

Digital Printing

Part II Do It Yourself

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Agenda

- Overview of DIY printing
- Printing Workflow
- Workflow Details
- Printers and Paper
- Advanced Topics for DIY
- Appendix

Overview

The Three Things you will work with when doing your own printing

- Print file. The creation of the print file is very similar to what we did for online service.
- Software used for printing. We will be using the File > Print feature of Photoshop Elements and CS*n*.
- The Printer, using the printer's Properties dialog box.

Overview

Pro

- Full control over quality
- Many paper choices
- Can easily print full frame, i.e. all pixels.

Con

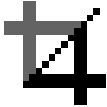
- There are more steps involved than having someone else do your printing for you.
- Startup cost
- Cost of printing supplies.
- Isn't economical unless you do lots of printing
- Cannot easily make specialty items, like coffee mugs and playing cards

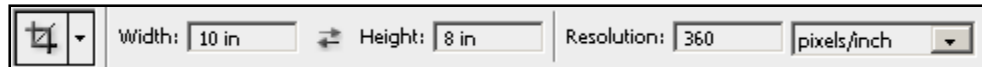
Printing Workflow

1. Make a copy of the master file. Close the master file.
2. Convert to Adobe RGB (1998) if in ProPhoto RGB color space (CS*n* only).
3. Soft proof and fix out of gamut colors (CS*n* only). [Advanced]
4. Flatten the image by merging all layers.
5. Resize, Resample and Crop (Additional details next slide).
6. Convert to 8 bit if the image is 16 bit and the print engine cannot process 16 bit images. If not sure what the printer can handle, convert to 8 bit (CS*n* only).
7. Add printer black point adjustment. [Advanced]
8. Output sharpen. [Advanced]
9. Use Image > Rotate to orient the image as needed. Usually, printing orientation is portrait even for images whose visual orientation is landscape.
10. Save the print file in a lossless format, such as PSD or TIFF.
11. Make sure the proper inks are loaded for the paper being used.
12. Print a nozzle check pattern if it has been a while since last using the printer. Perform a nozzle cleaning if necessary.
13. Load the paper
14. Print (Additional details next few slides).
15. Allow the print to cure for 24-48 hours before framing.

Resize, Resample and Crop

Using the copy of the master file...

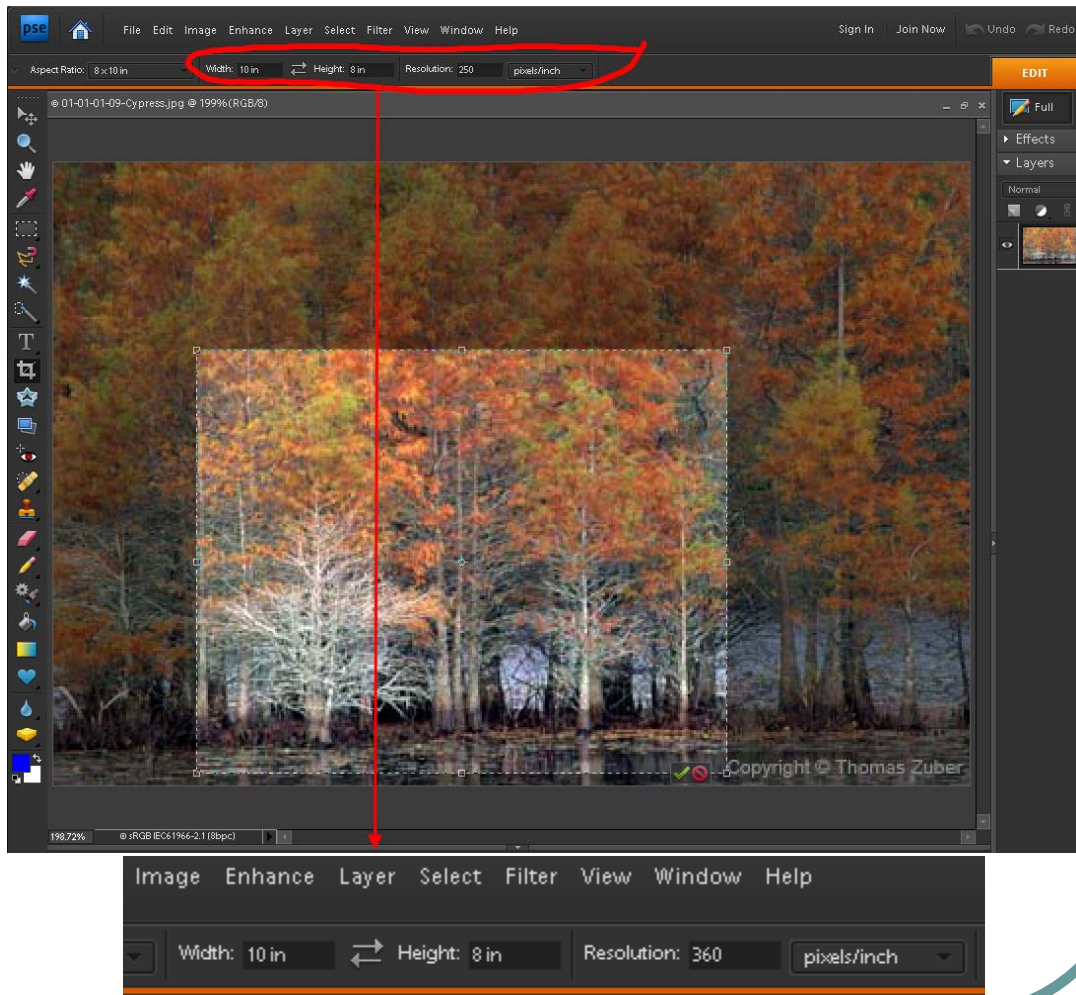
1. Ctrl + zero (Command + zero) to fit the image on the screen.
2. Type the letter c to make the Crop tool the active tool. 
3. In the Options bar, type the desired output width and height in inches. After the number, type 'in' for inches.



4. Type the desired resolution in the Options bar. Usually, it is a number between 200 and 360. If unsure, use 300.
5. Click in the image and drag the Crop tool over the area to be printed.

Resize, Resample and Crop

When specifying width and height, be sure to use 'in' for inches or 'px' for pixels.



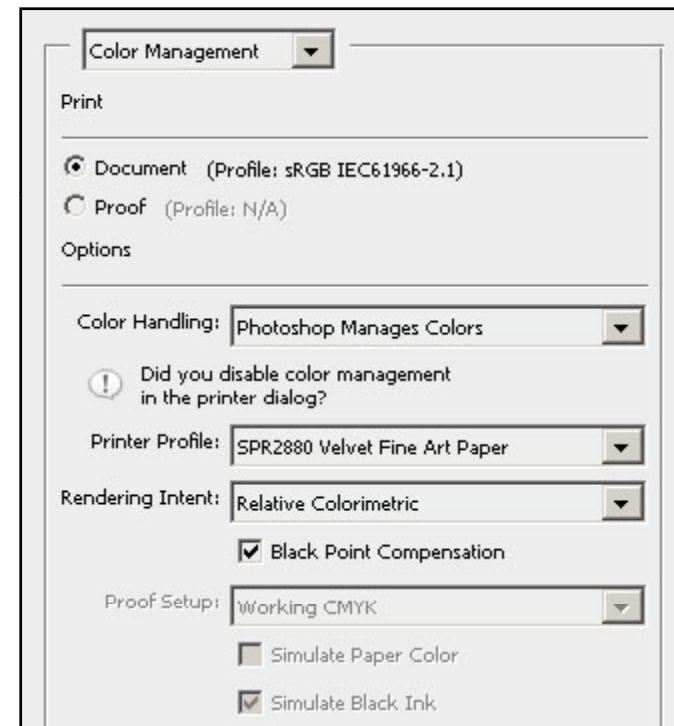
Printing Software

Now that we are finished with the print file, our next step is the printing software.

Printing Software

Photoshop Elements and CS*n* Steps

1. Click File > Print. The Print dialog box will be displayed.
2. Select the printer
3. Leave Print Size to actual because you have already resized the image.
4. Position: Center Image
5. Scale: 100%
6. Print option: Document, not Proof [CS*n*]
7. Color Handling: Photoshop Manages Colors
8. Printer Profile: select appropriate profile for the paper, ink and paper being used
9. Rendering Intent: Relative Colorimetric
10. Black Point Compensation: Checked [CS*n*]



Don't click Print yet

Printer Parameters

We now have to set the printer parameters

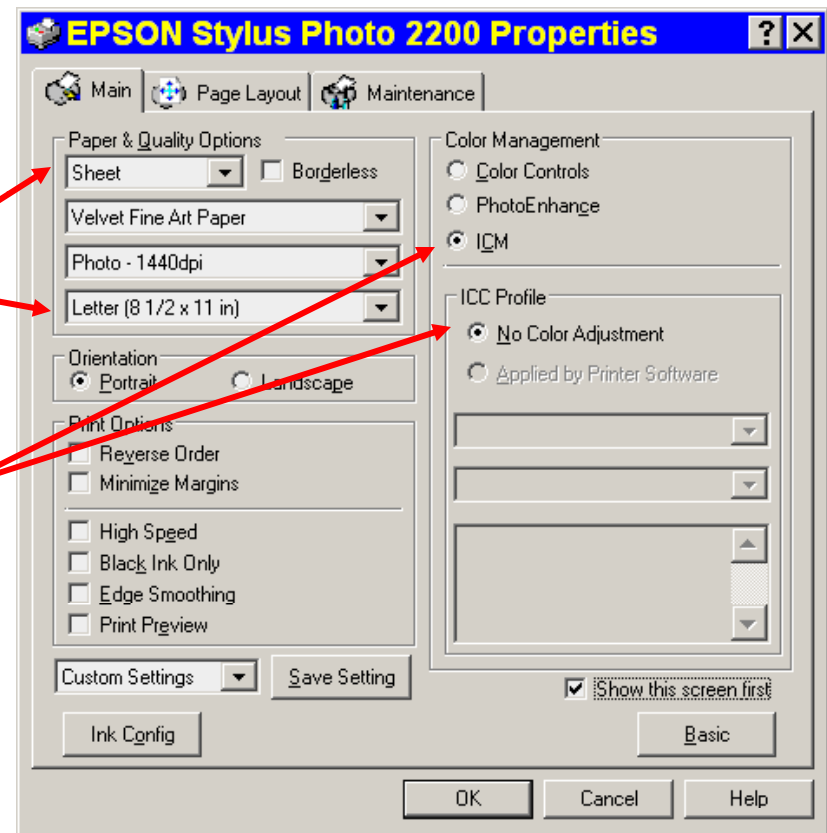
Printer Parameters

Printer Steps

1. On the File > Print dialog box, click the Printer Preferences (Elements) or Page Setup (CSn) button. The printer's Properties dialog box will be displayed.
2. Select the appropriate paper source, type, quality and size.
3. Make sure Black Ink Only is unchecked, even if printing a B&W.
4. If possible, tell the printer NOT to manage or adjust colors.

Your image is now ready to be printed

5. Click OK.
6. Then click Print.



Printer Characteristics

What to look for in a printer

- Type: dual purpose, all-in-one, dedicated photo
- Carriage width: This limits the widest paper you will be able to print on.
- Paper feed: This determines the length of paper the printer can handle.
- Ink type: Dye or pigment. Dye is usually cheaper and slightly more vivid. Pigment is archival. But there are now archival dye inks and vivid pigments.
- Cartridges: Individual or combined. Individual is more economical in the long run because it allows you to replace only the ink that has run out. Printers that have individual ink cartridges are a little more expensive.
- Number of 'black' inks.
- Specialty paper: Roll, film, thick, canvas.
- Print onto ink jet printable CDs and DVDs.
- Connection: USB, Ethernet (networked), wireless.
- Other features, such as USB memory card slots

Paper Characteristics

- **Finish:** Matte, luster, semi-gloss, glossy. Matte paper will give an image a softer appearance and has a smaller dynamic range.
- **Percent White:** Measure of a paper's brightness. 'Bright' white paper has been chemically enhanced and is less archival.
- **Fiber material:** Wood fiber, rag, bamboo, canvas. Cotton and linen are considered archival.
- **Thickness:** Usually measured in mm or mil.
- **Smoothness**
- **Type:** Sheet or roll

Advanced Topics

- Color Management – Ensures colors stay consistent throughout the entire workflow.
- Soft proofing – Emulating, on a monitor, what an image will look like on paper.
- Gamut warning – Technique for finding colors the printer cannot reproduce.
- Rendering Intent – Tells the print engine how to convert colors that are in-gamut in the photo but are out-of-gamut for the paper, ink and paper. Leave it Relative Colorimetric.
- Black Point Compensation – Tells the print engine whether or not to adjust for any differences in black between the source and destination color spaces. Leave it on.
- Printer black point adjustment – A technique for controlling the reproduction of shadow tones. Consists of finding the dynamic range of your paper/ink/paper and fitting the image into that range.
- Output sharpening – Increasing the contrast along edges in order to retain sharpness that is lost when printing.
- B&W Printing – Creating a truly neutral black and white print can be challenging.

Appendix – Printing Full Frame

If you are printing every pixel in your image, then you will want to use the Image > Resize command instead of the Crop command. First, you must decide the maximum size for the printed width and height. Lets assume the shortest side must be 8” or less and the longest side 10” or less.

- Elements: Click Image > Resize > Image Resize
- CSn: Click Image > Image Size
- Make sure Resample Image and Constrain Proportions are both checked
- Enter the Resolution (usually between 200 and 360)
- In Document Size, enter 10 inches for Width or Height, whichever is the longest side. Make sure you specify inches.
- If the other side changes to 8 inches or less, you are done. If the other side becomes greater than 8 inches (a square image would cause this), change the longest side to 8 inches.
- Click OK

Appendix – Printer Profiles

Where to get printer profiles for your paper

The printer manufacturer usually puts the printer profiles for its papers on the printer installation software, so when you install the printer, the profiles also get installed.

Manufacturer: Check the printer manufacturer's web site if using their paper.

Hahnemuhle: www.hahnemuehle.com/site/en/220/icc-profiles.html

Red River: www.redrivercatalog.com/profiles/

Cathys Profiles: <http://www.cathysprofiles.com/>

Appendix – Print Size

How does a printer know what size print to make?

It is a combination of dimension in pixels and file resolution. A file that is 4320 pixels by 6480 pixels and has a resolution of 360 ppi will produce a 12x18 print. Changing the dimension or file resolution without changing the other will produce a different size print.

Appendix – Common Myths

Myth

My printer uses CMYK inks. Therefore, I need to convert my image file's color space to CMYK before printing.

Fact

Inkjet printers you find in your home and professional offices are RGB devices that use CMYK inks to create the print. Therefore, your image file needs to be in a RGB color space. The printer was engineered to read RGB images and then decide how to mix CMYK colors to reproduce your image on paper. If you are working with a print shop that uses offset printers, then you may need to convert your image to the CMYK color space, but work with the print shop to determine exactly what they need.

Appendix – Common Myths

Myth

My printer prints at 1440 dpi. Therefore, I need to change my print file's resolution to 1440 ppi.

Fact

Desktop inkjet printers typically want a file resolution somewhere between 200 and 360 ppi. If you send a file to the printer using a resolution different than what it wants, the printer will resample the file for you. This is rarely an issue. But for those who want to exercise maximum control, resample the print file to the resolution the printer wants before sending it to the printer.

Appendix – Common Myths

Myth

When printing a black and white, make sure the Black Ink Only option is checked.

Fact

This option should only be used when printing text. When printing a black and white photograph, you want the printer to use whatever inks it has, including the color inks.

Digital Printing - DIY

End