

# Customer Tips

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*... for the user*

## *Options for Managing Color Using the WorkCentre Pro Color PostScript Drivers*

### Overview

Color documents and images present the challenge of matching colors - between scanned image and monitor, between monitor and printer, between printer and digital camera etc. Color devices produce color using different technologies, each with unique limitations in their range of output colors. Computer monitors can produce colors that a printer cannot recreate and vice versa. Different devices may also use different color models. A color model is a mathematical way to represent colors. When output is exchanged between devices with different color limitations or models, a color translation takes place. The ability to consistently reproduce color across devices, in other words to make these "translations," requires a color management system (CMS). A CMS provides a standard way to manage color between any input and output device.

The Xerox WorkCentre Pro Color has the capability to perform and/or participate in the color management process. The WorkCentre Pro Color PostScript print drivers provide two (2) sets of options, **Color Correction** and **Color Management**, which you can set up and use to perform color translations. In addition to these color management features, the WCP32/40 Color provides two (2) further options, **Output Color** and **Image Quality**, to control the device's output.

This document provides a brief description of each of the options available to help manage color using the WorkCentre Pro Color PostScript print drivers.

### Output Color

Use this feature to change the type of output the WorkCentre Pro Color produces.

To apply **Output Color** settings as the default:

1. Access your operating system's printer objects window (for example in Windows XP select **Start>Settings>Printers and Faxes**), and right click the WorkCentre Pro Color PostScript printer object.
2. **Select Printing Preferences** or **Printing Defaults**. **Output Color** options are located on the **Paper/Output** tab.
3. Make selections based on the setting descriptions following the next procedure.

This document applies to these **Xerox** products:

	WC Pro 232/238/245/255/265/275
	WC 232/238/245/255/265/275
x	WC Pro C2128/C2636/C3545
	WC Pro 165/175
	WC M165/M175
x	WC Pro 32/40 Color
	WC Pro 65/75/90
	WC Pro 35/45/55
	WC M35/M45/M55
	DC 555/545/535
	DC 490/480/470/460
	DC 440/432/425/420
	DC 332/340
	DC 265/255/240
	DC 220/230
	DCCS 50

4. Click **Apply** and **OK** to save the settings.

To apply **Output Color** settings temporarily:

1. Select **File>Print** from within an application.
2. Click **Properties. Output Color** options are located on the **Paper/Output** tab.

The following **Output Color** settings are available (see Figure 1):

**Color:** Use this selection to produce color output. This is the default setting.

**Note:** You must select Color to use the Color Correction options described later in this document.

**Black & White:** Use this selection to produce black and white output. The black and white mode transforms all color data to equivalent gray levels. The transformation attempts to preserve color differences as gray density differences. The primary purpose of this mode is to produce the best possible monochrome version of a color document.

**Fax Friendly:** Use this selection to print documents you intend to Fax. The Fax Friendly processing transforms colors to black and white patterns in such a way that the information is preserved and the resulting patterns remain visible when copied or transmitted by fax.

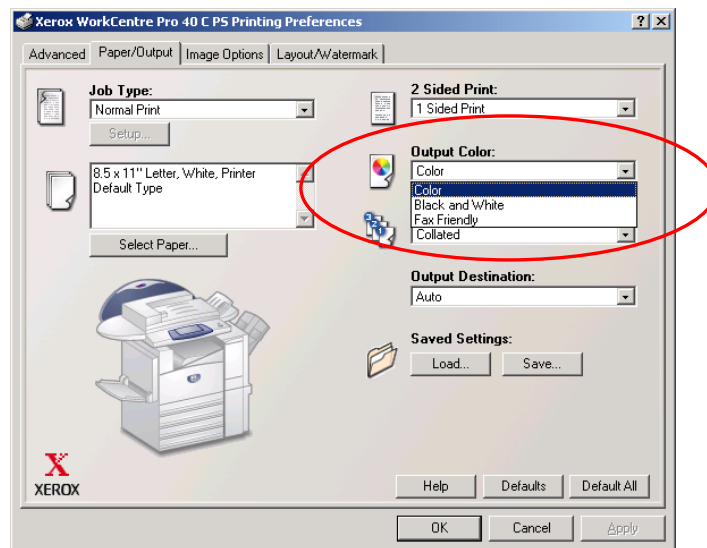


Figure 1. Output Color Option in Printing Preferences

## Image Quality

Use this option to change the image quality or output resolution of printed document(s).

To apply **Image Quality** settings as the default:

1. Access your operating system's printer objects window (for example in Windows XP select **Start>Settings>Printers and Faxes**), and right click the WorkCentre Pro Color PostScript printer object.
2. **Select Printing Preferences or Printing Defaults. Image Quality** options are located on the **Image Options** tab.
3. Make selections based on the setting descriptions following the next procedure.
4. Click **Apply** and **OK** to save the settings.

To apply **Image Quality** settings temporarily:

1. Select **File>Print** from within an application.
2. Click **Properties** and select the **Image Options** tab.
3. Make selections based on the setting descriptions following this procedure.
4. Click **OK**.

The following settings apply to both black and white and color output (see Figure 2):

**Standard:** Produces quality prints for typical office applications. This is the default setting.

**Enhanced:** Provides a higher resolution output image.

**Toner Saver:** Produces lower resolution output to use for example, to produce draft copies of a document.

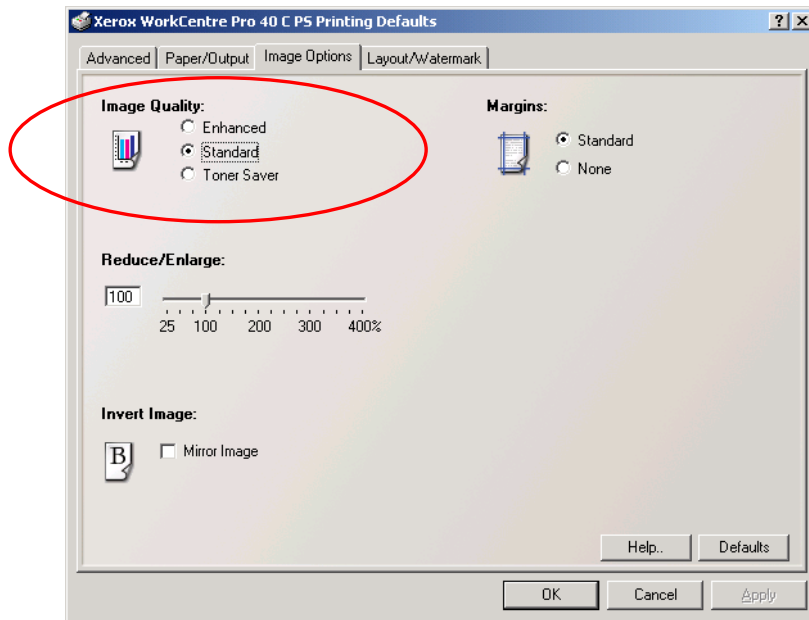


Figure 2. Image Quality option in Printing Defaults

Due to restrictions in the image processing capability of the WorkCentre Pro Color, the Enhanced setting is not available for some large paper sizes. The following table provides a list of paper sizes handled by the WorkCentre Pro Color and shows which paper sizes you can use with the Enhanced setting.

Paper	WC Pro 32/40 Color Selection of Enhanced Image Quality
Custom Sizes	x
Postcard 4.5x6	OK
Postcard 148x200	OK
Postcard 100x148	OK
A6	OK
A5 LEF	OK
A5 SEF	OK
Invoice Statement LEF	OK
Invoice Statement SEF	OK
Executive (7.25 x 10.5) LEF	OK
B5 LEF	OK
B6	OK
#10 Envelope	OK
DL Envelope	OK
C5 Envelope	OK
Monarch Envelope	OK
5x7 SEF	OK
Letter LEF	OK
Letter SEF	OK
Letter Cover (9x11) LEF	OK
Letter Cover (9x11) SEF	OK
A4 LEF	OK
A4 SEF	OK
A4 Cover LEF (223x297)	OK
A4 Cover SEF (223x297)	OK
8 x 10 LEF/SEF	OK
Spanish 215x315 SEF	OK
8.5 x 13 (216x330) SEF	OK
Legal SEF	x
B4 SEF	x
8K (267x388) SEF	x
A3 SEF	x
Ledger (11x17) SEF	x
12x18 SEF	x
12x19 SEF	x
SR A3	x

Table 1. Sizes Available Papers for Enhanced Image Quality on a WorkCentre Pro Color

## Managing Color Output

The Xerox WorkCentre Pro Color has the capability to perform color management or participate in a customer's pre-existing color management workflow. You can set up the color options to do any of the following:

- Apply a color profile to the document(s) using the Xerox WorkCentre Pro Color PostScript print driver's own **Color Correction** feature. This feature offers two (2) different color profiles.
- Apply no color profile to the document(s); for example in cases where a color profile is already applied to the document(s) from an application's CMS, or in cases where no color rendering is desired.

- Apply a color profile to document(s) using the Windows ICM Color Management system built into the Windows operating system. Access this feature by using the Xerox WorkCentre Pro Color PostScript print driver's **Color Management** interface.

It is important that only one color profile is applied. Otherwise double rendering occurs, that is, an over correction or compensation in color rendering. If you use the **Color Management** interface, select "None" for **Color Correction**. Similarly, if a color profile is applied using the **Color Correction** feature, you should not import any profile using the **Color Management** interface. The following sections describe the color management options available when using the Xerox WorkCentre Pro Color PostScript print driver.

When you use Windows Color Management or an application's own CMS, the color correction takes place either on your own computer using the ICC profiles resident on your computer, or ICC profiles are sent to the Xerox device's RIP (Raster Image Processor), where they are processed.

In contrast, when you select one of the print driver Color Correction options, the color correction takes place within the Xerox device's RIP using color tables it contains. In this case none of the color profiles resident on your computer are used. The selections in the print driver indicate which of the device's RIP color tables to use.

## Color Correction

Use the Color Correction feature to apply a basic color profile. You must set the **Output Color** option to **Color** (see the "Output Color" section earlier in this document) to enable use of the **Color Correction** options.

To apply **Color Correction** settings as the default:

1. Access your operating system's printer objects window (for example in Windows XP select **Start>Settings>Printers and Faxes**), and right click the WorkCentre Pro Color PostScript printer object.
2. **Select Printing Preferences or Printing Defaults.** Select the **Advanced** tab and expand the **Image Options** to display the **Color Correction** options.
3. Make selections based on the setting descriptions following the next procedure.
4. Click **Apply** and **OK** to save the settings.

To apply **Color Correction** settings temporarily:

1. Select **File>Print** from within an application.
2. Click **Properties**. Select the **Advanced** tab and expand the **Image Options** to display the **Color Correction** options.
3. Make selections based on the setting descriptions following this procedure.
4. Click **OK**.

The following Color Correction settings are available (See Figure 3):

**Automatic:** Automatic mode uses a default color profile to provide optimal color rendering for a document with mixed content.

**sRGB:** This mode is intended to more closely approximate color displayed on an average CRT computer monitor.

**None:** This is a "raw" mode with minimal color rendering. Select this option when applying color profiles from within applications (for example Photoshop), when no color profile is wanted, or through Windows ICM Color Management.

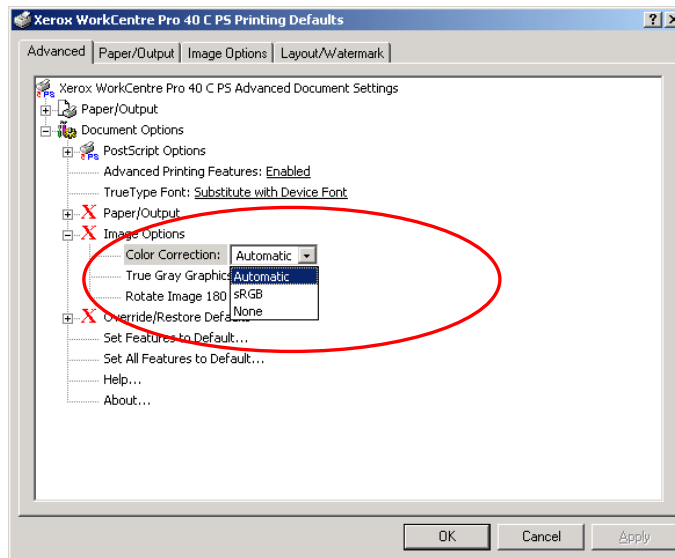


Figure 3. Color Correction option in Advanced Printing Defaults

## Color Management

The Color Management options found in the Xerox WorkCentre Pro Color PostScript print drivers are tied into the Microsoft Windows Image Color Matching (ICM) framework, the color management system employed by the Windows operating system. In order to apply color profiles to a document using the Windows ICM, you must first import them. After a profile is imported, you may select and associate them with the printer. These two activities are outlined in the following procedures.

### Importing Color Profiles

To import color profiles (See Figure 4):

1. Select **Start>Settings>Printers and Faxes** and right click the WorkCentre Pro Color PostScript printer object.
2. Select **Properties** then select the **Color Management** tab.
3. Click **Add**.

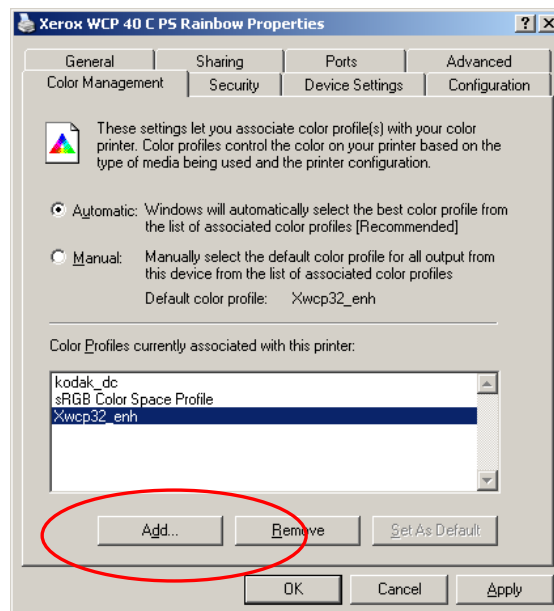


Figure 4. Adding Color Profiles through Color Management

4. Browse to the color profile .icm file desired and select it. (See Figure 5).

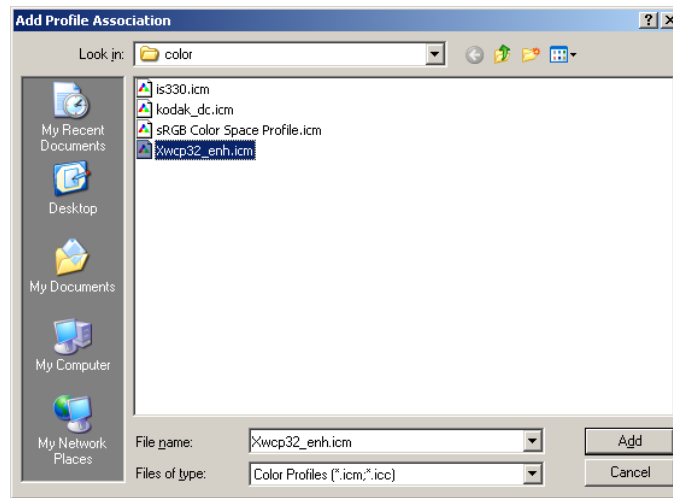


Figure 5. Selecting Color Profile for Import

5. Click **Add**.

Color profiles for the WCP 32/40 device are available for download from the Xerox.com Website. Use the color profile appropriate to your Image Quality setting. We recommend you use the Xerox color profiles but you can import and manually select other profiles as well.

Place color profiles in the “Color” folder found in one of the following locations.

- **Windows XP:** C:\WINDOWS\SYSTEM32\DRIVERS\COLOR
- **Windows 2000 & NT4:** C:\WINNT\SYSTEM32\DRIVERS\COLOR
- **Windows 98:** C:\WINDOWS\SYSTEM32\DRIVERS\COLOR

### Associating a Color Profile with Printer

After you import the profile(s), the following settings are available to associate a profile with the printer (see Figure 6):

**Automatic:** Select this option so that the Windows ICM automatically selects the best option from the list of imported color profiles.

**Manual:** Use this option to select a particular color profile from the list of imported color profiles.

To manually apply a color profile that you select:

1. Click **Manual** and select a profile from those currently associated with the WorkCentre Pro Color.
2. To make your selection the default, click **Set As Default**. Otherwise, click **Apply** to select the profile temporarily.
3. Click **OK**.

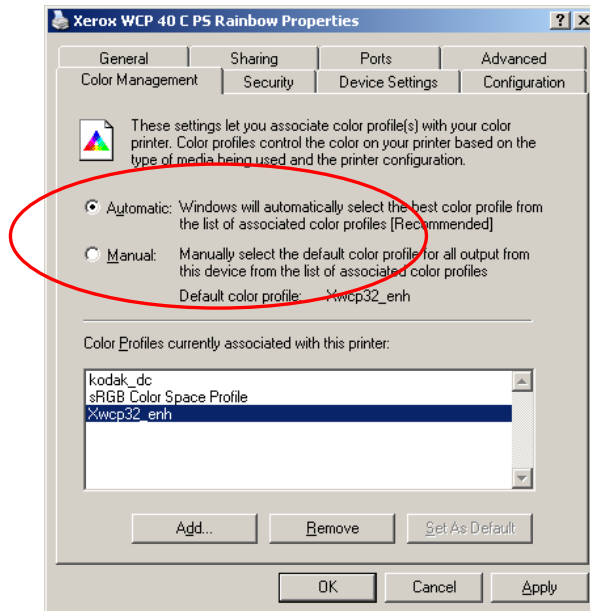


Figure 6. Options for Associating a Color Profile

Remember that if you utilize either of these options select **None** as the **Color Correction** option to avoid repeated image rendering.

## Recommendations and Notes

- The use of the Windows ICM system accessed using the **Color Management** interface in the Xerox WorkCentre Pro Color PostScript print drivers is somewhat unpredictable. Each application and each Microsoft OS behaves differently when using ICM. Generally, some objects on a page are color managed and some are not. If you use ICM correctly and have issues with the results, contact Microsoft directly for assistance.
- High end users (for example: print shops) may use applications and workflows based on the International Color Consortium (ICC) standards. If color profiles are applied by the applications in your workflow, set **Color Correction** to "None" and do not associate any color profiles to the printer using **Color Management**. Otherwise double rendering can occur. If you have residual profiles left from previous workflows, remove them using the "Delete" button found on the **Color Management** tab (See Figure 4 earlier in this document).
- If a color profile is associated with the printer driver via the ICM options provided by Xerox's print driver **Color Management** option, set the **Color Correction** option to "None" to prevent double rendering. Similarly, if a color profile is applied using the **Color Correction** feature, do not import any profiles using the **Color Management** interface.
- You can obtain the best color results from the WCP 32/40 with an all sRGB, non-ICC tagged workflow. Xerox does not recommend the use of ICC workflows in an office environment because each application implements ICC standards differently. The same image may print differently from each application.



## Additional Information

Xerox Customer Service welcomes feedback on all documentation - send feedback via e-mail to: [USA.DSSC.Doc.Feedback@mc.usa.xerox.com](mailto:USA.DSSC.Doc.Feedback@mc.usa.xerox.com).

You can reach Xerox Customer Support at 1-800-821-2797 (USA), TTY 1-800-855-2880 or at <http://www.xerox.com>.

Other Tips about Xerox multifunction devices are available at the following URL: <http://www.office.xerox.com/support/dctips/dctips.html> .

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