

## Scanning Images With Nikon Scan *by John Shaw*

In the past I never had prints made. I did not have a color darkroom and consequently sent film out to various labs for prints—and without fail I was disappointed in the results. The prints were never the color balance I wanted, never spotted as I wished, never perfect. My solution was easy: I did not deal with prints. When asked I would indeed sell a print, but my print price was so high that I only made a few sales each year (on the other hand, I only needed four or five sales per year to make a decent living!).

Then I bought a computer, learned Adobe®Photoshop®, and discovered Epson® printers. WOW! What a difference! Now I can produce prints that look exactly as I want them to appear, on my own timetable rather than shipping them back and forth to a lab for remakes, and all in real time while I'm sitting in my office, coffee cup nearby and puppy at my feet. Life just got a whole lot better.

But first you must somehow get your images into your computer. If you're a film shooter and want to make prints in the digital darkroom—or send out digital files rather than original film—you must digitize your film or have someone else do so. Sending film out for scans quickly becomes cost prohibitive if you want large files, but large files are just what's needed in order to allow you to make large prints. Almost anything looks acceptable if printed small, but who wants contact-sized prints from 35mm? The choices for scans include Photo CD scans, yielding roughly 18 MB of data and costing about \$1/image; Pro-Photo CD scans at about 72 MB and \$20/image; or drum scans of 100 MB and about \$50/image. All of these mean sending out film, waiting for the scans to come back, and hoping that the scanner personnel were competent and attentive. You can see that owning a scanner quickly becomes cost and time effective.

What about you digital shooters? You'll probably also want to own a scanner if you have any film in your files from past photography. If you have film images, you probably need your own scanner.

The Nikon® LS-4000 is arguably the most popular scanner for 35mm film. It is affordable (especially considering the rebate that Nikon continues to offer) costing in the ballpark of

### *Tours led by John Shaw*

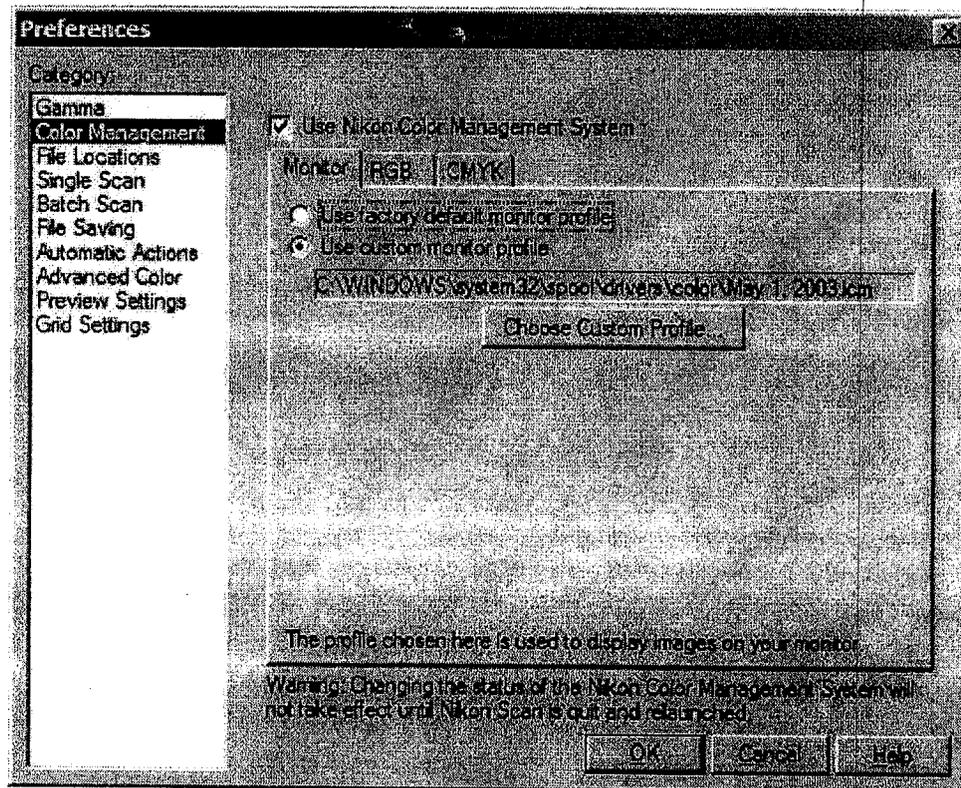
- ▶ **Washington's Palouse Country**  
May 15–21, 2004
- ▶ **Iceland**  
June 27–July 9, 2004
- ▶ **Focus On: Horses and Icons of the Wild West**  
August 30–September 4, 2004
- ▶ **Focus On: Denali National Park in Autumn**  
September 4–11, 2004
- ▶ **Brown Bears of Katmai National Park in Autumn**  
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\$1,300; it uses Nikon's high-end ED glass in its lens, and instead of an incandescent light source—which could change color temperature over time—it uses LEDs for consistency in light output (hence the “Coolscan” moniker for Nikon scanners). Plus it has one more feature that sets it apart: built into the firmware/software is Applied Science Fiction's Digital ICE, a miracle “dust and scratches” remover that really works, particularly once you have set some preferences.

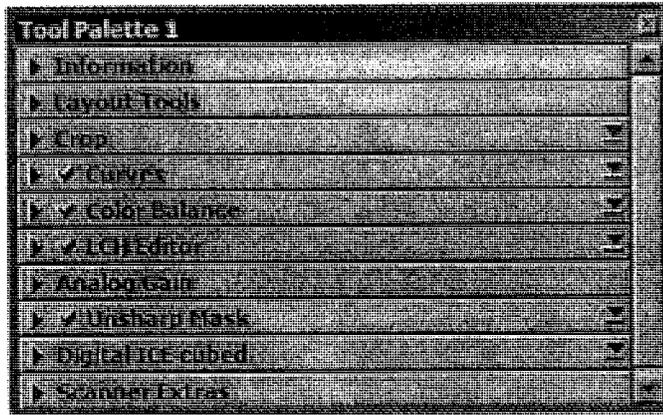
As the name implies, the LS-4000 scans at a 4000 dpi resolution. This means that a full frame scan of a 35mm image yields about a 60MB file. Considering that the most information possible from 35mm film is roughly 100MB from a 5000 dpi scan, the Nikon offers a lot of value for the money.

But simply owning a scanner is not a guarantee of getting good scans. Let me go though the entire process of scanning with the Nikon 4000 (if you have another brand of scanner, or another Nikon model, just apply the appropriate information).

Before you make any scans, set the preferences. When Nikon Scan opens, set the film type selection on the main control (“positive” for all slide films except Kodachrome), then click on the “prefs” button to set your preferences. A tabbed menu opens. On the Color Management tab, select your monitor profile so that Nikon scan displays colors correctly (you did profile your monitor, didn't you?). Now set the RGB color space to either Adobe RGB—my first choice—or Scanner RGB which offers a slightly wider color space. Make sure that Nikon Color Management is turned on. In the Single Scan tab check all the boxes in “before scan” and “close window” in “after scan.” “Save to disk” doesn't need to be checked if you're running the scanner as a twain device directly from Photoshop. In Preview Settings, check the top three boxes and nothing else. Adjust the other tab choices depending on your situation: e.g., you're doing batch scans using Nikon's stack loader (which I don't use).

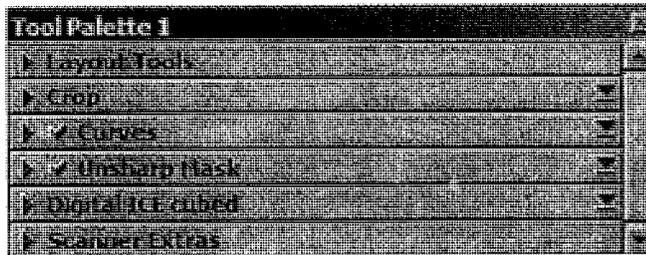


Close Preferences and click on the Tools button in the main control and select Tool Palette 1. Here's what you see:

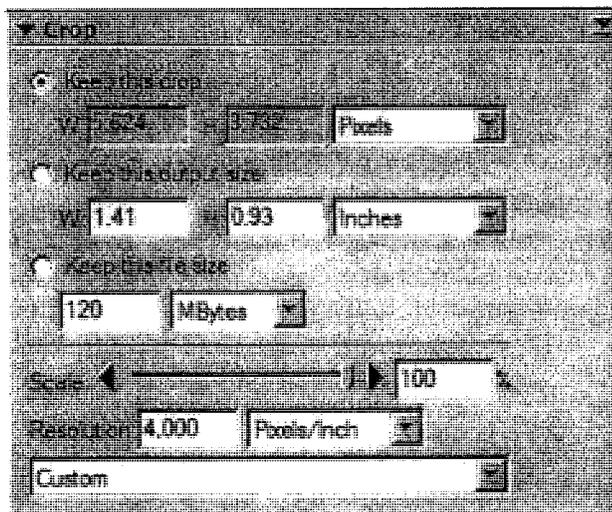


You can arrange the tool tabs any way you wish by dragging and dropping in whatever order you want. You can also hide any you don't need by pulling off these sections, combining them into another tool palette, and closing it out. I hide the LCH (luminance, chroma, hue) Editor, Analog Gain (used only to adjust for a weakened light source—if you need to use this, your scanner probably needs repair), Color Balance, and Information. The last tells you the RGB values of any spot in your image as you mouse over it, but this is also shown on the main control panel. I don't need to see this twice.

Here's how my Tool Palette appears:

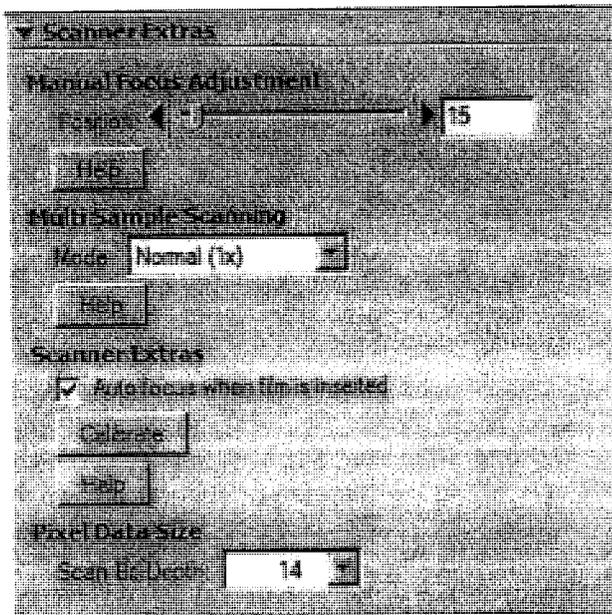


Let's look at some of these in more detail. Open the Crop tab by clicking on the little triangle on the left side.



You will normally set "keep this crop" and an output resolution of 4000 dpi in order to get the largest file size possible. You can always downsize later, but your workflow mantra should be "scan once, output many." Set the output lower only if you have a good reason to do so, such as scanning only for the web or PowerPoint. You'll notice that the file size is listed at 120 MB, twice the file size I earlier said could be obtained. This is because in the Scanner

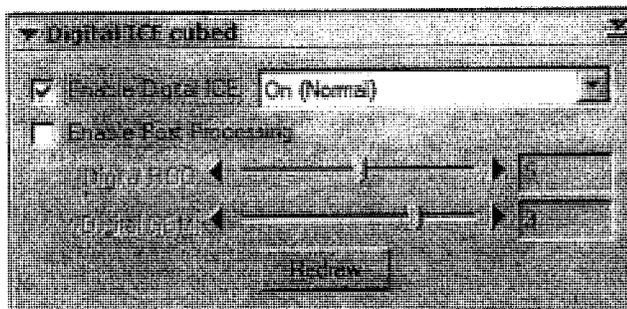
Extras tab I've chosen to scan at 14-bit scan depth.



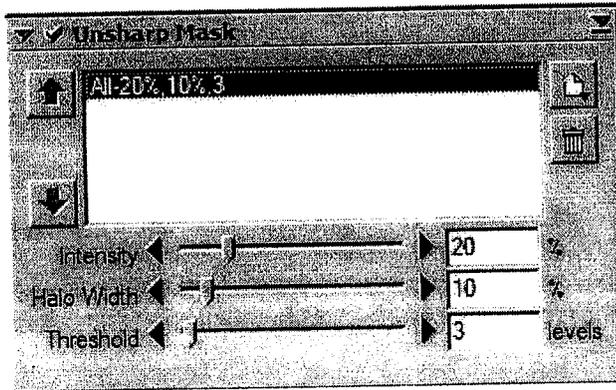
Why do this? If you scan at 8-bit, you have 256 levels of any tone. That's  $2^8$ . But if you work in "high-bit" Nikon scan gives you  $2^{14}$  or 16,384 possible levels. Edit Levels in Photoshop and you have lots more leeway before there are gaps. For example, edit out 50 levels when you only have 256 to start with and you've taken out a major chunk. Edit out 50 from 16,384 and it's no big deal.

You might notice that I've also set "multi sample scanning" to Normal (1x). There's no reason to do multiple scanning with most photos. Turn on multi-sampling only when you make a scan and end up with a lot of noise in the shadow areas. To be honest, I cannot remember the last time I needed to do so.

Now open the Digital ICE Cubed tab. Check Digital ICE and select normal, but DO NOT check the Enable Post Processing box (Digital ROC and GEM are for use only when scanning ancient, faded negatives or grainy high speed film).

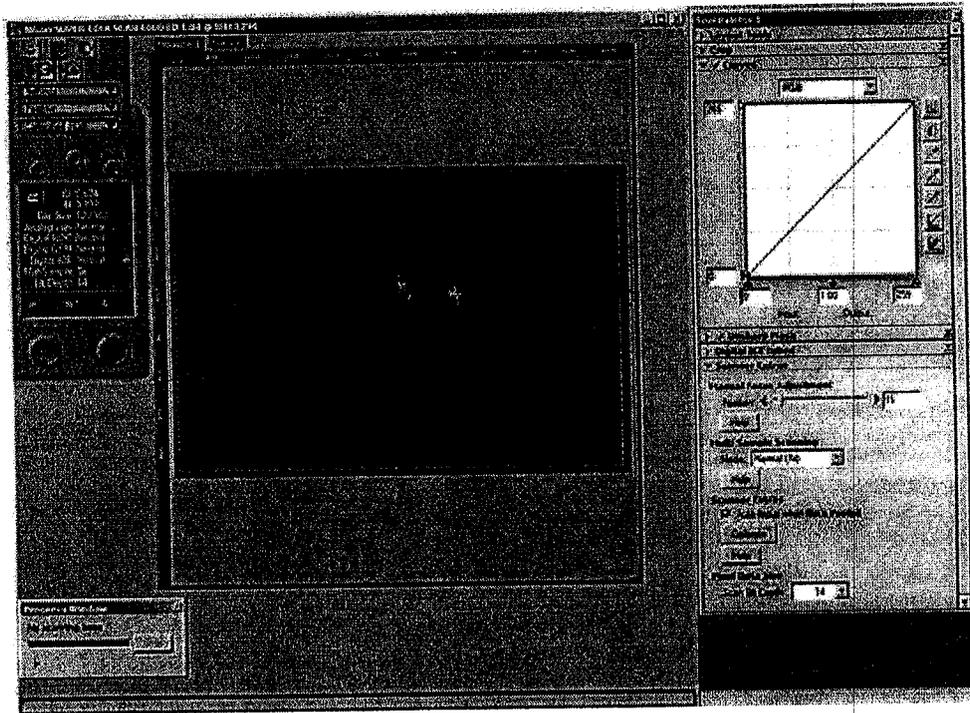


Digital ICE is a miracle, as far as I'm concerned. It removes dust and scratches amazingly well, but at the same time it slightly softens the image. Here's how to solve that problem. Go to the Unsharp Mask tab and click on the folder icon on the extreme right. Here you can set parameters for all channels or for each individual channel (and even prioritize the order in which Nikon Scan does these operations by dragging and dropping channels within the menu box). The normal advice concerning sharpening is to always do it as your last step in Photoshop. True, you really don't want to sharpen the image when scanning. But you do want to counterbalance the slight amount of softening that Digital ICE creates. Set the USM options in Nikon Scan to "all" with 20-10-3 as starting numbers for intensity, halo and threshold.



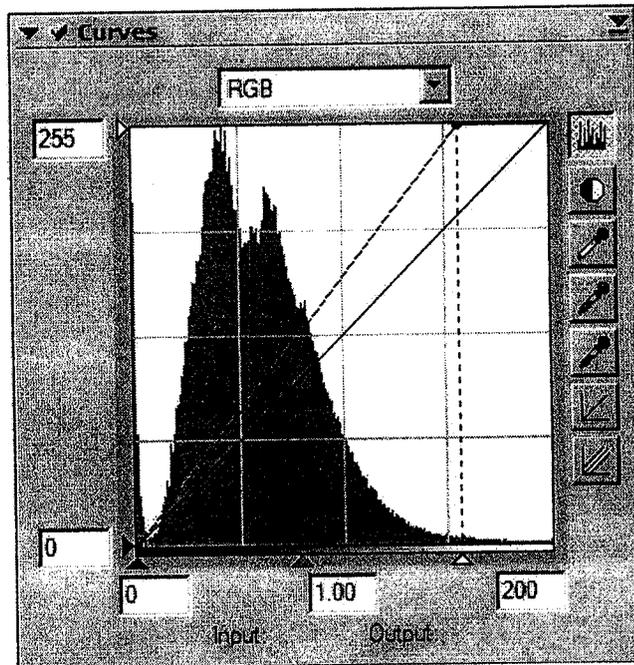
Digital ICE runs before Nikon Scan applies USM, so all works well. Just in passing I might mention that if you're scanning a slide with lots of blue sky, and really don't want to emphasize any grain in the sky area, you could select USM to only work on the Red and Green channels. Digital ICE would run and slightly soften the image, but USM would avoid sharpening that blue sky. A neat solution.

Let's set the desktop. Here's how I've got mine:



This is all shown on my main monitor since Nikon Scan doesn't support multiple monitors. But I do use two monitors for Photoshop work and would strongly suggest you do so as well. I find it helpful to arrange my desktop as shown so that the tool palette remains open at all times.

OK, put a slide in the scanner and click on "preview." When an image appears on screen you can make any scan adjustments you wish. I do very few, preferring to work in Photoshop where I have a more precise view of the image and more control. What corrections I might make are normally in the Curves tab, which also shows a levels histogram.



Let me explain this tab. Down the right-hand side, from top to bottom, are buttons for:

- The histogram before and after. Click on this button and you can see what the histogram would be after any changes you make.
- Auto-contrast. Do not use this.
- White, middle-tone, and black eyedroppers.
- Reset current channel display.
- Reset all channels.

Along the bottom are black point, mid-point, and white point setting triangles, just as in Photoshop. You can work in the master RGB composite, or in individual red, green or blue channels, setting curve points or levels as you would in Photoshop. These are the only changes I ever make in the scan software (most often I do a curves movement), preferring to do everything else in Photoshop.

In the screen grab shown, I've got the "histogram" button depressed to display the new histogram of the image after I've dragged the white point slider to the left, but I have not set any new curve points.

To watch the changes that will occur to the image if you apply these changes in scanning, select the "processed" tab in the main scan area. You can switch back and forth between the unprocessed and processed views—the "before and after" views of any corrections you apply—by clicking on the "processed" and "normal" tabs. Even easier, in my opinion, is to just click on the little check mark on any tool tab, turning that tab on and off; since if you're using that tab your cursor is already nearby.

FYI, Nikon Scan maintains your last settings in these tool palette tabs. When you go to do your next scan make sure you've reset any adjustments to zero. If not you will be applying corrections you made for the previous scan to your new one. Not a good idea.

When you have the preview looking the way you want it, you could click the "scan" button, but I always do one more step. I force Nikon Scan to focus on the image exactly where I want it to do so. The easy way to do this is to hold your command key down, click on the checkerboard icon at the top of the main control, then (while continuing to hold down the

command key) mouse over your image and click on the spot where you want focus to be set. I always keep the "scanner extras" tab open while I do this as it shows a numerical value for the focus point (don't worry about the number itself). Note this number before you set the focus point and then afterwards. The before number is where Nikon Scan autofocused for the preview, the after is your own focus setting. If there is a large discrepancy between these numbers something is wrong. Don't worry if the number changes by a few digits, as that's no big deal.

Once you've set your focus point, click on the "scan" button and let the scanner do its thing. You've just done your initial work in the digital darkroom.

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