Printing Your Own Giclées

Part 2: Image Processing

By Randy Hufford

As a business owner considering doing your own giclée printing, you need to answer this question: Where will the digital files come from that you will use to produce your prints? There are two possibilities: Clients and artists who bring you original art that needs to be digitized, and those who supply you with digital files made by an outside source.

To make professional-looking prints, you need to know how to get or to create great digital files and how to adjust quality digital files from outside sources for even better prints. You also need to understand the advantages and learn how to use raster image processing (RIP) software—which translates the image on your computer screen into a digital print—to produce the best prints possible.

Outsourcing Direct Digital Scans

Doing your own digital scans of art is the most reliable way of producing quality images of artwork. Making great digital files of original art, posters, or photographs is done by a process called direct digital scanning. The equipment required to do this is not inexpensive, however. A good way to get started in printing is outsource your scans to a professional studio that specializes in that service. The cost for this is typically about $250. You can still take advantage of the adjustment methods in Photoshop covered below to get the most of these files.

Choosing and working with a photo lab or art reproduction specialist is very important. Some helpful things to know are:

1. What equipment do they use? For the quality you expect, they need to have at least a 4x5 camera with a scan back. These scan backs usually start at 200-plus megapixels, giving excellent resolution and sharpness.
2. Do they use custom camera profiles to calibrate their direct scanning system and convert that to a commonly used color space like Adobe RGB so that it can be

This article is the second on how to successfully add giclée printing to your production framing operation. This series covers Set-up and Calibration, Ink & Media, Digital Art Enhancements, Finishing Techniques, and Selling Giclée Prints. It follows the author's DVD training set, "The Perfect Print." Visit http://ivamaui.com/softwarecinema for more info.

This direct digital scanning set-up includes a custom-built 5000º K light bank, an R&R copy wall, and a 4x5 camera on a rolling back with a BetterLight scan back.

A Sinar 4x5 camera (above) and a BetterLight Super 6K Scanning Back insert and USB control box (right) will produce professional direct scan images of art.

viewed accurately on your color monitor? This is an important step in translating color accurately from the original to your reproductions.

3. Will they supply test prints of their files to confirm the quality of the scans? When looking at a test print, check for sharpness, color accuracy, and "noise" or "grain" in the shadow areas of the image

The other form of outsourcing involves clients (often artists) who bring you digital files. Upon receiving these files, load them onto your computer. You can open the files directly from a CD or DVD, but it is much better to copy the file to your hard drive and then make your adjustments from there.

Once these files are opened in Photoshop using a color-calibrated workflow, decide if they look ready to print or could use a little help. One very common adjustment I use on customer-supplied files is to turn up the Vibrancy control, which tends to give more life and depth to the final output.

Alzo digital copy lights provide even, color-balanced lighting for accurate direct digital scanning of art. (Photo courtesy of www.alzodigital.com.)

In-house Direct Digital Scanning

When everything is taken into account, direct digital scanning is the highest profit department of a digital printing operation. It also requires the largest capital outlay and is the most technical in terms of setup and training, so it bears serious consideration.

A typical high-end, direct digital scanning system complete with all gear, shipping, installation, training, and phone support can run upwards of $28,000. The average rate for a direct digital scan (including a proof print) is about $250. Thus, if you do 10 high-end, direct digital scans per month, you can get complete payback within a year.

The number of scans you do is generally the most important factor in deciding whether you want to outsource your scans or invest in an in-house system. One advantage offsetting the initial investment expense is the fact that this technology gives you greater access to reproducing images that may lead to contracts that you might not otherwise be able to get. Digital photography is also advancing daily, so it also makes sense to be sure that you have a large enough market to support a scanning operation even when equipment upgrades are needed.

The next thing to consider is the daily operation of your scanning department. You need a person who is both interested in and skilled in photography and Photoshop. When set up with an efficient scanning department, the average time it takes to hang, light, scan, adjust, make your first test print and archive it is typically 20 minutes per image. And the process uses very few consumables: some electricity, ink and proofing media. The components of a direct digital capture system include:

1. Copy Wall – This allows safe and easy handling of original art. It secures the art, both flat and centered to your camera position.
2. Movable Lights – A pair are needed to illuminate the art evenly without glare or reflections.
3. Camera – A 4x5 model, sturdy enough to hold a scan back. While many people use a less expensive digital camera to digitally capture original art, this is not recommended. There is no way to get the same quality with such a system. No matter how good your Photoshop expert is, a high-end system is truly required for high-end art reproduction.
4. Movable Camera Support – A rail system that allows the camera to move forwards and backwards to accommodate the size of the original art while remaining parallel to the art. A sturdy tripod can be used, but a tripod support requires more work and attention from the operator.
5. Scan Back – To capture the digital information.
6. Computer – With software to run the scanback and with a calibrated monitor located near the properly lit original art to allow an operator to effectively compare the digital image with the original.

Another method of digital input is a flatbed scanner. This is used to scan reflective art up to 13"x19" depending on the size of your scanner. If your scanner has a transparency adapter, this would open the door to scans of both negatives and transparencies. When choosing the right scanner for your workflow, remember that if your original scans aren't good, then your prints won't be either. You really do get what you pay for, so do your research and get what's best for you.

Adjusting Scanned Files in Photoshop

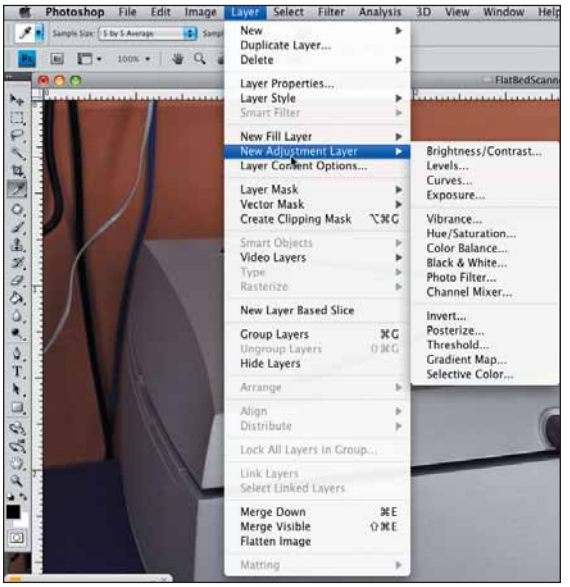
Images printed from both in-house and client-supplied files usually don't require a lot of Photoshop work. Simple steps like turning up the Vibrance control, then adjusting Brightness/Contrast, can make a major difference in getting great output. Most customers who supply digital files will already have them adjusted to what they think looks good. Such files usually require only small adjustments on your part to allow for the different response of printing

media and viewing conditions you use. These adjustments can be made with one or more of Photoshop's Levels, Curves, Vibrance, and Hue/Saturation controls (see photo at right for the location of these controls).

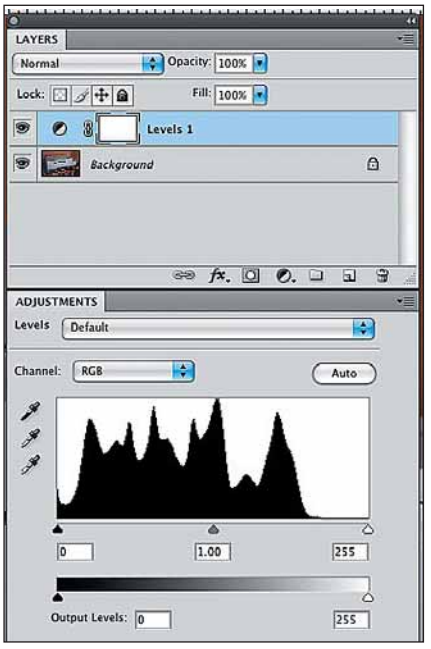
All adjustments should be done using adjustment layers. These layers, which are created in Photoshop during the image editing process, are used for "nondestructive" editing. That is, they do not alter any of the information from your original scan; they simply alter the appearance of the image on the monitor and in the print. Making changes in an original image would throw away some original digital data, degrading the information in your only image file. By using adjustment layers, you can make as many changes as necessary without losing any primary image quality.

To use adjustment layers, open your image file in Photoshop on your computer with a calibrated monitor. Go to Layer>New Adjustment Layer and chose the type of adjustment (see photo above). Or you can also go to Window>Adjustments to access the adjustments panel, from which you will make your choice(s). The main adjustments used are Levels, Curves, Vibrance, andHue/Saturation. Sometimes another adjustment control, Brightness/Contrast, is used as well.

Make sure the original art is in a controlled viewing condition (see "Calibration" article, Spring 09 issue) near your calibrated monitor. Decide what media you will be printing on (type of paper or canvas) and use the profile (digital characteristics) for your monitor. Go to View>Proof Setup>Custom (see photo at right) and choose the profile that matches your print media. This will adjust your monitor so that the image will look just as it will when printed on that particular paper or canvas.



In creating a new layer for making adjustments to an image in Photoshop, click on "Layer" on the tool bar and scroll down to "New Adjustment Layer."



Choosing a "Levels" adjustment layer in Photoshop CS4 displays a histogram that you can use to help ensure that your image has the right density and contrast.

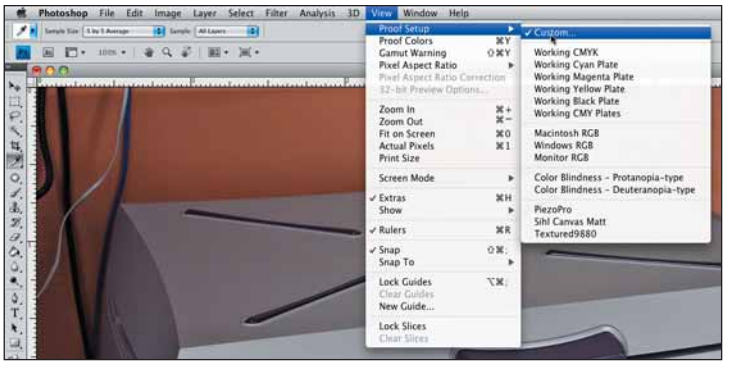
Adjusting scanned images in Photoshop can be very simple and rewarding. Most adjustments that need to be made are very slight. If you find yourself making large adjustments, chances are the file you are working from is unacceptable. If so, rescan the image and start over.

The primary adjustment layer is Levels. Levels is the tool of choice to ensure that your image has the right density and contrast, and it can be done easily by using the black and the white sliders.

When you choose a Levels adjustment layer, you are presented with a histogram (see photo at left middle), which shows the brightness levels in that image from white (on the right) to black (on the left). If there is space on the histogram between the darkest area and the edge of the histogram, you are not going to get a good black on the print unless you adjust the black slider. If you slide it in too far, however, the image will become blocked up with overall gray tones, and you will lose details in the image. If there is space between the lightest area and the edge of the histogram (as there is in this photo), simply move the highlight slider on the right toward the middle to bring out the highlights in the image.

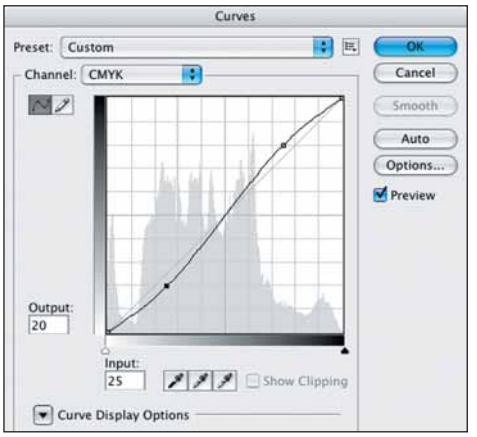
There will be times when the histogram in Levels is filled from one edge to the other and you will still have issues with density and contrast. This is where the Curves adjustment layer comes into play. Adjusting the Curves is a simple way to increase highlights and darken shadows. To do that, create an "S" curve by grabbing a highlight point and adjusting it lighter and grabbing a shadow point and adjusting it darker (see photo on facing page).

After the exposure and contrast look good, the next step is to enhance the



The Proof Setup control is used to select a profile that matches your print media. This will adjust your monitor to accurately display the colors that as they will appear on your digital print.

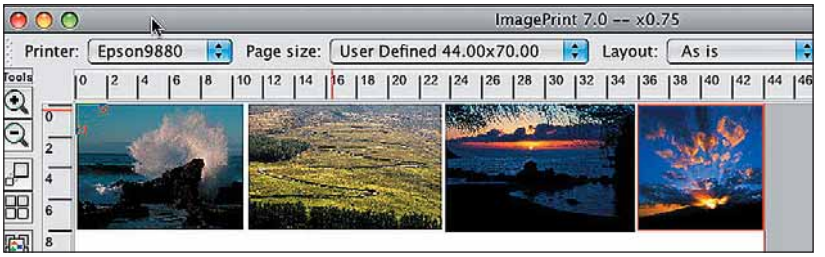
colors if necessary. This can be done with the Hue/Saturation layer. Sometimes you can adjust the entire image and just add some saturation overall. At other times there will be a certain color or range of colors that need a little help. To do this, choose the color that needs a boost and add saturation to that color.



The "Curves" control is used to increase shadows and lighten highlights with a slight "S" curve created by grabbing the two points shown at the upper right and lower left of the color density line.

Using RIP Software to Prepare for Production

When outputting fine art giclées, the first step is to create a test print to confirm the density and color of the image. You can do this with either the printer driver that comes with your printer or with third-party RIP software, but the RIP software is preferable.



The Nesting feature in ImagePrint by ColorByte Software facilitates creating many test prints at the same time, saving time and money in your print proofing.

When you use the printer driver that comes with the printer, you will be limited in your options for running these tests, which makes the process more cumbersome. Basically, you start by creating new page in Photoshop, opening all the images you want test prints of, individually sizing and pasting them onto the new Photoshop page, saving that file, then printing it through the print driver.

On the other hand, if you use a third-party RIP software, such as ImagePrint by ColorByte Software, you would be able to take advantage of a feature called "nesting." Nesting allows you to put several different images on a layout page, size each image to whatever size test print you want (8"x10" or 11"x14" is recommended), hit "print," and your test prints will come out of the printer and ready to judge. This one feature is well worth the price in the amount of time it will save you.

There are many other benefits of third-party RIPs other. First is the quality of the output. Using a third-party RIP is like putting your printer on steroids. Specifically, third-party RIP manufacturers develop special algorithms that command how the printer's dots are laid down on the paper/media that is more advanced than the driver that comes with the printer. You can achieve an extended color range as well as increased sharpness in your images. When using ImagePrint by ColorByte Software, for example, you also have access to a large database of profiles that match many different kinds of printers.

Many other features can be found in third-party RIPs. I am most familiar with ImagePrint by ColorByte Software, so I will highlight some of my favorites using that brand—although other RIPs have their own advantages. One of the options available when using the Nesting feature are layout tools. These make sizing and laying out images on the page a lot easier. Dynamic contrast-matching technology uses the printer profile to determine the optimum brightness and contrast for the specific print media being used, resulting in perfect tonality from the very first print. This saves both time and money, producing quality prints based on the fact that each paper's dynamic range is unique.

To speed up production, ImagePrint has included Smart Crop, which allows you to crop images right in the software rather than having to return to Photoshop. Another layout feature allows you to add type. There is also a new gallery wrap option that will produce a "mirror" gallery wrap (which extends the print on all sides) on all gallery wrapped canvases.

Also included are templates for doing "package" printing. Say you wanted to print a 24"x 36" and a 16"x20" of the same image. You would make templates for the sizes you want to print, then drag an image over to these templates once, and the software would instantly size it to fit both those print dimensions. Other good features including Artistic Borders and tiling. Artistic Borders allows you to put many different edges on an image in addition to using your own custom creative borders.

The key is to have fun and experiment. Tiling allows you to create an entire wall mural with whatever size printer you have. Just tell ImagePrint the size printer (i.e. 24") and the size paper (again 24") you're using, lay out the size and shape of the wall, and the printer will output 24" panels of the image. If you print on wallpaper media, you will have a piece of art that will cover an entire room. ■

Randy Hufford is a photographic artist, educator, lecturer, and fine art reproduction consultant based in Maui, HI. He has owned and operated a custom photo lab specializing in print permanence and finishing techniques for over 25 years.