

Houston, We Have a [Printing] Problem!

By Mike Chaney

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In developing and supporting my photo printing software, [Qimage](#), I often end up helping a lot of people with printing questions and problems that aren't related to any particular software but correspond to broader printing concepts. In this article, I'll try to cover the most common things that can go wrong with photo printing and will suggest solutions to those problems. Due to the wide variety of printers, papers, and inks available, it is more common to get "surprises" when printing photos than when displaying them on screen, sending them via e-mail, or performing other operations. Printing software like Qimage can make the job of printing photos much easier, but some of the variables that affect the appearance of your prints between the software and the paper can be confusing and difficult to identify since they have nothing to do with the software that printed the photos. Let's take a look at some common stumbling blocks and see if we can take some of the mystery out of them.

Wrong colors

First and foremost, make sure your printer is really printing the wrong colors! If your print driver has a "print preview" option, ***never trust the colors you see in the preview!*** You must print a real print and evaluate it since the colors you see in the print preview (in the print driver) are raw colors intended for the printer and you are viewing these raw colors on screen. Assuming you have really printed the prints and you have problems with the physical prints on paper, read on...

Probably the most common issue with photo printing is sending your photo(s) to your printer only to discover the colors look wrong, or at least "different" than the way they appear on screen. To be able to fix such problems requires that you know what the colors ***should*** look like! Color problems can be obvious, like when a blue sweater looks purple, or a bit more elusive such as when a flower looks a little redder in print than the pinkish hue on screen. When evaluating subjects like flowers, it can be difficult to judge which version is more "accurate" especially when the subject is no longer available. This is why it is important to make sure your on-screen image is accurate before deciding that the problem is with the printed version. In some cases, the print may be more accurate than the monitor if you haven't profiled or at least calibrated your monitor. Monitors are usually easier to calibrate/profile because you don't have to deal with things like different types of paper and lighting. Making sure that your monitor is displaying the right colors is therefore the first stepping stone to accurate color. For more info on how to calibrate or profile your monitor, see [this article](#) which has some references to monitor profiling software.

Once you have your monitor displaying the proper colors and you know that you have a real problem with printed color, you have some options for addressing printed color(s). First you must make sure you have selected the proper paper type. If you are using paper from the manufacturer of the printer, this is usually a simple task of dropping down the "paper" or "media" selection and selecting the paper you are using. If you are using third party paper, however, you may have to refer to the documentation that came with the paper as far as the proper settings to use for that paper. If no documentation for your printer model was included in the package of paper, you may have to try several selections for paper type in the driver to find the one that works best! Normally you would start with the paper that most resembles the paper you are using. Obviously if you have a glossy paper, limit yourself to the glossy paper selections and if you are using a matte paper, limit yourself to the matte paper selections and so on. The best way to determine whether or not you've selected the right paper type is to print a colorful test print using different paper type selections (and with print quality set to the highest level in the driver). If you see unexpected color shifts, graininess, or ink clumping, blotching, or pooling, keep trying until you've found a paper type that minimizes these effects. If the effects cannot be eliminated, you may have to consider the possibility that the paper you chose is just not compatible with your printer (this is uncommon but not unheard of).

Once you've selected the best paper type for your paper, some color issues may remain. Unfortunately without downloading or creating an ICC profile specific to your printer, paper, and ink, your only option may be to try some trial-and-error changes in the print driver. Selecting "File", "Printer Setup" in most applications will take you to your print driver where you'll have access to things like color controls, color spaces, print quality, and other options. You can try changing color-related options in the driver such as changing from "Color Control" to "sRGB" print mode or vice versa on Epson printers, using different "Color Adjustment" modes on Canon printers, or fiddling with different selections on the "Color" tab on your HP printer. Each driver puts a different spin on how you control color, so the process for adjusting color is really hit-or-miss using this method. The only way to **ensure** accurate color is to have a custom profile made for you or use a profiling tool such as my own [Profile Prism](#) software to create a color profile yourself. Some printers come with ICC profiles for different papers but they are often not specific enough to render truly accurate color on your printer and are often supplied with little or no documentation on how to use them. Since color management and application of profiles can be a complex issue, [here is another article](#) that covers the problems you may have when using color management (printer profiles) if you decide to go that route to get color dialed in.

Output is grainy

Another common complaint about printed photographs is that the photos look grainy. If you are using an inkjet printer, your printer produces photos by spraying a very fine pattern of small dots on the page. With the latest inkjet printers, these dots are normally

so small and so closely spaced that you cannot detect them with the unaided eye. Unless there is a problem that caused noise or grain in the original photo (such as using a high ISO speed), visible grain in prints can normally be traced to either a problem with the media or improper driver settings. First be sure you are using the appropriate paper type selection for the paper you are using (see "Wrong colors" section above). Some papers do not work well with all printers and many times when photos look too grainy, you may have simply gone too far when looking for "cheap" paper or you may be using a paper that simply doesn't work well with your printer. Don't take "compatible with all inkjet printers" too seriously when reading the paper package as being "compatible" doesn't necessarily mean it will work *well* with *your* printer! When all other variables like paper type and quality settings have been ruled out and you still have trouble, consider trying another paper like one of the papers made by the same manufacturer as your printer. Often times just switching paper will cure the grainy print problem.

Next check your print driver settings using "File", "Printer Setup" and make sure you have the highest quality selected. This may entail selecting "Best Photo" quality, selecting the highest resolution number, and/or sliding a quality slider to the highest quality. You want to stay away from options like "Draft", "Text", "Standard" or "Normal" as those options usually indicate that you have not selected the best print quality. Sometimes just going through the quality options in your print driver and manually selecting the highest quality options will reduce graininess in printed photos if your print driver tends to default to a more "mediocre" quality.

Also be aware that some people are more sensitive to grainy prints than others. I've seen some prints that wouldn't even pass for photos in my opinion (I call them "printouts" rather than "prints"), and it always amazes me that some people can't see the grain in the same print! A lot depends on eyesight (near vision), lighting (grain is more noticeable in very bright light) and other factors. Finally, keep in mind that some portable (mostly 4x6) printers and printers that can print without a computer may not use the highest print quality available if you just insert the memory card from your camera and print directly. I've found some of these "standalone" printers to be grainy when printing directly from the card but substantially better if connected to a computer where you can override the defaults in the print driver and select higher quality output settings. Few if any of these standalone printers are set up to output at the highest quality when printing directly from memory cards.

Banding

Banding is a general term for any type of aberrant straight lines that appear on your photos whether they are vertical or horizontal. There are actually many causes for banding but the most common are clogged nozzles and poor print head alignment. The print head on an inkjet printer contains dozens, hundreds, sometimes thousands of tiny holes where the ink is sprayed onto the page. If even one of these little nozzles becomes clogged, banding can occur. Most print drivers offer a "nozzle check" option where you can see if any of your nozzles are clogged and a "clean" option where the

nozzles are cleaned with a high volume ink spraying cycle. Another cause for banding can be print head alignment. If you've done a nozzle check and you have determined that no nozzles are clogged, you might want to check your print driver to see if it has an option for "print head alignment". If it does, you may have to go through a process for this manually or your printer may have an automatic option for head alignment. If the nozzle check looked good and the print head alignment didn't fix the problem, I'd recommend going through at least one cleaning cycle anyway. Believe it or not, clogged nozzles sometimes don't show on a nozzle check and a single cleaning cycle may correct the problem.

Yet another cause for banding is the use of third party inks that have slightly out-of-spec flow rates or viscosity. I've seen more than a few cases where banding was caused by problems with third party inks. Sometimes the ink will flow without a problem for a while and then banding will occur at the bottom of the page, right side of the page, or even only in areas of thick, saturated color. In cases like these, the ink may be having trouble flowing at a rate high enough to keep up with the demand at all times. Ink flow problems and physical problems with the print head can be very difficult to diagnose. They can occur at strange times, in strange areas of the print, and the banding can even be worse when using software that optimizes print quality because lower quality printing software may hide the problem by not taxing the printer to its limits. In any case, when banding occurs, look for a physical problem with the printer or ink itself even if the problem seems to only appear in strange places and/or only appears when using certain software or driver settings. The printing software is almost never the cause of banding as banding is usually a sign of some type of hardware failure.

Partial prints, all-back, or no prints

Another common printing problem is finding out that not all of your prints printed, pieces of the prints are missing, or some/all of your prints printed as solid black rectangles. All of these problems are caused by your print driver not being able to handle the amount of data being sent to the driver. Some print jobs, particularly those that have been optimized for quality or those that contain large prints or many smaller prints, put a heavier burden on the print driver. For this reason, you must ensure that your print driver is set up to handle larger jobs. Two very common solutions are:

1. Go to control panel, printers and faxes, and right click on your printer and select "Properties". On the "Advanced" tab, make sure "Enable Advanced Printing Features" is *not* checked! This option, simply put, was never meant for photographs and does not work properly when printing large photos or printing many photos to large pages. Second, press the "Print Processor" button and make sure the spool type is set to "RAW" with no other options. This tip alone accounts for over 90% of problems with missing prints or pieces of prints.
2. If you still have problems and/or you have problems only when printing larger prints, check the "effects" type options in your print driver. Some drivers have

trouble with effects when dealing with large prints because they simply cannot handle applying those effects to larger prints. HP printers for some reason are more prone to this problem than others. Check the "HP Digital Photography" area and make sure that none of the effects are checked, particularly any that have the word "auto" in them. These options often get "confused" when doing large or optimized printing.

For additional tips when printing large photos or large jobs, see [this article](#).

Prints are the wrong size

If you ever print a specific size such as 4x6 and you don't get what you expect, first check the paper itself. Did you print borderless on 4x6 paper and the print was either cropped more than expected or isn't big enough for the paper? First check the size of the paper with a ruler. Sometimes the paper you bought isn't exactly 4x6 (or 5x7, 8x10, etc.)! It seems silly, but I've seen this happen more than a few times. If you print a specific size and only one side is the correct size, you may need to crop some of the image to get the size you want. Some software will do this for you with the click of a button while others make you do this cropping step manually. If you print a 10 x 8 for example and your print ends up 10 x 6.67 where only **one** side is the wrong size, you may just need to crop because the aspect ratio of the image doesn't match the print.

If you sent one size to the printer and it ended up printing proportionally larger or smaller (in both dimensions), it may be due to an option in the print driver. Be aware that borderless printing often results in size expansion so if you are printing in borderless mode, your prints will actually be expanded so that they print slightly larger than the size specified. With borderless printing turned on in the driver for example, it isn't uncommon to send a 4x6 print to the driver only to get a print that is 4.2 x 6.2 inches. This can sometimes be controlled with the "amount of extension" option in the driver but cannot always be turned off completely unless your printing software (such as Qimage) offers an override. Options like "fit to page", "enlarge" or "reduce" also will modify the print size without you being aware of the change. [Here](#) is an article that deals specifically with potential print sizing problems.

Prints fade quickly

Longevity/permanence of prints is a widely studied, complex, and often misunderstood topic. There are sites on the web where you can find longevity data and they might have even tested your particular model printer and the paper and ink you use. The problem with most of these tests is that there are a lot of factors involved and few of these sites tell you about what affects longevity of prints. These longevity testing sites can and do give you information about which papers are better for ink permanence but

they often don't test many combinations. Generally, if you have a "normal" inkjet printer that isn't labeled "lightfast", "archival", or "pigment", you probably have a printer that is using dye based inks. Dye based inks tend to fade rather quickly if the print is exposed to (in direct contact with) circulating room air and/or is in a room with bright lighting such as direct sunlight. Your average inkjet printer just wasn't made for archival purposes so if you put some prints on your refrigerator and the sun swipes over them every morning, don't expect them to last long! It's as simple as that. Outgassing and exposure to light can cause the fading so if you mount your photos behind glass (like in a photo frame) and not in direct sunlight, they will last years/decades. Take them out and expose them to the environment and you are asking for trouble.

Pigment printers are normally called archival or lightfast and use pigment inks as opposed to the faster fading dye inks. Prints produced by pigment/archival printers will last much longer than prints from a dye based printer when exposed to the environment but even these archival prints will do better behind glass. As a general rule, if you want your prints to last, put them behind glass or in a protective sleeve like the ones found in most quality scrapbooks. And if you are really into scrapbooking and you want to know if your prints from your inkjet printer are acid/lignen free, the answer is no! Even if you buy acid free paper, the ink itself will not be acid free. In addition, normal photographic prints that you get from a photo developing outfit are far from acid free and they aren't known to cause major problems with scrapbooking, so there's really no need to overdo it trying to fool with acid free inkjet papers. Of course, if you are a purist, I'm sure you could find acid/lignen free paper for about three times the cost of your regular inkjet photo paper but it probably won't look as good and will it really make a noticeable difference in the long run? I'd say no, but that's just my view.

Summary

Hopefully this article will be a good cheat sheet for those having trouble printing their digital photos. My goal was to try to help show the way for people who get unwanted surprises when they try to print their photos. The photo-to-printer path is actually quite complex and there are a lot of potholes in the road to getting good digital photos. You may get lucky and your prints may be acceptable the first time you print. Certainly that was the intent of the manufacturers: for you to plug the printer in and print with no issues. With the variety of printers, drivers, paper, and inks on the market, however, it is more likely that at some point you'll run into at least one of the problems listed on this page. As you move forward and get more involved with your photography over time, you may find that what was acceptable for your first prints isn't that good any more. You'll tend to be more discriminating the more you print. Such is life in any hobby or profession. I hope this page can be of some help no matter where you are on that road.