Preparing Digital Camera Files For High Quality Prints That Aren't Cropped

Larry Berman www.BermanGraphics.com 412-767-8644

Introduction

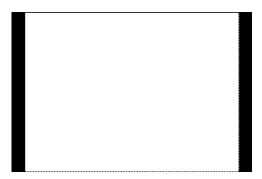
I've prepared this paper to help people understand why their digital camera files are cropped when printed as standard photographs and how to make adjustments so that the entire image is printed. Some basic skills with an image-editing program will be needed.

Before digital cameras, we used to shoot pictures and take the film to the corner drug store for printing. When we got our pictures back, the exposure looked OK but maybe the heads at the top were partially cut off. So we complained and had them reprinted and now the heads were there but the bottoms were partially cut off. That was our first exposure to non-compatible image proportions.

With the proliferation of digital cameras and the widespread availability of commercial digital printers like the Noritsu or Frontier, with a little effort we can get great looking prints by becoming our own dark room technicians. This requires only a rudimentary knowledge of image editing and does not require making inkjet prints at home, though the process would be the same.

Understanding Proportion

Most digital cameras capture images at a proportion of 3 to 4. Standard 35mm film cameras capture images at a proportion of 2 to 3.



The full image with black borders represents what a 35mm film camera would capture and white area between the black borders represents the proportion of a digital camera picture

Some paper sizes match one proportion and some match the other. To confuse you even more, digital printers make borderless prints so some minor cropping will always happen. Unfortunately there is no standard and that's why you can get better looking prints if you spend a few minutes preparing your files to be printed so that they match the desired paper size. Remember the heads being cut off? With a little work you can control where the image is cropped, or (in the following instructions) prepare it so that it doesn't need to be cropped at all.

Why Pixels and Not Inches

I suggest working (or thinking) in pixels for accuracy, but it's not mandatory. What is necessary is understanding that pixels, not inches, is the standard unit of measurement in digital camera image capture, making prints from digital files, and viewing images on a monitor.

Digital camera files (pictures) are captured as pixels. A two-megapixel camera captures a 1600x1200 pixel image at its highest resolution. A three-megapixel camera captures a 2048x1536 pixel image, a five-megapixel camera captures a 2560x1920 pixel image. A tip here – always shoot at the highest resolution your digital camera is capable of. Otherwise you're wasting the quality that you paid a premium for when you purchased the camera.

Printer Resolution

Printer resolution is also pixel dependent. All printers have a resolution that they're optimized for and will produce the best print possible if the digital file is prepared to match. The Fuji Frontier digital printers are optimized for 300 PPI (pixels per inch) and the Noritsu digital printer (at this Costco) is optimized for 320 PPI, though 300 PPI will work fine in all commercial digital printers. "Pixels per inch" is just what it says it is. It's how close together the pixels are, which determines how much detail will be seen in the image. A print made at 72 PPI will not show as much detail as a print made at 300 PPI.

Printing the Full Image on 4x6 Paper

This is an example of sizing for 4x6 prints, which is the most common print size. I'm assuming you want to print the full image or you wouldn't be reading this paper. The same principal applies for 8x10 or larger prints. I suggest working in pixels for accuracy but it's not necessary. What is necessary, as you read earlier, is understanding that pixels, not inches, is the standard unit of measurement in digital camera image capture, making prints from digital files, or viewing images on a monitor. Also be aware that some of the commercial digital printers might crop into the image by as much as 20 pixels. But if your file is prepared at 300 PPI, those 20 pixels will probably be negligible.

Step 1

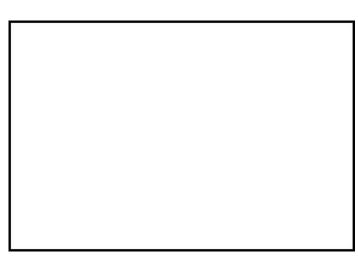
Using a digital camera file I took of my wife and myself with a tripod and self-timer at the Bellagio Hotel in Las Vegas. The original file is proportioned 3x4 but I wanted to make a 4x6 inch print.



In my image-editing program, I sized my file to 300 pixels per inch and 1200 pixels short dimension, which gave me an image size of 1200x1600 pixels.

Step 2

I then created a blank canvas (image) of 1200x1800 pixels, which is 4x6 proportion at the target 300 PPI.



Step 3



Copy the image from step one and paste it into the blank canvas of step two and flatten the layers and Save As a TIF or JPEG to be printed.

If you do save it as a TIF, make sure to flatten the layers because the digital printer can't print a layered TIF properly. Also make sure to not use LZW TIF compression because the digital printers can't read compressed files properly either.

The same principal applies for 8x10 (2400x3000 pixels), 10x15 or 12x18 inch prints. Size your images so that one dimension is the same pixel dimension as the desired print size and the other side falls short. That will give you a border on the two opposite shorter sides when you copy it into a blank canvas at the pixel dimensions you want to print. The blank canvas area outside the print doesn't have to be white as I used in the above example. Sometimes choosing black, or matching a color in the image, makes it look better if you want to frame it.

Digital Photography and Imaging Tips

Use a tripod or some form of camera support whenever possible to avoid camera shake. Shoot at the highest resolution the camera is capable of for the best image quality. Set the ISO for the lowest the camera is capable of for the least amount of digital noise. Shoot TIF (if your camera offers it) for the highest quality. If shooting JPEG, set it for Fine JPEG for the least amount of compression. JPEGs are virtually indistinguishable from TIFs at smaller print sizes. If shooting JPEG, convert the image to TIF (but save the original) in your editing program before making any changes so the image doesn't degrade. Then when finished editing it, save the TIF and convert it back to a JPEG for printing or for web use. Remember to never overwrite the original.

Recommended Programs and Resources

Larry Berman - www.BermanGraphics.com - 412-767-8644 **Adobe Photoshop Elements 3** is available at Costco for under \$100 **IrfanView** - www.Irfanview.com - a free downloadable image viewing program with some image editing capabilities.