Fixing the Image without Changing the Pixels

What is he up to this time, you may ask after reading the title. Surely, whenever we fix an image, we need to do something to the pixels. Yes, but Photoshop has a number of clever tricks at hand to keep the original image intact.

How often have you been working for hours on a special image. When looking at it the next day you decide that it didn't turn out the way you wanted to. Hopefully you remembered your first Photoshop lesson and saved a copy of the original. Then it is back to square one again.

A better way would be to save copies of the file at various stages of your editing process. This would spare you from starting all over again, but it would clutter the organization and workflow, and it would be next to impossible when working on dozens, or hundreds of images.

The best approach is to have just one file to work on. This file will contain the original pixel data, plus all the **instructions** on how to get to the final image.

Adjustment Layers

Adjustment layers are the prime example for editing an image while leaving the original data intact. We can imagine them as sitting on top of the image and acting like a filter. We see the image as if the changes have been applied. But they haven't been applied permanently. We can go back anytime and undo the changes, or finetune the settings.

We have been told to keep the number of editing steps to a minimum, because every time we do something to our image, we throw data away and the gaps in the histogram just keep growing. With adjustment layers we can apply as many incremental changes as we like. We can have a whole lot of adjustment layers - they will act as if only one change has been applied to the image data.

To create a new adjustment layer, simply click the New Adjustment Layer button at the bottom of the Layers palette. Up comes a whole list of options, including the familiar Levels, Curves, Hue/Saturation etc, but also exotic things like Solid Colour and Gradient Map.
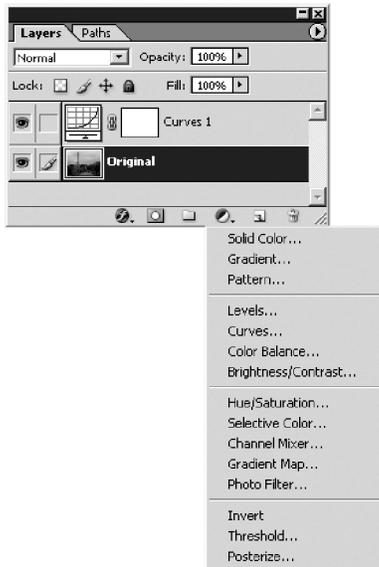
The adjustment layer can be switched on and off by clicking on the eyeball of the layer. We can go back to our settings anytime by double-clicking on the layer thumbnail and then change the parameters, without the penalty of applying the changes permanently to the image pixels.

Another way of finetuning the adjustments is to exaggerate the effect you want to achieve and then reduce the opacity of the layer.

Adjustment layers can also be used with zero adjustment setting. By changing the blending mode they will act as if the image was duplicated with the same blending mode. For example, 'Multiply' will build up density, 'Screen' reduces density and 'Overlay' increases contrast (see last month's Layer Magic).

Adjustment Layers with Masks

There is more we can do with adjustment layers: We can apply the changes to only part of the image. When creating an adjustment layer, they start out with a layer mask by default. This is the extra white thumbnail to the right of the adjustment layer thumbnail, linked with a chain.

The white colour means that the changes are applied to the whole image. By painting on the mask with black we can 'mask out' areas which we want to leave untouched. We can partly select or deselect areas by painting them with gray. Or we can first fill the mask with black and paint in white the areas which we want to affect.

Another way would be to make a selection first of the areas we want to change. Then, with the selection still active, we create a new adjustment layer and the selection will be automatically in the layer mask. We can then go back at any time and change the parameters of the adjustment and/or the layer mask. We can also feather the selection by running the Gaussian Blur over the mask.

Note that the file size is hardly affected by adding adjustment layers. The size does go up, however, when we start painting into the layer masks. These new pixels need to be stored as well.

Cloning to a Separate Layer

The Clone Stamp tool does not need any introduction. We use it to remove unwanted parts from our image, dust and other blemishes, or it may be a rock, a power line or a person. We are permanently replacing the unwanted pixels with other parts of the image. If we make a mistake or change our mind, we need to revert to a previously saved version.

A better way is to clone to a new layer: With this method we simply cover the pixels we want to get rid off, we don't replace them permanently.

The first step is to make a new empty layer by clicking on the New Layer button at the bottom of the Layer palette. Make sure that the new layer is on top of the image layer, but below any adjustment layers.

Secondly, we need to enable the 'Use all Layers' option on the toolbar, after selecting the Clone Stamp tool. Thirdly, and this is important, we need to turn off the visibility of all the adjustment layers when cloning to a separate layer. Without this step the adjustment layers will apply twice to the copied pixels!

This procedure can also be used with the Healing Brush if you are working in the latest Photoshop CS, but it doesn't work in Photoshop 7.

Dodging and Burning

Only if you have spent hours dodging and burning in the conventional darkroom, with all the trying, guessing, hoping, despairing and redoing that goes with it, only then will you appreciate the ease and accuracy of doing these things in Photoshop. But after having locked my chemicals away only a few years ago, I find that the Dodge and Burn tools are too limiting. This is human nature, we are never satisfied with what we got.

The problem is that the changes we are making by dodging and burning are permanent. Say, for instance, you have been dodging an area that needed to be lightened. After a while you decide that the effect is too strong, so it will need some burning again. Pixels don't like that, and sooner or later it will show up in the print.

A more elegant solution is to create a new layer. This new layer will hold all the dodging and burning information for the entire image.

Click on the New Layer button while holding the Alt key (Command key for Mac). You can name the layer 'Dodge & Burn'. Then change the mode to 'Overlay' and click on 'Fill with Overlay-neutral colour'. This will fill the new layer with 50% gray, which will make it fully transparent in 'Overlay' mode (remember last month's Layer Magic?).
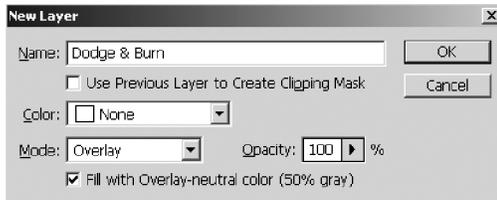
If we now paint with white on this layer, the image underneath will be lightened. If we paint with black - you guessed it - the image will be darkened. I suggest using a soft brush with 10-20% opacity (in 'Normal' mode). The brush size can be controlled with the square bracket keys and the paint colour can quickly be switched between black and white with the 'X' key.

Sharpening and other Filters

The all-important image sharpening cannot be done as an adjustment layer. An option is to archive the unsharpened image and only apply sharpening before output.

This is not always convenient and if you need to save the sharpened version, I recommend doing the sharpening on a duplicate image layer. For a multi-layered image you will need to create a composite layer.

First create a new layer on top of all the existing layers. With this new layer active, hold the Alt (or Option) key and click and hold the palette menu button (the little circular button with an arrow on it). Select Merge Visible, and all visible layers will be merged into the new layer. Note that if you don't hold the Alt key, the image will be flattened and all existing layers discarded!

You can now do your sharpening on the new composite layer. Also, don't forget to hide the new sharpened layer if you want to do adjustments in the future.

- The example below is a Flamenco dance and was shot in a restaurant in Barcelona, Spain. Because of the difficult lighting, the photo needed lots of editing. The layer palette shows how every editing step was done on a separate layer or adjustment layer. Every step can be retraced and modified.
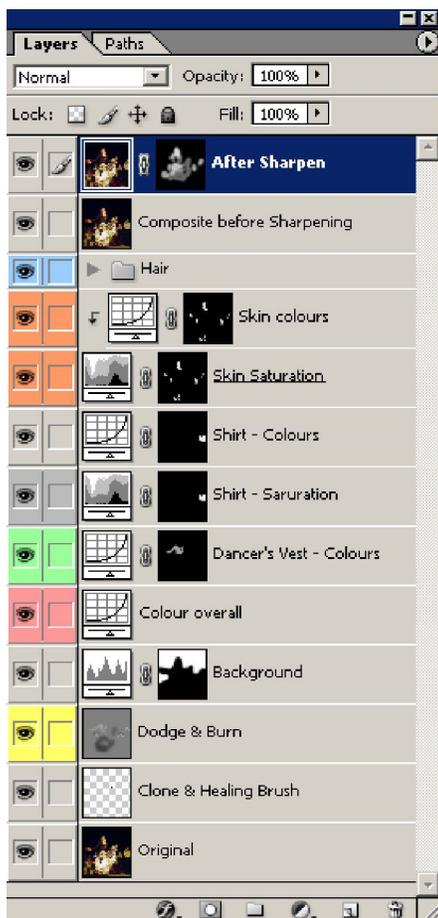
8- or 16-bit?

If you are not yet using the latest Photoshop version, then there is no choice - you need to be in 8-bit mode when working with layers. Photoshop CS, however, allows us to make full use of layers in high-bit mode.

When working in 16-bit and adding a number of adjustment layers, even a moderate-sized image will soon mushroom into a gigantic file, slowing the computer to a crawl. This is a problem - we have been told to edit in high-bit mode **and** we should be using layers. Wasn't this one of the reasons for upgrading to Photoshop CS?

My personal workflow is to start off with a high-bit file, either a camera RAW file or a high-bit scan. Then I do levels- and colour corrections in 16-bit, until the image looks good to me. I also apply the Shadow/Highlight adjustment (new to Photoshop CS) if necessary, because there is no adjustment layer for it. The rest of the editing process can be considered as finetuning and is done in 8-bit mode with all the facilities offered by layers. But these decisions are personal and will depend on the number of images you are working on, the file size and your experience in image editing.

In Photoshop version 6 or lower the layered file needs to be saved as a PSD file. Photoshop 7 and CS will allow you to use the TIFF format. To keep my files organised, I personally prefer to use PSD for files with layers and TIFF for flattened images.

At first look it may seem daunting, doing all the editing on layers. I suggest to start with adjustment layers, then bring in the masks and perhaps a new layer for dodging & burning. It is very convenient to open a file and be able to retrace all the editing steps, undo or modify them. After a while you wonder how you managed without this luxury. The files can also be viewed with most non-Photoshop image browsers and it is not necessary to flatten them before printing. Needless to say, the client will only see the flattened files.