SQUALL's CUSTOM PROFILES

squall (pronounced skwol) - A brief, sudden windstorm, often accompanied by rain or snow.

QUICKSTART GUIDE (if you already know how to soft proof in photoshop)
Q: I already know how to use soft proofing in Photoshop. Just remind me where to copy SQUALL's Custom Profiles to. A: Windows XP/Vista: **C: windows/system32/spool/drivers/color** Mac OS X: **/Library/ColorSync/Profiles**
Q: My working profile is Adobe RGB (or any other colour space). I use SQUALL's Custom Profiles to soft proof and have finished adjusting the colours. I am ready to send to the photo lab. What do I need to do? A: Goto **[EDIT – CONVERT TO PROFILE]** and **convert to sRGB** before sending to the photo labs. This is explained below in Section 8. Also tell the labs not to do any further colour correction on your files.

1. What is an ICC profile and why do I need one?

How would you describe the colour "red" to someone over the phone? To be even more precise, how would you describe a particular *shade of red* to someone who cannot see what you are seeing? Most electronic capture devices and here we are clearly focused on digital photography are going to use a combination of numbers to describe the amount of red (R), green (G) and blue (B) to describe any given colour. Therefore, the first important principle is that most devices are going to describe any colour using the RGB system.

The RGB system gives R, G and B, a value between 0 and 255 in order to describe colour. So R:0, G:0 and B:0 is pure BLACK while R:255, G:255, B:255 is pure WHITE.

Now you might ask...so what? If my camera captures and describes a colour as R:100,G:100,B:100 and is able to digitally record these numbers (this is what your digital camera sensors do), shouldn't all my other devices (eg monitors, printers) know what those numbers mean and reproduce the colour? Well, here lies the problem. The above questions assumes that all digital devices are exactly the same and are identical in their data acquisition or output. This is clearly not so. What this means is that, in a unprofiled, non-colour controlled work flow, R:100,G:100,B:100 *means a different colour to different devices*.

The solution to this problem is to have a "reference" table or scale. This will allow all devices that have and are able to use this reference table a standard way of understanding the colour. Let me digress and use temperature as an example. If I tell you the temperature is 40 degrees, you will ask me do I mean 40 degrees Celsius (C) or Fahrenheit (F)? What you are actually asking me is "When I measure 40 degrees on my thermometer, which scale am I referencing?" This is important as 40 degrees C (which is warm) does not equal 40 degrees F (which is cold)! I am going to extend this example with another important concept. If I tell you that the temperature is 40 degrees C, you can convert it to the Fahrenheit scale (104 degrees F). This is an important principle to understand when we deal with profiles. If I can tell you the RGB value ***and*** the "scale" that I measured on, you can convert it to any other scale. In this way, an ICC colour profile is just that, a "scale" to tell you how the device is interpreting the RGB value. Once we know this, we can also convert from one profile to another. Although the raw RGB values may change with the conversion, the colour represented is the same! (just like temperature, 40C = 104F, different numbers but means the same temperature). We will see later when we prepare our files for output to the photo labs why understanding conversion is important.

The ICC (International Color Consortium) profiles are a standardised way to present the "scales" in which colour can be described.

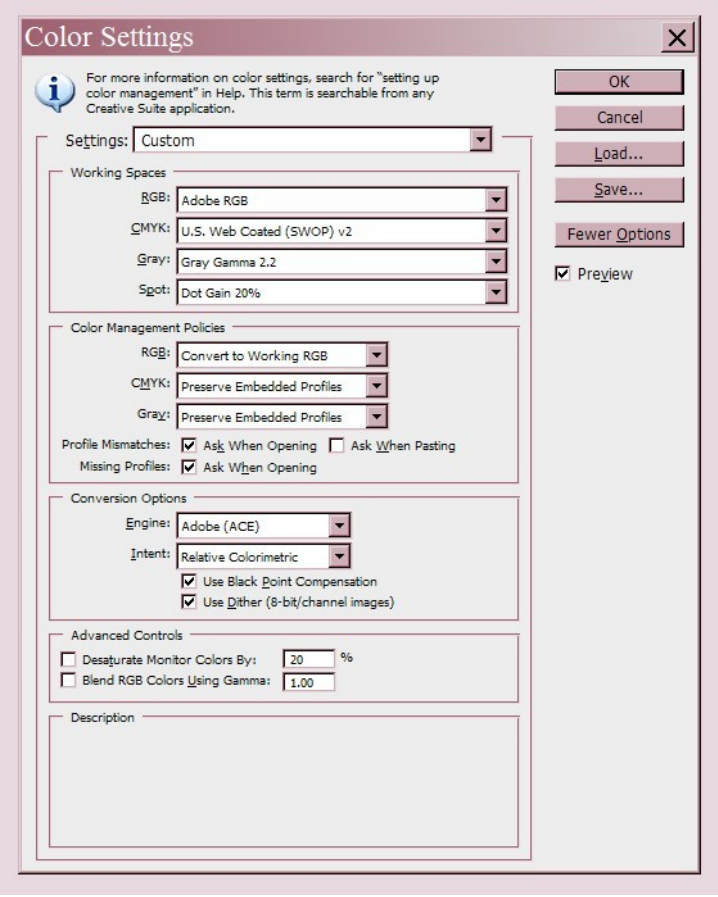
2. Setting up the colour managed workflow

There are many colour sources e.g. scanners, digital cameras etc. However, the description here focuses on the digital camera as the source, so as to not overly complicate the set up. To maintain a colour controlled work flow, use the following steps:

i. **SET UP YOUR CAMERA.** The image taken by your digital camera must be tagged to a colour "space". For now, you can use the term colour space and colour profiles interchangeably although they are strictly not the same. Most cameras offer two options in their custom menus, either **sRGB** or **Adobe RGB**. If you intend to edit the photos in Photoshop (which is why you have the SQUALL's Custom Profiles in the first place!), then set the camera to **Adobe RGB** first.

ii. **SET UP YOUR MONITOR.** You must profile your monitor. This must be done with a monitor calibration device. The most affordable is the Pantone Huey, midrange are the DataColor Spyders and at the upper end are the X-rite Eye One. Anything above this is usually the province of professional presses. Profiling your monitor is critical. The calibration devices and software are easy to use. If you do not profile the monitor, all your colour correction work will be inaccurate and you are just wasting your time.

iii. **SET UP PHOTOSHOP.** Set up Photoshop for a colour managed workflow. Go to **[EDIT-COLOR SETTING]** or **SHIFT+CTRL+K**. Set up according to the picture below and click "**OK**":



3. From Computer to the Lab

Ok. So now you may ask, what is the use of the SQUALL's Custom Profiles. The power of the profiles lies a key feature of Photoshop, ***soft proofing***. Computers display colour using light. Prints display colour using inks. They can never quite be the same. Photoshop soft proofing feature can accurately simulate what your current file will look like if printed out. To do this, it requires an output profile ie the colour profile of the device that is going to be used to print the photo. This is what the SQUALL's Custom Profiles are; the output profiles of your intended ink/ paper combination

4. SQUALL's Custom Profiles

Profiles are specific to machine and paper choice. Therefore, each ink/ paper combination requires its own profile. A custom profile is the most accurate way to perform soft-proofing.

5. Installing SQUALL's Custom Profiles

Open the CD using Windows Explorer. You will see all the **.icm** files.

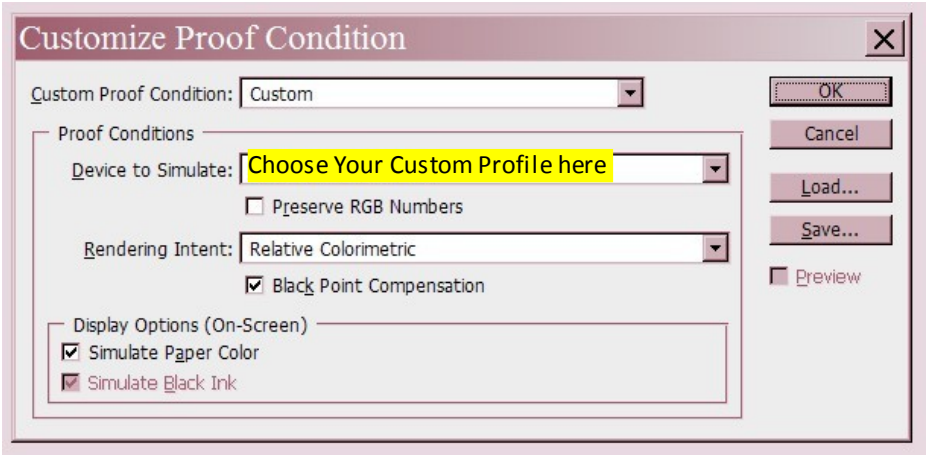
If using Windows XP/ Vista, copy the files to : **C: windows/system32/spool/drivers/color** .

If using Mac OS X, copy the profiles to **/Library/ColorSync/Profiles.**

6. Setting up Soft Proofing in Photoshop

Goto **[VIEW-PROOF SETUP-CUSTOM]**

You will see the setup box below.



For **Device to Simulate**, choose the custom profile that you wish to use. Set up the rest of the boxes as shown above.

Click "**Save**" and choose a name for your custom proof.

Repeat the process to generate as many custom proofs as you wish.

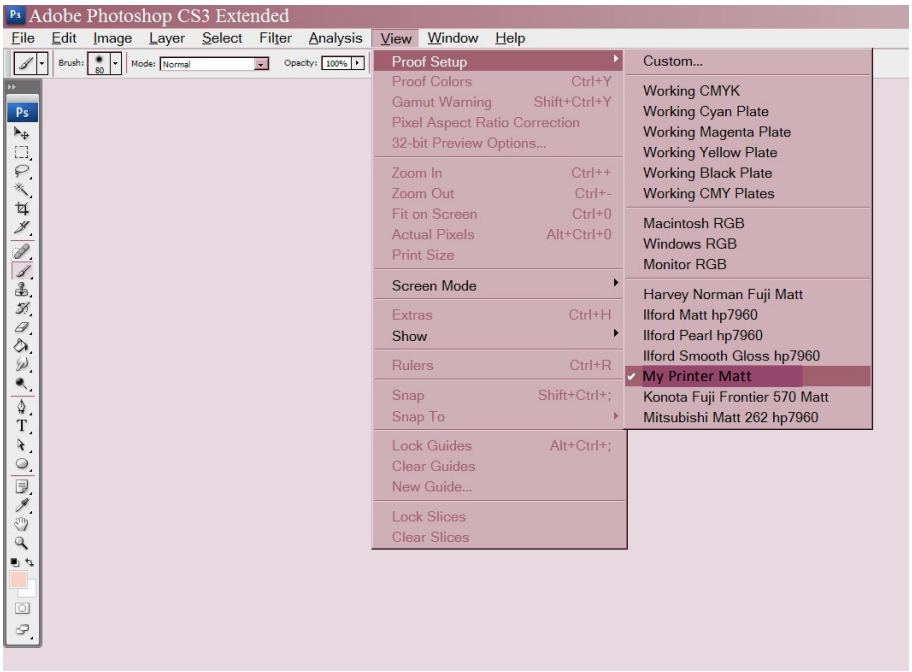
7. Using Soft Proofing

There are several different methods to use soft proofing in your workflow. Two methods are described here.

i. **Work under Soft Proof.** This is the commonest method when you have already decided which lab to use to print your image. When you open a file in Photoshop, turn on the soft proof as the first step and perform all your digital manipulation whilst soft proofing is on. This way, you can

adjust all the colour edits knowing that your final prints at the lab will be near identical to what you saw on the screen. Please note that you have to decide up front which printer inkset/ paper you intend to output on, so that you know which custom profile to turn on.

You can turn on soft proofing by going to **[VIEW – PROOF SETUP]** and clicking on your saved custom proof that you created in Section 6 above. Please note that you should click on your saved proof and not on the word "**Custom**" again. E.g. if the proof I created in Section 6 above was saved as "My Printer Matt", then I should see the screenshot below:



You can use the shortcut **CTRL-Y** to toggle soft proof on and off. If you wish to change the soft proof to a different output, you need to use the steps described above.

The first time you use soft proofing, the change in the image on the screen will scare you! The colours will look muddier, less crisp etc. This is a simulation of what happens when RGB light values are translated to ink on paper. Close your eyes, count to two, open your eyes and commence your edit. Now you will have understood why without SQUALL's Custom Profiles, the printer output is never what you see on the screen!

The first time you use this method, you may feel that the disadvantage is that the colour edits are specific to your choice of inkset/paper. The reality is that colour must be edited

for every different output. Every inkset/paper combination is different. However, sometimes the difference may not be significant to your photo. It will depend on the colours that are present in your photo and your personal tolerance for colour accuracy.

ii. **Work under Monitor**. This is the commonest method the pros use as they may need to output a file to several labs. However, this method is slightly harder to use if you are not totally comfortable with all the colour editing tools in Photoshop. In this method, we do not turn on the soft proof first. We will colour edit the image so that it looks right on the screen. After we finish this first colour correction, we will save the image. To output correctly, we will open the same image twice and place them side by side. On one of the images, we will turn on the soft proof for our chosen output lab (as described above in "Work Under Soft Proof"). We will then use this image and colour correct until it closely matches the monitor image (the one that we *did not* turn on the soft proof). When we are satisfied, this should be saved as a separate file to reflect that it has been corrected for a specific output. Repeat this for as many different outputs that you need.

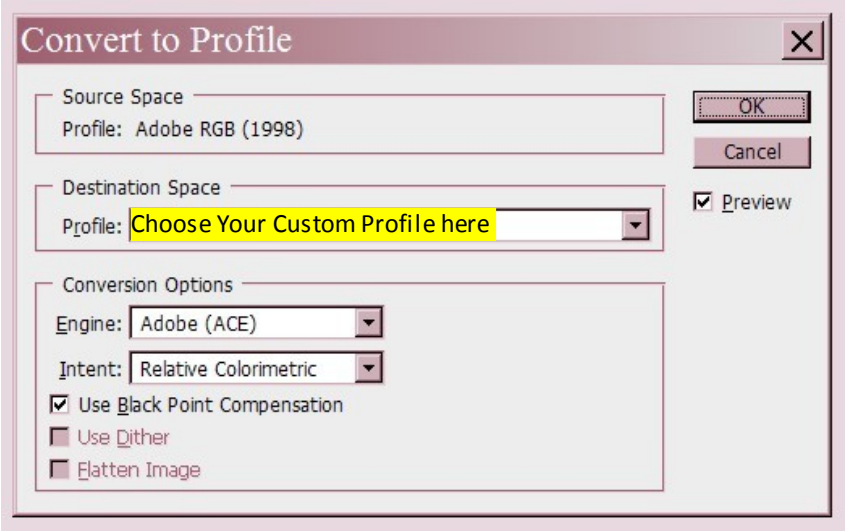
The advantage of this method is that a monitor corrected version forms the reference file for future colour corrections for different outputs. Use this method if:

a. You intend to output the image to different outputs or

b. You need a corrected image for monitor viewing eg websites, as well as a separate corrected image for printing.

8. Preparing your files for printing

It is likely that at this stage, if the setup for the camera and Photoshop is done as described in Section 2 above, the file is assigned the **Adobe RGB** profile. If we are printing the file from Photoshop or any other ICC aware program, we should convert the profile to the respective SQUALL Custom lab profile. Therefore, the final step before printing your file is to convert the profile to the Custom profile that matched ink/ paper that you are going to use. This is done by selecting **[EDIT – CONVERT TO PROFILE]**. This is shown below:



Fill in the options as shown above.

Please note that when you do the conversion, your on-screen image does not change colour! This is correct. Your software is not malfunctioning! Remember that although we are changing RGB values when we convert from one profile to another, if the work flow is colour managed as described above, we are still referring to the same colour. (Think back to the temperature example. 40C=104F but it is the same temperature.)

I have been asked this question before. If we intend to convert to the custom profile at the end, why did we start with **Adobe RGB** at the beginning? Why did we not just start with **the** custom profile? Simplistically, the **Adobe RGB** colour space is actually bigger (can represent more colours) than the printer colour space. Therefore, it is better to capture and colour correct in a larger space before conversion for final output. Based on this logic, some photographers prefer to

use even bigger colour spaces than **Adobe RGB**. For inkjet output, using colour spaces larger than **Adobe RGB** is not necessary.

9. Last Words

The colour managed workflow is one of the greatest advantages of digital photo editing. ICC colour profiles are the backbone of this process. I wish you all the best in your creative endeavours!