Epson Color-Managed Workflow: Getting the Color You Expect in Your Prints

These instructions are intended to help our customers that use a color-managed workflow. They cover all the steps you need to enable color management in Adobe[®] Photoshop[®] 7 and then print with an Epson printer driver. Workflows for both Mac[®] OS 10.2 and Windows[®] XP are included. The Epson Stylus[®] Photo 2200 printer is used as the example in these steps, but the workflow is similar for other Epson printers.

Carefully follow the instructions in these sections for the best results:

- Printing With a Color Profile
- <u>Solving Color Management Problems</u>
- Printing a Custom Profile Test Target
- Creating a Custom Profile

Printing With a Color Profile

To print an image using a profile, follow the steps in the appropriate section for your operating system below.

- Macintosh OS X
- Windows

Macintosh OS X

Opening Your Image

- 1. Open Adobe Photoshop.
- 2. Select Color Settings from the Photoshop menu.

	Color Settings	
Settings	U.S. Prepress Defaults	OV
Advance	d Mode	UK
- Working	Spaces	Cancel
RGB:	Adobe RGB (1998)	
CMYK:	U.S. Web Coated (SWOP) v2	Load
Gray:	Dot Gain 20%	Save
Spot:	Dot Gain 20%	Preview
Color Ma	anagement Policies	_
RGB:	Preserve Embedded Profiles	
CMYK:	Preserve Embedded Profiles	
Gray:	Preserve Embedded Profiles	
Profile Mis	matches: 🗹 Ask When Opening 🗹 Ask When Pasting	
Missing	g Profiles: 🗹 Ask When Opening	
Descript	tion	
U.S. Prepri in the U.S.	ess Defaults: Preparation of content for common press conditions	

- 3. Select U.S. Prepress Defaults from the Settings pull-down menu. This sets Adobe RGB (1998) as the RGB working space and activates warning messages for profile mismatches and missing profiles.
- 4. Click OK.

- 5. Open the photo you want to print.
- 6. If you see the message shown below, select Use the embedded profile (instead of the working space) option and click OK. It is generally best to use the embedded profile.



7. If you see the message shown below, select Assign working RGB: Adobe RGB (1998) and click OK.



 When your image appears, evaluate the color balance and contrast as displayed on your monitor. If they need improvement, select Image > Mode > Assign Profile.

Assign Profile			
Assign Profile: O Don't Color Manage This Document Working RGB: Adobe RGB (1998) Profile: SRGB IEC61966-2.1	OK Cancel Preview		

Select one of the following as the Profile setting:

- A different RGB working space, such as ColorMatch RGB or sRGB IEC61966-2.1
- A scanner profile for your scanner
- A camera profile for your digital camera

Also click the **Preview** box so you can see the effects of your profile choice on the screen.

Note: Assigning a profile to the image doesn't alter the image data, only the interpretation of the data by your software and how it appears on your monitor and in a printout. This is the best way to improve the color balance and contrast in your image.

Selecting Your Print Settings

1. Select File > Page Setup. You see this window:

Page Setup			
Settings: Page Attributes			
Format for: Stylus Photo 2200			
EPSON SP 2200 (3,1).			
Paper Size: US Letter			
8.50 in x 11.0 in			
Orientation:			
Scale: 100 %			
(Cancel) OK			

- 2. Select your printer from the Format for menu.
- 3. Select the size of the paper you loaded as the Paper Size setting.
- 4. Select your image orientation: **IF** (portrait), **IF** (landscape left facing), or **IF** (landscape right facing).
- 5. Click OK.

6. Select File > Print with Preview. You see this window:

		Print	
Click Show More Options —	Show More Options	Position Top: 0.125 inches Left: 0.694 inches Center Image Scaled Print Size Scale: 474.89% Scale to Fit Media Height: 9.944 inches Width: 6.611 inches V Show Bounding Box Print Selected Area	Print Cancel Done Page Setup

7. Click Show More Options, then select Color Management. Additional options appear:

- 8. Under Print Space: Profile, select a profile for your printer and the paper you'll use for the print.
- 9. As the Print Space: Intent setting, select Relative Colorimetric.

Note: If your image contains very saturated colors, select Perceptual instead. This reduces the color saturation so that the colors fit within the printer's color gamut.

10. Select the Use Black Point Compensation checkbox.

Printing Your Color-Managed Photo

- 1. Click the Print button.
- 2. Select your printer from the Printer menu.

Note: Always select the exact same setting as the **Printer** option in the Print window and the **Format for** option on the Page Setup windows. If the settings are different you may get unexected results.

- 3. Select Print Settings from the pull-down menu.
- 4. Select the Media Type setting for the paper you'll use for the print.
- 5. Click the Advanced Settings button.
- 6. Select the **Print Quality** option that will give you the level of quality you want in your print.
- 7. Turn off the High Speed and Edge Smoothing options, if they are available.

Print
Printer: Stylus Photo 2200 Presets: Standard Print Settings
Page Setup: Standard Media Type: Premium Luster Photo Paper ; Ink: Color ; Mode: Automatic Custom • Advanced Settings Print Quality: Photo - 1440dpi ; • MicroWeave High Speed Flip Horizontal • Finest Detail
Help
(Preview) (Save As PDF) (Cancel) (Print)

8. Select Color Management from the pull-down menu.

	Print		
	Printer: Stylus Photo 2200		
	Presets: Standard		
	Color Management		
IMPORTANT! Select No Color — Adjustment	Color Controls ColorSync No Color Adjustment		
		Help	
	? (Preview) (Save As PDF) (Cancel)	Print	

9. Select No Color Adjustment.

Note: Make sure that you select **No Color Adjustment**. If you don't, the printer driver will apply additional correction to the image data, producing inaccurate results.

10. Click Print to print your photo.

Windows

Opening Your Image

- 1. Open Adobe Photoshop.
- 2. Select Edit > Color Settings.

Color Settings	×		
Settings: U.S. Prepress Defaults			
Advanced Mode	Capcal		
Working Spaces	Cancer		
RGB: Adobe RGB (1998)			
CMYK: U.S. Web Coated (SWOP) v2			
Gray: Dot Gain 20%	<u>S</u> ave		
Spot: Dot Gain 20%	Proviou		
Color Management Policies			
RGB: Preserve Embedded Profiles 💉			
CMYK: Preserve Embedded Profiles 💙			
Gray: Preserve Embedded Profiles 💉			
Profile Mismatches: 🗹 As <u>k</u> When Opening 🔽 Ask <u>W</u> hen Pasting			
Missing Profiles: 🗹 Ask W <u>h</u> en Opening			
Description			
U.S. Prepress Defaults: Preparation of content for common press conditions			
in the 0.5.			

- 3. Select U.S. Prepress Defaults from the Settings pull-down menu. This sets Adobe RGB (1998) as the RGB working space and activates warning messages for profile mismatches and missing profiles.
- 4. Click OK.
- 5. Open the photo you want to print.

6. If you see the message shown below, select Use the embedded profile (instead of the working space) option and click OK. It is generally best to use the embedded profile.



7. If you see the message shown below, select Assign working RGB: Adobe RGB (1998) and click OK.

Missin	g Profile			
⚠	The RGB document "	picture2.jpg" does not have an embedded color pr	ofile.	
	- How do you wan	t to proceed?		
	O Leave as is (don't color manage)			
	• Assign working RGB: Adobe RGB (1998)			
	Assign profile:	sRGB IEC61966-2.1	~	
		and then convert document to working RGB		
		OK	Cancel	

 When your image appears, evaluate the color balance and contrast as displayed on your monitor. If they need improvement, select Image > Mode > Assign Profile.



Select one of the following as the Profile setting:

- A different RGB working space, such as ColorMatch RGB or sRGB IEC61966-2.1
- A scanner profile for your scanner
- A camera profile for your digital camera

Also click the **Preview** box so you can see the effects of your profile choice on the screen.

Note: Assigning a profile to the image doesn't alter the image data, only the interpretation of the data by your software and how it appears on your monitor and in a printout. This is the best way to improve the color balance and contrast in your image.

Selecting Your Print Settings

- 1. Select File > Page Setup.
- 2. Click the Printer button.



3. Make sure the correct printer is selected, then click OK.

4. Select the size of your paper as the Size setting.

Page Setup	? 🛛		
Paper	I fund use and the second seco		
Гарег			
Size:	Sige: Letter (8 1/2 x 11 in) Source: Sheet		
<u>S</u> ource:			
- Orientation	Margins (inches)		
⊙ P <u>o</u> rtrait	Left: 0.116 <u>Right</u> : 0.116		
O L <u>a</u> ndscape	<u>I</u> .op: 0.116 <u>B</u> ottom: 0.55		
	OK Cancel Printer		

- 5. Select **Portrait** or **Landscape** for the orientation of your image.
- 6. Click OK.
- 7. Select File > Print with Preview.
- 8. Click Show More Options, then select Color Management from the pull-down menu. Additional options appear:

	Print		
Print Space settings —	Position Iop: 0003 Inches Iop: 0003 Inches Iop: 0003 Inches Iop: 0003 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 0004 Iscale to Fit Media Left: 0180 Inches Iop: 004 Iscale to Fit Media Left: 004 Inches Iop: 004 Iscale to Fit Media Left: 0180 Iop: 014 Inches Iop: 014 Inches Iop: 014 Iop:	Print Cancel Dong Page Setup	

- 9. Under Print Space: Profile, select a profile for your printer and the paper you'll use for the print.
- 10. As the Print Space: Intent setting, select Relative Colorimetric.

Note: If your image contains very saturated colors, select **Perceptual** instead. This reduces the color saturation so that the colors fit within the printer's color gamut.

11. Select the Use Black Point Compensation checkbox.

Printing Your Color-Managed Photo

- 1. Click the **Print** button.
- 2. Make sure your printer is selected, and click the Properties button.
- 3. Click the Advanced button.
- 4. Select the paper type setting for the paper you'll use for the print, then select the correct resolution setting.

🗳 EPSON Stylus Photo 2200 Propert	ies 🔹 🛛 🔀	
🚱 Main 🌐 Page Layout 🚳 Maintena	ince	
Paper & Quality Options Sheet Borgerless Enhanced Matte Paper Photo - 1440dpi Letter (8 1/2 x 11 in)	Color Management C _ Color Controls C PhotoEnhange C _ ICM	IMPORTANT! Select ICM, then click No Color Adjustment
Orientation Image: Orientationation Image: Orientation Image: Orientation Image: Orientation Image: Orientationation Image: Orientationation Image: Orientationation Image: Orientationation Image: Orientationationation Image: Orientationationation Image: Orientationationation Image: Orientationationationation Image: Orientationationationationationation Image: Orientationationationationationationationati	C Applied by Printer Software	
☐ Reverse Order ✓ Minimize Margins		
High Spged High Spged Black Ink Only Edge Smoothing Print Prgview		
Custom Settings Save Setting	Show this screen first	
Ink Config	Basic	
[OK Cancel Help	

- 5. Turn off the High Speed and Edge Smoothing options, if they are available.
- 6. Click the ICM button under Color Management.
- 7. Click the **No Color Adjustment** button.

Note: Make sure that you select **No Color Adjustment**. If you don't, the printer driver will apply additional correction to the image data, producing inaccurate results.

- 8. Click OK.
- 9. Click OK to print.

Solving Color Management Problems

If you selected the wrong combination of source profile, printer profile, and color management settings, you'll get unexpected results. Try these solutions:

If your printed image is darker than expected and has a strong green cast, you probably turned off color management in both Photoshop and the Epson printer driver.

Return to the Print with Preview instructions for Adobe Photoshop (for instructions, click <u>Mac OS X</u> or <u>Windows</u>). Make sure the Source Space -Document option is *not* set to **Untagged RGB**. Also make sure you selected the correct profile for your printer in the Print Space - Profile pull-down menu.

■ If your printed image is lighter than expected and has a strong red cast, you probably turned on color management in both Photoshop and the Epson printer driver.

Return to the printer software instructions for <u>Mac OS X</u> or <u>Windows</u>. Make sure to select **No Color Adjustment** in the printer driver Advanced screen or Color Management menu to turn off color management in your Epson printer driver.

Printing a Custom Profile Test Target

Follow the steps in this section to create and print individual custom profile test targets for each paper type you plan to print on.

When you're ready to print the test target, follow the steps for your operating system.

- Macintosh OS X
- <u>Windows</u>

Macintosh OS X

- 1. Open Adobe Photoshop and open the profile target file provided by your profile-building software manufacturer.
- 2. If you see a missing profile screen, select Leave as is (don't color manage).
- 3. Select File > Print with Preview.
- 4. In the Print window, click the Show More Options checkbox, then choose Color Management in the drop-down menu.
- 5. Select Same as Source as the Print Space: Profile setting.



6. Click the Page Setup button.

Page Setup					
Settings: Page Attributes					
Format for: Stylus Photo 2200					
EPSON SP 2200 (3,1).					
Paper Size: US Letter					
8.50 in x 11.0 in					
Orientation:					
Scale: 100 %					
? Cancel OK					

- 7. Select your printer from the Format for pull-down menu.
- 8. Select the size of the paper you loaded as the Paper Size setting.
- 9. Select your image orientation: **I** (portrait), **I** (landscape left facing), or **I** (landscape right facing).
- 10. Click **OK**.
- 11. Click the Print button.
- 12. Select your printer from the Printer menu.

Print
Printer: Stylus Photo 2200
Presets: Standard
Print Settings
Page Setup: Standard
Media Type: Premium Luster Photo Paper 🛟
Ink: Color
Mode: O Automatic
Custom Advanced Settings Print Quality: Photo - 1440dpi MicroWeave High Speed Flip Horizontal Finest Detail
Нер
(Preview) (Save As PDF) (Cancel) (Print)

Note: Always select the exact same setting as the **Printer** option in the Print window and the **Format for** option on the Page Setup windows. If the settings are different you may get unexected results.

- 13. Select **Print Settings** from the pull-down menu.
- 14. Select the Media Type setting for the paper you loaded.
- 15. Click the Advanced Settings button.
- 16. Select Photo 1440dpi as the Print Quality setting, though you can select a lower or higher quality setting.
- 17. Turn off the High Speed and Edge Smoothing options, if they are available.
- 18. Select Color Management from the pull-down menu.
- 19. Click No Color Adjustment.

	Print	
	Printer: Stylus Photo 2200	•
	Presets: Standard	•
	Color Management	
IMPORTANT! Select No Color — Adjustment	Color Controls ColorSync No Color Adjustment	
		Help
	(?) (Preview) (Save As PDF)	Cancel Print

- 20. Click Print to print your test target.
- 21. Repeat these steps to print a test target for each paper type you plan to print on.

Windows

- 1. Open Adobe Photoshop and open the profile target file.
- 2. If you see a missing profile screen, select Leave as is (don't color manage).
- 3. Select File > Print with Preview.

			Posit Top Left Scale	ion : 0.183 : 0.447 V d Print Size : 100%	inches inches <u>C</u> enter Image	v		Print Cancel Dong Page Setup.
			∐eight <u>W</u> idth	7.9 9.436 Sho	Scale to Fit inches inches w Bounding Box ht Selected Area	Media	9	
Color Manag Color Manag Source Spac Document: @ Proof: (ement	iged RGB . Web Coated (S	5WOP) v2					
Print Space: Profile: S Intent: F	Same As Source Relative Colorimetri	c				*		

- 4. In the Print window, click the Show More Options checkbox, then choose Color Management in the drop-down menu.
- 5. Select Same as Source as the Print Space: Profile setting.
- 6. Click the Print button.
- 7. Click the **Properties** button.
- 8. Click the Advanced button.

9. Select the paper type setting for the paper you'll use for the print, then select the correct resolution setting.

Main Page Layout Main Age Layout Main Paper & Quality Options Sheet Photo - 1440dpi T Intraced Matte Paper Photo - 1440dpi Intraction Crientation Print Options Print Options Print Options Print Options Regress Order Minimize Margins High Speed Black Ink Only Edge Smoothing Print Preview	Color Management Color Management Color Adjustment Colo	IMPORTANT! Select ICM, then click No Color Adjustment
Custom Settings Save Setting	Show this screen first	
Ink Config	Image: Show this screen first Basic OK Cancel	

- 10. Turn off the High Speed and Edge Smoothing options, if they are available.
- 11. Click the ICM button under Color Management.
- 12. Click the No Color Adjustment button.
- 13. Click OK.
- 14. Click OK to print.
- 15. Repeat these steps to print a test target for each paper type you plan to print on.

Creating a Custom Profile

If you're creating a custom profile for your printer, follow the instructions provided with your profile-building software (such as Monaco Systems MonacoEZcolorTM or GretagMacbeth[®] ProfileMakerTM) to create your custom profile using the test target you printed. Once you create the profile, be sure to place it in the correct folder on your computer, as recommended by Microsoft[®] or Apple.[®]