Focus on Imaging
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Enlarging Digital Files by Jack and Sue Drafahl
Tools to make digital lab life easier for professionals

Life in the digital photo lab would be easier if customers matched their file size to the print size they intend you to output. Unfortunately, there is no controlling what customers bring into your lab! We have found that a little education can help reduce errors. Your client just wants you to create the best possible print from his or her files and is often confused as to how to make it happen.

OUR FIRST EXPERIENCE with this digital file size occurred years ago when a client asked us to scan an image at the highest resolution possible. We immediately asked a few more questions, before proceeding with the job, and were informed that the master was a 5x7 black-and-white print. We were puzzled, so we asked what the image would be used for. At first the client hesitated to answer, insinuating that it was really none of our business. We explained that with digital imaging you needed to know the final application so you can carefully match the scan resolution to the final output.

The client was insistent that a full high resolution scan with at least 300 dpi at 8x10 in size was needed. We asked again about the final application and almost laughed when we heard the response. The scan was going to be used in a low resolution black and white newsletter at 1x1 inches in size.

We explained that we could make a very inexpensive scan, small enough to fit on a floppy, that would do a great job. We continued to explain that a higher resolution scan would just be reduced, so it would be like throwing money away.

This was an easy problem. The bulk of the mismatched image resolution problems are in the opposite direction, and the files are too small to match the final print application. Just recently, a client presented us with a 300 dpi 8x11 image that needed to be printed out to more than 3x4 feet on an inkjet printer. Going back and redoing the file was out of the question, so we started exploring all the software tools possible to save the day.

Here were some of the software solutions we found for this and many other projects.
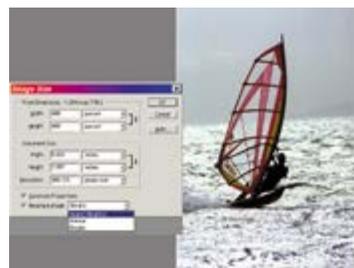
The standard Adobe Photoshop resize menu showing the three different types of resample effects.

Adobe Photoshop (www.adobe.com), a leader in image processing, has set up a simple menu embedded in its image resize tools for offset printer output. In the auto submenu, when you type in the resolution of the printing screen needed for the final product, and then select draft, good, or best quality, Photoshop will provide the best page size for that output resolution. If you need a larger page size, you can lower the dpi and make the page size larger, but that reduces the image quality.

Since inkjet printers are generally higher resolution than offset printing, most labs will use higher numbers than those mandated by Adobe. These higher numbers will depend on the quality of the printer, and the demands of your client base. If you are unsure of what resolution numbers work best with your printer, contact your printer manufacture, and then run tests to confirm their resolution numbers.

Another option is to increase the overall size of the file using the resample function. If you use the standard resample functions in the Adobe Photoshop menu, you may not be happy with the results. The least effective type is the

The auto resolution is accessed by pressing the auto function of the image resample menu. With this menu you can select the quality of image you want, and Photoshop will make the best resample of your image.

Nearest Neighbor, which just fills in the new area with multiplied pixels. The jaggies in the original file are still there even though the page size is larger.

Bicubic and Bilinear average the color between the pixels as the image is enlarged, but the overall image loses image sharpness. Of these two, the Bicubic does a better job, but when the image size is increased, the quality is still lacking. If you rarely increase page size for large output formats, then the Bicubic resample with an unsharp mask will probably do the job.

The Lizard Tech Genuine Fractrals Print Pro menu is used to resize images by dpi, pixels, and page size. The side effect of resizing images to much larger images, is the extreme reduction of pixels in the final image.

For those of you who are constantly fighting the page size problem, the solution may be a plug-in software for use in Adobe Photoshop. It is called Genuine Fractals Print Pro and was recently purchased by Lizard Tech (www.lizardtech.com). The program has been around for quite some time and continues to enjoy some nice improvements. Using Fractal Compression technology, your file is first compressed and saved into a Fractal File format. The file is then reopened and resized to whatever output size you need for your printer. During the enlargement process, a great amount of pixelation is removed. You can then use the unsharp mask to recover any loss of image quality that may have occurred during the process.

This program is especially effective when making enlargements from low resolution Internet images. This was the program we used to make our 3x4 foot poster print.

We recently tried the new S-Spline software program from Shortcut Software (www.s-spline.com) that uses the Wavelet technology. Unlike Genuine Fractals Print Pro, S-Spline is designed more for enlargement, and less for file compression. The software concentrates on sharpening the fine lines while maintaining the softness of the tones in between. This program runs as a stand-alone program and does not need Adobe Photoshop to complete its task.

This is an extreme enlargement of the wind surfer image at 600 x 400 pixels with no enlargement.

The Adobe Photoshop image rescale function was set to 400% and the bicubic resample methods applied. The result is much like the bilinear, but with a little bit better image detail. This is the best resample method of the three offered by the image rescale in Adobe Photoshop.

The same image was saved as a Lizard Tech Genuine Fractal Print Pro file and reloaded at a 400% increase in size. Notice the improved quality in both the text and detail in the image over the Photoshop bicubic method.

With all these methods there may still be some artifacts that materialize during the image enlargement. If you have the budget, you might consider an additional program from Alien Skin (www.alienskin.com) called The Image Doctor. This group of Photoshop compatible plug-in filters includes a special filter called JPEG Repair. Even though the problems with these enlargements are not the result of JPEG compression, this plug-in will help reduce any final artifacts that arise from the extreme enlargement. The filter works best in the soft areas where most of the artifacts may still be showing.

Sometimes you need to have several tools at your fingertips to help solve problems that arise. Try these software tools on one sample image at different resolutions to see the effect. Make sure the sample image has whites, blacks, fine lines and text. Zoom in and compare sections of the image. Try different resolutions to rescale the image and test the output process on inkjet paper. If you are prepared and understand your arsenal of tools, then you are ready to combat any image enlargement problem that comes through the door.

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