattened profile.

Note: You cannot undo flattening. We recommend that you keep a copy of the unflattened profile.

- 1 Do one of the following:
 - Type a new profile descriptor directly in the **Name your profile** field.
 - Click **Options**, then type a new profile descriptor, or click an Edit Version icon ( ) to change the edit version suffix.
 - To add a new profile descriptor, click the Add icon (+) and double-click any field to type a new value.
- 2 Click a rendering intent in the **Rendering intent** list.
- 3 (Optional) Type additional information under **Comments**.
- 4 (Optional) Click **Flatten Profile**.
- 5 Do one of the following:
 - To install the profile on a Fiery Server, click **Install on Fiery Server** and click the Fiery Server in the list.
 - To save the profile locally, click **Save on local drive**.
- 6 Click **Save**.
- 7 Do one of the following:
 - If you install the profile on a Fiery Server, specify the profile settings and click **OK**.
 - If you save the profile locally, navigate to the location in which you want the profile saved, and click **Save**.

Output profile settings

You can specify the settings of an output profile when you import it to a Fiery server. In the Profile Settings dialog box, select the settings as needed.

Media Type lets you specify the profile's media settings. When a job is configured to use the output profile defined by its media settings (the media-defined profile) and the job has one of the selected media settings, this profile is used to print the job.

You can associate a calibration with more than one output profile. However, the calibration data for any existing calibration might not be appropriate for your profile. In this case, use Calibrator in Command WorkStation to create a new calibration, associate it with your profile, and calibrate to get new measurement data.

Reference image

The reference image shows how the edited profile affects color output. Profile Editor can display three different views of a reference image (source, original output, and edited output).








The two sample reference images consist of multiple images containing a variety of image types and color values. Color swatches in the reference images include primary colors, neutral tones, and some common “memory” colors, such as sky blue and grass green. The images are in the Samples/Images folder in the Fiery Color Profiler Suite installation directory.

Note: The color swatches are static and do not change to show the effects of the edited profile.

You can use any CMYK or RGB image in JPEG or TIFF (8-bit or 16-bit) file format as a reference image. Profile Editor uses the source profile you specify to interpret the image’s colors.

Reference image tools

Profile Editor provides tools for changing or using the reference image.

Icon	Name	Keyboard shortcut	Description
	Eyedropper	I or Ctrl I	Click a color in the image or color bar to display in the Color Information pane. The Eyedropper tool also changes the source color for the Selective Color, Hue Edit, and Node Edit tools.
	Roam	M or Ctrl M	Drag to slide the image quickly in a particular direction. Use the Roam tool to move from one edge of the image to another when the image is too large to fit inside the pane.
	Move	H or Ctrl H	Drag to move the image around. Use the Move tool to bring a part of the image into view when the image is too large to fit inside the pane.
	Zoom	Z or Ctrl Z	Click to zoom in (enlarge the image size). Alt+click (Windows) or Option+click (Mac OS) to zoom out (reduce the image size). Drag to define a rectangular area to enlarge. If your mouse has a scroll wheel, you can zoom in by moving the wheel one way and zoom out by moving it the other way. Ctrl+= and Ctrl+_ zoom in and out respectively, even if the Zoom tool is not selected.
	Fit Width	W	Click to resize the image to fit the width of the pane.
	Fit Window	Windows: Ctrl+0 (zero), Mac OS: Command+0 (zero)	Click to resize the image to fit the entire image inside the pane.
	Rotate	R	Click to rotate the image 90 degrees clockwise.

Open a reference image file

You can select the reference image. You can display the reference image using its embedded profile if it has one.

You can also select a different profile for an image that has an embedded profile. This is useful if you intend to represent the image using a different source profile. If you do not know which source profile to use, you can select different profiles and compare the results.

- 1 Click **File > Open Reference Image**, click the file, and then click **Open**.
- 2 To display the image using its embedded profile, click **Keep embedded profile**.
Note: This option is available only if the image has an embedded profile.
- 3 If there is no embedded profile, click **Select source profile** and locate the file,
- 4 Click the profile, and then click **Select**.

Select source profile to display reference image

You can change the source profile used to display the reference image.

You can select a source profile of the Input, Display, or Output class to render the reference image. The color space of the source profile must match the color space of the reference image.

- 1 Click **File > Select Source Profile**.
- 2 To display the image using its embedded profile, click **Keep embedded profile** and then click **OK**.
Note: This option is available only if the image has an embedded profile.
- 3 To use a different profile or if there is no embedded profile, click **Select source profile** and click **Browse**. Click the profile, and then click **Select**.

Preview output media color

The **Preview Output Media Color** option displays the reference image using the color of the output medium (or substrate) simulated. The display shows paper white according to the profile's media whitepoint of the profile.

You can select this option in any rendering intent. Selecting Absolute Colorimetric rendering intent automatically selects **Preview Output Media Color** because you can edit the media whitepoint only in the Absolute Colorimetric rendering intent.

Note: The **Preview Output Media Color** option does not provide an accurate soft proof, only an approximation of the printed colors and the media color.

- Click **Preview Output Media Color**.

View source, original output, and edited output views

Profile Editor lets you view the reference image as the source, output, or edited output.



- Click one of the following:
 - Source (+) - Displays the image using the selected source profile.
 - Output (Original) (□) - Displays the image as it would appear printed using the output profile without any edits.
 - Output (Edited) (■) - Displays the image as it would appear using the output profile with edits.

Display color information for a source color

The Color Information pane displays a color swatch and numerical color values for one source color and its corresponding colors in the original and edited profiles.

The calculated numerical differences between the colors appear above the swatches.





The selected color is also the source color for the Selective Color, Hue Edit, and Node Edit tools.

- To select a source color, do one of the following:
 - Use the Eyedropper tool () to sample a color in the reference image.
 - Type values in the source fields.
 - Click the measurement instrument icon () and sample the color of a physical object using the spectrophotometer.

Set the color model for representing color values

You can set a different color model to represent the numerical color values in the Color Information pane. When you change color models, Profile Editor calculates and displays the equivalent values for the same color.

These icons indicate the current color model:

-  - Sets CMYK.
-  - Sets RGB
-  - Sets Lab
-  - Sets XYZ

- 1 Click the icon for the color model.
- 2 Click the color model that you want in the list.


Set method for calculating Delta E

You can set the method for computing the Delta E between the source, original output, and edited output colors. Choose the method most familiar to you.

The numerical difference between any two colors is called Delta E (ΔE or dE).

Individual colors are not distributed linearly across a color space. When the dE of two colors is computed by simple subtraction, the same numerical value can represent a very different visual difference, depending on the region of the color space where the two colors are located. There are a number of established methods for calculating dE that apply different approaches to make the numerical differences correspond to the visual differences.

The most commonly used method for calculating dE is dE^*ab , which is the default method. This method is the simplest to calculate. The other methods (dE_{94} , dE_{2000} , and dE_{CMC}) are more complicated to calculate but are better at reflecting the visual differences between colors. The dE_{2000} method is the most modern method.

- 1 Click the dE icon .
- 2 Click the method in the list.

Edit colors and the Edit List

The Edit Tools pane lets you edit colors and view or change the list of edits already created. The Edit List displays, for the selected rendering intent, the edits that have been made.

The Edit List displays edits in the following order, which is the order in which they are applied:

- Media Whitepoint edit (Absolute Colorimetric rendering intent only)
- Global Color edit (one per rendering intent)
- Hue edits, in the order created
- Selective Color edits, in the order created
- Node edits, in the order created

Note: Because each edit applies to a specific rendering intent, the Edit List changes when you change rendering intents.

Flattening a profile when you save it clears the Edit List. If you do not flatten a profile when you save it, the edit list is stored in the profile. An unflattened profile is fully ICC compatible.

You can choose one or more edits in the list to perform tasks on them.

- 1 To see the Edit List of edits already made for the selected rendering intent, click the up or down arrow at the bottom of the Edit Tools pane.
- 2 Use these tools to edit colors:
 - **Edit color globally** - Adjusts the lightness, contrast, and saturation of the entire output and adjusts each individual output curve (CMYK or RGB).
 - **Edit the colors in a hue** - Shifts all colors of the same hue and a user-specified range of neighboring colors to a different hue.
 - **Edit a selected color** - Changes one color and a user-specified range of neighboring colors in the source to a different color in the output.
 - **Edit a node** - Changes the color content of an individual node in the profile color table.
 - **Adjust white point (media color)** - Changes the whitepoint value. Applies only to the Absolute Colorimetric rendering intent.

Edit color globally

Each rendering intent in a profile can have only one global color edit, but the global color edit can modify multiple properties.

- 1 Click **Global Color**.

- 2 Click one of the following tabs, depending on the type of edit that you want to make.
 - **Lightness, Contrast, Saturation** - Drag the sliders to adjust the lightness, contrast, and saturation of all colors.
 - **Output Curves** - Drag the curves to adjust the input vs. output for each color channel.

Edit output curves

You can edit curves showing input vs. output for each color. You can edit only one curve at a time.

The eye icon under each color square in the channel selector () indicates whether the color curve is being displayed. (One curve might be behind another.)

- 1 Click a curve's color square to bring a curve to the front.
- 2 Click anywhere on the curve to create an edit point, and then drag the edit point to change the shape of a curve. Other edit points on the same curve remain fixed.

Edit the colors in a hue

A hue edit is similar to a selective color edit, but it affects all colors of one hue rather than only a single color. Use a hue edit to shift one hue in the source to a different hue in the output.

The hue edit applies to the source color currently set in the Color Information window.

Hues near the selected hue in the color space are affected by the hue edit. To preserve the smoothness of a color gradient, you can increase this range of nearby hues. At the maximum range, a hue edit affects nearly all colors.

- 1 Click **Hue Edit**.
- 2 Click one of the following Hue Selection tools and use it to specify the output hue:
 - **Hue and Saturation** - Drag the **Edited** marker to set the hue and saturation values of the output hue.
 - **Profile Cross Section** - Locate the output hue in a graphical representation of the output color space. The color model (Lab or XYZ) that displays the color space is the same as the Profile Connection Space of the profile being edited. The cross-section is a vertical plane of the Lab or XYZ color space where all the colors have the same ratio of a/b or X/Y as the source color.

Set hue and saturation of the output

Hue and Saturation allows you to set the hue and saturation of the output hue.

A plus sign (+) to the left of each color bar indicates the source values. A white square (□) to the right of each color bar indicates the output values of the original profile. A filled square (■) to the right of each color bar indicates the output values of the edited profile.

The narrow areas of the Relative Saturation bar indicate that relatively fewer values are in-gamut. Where the bar is thinnest, there are no in-gamut values.

Note: If the Saturation setting you want has no in-gamut values, try adjusting the Hue again.

- 1 Click **Hue Edit**.


- 2 Click **Hue and Saturation** and set **Hue**, **Saturation**, and **Range** for the output hue.

Select output hue using Profile Cross Section

Profile Cross Section locates the output hue in a graphical representation of the output color space.

The color model (Lab or XYZ) used to display the color space is the same as the Profile Connection Space of the profile being edited. The cross-section is the horizontal plane (all colors have the same level of lightness) that contains the source color in the Lab or XYZ color space.

The Edited color indicator (filled square) moves to the location that you set. A line drawn from the neutral (center) axis to the Edited color indicator represents the new output hue. Profile Editor updates the colors close to the edited hue (depending on the Range value).

- 1 Click **Hue Edit**.
- 2 Click **Profile Cross Section**.
- 3 Click the Eyedropper tool ()
- 4 Click the new location for the output hue in the color space.

Edit a selected color

Selective color edit lets you change one color in the source color space to a different color in the output. This is useful if you need to reproduce an individual color exactly (a company logo color, for example).

The selective color edit affects colors near the selected color in the color space. To preserve color gradient smoothness, you can increase this range of nearby colors. At the maximum range, a selective color edit becomes similar to a hue edit.

The selective color edit applies to the source color currently selected in the Color Information window.

- 1 Click **Selective Color**.
- 2 Click one of the following Color Selection tools and use it to specify the output color:
 - **HLC Entry** - Drag the **Edited** marker to set the hue, lightness, and chroma (similar to saturation) values of the output color.
 - **Coordinate Entry** - Type the color space coordinates of the output color or use the spectrophotometer to sample the color of a physical object.
 - **Profile Cross Section** - Locate the output color in a graphical representation of the output color space. The color model (Lab or XYZ) that displays the color space is the same as the Profile Connection Space of the profile being edited. The cross-section is a vertical plane of the Lab or XYZ color space where all the colors have the same ratio of a/b or X/Y as the source color.

Set hue, lightness, and chroma of the output color

HLC Entry lets you set the hue, lightness, and chroma (similar to saturation) values of the output color.


A plus sign (+) to the left of each color bar indicates the source values. A white square (□) to the right of each color bar indicates the output values of the original profile. A filled square (■) to the right of each color bar indicates the output values of the edited profile.



The narrow areas of the Lightness and Chroma bars indicate that there are relatively fewer values that are in-gamut. Where the bar is thinnest, there are no in-gamut values.

- 1 Set the Hue value of the replacement color by dragging the filled square (■) on the Hue bar to move it up or down.
- 2 Set the Lightness value of the replacement color.
- 3 Set the Chroma value of the replacement color.
- 4 If there are no in-gamut values at the Lightness and Chroma setting you want, try adjusting the Lightness and Chroma again.

Set color space coordinates

Coordinate Entry lets you type the color space coordinates of the output color or use the spectrophotometer to sample the color of a physical object.


Note: To set a different color model, click the color model icon ( for CMYK, for example) to the left of the numerical fields, and set the color model from the list.

- 1 (Optional) Do one of the following to set the source color:
 - Under **Change Source Color**, type the coordinates for the source color.
 - Click the measurement instrument icon () and sample the color of a physical object using the spectrophotometer.
- 2 Do one of the following to set the output color:
 - Under **Target Output Color**, type new coordinates for the output color.
 - Click the measurement instrument icon () and sample the color of a physical object using the spectrophotometer.

Select output color using Profile Cross Section

Profile Cross Section locates the output color in a graphical representation of the output color space.

The color model (Lab or XYZ) that displays the color space is the same as the Profile Connection Space of the profile being edited. The cross-section is a vertical plane of the Lab or XYZ color space where all the colors have the same ratio of a/b or X/Y as the source color.

- 1 Click the **Eyedropper** tool ()
- 2 Click the new location for the output color in the color space.

The Edited color marker (filled square) moves to the location that you set. Profile Editor updates the colors close to the edited color (depending on the Range value).

Edit a node

An output profile uses a set of data points called nodes. A node represents a sampled color at various locations across the color space of a profile.

For colors that do not correspond exactly to a node color, Profile Editor infers colors by assuming that the transitions from one node color to another are smooth and continuous. Thus a relatively small number of nodes can represent the entire color space (a very large number of colors).

Profile Editor represents the Node Index as Axis 1, Axis 2, and Axis 3. These axes correspond to either L, a, and b or X, Y, and Z depending on the model used by the Profile Connection Space (PCS) of the profile being edited.

Typing a value in the Neutral field locates that node on the neutral axis and adjusts the values of Axis 1, Axis 2, and Axis 3 to match. You can increase or decrease the Neutral value to view the nodes associated with different gray levels.

For any given node index, the coordinates of the source and output colors associated with the node index are displayed.

A node edit has the smallest effect of any type of edit and changes only one node in the profile. (The node edit alters only the relationship of the color at one node to the colors around it and affects color transitions in the node's neighborhood.) By comparison, a selective color edit affects at least eight nodes.

One example of using a node edit is to adjust the neutral colors ($a=b=0$) of a profile. These adjustments are usually very small.

Note: If you are editing a node that is near the edge of the gamut, we recommend that you specify the replacement node color in CMYK color space rather than Lab. In this situation, the CMYK color space allows you more precise control in specifying a color than the Lab color space.

Highlight affected colors


If you want better visibility of the selected node, you can apply a contrasting color.

- Select the **Highlight** check box to display the colors in the reference image and in the color space affected by this edit in a contrasting color. Use this option to see which colors are affected by this edit.

Set node and color coordinates

Node and Color Coordinates allows you to type the node's index and color space coordinates of its output color or use the spectrophotometer to sample the color of a physical object.


1 Set a node using one of two methods:

- Set a source color, or click the source measurement instrument icon () under **Nearby (Source) Color** and sample the source color using the spectrophotometer, and then click **Find Nearest Node**.

If the currently selected color does not correspond exactly to a node, the color of the node nearest to the selected color is selected.

- Under **Node Index**, type the coordinates of the node index.

2 Do one of the following:

- Under **Replacement Node Color**, type the output color's coordinates.
- Click the output measurement instrument icon () and sample the output color using the spectrophotometer.

Select output node using Profile Cross Section

You can set a source color and locate the corresponding output color in a graphical representation of the output color space.

Profile Cross Section can display the output color that corresponds to a source color. The display, using a graphical representation of the output color space, uses the same color model (Lab or XYZ) as the Profile Connection Space of the profile.


XYZ color space is a horizontal plane where all colors have the same level of lightness.

- **Leaf** displays a two-dimensional plane of the Lab or XYZ color space. This is a vertical leaf where the ratio of a/b or X/Y of all colors is the same.
- **Plane** displays a two-dimensional plane of the Lab color space.


The color model (Lab or XYZ) used to display the color space is the same as the Profile Connection Space of the profile being edited.

1 Click **Plane** or **Leaf**.



2 Set a node using one of these methods:

- Set a source color, or click the source measurement instrument icon () under **Nearby (Source) Color** and sample the source color using the spectrophotometer, and then click **Find Nearest Node**.

If the currently selected color does not correspond exactly to a node, the color of the node nearest to the selected color is selected.

- Click the source Eyedropper tool () , and click the node you want to edit in the profile cross-section.
- Type the coordinates of the node index directly. You can also use the up arrow or down arrow to increase or decrease a value.

3 Under **Replacement Node Color**, set the output color using one of two methods:


- Type the coordinates of the output color, or click the output measurement instrument icon () and sample the output color using the spectrophotometer.
- Click the output Eyedropper tool () , and click the output color in the profile cross-section.

Adjust white point (media color)


The Media Whitepoint Edit tool can adjust the profile for the color of the paper stock. Setting the Media Whitepoint tool automatically selects the Absolute Colorimetric rendering intent, which is the only rendering intent that specifies media color.

You can set the Lab or XYZ color model to edit the whitepoint.

The color swatches show the colors of the original and edited media whitepoints.

- Do one of the following:
 - Type values in the Edited fields.
 - Click the measurement instrument icon () and use the spectrophotometer to sample the color of the media (paper).

Sample a color with a measuring instrument

With a spectrophotometer connected to your computer, you can sample a color in any place where you see the measuring instrument icon with a “green light” () to indicate that the icon is active.

Note: Before using the spectrophotometer, you must initialize and calibrate it.

- 1 Click the icon to activate the green light if it is not already displayed.
- 2 Click **Instrument** > **EFI ES-2000** > **Calibrate** and follow the on-screen instructions for calibrating the instrument.

Fiery Auto Verifier

Fiery Auto Verifier helps you monitor color accuracy for specific print settings on a Fiery Server.

To use Auto Verifier, you must select at least one Fiery Server and configure the settings for printing the test page. Test pages containing CMYK color patches are sent from your computer to the Fiery Server at the specified interval (elapsed time or number of impressions printed).

After a test page is printed, you can run Auto Verifier to measure the test page and record the data. You may choose to wait and print several pages and measure them all at the same time.

Auto Verifier lets you measure the test pages and compare the results with tolerance values for CMYK Color Matching in Fiery Color Verification Assistant. The test gives a pass or fail result. You can record test results in a report or use them to generate a label. You can view the test results in Verifier. For tracking color quality over time, you can also configure Fiery Dashboard to retrieve and display test results.

Note: For more information about Fiery Dashboard, see the Products section of the EFI website.

Note: Auto Verifier is not available in Demo mode.

Configure automatic test pages

To print test pages automatically, you must configure Fiery Color Profiler Suite preferences to specify the Auto Verifier settings.

- 1 In Fiery Color Profiler Suite, click **Auto Verify** to start Auto Verifier, and then click **Preferences**.
- 2 In the Auto Verifier tab, click the plus sign (+) and add a Fiery Server to the list.
- 3 Select the server preset or virtual printer for printing the test page, set the interval (in time or number of impressions) at which to print the test page, and click **OK**.
- 4 Select the measurement instrument and the patch layout for the test page.
- 5 Click the **CMYK Color Matching** tab to view or edit the test tolerances.

As long as your computer is running and can connect to the Fiery Server, test pages will print even if you close Fiery Color Profiler Suite. You can monitor the test page jobs in Command WorkStation.

Turn off automatic test pages

If the Fiery Server is unavailable, you may want to turn off Auto Verifier test pages temporarily.

- 1 In Fiery Color Profiler Suite, click **Auto Verify** to start Auto Verifier, and then click **Preferences**.
- 2 In the Auto Verifier tab (under Color Verification Assistant), clear the check box next to the name of the Fiery Server in the list.

Measure test pages

Auto Verifier's CMYK Color Matching test checks how accurately the printed output matches the CMYK source profile.

The test computes the differences between the measured and expected color values for the selected CMYK source profile and output profile. A difference greater than the tolerance for the test generates a failure. You set tolerance values in the Preferences for Fiery Color Verification Assistant.

Note: A check mark by the job ID indicates that the page has been measured previously.

- 1 In Fiery Color Profiler Suite, click **Auto Verify** to start Auto Verifier.
- 2 Click the job ID in the list that matches the job ID on the color test page, and click **Next**.
- 3 Follow the on-screen instructions to measure the page.
- 4 In the **Measurement Results** window, click **Results** to see the test results.

Record test results

After you measure a test page in Auto Verifier, you can print the test results in label or report format, and you can view the test results in Verifier.

- The label contains a summary of the test results in label format. You can post the label as a status indicator.
- The report contains the complete test results. You can file the report to keep a log of printer performance.

You can also view the results in Verifier if you want to use Verifier features with the test data. For example, Verifier can save the test data.

- 1 Do one of the following in the test results window:
 - To print a label, click **Print Label**.
 - To create a report, click **Create Report**.
- 2 Specify the information that you want to appear in the label or report header.
- 3 If you want to save the information that you entered, click **Save Properties** and save the file.
- 4 If you want to include information from a previously generated report, click **Load Properties** and open the file. Data from the file overwrites all fields.
- 5 If you are printing a label, click **OK** and check the preview.
- 6 Click **OK**, specify the printer, and click **Print**.
- 7 If you want to view the results in Verifier, click the link to Verifier.

Fiery Color Verification Assistant

Fiery Color Verification Assistant helps evaluate the color accuracy resulting from printing to the Fiery Server with specific print job settings. The application guides you through a set of test measurements and then compares the measurements with tolerance values to produce pass/fail test results.

Note: Color Verification Assistant does not run in unlicensed (Demo) mode.

Color Verification Assistant is useful when you want to verify color on a Fiery Server and do not need the full features of Verifier.

You can adjust the tolerance values for tighter or looser test limits.

Run verification tests

You can start Color Verification Assistant from Command WorkStation when Color Profiler Suite is installed on the same system as Command WorkStation. You do not access Color Verification Assistant from the main window of Color Profiler Suite. Color Verification Assistant does not require Administrator or Operator privileges in Command WorkStation.

- 1 In Command WorkStation, connect to the Fiery Server that you want to evaluate.
- 2 Select a printed or held job that has the print settings that you want to evaluate, and click **Actions > Color Verification**.

Make sure to select only one job. Color Verification Assistant cannot be started if multiple jobs are selected.

Color Verification Assistant starts in a separate window.

Note: The Command WorkStation window is not updated while Color Verification Assistant is running. You must exit Color Verification Assistant to continue using Command WorkStation.

- 3 If necessary, click **Next** to process the job.
- 4 Select the tests to run:
 - **CMYK** - Verifies how accurately the printed output matches the output that would be expected for the CMYK source profile.
 - **RGB** - Verifies how accurately the printed output matches the output that would be expected for the RGB source profile.
 - **Output Profile** - Verifies how accurately the printed output matches the specified output profile.
 - **Printer** - Verifies whether the printed output is consistent (repeatable).
 - **Measurement Device** - Verifies whether the spectrophotometer measurements are consistent (repeatable).
- 5 Set the measurement device and any associated settings.
- 6 To print the measurement pages, click **Next**.

- 7 Follow the on-screen instructions to measure the patch pages, and then view the results.
- 8 Click **Results** next to the test name to see the detailed test results.
- 9 In the detailed test results, you can perform other optional tasks.
 - Click the link to Verifier to view the test data in Verifier.
 - Print a label that contains a summary of the test results.
 - Print a report that contains the detailed test results.

View test results

The Measurement Results window displays the pass/fail test results. Each test consists of multiple measurements.

Detailed test results show the value and result for each measurement included in the test. If the difference between the measured value and the expected value is greater than the specified tolerance for a specific test, the test fails.

You can open Verifier to view all the data used by Color Verification Assistant to generate the test results. The set of tolerance values (from the Preferences window) used for the test is also transferred to Verifier as the Fiery Color Verification Assistant preset. The two sets of colors that are compared in Verifier are called M1 and M2. The table below shows the contents of M1 and M2 for each test in Color Verification Assistant.

Test name	M1	M2
CMYK Verification	Data computed from CMYK source profile and output profile	Measurements of CMYK patches on Simulated Color Spaces page
RGB Verification	Data computed from RGB source profile and output profile	Measurements of RGB patches on Simulated Color Spaces page
Output Profile	Data extracted from output profile	Measurements of patches on Fiery Printer Color Space page
Printer Consistency	Measurements of patches on rotated page	Measurements of patches on nonrotated page
Measurement Device	First measurements of patches	Second measurements of the same patches

- 1 Click the **Results** link next to the test name to view detailed test results.
- 2 In the detailed test results, click the link to Verifier to view the test data in Verifier.

Generate labels and reports

- 1 In the detailed test results, do one of the following:
 - To print a label, click **Print Label**.
 - To create a report, click **Create Report**.
- 2 Type the information that you want to appear in the label or report header.
- 3 If you want to save the information that you entered, click **Save Properties** and save the file.

- 4 If you have saved information from a previously generated report that you want to include in this report, click **Load Properties** and open the file.

All fields are overwritten with data from the file.

- 5 Click **OK**.

If you are printing a label, a preview of the label appears.

- 6 Click **OK**, specify the printer, and click **Print**.

Set Color Verification Assistant preferences

The Color Verification Assistant tab lets you specify settings for options for Color Verification Assistant.

You can set:

- **Tolerances** - Sets tolerances for the device-specific tests and for other aspects of Color Verification Assistant.
- **CMYK Color Matching** and **RGB Color Matching** - Set tolerances for the color-specific tests.
- **Auto Verifier** - Configures automatic color test pages on a Fiery Server. See [Configure automatic test pages](#) on page 66.

Preferences settings are specific to your user name. If you start Verifier from Color Verification Assistant, your Color Matching preferences transfer to Verifier along with the measurement data.

Set printer and device tolerances

You can set tolerances for Color Verification Assistant printer and measurement device tests. You can also reset notifications in Color Verification Assistant.

- The measurement device test verifies whether the spectrophotometer measures the same value for the same color when you repeat a measurement. The test calculates the average and maximum of the measurement differences. The measurement device test fails if either the average or the maximum of the measurement differences exceeds the specified tolerance.
- The printer test verifies whether the printed output produces the same color when you rotate the test image. The test calculates the average and maximum of the measurement differences for all colors in the color bar. The printer test fails if either the average or the maximum of the measurement differences exceeds the specified tolerance value.
- Color Verification Assistant displays notifications at various times, and you can disable a notification after you view it. Color Verification Assistant preferences allow you to re-enable all notifications.

- 1 In Color Profiler Suite, click **Edit > Preferences**.

- 2 In the Color Verification Assistant tab, click **Tolerances**.

- 3 Enter average and maximum dE values in the **Measurement device repeatability** and **Fiery printer repeatability** fields.

- 4 To re-enable all notifications for Color Verification Assistant, click **Reset All Notifications**.

Set color matching tolerances

You can set tolerances for Color Verification Assistant CMYK and RGB color matching tests.

The CMYK and RGB color matching tests compute the differences between the measured and expected color values with the selected CMYK or RGB source profile and output profile. The tests calculate the average and maximum of the differences for all colors in the color bar as well as the differences for primary and secondary hues and for neutral colors.

- 1 In Color Profiler Suite, click **Edit > Preferences**.
- 2 In the Color Verification Assistant tab, do any of the following:
 - Click **CMYK Color Matching** and set the CMYK color matching preferences.
NPDC sets the Neutral Print Density Curve for G7 specification. See the IDEAlliance website.
dL, dC, dH - Sets differences in luminance, chroma, and hue in HCL color space.
 - Click **RGB Color Matching** and set the RGB color matching preferences.

Tests in Color Verification Assistant

Color Verification Assistant lets you test the color accuracy that you can expect from the Fiery Server. Color Verification Assistant can generate labels and reports with test summaries.

For each test, you can print the test results in label or report format.

- The label contains a summary of the test results in label format. You can post the label as a status indicator.
- The report contains the complete test results. You can file the report to keep a log of printer performance.

You can also view test results in Verifier, which lets you use Verifier features with the test data. For example, you can save the test data in Verifier.

CMYK Verification test

The CMYK Verification test checks how accurately the printed output matches the CMYK source profile.

The test computes the differences between the measured color values and the expected values for the selected CMYK source profile and output profile. A difference greater than the tolerance for the specific test means that the specific test fails.

Note: If the Output Profile, Printer Consistency, or Measurement Device test fails, it can cause the CMYK test to fail.

RGB Verification test

The RGB Verification test checks how accurately the printed output matches the RGB/Lab source (RGB source profile).

The test computes the differences between the measured color values and the values that would be expected with the selected RGB source profile and output profile. A difference that is greater than the tolerance for the specific test means that the specific test fails.

If the Output Profile, Printer Consistency, or Measurement Device test fails, it can cause the RGB test to fail. Correct any problems and repeat the RGB test.

Output Profile test

The Output Profile test computes the differences between the measured color values and the corresponding measurement values contained in output profile. A difference that is greater than the tolerance for the specific test means that the specific test fails.

If the Output Profile test fails, it might be for one of the following reasons:

- The output profile does not match the print job settings (for example, the paper type does not match).
- The paper that the patch page was printed on does not match the output profile.
- The Fiery Server needs to be calibrated.

You can also consider creating a new output profile based on the current state of the printer using Printer Profiler.

Printer Consistency test

The Printer Consistency test verifies whether the printed output produces the same color when the color bar in the test image is rotated. The test compares color measurements read from a page to color measurements read from another page with the same image rotated.

If the Printer Consistency test fails, it affects the accuracy of the CMYK and RGB tests. The Color Matching preferences cannot be tighter than the Printer Repeatability preference. You might try printing a number of copies to warm up the printer and then repeat the test.

You can also consider consulting a service technician to evaluate whether your Printer Repeatability preference is appropriate.

Measurement Device test

The Measurement Device test verifies whether the spectrophotometer measures the same values for the same colors in a color bar when the measurement is repeated. The test compares the color measurements read from two separate measurements of the same page.

If the Measurement Device test fails, the accuracy of all other tests is not reliable. You might consider servicing or replacing the spectrophotometer or adjusting the preference settings for this test. You can also check the spectrophotometer using a diagnostic tool available from efi.com.

Job settings for color matching

Certain print settings in a job generally result in better color matching. If the test results in Color Verification Assistant do not indicate the degree of color matching you want, you might consider changing one of the following print settings. Remember that color matching is only one measure of quality, however, and you might choose to accept less accuracy in order to achieve other goals.

- **Rendering Intent** (or **Rendering Style**) - Generally, the Absolute Colorimetric rendering intent results in the best color matching for RGB or Lab colors. However, in this rendering intent, a white background color is printed with toner or ink just as other colors are, instead of allowing the color of the paper to be the background. This simulated white color might appear incorrect to the eye. If this effect is undesirable, use the Relative Colorimetric rendering intent instead.
- **Separate RGB/Lab to CMYK Source** (or **RGB Separation**) - Generally, matching of RGB colors is better if this option is disabled (or set to **Output**) because there is no additional conversion for CMYK simulation.

- **Paper Simulation** - Generally, matching of CMYK colors is better if this option is on. However, with **Paper Simulation**, a white background color is printed with toner or ink just as other colors are, instead of allowing the color of the paper to be the background. This simulated white color might appear incorrect to the eye. If this effect is undesirable, turn **Paper Simulation** off.

Note: Not all types of Fiery Server support the **Paper Simulation** option. Even in these cases, the best color matching is obtained if you print to a paper with the same white point as the simulated CMYK color space.

- **RGB Device Link** or **CMYK Device Link** - If the print settings specify a device link profile, most print settings, including the source profile and output profile, are encapsulated in the device link profile and cannot be changed. Specify optimal settings for **Rendering Intent**, **Separate RGB/Lab to CMYK Source**, and **Paper Simulation** when you create the device link profile.

Status messages

Color Verification Assistant posts status messages about the job and the spectrophotometer.

A status message appears in the following situations:

- If there is an error with the spectrophotometer - Because Color Verification Assistant is part of Fiery Color Profiler Suite, you must connect a licensed spectrophotometer to your computer to run Color Verification Assistant.
- If the job is not supported - Because PCL jobs do not support CMYK color, Color Verification Assistant does not support PCL jobs. (It is difficult to obtain color accuracy using PCL.)
- If the job needs to be processed - A copy of the job is processed to determine its specific Output Profile setting before Color Verification Assistant performs its tests. For example, if the selected job is a mixed-media job or if its Output Profile setting is **Use Media Defined Profile**, the job is processed.
- If the job contains multiple media - For a mixed-media job, select the page or page range that has the print settings that you want to evaluate.

Color Verification Assistant tests only one set of print settings at a time. Selected pages or pages in a page range must all have the same settings. The page selections that you can select from are taken from the job's Mixed Media settings.

Different media settings might not produce different test results. For example, if only the page size is different, color is not affected.

Manage notifications

A job's print settings can trigger a notification in Color Verification Assistant. A notification provides additional information that can affect how you interpret test results. You can choose to stop displaying notifications that have already been shown.

If the selected job contains an embedded profile (RGB or CMYK) that the print settings do not override, test results from Color Verification Assistant are not relevant to the job. Color Verification Assistant performs its tests based on the print settings of the job. A job's print settings do not reflect embedded profiles.

If the CMYK source profile (CMYK simulation profile) is set to **None**, there is no color management of CMYK objects, although calibration is applied. The output profile is used to determine the expected CMYK measurements.

If the CMYK source profile (CMYK Simulation Profile) is set to **ColorWise OFF**, there is no color management of CMYK objects and calibration is not applied. No expected CMYK measurements can be calculated, so the test results are unpredictable.

- 1** In the notification window, select **Show only new notifications** to prevent the notification from being displayed again.
- 2** To re-enable all notifications for Color Verification Assistant, go to the **Tolerances** tab in Color Verification Assistant preferences and click **Reset All Notifications**.

Measuring a measurement page

A measurement page contains rows of color patches that you can measure using a color measurement instrument, such as a spectrophotometer. The measurement procedure depends on the instrument.

You must calibrate the instrument before measuring patches. Some instruments have a self-calibration feature to check the correct functioning of the instrument. For example, the instrument may be calibrated by checking its ability to measure a known color sample accurately. If self-calibration is available, you must calibrate the instrument before proceeding to measure a page.

Handheld instruments require that you follow instructions to place the page and measure each row of patches on the page. Automatic instruments measure each row and advance to the next row without user interaction. Some instruments also position the page automatically.

Calibrate the instrument

You must first calibrate the measurement instrument to make reliable measurements. If calibration fails, you cannot continue with the measurements.

- 1 Follow the instructions on the screen and click **Next**.

Note: With the EFI ES-2000 or EFI ES-1000 spectrophotometer, both the white tile on the cradle and the instrument aperture must be clean. With the EFI ES-2000, the white tile cover must be open.

- 2 If you cannot calibrate the instrument successfully, click **Cancel**.

Measure with ES-2000 or ES-1000

You can measure color patches on a page using the EFI ES-2000 or ES-1000 spectrophotometer that is included with Color Profiler Suite.

When you select the ES-2000 as your measurement method, you can set the instrument settings:

- **Measurement mode** - Select the type of measurement that you want. You measure each strip in one pass or in two passes.
 - **M0** - One pass, UV included
 - **M1** - Two passes, D50, UV included
 - **M2** - Two passes, UV cut

- **Use ruler** - If this option is selected, the positioning sensor on the underside of the EFI ES-2000 reads the stripes on the ruler to determine the position of the EFI ES-2000, so you must use the backup board with the ruler to guide the EFI ES-2000 along the strip. The use of the ruler is required for strip measurement in two passes.
- **Large patch size** - If this option is selected, larger patches are printed to allow for better measurements with a low-resolution printer. The measurement method is the same for regular and for large patches. This option is also available for the ES-1000.

When a page has been successfully measured, you can check the measurements. If any measurements are not as expected, you can remeasure the strip.

- 1 Place the patch page on a smooth, even surface.

If you have a backup board and ruler for measuring patch pages, position the patch page correctly.

Note: With the ES-2000, be sure to use the ruler if you selected the option to use the ruler when you printed the patch pages.

- 2 When the screen indicates that the ES-2000/ES-1000 is measuring, place the ES-2000/ES-1000 in the white space above or below the strip specified on the screen.
- 3 Hold down the button and slide the ES-2000/ES-1000 along the strip of patches slowly and at an even pace.
- 4 Release the button when the ES-2000/ES-1000 reaches the white space at the end.
- 5 After you successfully measure one strip of patches, move the ES-2000/ES-1000 to the white space at the beginning of the next strip.
- 6 Continue to measure the remaining strips in the same manner until you have measured all patches on the page.
- 7 Continue to measure the remaining patch pages (if any) in the same manner until you have measured all patch pages.
- 8 After you measure the last page, click **Next**.

Measure with iO2 and ES-2000 or iO and ES-1000

The iO2/iO automatically moves the ES-2000/ES-1000 over each row of patches to measure them. The on-screen image highlights each row as it is measured.

Before measuring patch pages, you must calibrate the ES-2000 or ES-1000 that is connected to the iO2 or iO. The ES-2000/ES-1000 is calibrated to the white tile on the iO2/iO. Calibration may fail if the white tile is covered or is not clean.

When you have successfully measured a page, you can check the measurements.

- 1 Place the first patch page on the iO2/iO, and then click **Next**.
Position the page with the top edge closest to the iO2/iO arm.
- 2 Following the on-screen instructions, position the crosshairs over the patch marked A and press the button on the ES-2000/ES-1000. Repeat for the patches marked B and C.
The on-screen image helps you locate the patches A, B, and C.
- 3 Click **Next**.
- 4 When iO2/iO finishes measuring the page, click **Next**.

- 5 Measure the remaining patch pages (if any) in the same manner as the first, starting with the placement of the page and the registration of patches A, B, and C.
- 6 After you measure the last page, click **Next**.

Measure with i1 iSis

Measurement using i1 iSis is automatic. When you have successfully measured a page, you can check the measurements if desired.

Before you begin

Before you measure pages, be sure that the measurement instrument is connected properly.

- 1 Place the first measurement page in the instrument.
- 2 Continue to measure the remaining measurement pages (if any) in the same manner as the first until you have measured all pages.
- 3 After the last page has been measured, click **Next**.

Measure pages (any instrument)

Before measuring measurement pages, be sure that the measurement instrument is connected properly. Calibrate the instrument if instructed to do so.

Note: Patches may be bordered by rows of yellow patches or black patches that allow the instrument to measure in either direction. The yellow patches and black patches are not included in the measurement data.

- 1 Place the first measurement page in or on the instrument.
- 2 If page registration is required, follow the on-screen instructions to register the page location.
- 3 If the instrument requires you to scan the patches manually, follow the on-screen instructions to scan each strip.
- 4 After you successfully measure a page, you can check the measurements.

If any measurements are not as expected, you can remeasure the strip if your instrument supports manual scanning.

- 5 Continue to measure any remaining pages.
- 6 After you measure the last page, click **Next**.

Measurement errors

When you measure color patches, the measurements are validated against a set of rules that are designed to detect errors in measurement values and to enable you to scan strips in either direction.

If an invalid measurement is detected, you can repeat the measurement.

Incorrect measurements can result from these causes:

- You measure the wrong strip, even though it is on the correct page.
- You measure the wrong page.

- The page has printing defects that produce incorrect colors.
- The printer or the media has a condition that causes unexpected colors.

Check measurements after you measure a page

You can check a page's measurements before continuing. On the screen, there is a magnified view of the selected strip and the one next to it. Measurement values appear when you move the mouse pointer over a patch.

- 1 In the patch layout shown on the screen, click the strip that you want to check.
- 2 In the magnified view, move the mouse pointer over the patch that you want to check.

Remeasure a strip

With handheld measurement instruments, you can remeasure a strip. A magnified view on the screen displays the selected strip and the one next to it.

- 1 In the patch layout on the screen, click the strip that you want to remeasure.
- 2 In the magnified view, click the number or the letter of the strip that you want to measure.
- 3 When prompted, measure the strip as before.
- 4 Click **Next** to go to the next page, or continue with the procedure.

Select a profile

When you are performing a task that requires one or more profiles, you can select standard ICC profiles as well as profiles in locked (.icc) format in Fiery Color Profiler Suite, as long as you originally created the locked profiles on this computer. You cannot open locked profiles created on other computers.

1 In the Select Profile window, select a location in the **From** list.

The Select Profile window displays the profiles that are in the selected location.

The list groups profiles by class or by color space. Clicking a setting in the **Show** list limits the list of profiles that appear to a specific profile class or color space.

2 Do one of the following:

- Click a profile name in the **Profiles** area, and click **Select**.
- Click a profile name in the **Recently used profiles** area, and click **Select**.

Add and remove locations in the From list

The **From** list displays predefined locations.

The display depends on the operating system.

- For Windows, the location name is System. The path for System is `WINDOWS\system32\spool\drivers\color`.
- For Mac OS, there are two location names: System and User. The path for System is `WINDOWS\system32\spool\drivers\color`. The path for User is `~/System/Library/ColorSync/Profiles`.

You can also add or remove a local folder, Fiery Server, or Fiery XF server to the **From** list.

- Do one of the following:
 - To add a local folder to the **From** list, click **Open**, browse to the folder, click a profile, and then click **Open**.
 - To add a Fiery Server to the **From** list, click **Add Fiery** and click the Fiery Server.
 - To add a Fiery XF server to the **From** list, click **Add Fiery XF** and click the Fiery XF server. If you find no servers, locate and select the Fiery XF server manually.
 - To remove a location from the **From** list, click the location, and then click the minus sign (-).

Unlock a profile in Color Profiler Suite

If Color Profiler Suite is running in licensed mode (not in Demo mode), you can convert a locked (.icc) profile to the standard ICC format.

This converts the profile to the standard ICC format (the version, 2.0 or 4.0, is not changed) and the new profile replaces the locked profile.

- 1** In the Select Profile window, click the profile name.
- 2** Click **Unlock Profile**.
- 3** If **Unlock Profile** does not become active when you select the profile name, confirm that the following conditions are true:
 - Under Profile Information, the profile name has the .icc extension, indicating that it is in the locked format.
 - Fiery Color Profiler Suite is running in licensed mode (not in Demo mode).
 - The profile was created on this computer.

Rendering intents

An output profile maps out-of-gamut colors to colors in the gamut of the output device. The output profile may also map in-gamut colors to different colors to preserve the relationships between all colors.

There are many ways to map colors, each of which can have different significant effects on output.

The ICC specification defines several ways of mapping colors, called a rendering intent. When you print using a profile, some applications allow you to select the rendering intent that is most appropriate for the images you are printing.

A profile contains data for the following rendering intents:

- **Perceptual** - Preserves tonal relationships in images for perceptually pleasing color. Often used for photographs, including scans and images from stock photography and digital camera images. Typically results in less saturated output than Saturation rendering when printing out-of-gamut colors.

EFI uses the name Photographic for its implementation of the Perceptual rendering intent. Perceptual (Photographic) selects the Photographic rendering intent for an EFI-supplied profile or the Perceptual rendering intent for other profiles.

- **Saturation** - Creates saturated colors but does not match printed colors precisely to displayed colors. Often used for charts and graphs in presentations. Works well for in-gamut colors in images as well as out-of-gamut colors in presentation graphics.

EFI uses the name Presentation for its implementation of the Saturation rendering intent. Saturation (Presentation) selects the Presentation rendering intent for an EFI-supplied profile or the Saturation rendering intent for other profiles.

- **Relative Colorimetric** - Attempts to provide an exact color match between source and destination. This rendering intent maps out-of-gamut colors to the nearest in-gamut color. It provides white-point transformation between the source and destination whitepoints. For example, the bluish white color (gray) of a monitor is replaced by paper white. Often used when color matching is important (for example, logo color), even at the expense of tonal relationships.

Use Relative Colorimetric rather than Absolute Colorimetric intent if you prefer white colors in an image to print as paper white.

- **Absolute Colorimetric** - Is similar to Relative Colorimetric but provides no whitepoint transformation between the source and destination whitepoints. Whites in an image are reproduced as printed color (simulating the destination paper color) rather than replaced by paper white. Best used when you need exact colors, such as for proofing.

Add a Fiery Server

You can add a Fiery Server from the network. You can also add a Fiery Server from the Favorite list.

Before you begin

You will need the DNS name or IP address of the Fiery Server. If you do not have the DNS name or IP address, you can use Search.

- Do one of the following:
 - In the **Add Fiery Server** window, type the IP address or DNS name for the Fiery Server in the **Add a server** field. and then click **OK**.
 - In the **Add Fiery Server** window, click the Fiery Server in the **Favorite** list, and then click **OK**.

Add a Fiery XF Server

You can add a Fiery XF server from the network.

Before you begin

You will need the DNS name or IP address of the Fiery XF server. If you do not have the DNS name or IP address, you can use Search to find available Fiery XF servers.

- In the Fiery XF Discovery window, click **Manual**, type the IP address for the Fiery XF server in the **IP Address** field, and then click **OK**.

