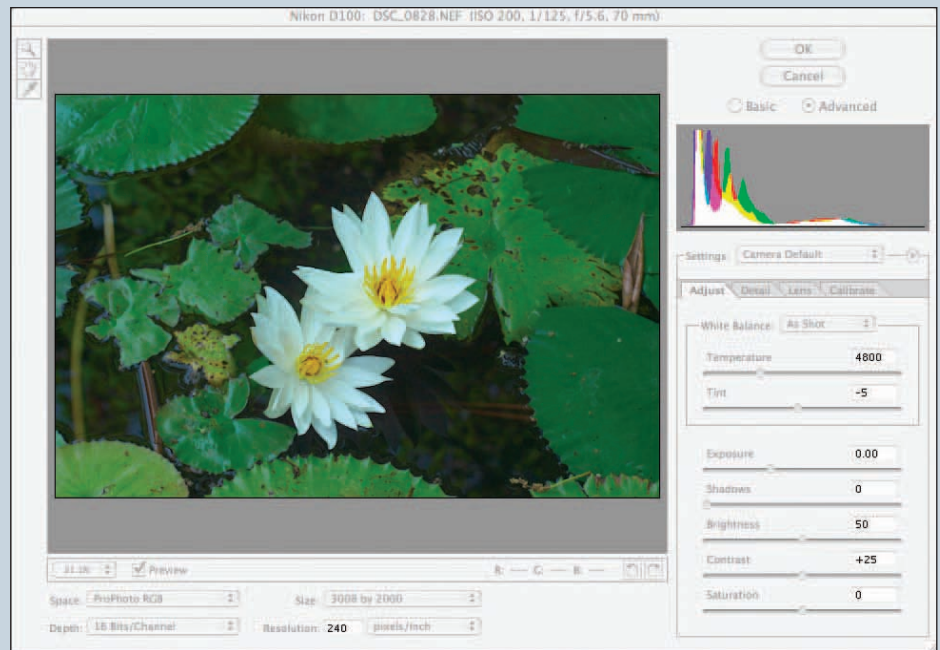


Photoshop

Camera Raw

the colour management perspective

A Raw file is not, as many people think, simply a digital capture that has not been adjusted in the computer. Unlike a .tif or a .jpg—which are processed down from the Raw file in camera and contain less information or detail than the camera actually captured—a Raw file is a particular format that is the camera's Raw response. One of the many reasons we are significantly better off setting our digital cameras to Raw—as compared to .tif or .jpg—is colour management. Photographer, trainer and Adobe Certified Photoshop expert, David Harradine, this month focuses on the colour management perspective of Camera Raw.



When it comes to colour management for the digital camera, much of the theory goes out the window. In theory, the digital camera is just like a scanner, therefore we should be able to simply capture a target (test chart) with known values, compare our camera's response to the known values and calculate a profile. However, in practice the variables under which we can produce a capture are far greater than that of a scanner, and therefore the resulting profile will only really be useful when we capture images exactly as we captured the target. Put simply, as the lighting conditions change, so too does our camera's response.

The Raw option

All professional digital cameras—and even some less-than-professional ones—have the option to shoot in Raw mode, which is a high bit depth file format. However, most manufacturers have devised their own proprietary Raw formats,

which software other than their own does not understand. In the early days of digital photography, this meant you would have to use the proprietary software to get access to the Raw camera data and then process it as a .tif so that Photoshop could understand it. In 2003, Adobe introduced Camera Raw—a plug-in for Photoshop 7. Camera Raw allowed users to access the Raw files from selected (read most) professional digital cameras. Camera Raw is now a fully fledged component of Photoshop CS that gives us complete access to the camera's Raw capture—the ultimate quality data our digital cameras can produce.

Greyscale Raw

A Raw file—as produced by all professional digital cameras in the manufacturer's proprietary format—is in fact a greyscale file. That's right: no colour—just three channels of high bit depth, greyscale tonal information. When the Raw file is processed, the tonal

information is given colour meaning as defined by the processing settings. Therefore a Raw file does not really have to commit to its white balance before shooting, as it can be easily adjusted in processing with absolutely no data loss.

Custom versus canned

Thomas Knoll—the father of Photoshop—built in to Camera Raw, two profiles for each supported camera: one profile for daylight (6500K); and one for tungsten (2856K). These profiles were custom, as far as the actual cameras he measured were concerned, but they were really canned as far as the rest of the owners were concerned.

Now when you open a file in Camera Raw, the metadata within the file is read and the model of the camera is revealed. Camera Raw then goes ahead and assigns the relevant canned profile for that model. This is the point that confused people. After being told for years that a custom profile was

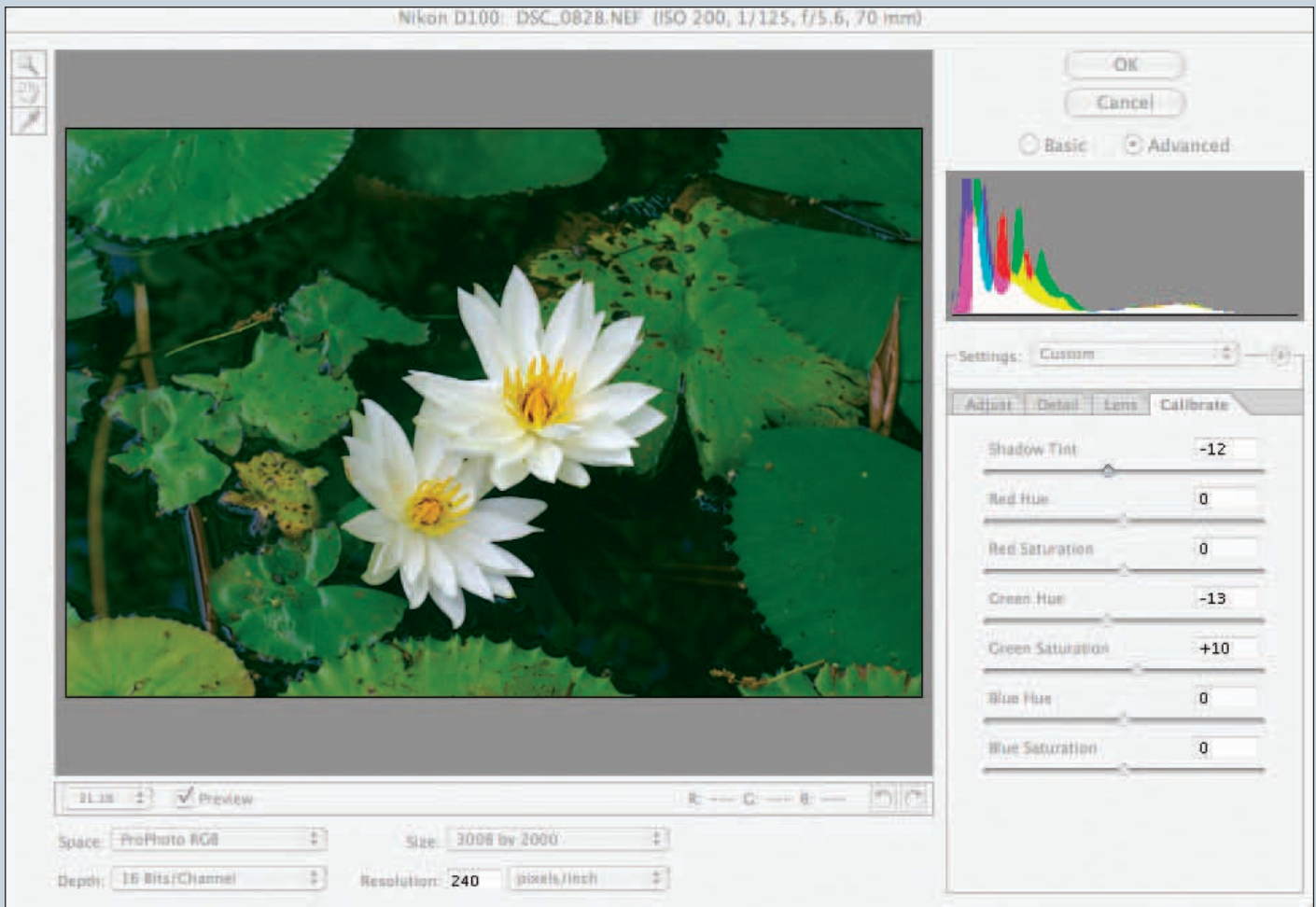
always, without question, more accurate than a canned profile, all of a sudden they were being told that these canned profiles were better than custom ones.

Adjustable and editable without compromise

Well that was only half the story. What people did not realise was that these canned profiles were different to most. These canned profiles were editable. (That's right, editable!) So when we load a Raw file into camera Raw and the relevant canned profile is assigned, we can simply adjust the profile to ensure the colour of our files looks as good as it can. Bearing in mind that these adjustments are not like normal adjustments that compromise the quality of our files. These adjustments are without any loss, as they are simply adjusting the definition of the data and not the data itself. Much like assigning a profile in Photoshop, the appearance changes, but the RGB values remain the same.

The default Camera Raw view with white balance set as shot (*left*)

The calibrate options with adjustments (*below*)



Finding the sweet spot

The first and most important setting is the white balance. As we slide the temperature slider back and forth, we are finding the sweet spot between the 6500K profile and the 2856K one—a sweet spot we can further refine with the tint slider, which tweaks the file definition between magenta and green.

Tweaking the colour response

Once we have white balance in the file, we can then further tweak the colour response of our camera with the calibration sliders—found under the calibration tab, which appears when you check the advanced box. This is where we really

stamp our own camera's name on the conversion and depart from the results produced by a similar camera.

Once you have made the necessary colour adjustments to compensate for your camera's behaviour, Camera Raw then gives you some further creative editing control. The exposure slider is also unlike anything in regular Photoshop, as it is making its tonal adjustments on the linear Raw file.

So it pays to optimise your exposure at this point.

Other controls

The other controls such as shadow, brightness, contrast

and saturation are also available in Photoshop and can only be applied globally in Camera Raw. So if you wish to make selective adjustments via adjustment layers and masks, you may be better off at this point processing your Raw file and tweaking your optimised data in Photoshop proper.

Choosing bit depth and working space

Once you have prepared your file for processing, the last step is to select the bit depth and working space in which you would like the file to arrive in Photoshop. If your image requires further editing in Photoshop, you are far better

off processing it into a 16-bit file. A 16-bit file has 65,000 levels of brightness per channel and an 8-bit file has 256. This gives you a lot more detailed control when making tonal and colour adjustments and ensures the highest of quality data survives through to output.

- Note: 16-bit is best processed into ProPhoto RGB and 8-bit into Adobe RGB 1998.

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