

An overview of photo printing

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Tonight's agenda

- We'll spend the 1st half of tonight's talk discussing making photo prints using online photo labs:
 - Why make prints?
 - A few print examples.
 - Pros and Cons of lab prints versus inkjet prints.
 - Discussion and demo of ROES photo lab ordering software.
- During the 2nd half of the evening we'll discuss printing your images using an inkjet photo printer.
 - Types of digital printers.
 - Discussion of print fade.
 - A few inkjet photo printer recommendations.
 - A few useful printing tips
 - Color management
 - Photo workflow
 - Qimage (specialized printing software) demo

Why make prints?? Just my views, of course.

- Taking lots of pictures is easy, but making prints can be a hassle.
- Once you get over a few hurdles, making and viewing your photo prints can be extremely satisfying.
- People's expectation of a good photographer includes being able to produce great prints.
- The tradition of photography has always been about the print.
- Prints can make excellent gifts which can have great

sentimental value!

Which way to go – lab prints versus inkjet

- Today we have two excellent methods of making photo prints – photo lab, either local or web-based, and inkjet printer.
- Both methods can produce accurate, colorful, and long lasting (archival) prints.
- Lab prints can be less expensive for the smaller sizes and pretty much hassle free.
- Inkjet prints are great, particularly if you prefer matte/fine art papers or like to have total control of the process.

Lab prints vs. inkjet prints - pros/cons

Lab prints - pros

- No hassles or worries about inkjet printer maintenance.
- Typically lowest cost per print at the small sizes such as 4" x 6" but depends upon the printer.
- Online print labs offer a wide array of options such as templates, magnets, press printed prints etc.
- Lab prints are extremely robust in terms of water and scratch resistance.

Lab prints - cons

- No instant gratification.
- Limited paper choices, typically luster or glossy unless the lab supports inkjet prints.
- Shipping costs vary but can impact the cost of small orders.
- Limited ability to experiment with picture edits or paper types.

Inkjet prints vs. lab prints - pros/cons

Inkjet prints - pros

- **Unlimited ability to experiment with photo editing because of the instant feedback.**
- **Wide range of inkjet paper choices as pretty much all of the major paper suppliers support HP, Epson and Canon inkjet printers.**
- **Typically lower cost per print at the 8" x 10" and larger print sizes.**

Inkjet prints - cons

- **Inkjet printer maintenance does require some periodic attention, particularly pigment-based printers.**
- **The larger printers can require a fair amount of desk or office space.**
- **Pigment-based printers often waste a fairly significant amount of ink due to periodic head cleaning cycles.**

Ordering online photo prints using ROES

- **ROES (Remote Order Entry System) is an easy to use, cross-platform ordering solution for lab prints.**
- **Using the software is simple: select a folder of images, select a product you want to order then drag and drop.**
- **Most, if not all of the online photo labs support print ordering using ROES. Once you learn it you can easily order photos with any lab that supports ROES ordering.**
- **Here's a few photo lab recommendations:**
 - **Bay Photo Labs - www.bayphoto.com**
 - **WHCC (White House Custom Color) - www.whcc.com**
 - **Mpix – www.mpix.com**
 - **ACI (American Color Imaging) - www.acilab.com**
 - **Apollo Photo Imagizing – www.apollo-imagizing.com**
- **The best way to explain ROES is with a demo.**

Two types of digital photo printers



Dye-sublimation printer

These use a ribbon carrying colored panels of special dye, and this dye is transferred to specially treated paper by a thermal process. The main advantage with dye-sub printers is that they produce almost perfect photo-quality prints, as the image is built up in transparent layers rather than a pattern of tiny dots. Major manufacturers of dye-sub printers include Kodak and Olympus.



Inkjet printer

Inkjet printers have a head which moves rapidly over the surface of the paper. In this head are a number of tiny nozzles, through which minute droplets of ink are forced, spraying onto the paper in tiny but precisely measured quantities, as many as 30,000 droplets per second. Major manufacturers of inkjet printers include HP, Epson and Canon.

A word about print fade

- Historically, photographs printed using a computer printer have had a nasty reputation for fading over a fairly short period of time.
- Many of today's inkjet photo printers, when used with their proprietary ink and paper, will produce fade-free prints for many years.
- Canon, HP and Epson all make claims of 100 +/- year fade resistance for color and up to 200 years for black and white prints.
- Today's pigment photo printers offer the best print longevity numbers although several of the newer dye-base printers have extremely long resistance to fading.

Choosing an inkjet printer

Canon, Epson, Hewlett Packard and Lexmark are the most common inkjet printer brands in the U.S. Each company markets many different models. When shopping for a new inkjet printer, think about your needs before buying.

Functional criteria - here are some things to consider before buying:

- Will the printer only be used for printing photos? Will it also be used for printing general text and graphics?
- Do you want to print photos that are larger than 8x10? How large do you want to print?
- Do you want to print on special or heavyweight papers such as canvas or watercolor paper or will you print mainly on glossy or semi-glossy papers?
- How important is print speed?
- What is your price point for the printer?

A few photo printer recommendations

Canon, Epson and HP all make excellent inkjet photo printers. Epson has been doing this longer than the others and probably has the most extensive lineup of models. However, both HP and Canon today have technology arguably equal to Epson.

13" Desktop model recommendations:

- For printing mainly on glossy or semi-glossy papers:
 - Epson Stylus Photo R1400 - \$279 (Dye)
 - Epson Stylus Photo R1900 - \$549 (Pigment, currently \$399 with rebate)
 - Canon Pixma Pro 9000 - \$449 (Dye)
- For printing on all paper types including matte papers and some canvas:
 - HP Pro B8850 - \$525
 - Hp Pro B9180 - \$569
 - Epson Stylus Photo R2880 - \$799 (Currently \$649 with rebate)
 - Canon Pixma Pro 9500 - \$699
- I recommend checking out the ink prices for the above printers as in the long run it is a major contributor to operating cost. Pay attention to the cost per ml of ink.

Photo printer recommendations cont.

If you can afford the higher printer cost of a large format printer you'll obtain lower per print costs because of the larger ink cartridge capacities (lower cost/ml) and roll paper capability.

Large format model recommendations:

- **For printing on all paper types including matte papers and canvas:**
 - **HP Designjet 130 (24") – \$1299 (Dye)**
 - **HP Z2100 (24") - \$2800**
 - **Epson Stylus Pro 3800 (17") - \$1200**
 - **Canon iPF5100 (17") - \$1995**
- **The above prices are list and online deals can always be had. It definitely pays to shop around before buying.**

Some useful printing tips

- **Read your printer installation guide.**
- **Check periodically for the manufacturer's latest printer drivers or other software.**
- **Particularly when you start out printing photos, use your printer's brand of photo paper and ink.**
- **Depending on the printer, perform periodic nozzle checks.**
- **Stick to the manufacturer's inks but experiment with other manufacturer's paper types such as Ilford, Hahnemuhle, Moab etc.**
- **Use proper paper profiles and printer paper settings.**
- **Crop images and print to standard sizes, particularly if giving a print as a gift.**
- **For added durability and longevity spray the print surface with something like Premier Art Printshield.**

Color management defined

Color reproduction has a fundamental problem: different color values do not necessarily produce the same color in all devices. Hence the need for color management.

Some necessary definitions and terminology:

- **Color gamut** – This is the range of colors that a physical device is able to reproduce.
- **Color space** - A color working space is used in image editing programs such as Photoshop, and defines the set of colors available to work with when performing any image editing. sRGB and Adobe RGB are the two most common color working spaces.
- **Color profile** - In color management, an ICC profile is a data file that characterizes a color input or output device.
- **Printer calibration** – Not to be confused with printer profiling. Some of the newer printers have the ability to calibrate the hardware to a known state.

Color management continued

Here's a list of steps to help keep the photo color accurate

- **Calibrate your monitor.**
- **As an aid to monitor calibration you'll need to first adjust the display intensity. Most LCD displays are too bright out of the box and need to be adjusted for lower brightness. Failure to do this will result in prints that are too dark.**
- **At first you may want to stick with the printer driver's color handling. You may then turn off the printer's color management setting and let the application manage the colors.**
- **When using 3rd party papers you will typically need to download their paper's profile for your specific model of printer.**
- **For best and most accurate color reproduction you can purchase a printer profiling instrument and produce your own paper profiles.**

Jim's photo workflow

As an example, here's my flow from camera to print

Since I use Canon equipment the first part of my workflow is Canon specific but would work equally well for Nikon or Sony using their software or a 3rd party RAW file converter.

- **I shoot my pictures in Canon RAW format.**
- **If primarily portrait pictures I will use Canon DPP software for RAW conversion. If other I would may use Adobe Lightroom.**
- **Generate jpeg or tiff files for any further editing in Photoshop.**
- **I generally don't do any initial cropping as I may not know what size photo I'll make. For printing I typically stick to standard photo sizes.**
- **Edit in Photoshop. If only a few images to print I may print from Photoshop.**
- **I print with a program called Qimage.**

A word on imaging software

- **Many of us have a substantial dollar investment in camera gear such as camera, lenses, tripods etc.**
- **The above being said, don't skimp on the proper software that will help you produce the best and most creative pictures.**
- **Most of the software vendors allow a free trial of their software for a limited time period. Don't hesitate to take them up on their offer.**

Qimage – Software for printing

- **Optimal print quality regardless of size**
- **Optimal arrangement of prints on page**
- **Mix and match different size prints on each page**
- **Print cropping tool remembers all your crops**
- **User controllable final print "smart sharpening"**
- **Fully ICC aware color management**
- **Batch convert, create files for photo labs, etc.**
- **Automated job log, save and recall jobs/settings!**