

A Workflow for the Digital Darkroom

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It seems that many photographers find themselves looking at one of their images on a monitor, wondering where to begin. They know how they want the final image to look like, but they don't know what steps to take, and in what order, to help them produce the best results.

The best workflow for digital images will ensure a logical flow for adjustments to the image, optimizing quality without any loss of data in the image. I have developed a basic workflow for digital images, which provides a plan for working through the editing process. I'll present the basic workflow in this column, with a more detailed look at some sophisticated editing techniques in future columns.

These steps are based on the use of Photoshop. However, the basic concepts can be applied to any image-editing software.

Crop and Rotate

The first step in working on your image is to do a basic crop and rotation. First you'll do a rotation in 90-degree increments to correct orientation of scanned images that weren't rotated properly in the scanning process, or for digital captures that were captured in the vertical format.

Once the image is oriented properly, you can do a basic crop. I generally recommend saving "artistic" cropping for after you've worked with the image, so this cropping is just a cleaning up of the edges. For digital captures this crop isn't generally necessary, but for film scans, this is where you'll crop out any parts of the slide mount that were included in the scan. Pay particular attention to the corners, as these will often be rounded on slide mounts, infringing on the image.

Another step involved with this crop and rotation is to rotate the image slightly to correct a line in your image that should be perfectly horizontal or vertical, but isn't. In Photoshop, I use the crop tool to both crop the slide frame out of the image and rotate at the same time. Simply make your initial crop selection with the crop tool, and then put your mouse outside the bounding box. You can then click and drag to rotate the bounding box, using a line in the image that should be horizontal or vertical to find the perfect amount of rotation. You can even bring one of the outer edges of the bounding box close to a horizontal or vertical line in the image to help perfectly align the rotation. Once the rotation angle is set, you can pull the line back out to set the crop area. Double-click inside the box or press Enter to apply the crop and rotation.

The High Bit Advantage

If the scan or digital capture you are working with is a high-bit image, you won't be able to take advantage of duplicate image layers, adjustment layers, and some of the editing features of your image. However, if you immediately convert the image to 8-bit per channel, you have eliminated any benefit to having a high-bit image in the first place.

To take advantage of the high-bit image, make your basic tonal and color balance adjustments directly to the image before converting to 8-bit per channel. I recommend avoiding adjustments that will result in a loss of detail at this stage. These include major tonal adjustments or significant increases in saturation. With the high-bit image, you should make basic tonal adjustments to bring the image as close to a perfect exposure as possible, and make color balance adjustments. Once you have made these adjustments, convert the image to 8-bit per channel by selecting Image > Mode > 8 Bits/Channel from the menu.

Get Insured

As much as possible, I avoid working directly on the image when making adjustments to preserve the original pixel data. However, with some operations you don't have a choice. For that reason, I recommend making a duplicate copy of the image layer. The original image layer can remain untouched, while any adjustments that change the pixel values of your image will only apply to the duplicate layer. By doing so, you always have an "insurance copy" of your original image, and the file you save with all layers intact

becomes the “master” digital image file, containing all the original pixels and all the changes you have made to perfect the image. It will be a larger file, but it will also serve as a digital master with all the information you need to make any adjustments you like to the image.

To duplicate the original image layer in Photoshop, simply drag the image layer on the layers palette to the “Create New Layer” button. If you need to do any destructive changes to the image, be sure to do it on the duplicate copy, not on the original background layer.

Clean It Up

The clone stamp tool in Photoshop is incredibly helpful for cleaning up dust, scratches, and other unwanted elements of an image. However, most photographers use the clone stamp directly on an image layer, which changes those pixels permanently. That may be an improvement on the original dust spot, but sometimes you create new problems in the image that you might not notice until later.

I recommend working with the clone stamp on a new empty layer. That way all the pixels you duplicate will be on a separate layer, rather than the original. The visual result is the same, but it is easier to undo any changes or fine tune them.

To work with the clone stamp tool on a separate layer, first select the image layer you want to adjust and create a new layer by clicking on the “Create new layer” button on the layers palette. This will put the new empty layer directly above the image layer you are adjusting. Select the clone tool, and be sure that you have your new blank layer selected (paintbrush icon will be to the left of the thumbnail for that layer in the layers palette).

When working with clone stamp in this way, you need to check the box for “Use All Layers” on the options bar. This will allow you to duplicate pixels from one layer onto another, because the resulting pixels will be the composite of all layers in your image. That also means that you may run into problems with adjustment layers. With “Use All Layers” turned on when cloning, the affects of any adjustment layers will apply twice to the pixels you have cloned, but only once to the other pixels in your image.

To avoid this problem, turn off the visibility of any adjustment layers while working with the clone stamp tool in this manner. That will ensure that you are only duplicating pixels from your image without having adjustment layers cause compounded adjustments for the pixels. If the adjustment layers are kept above both the image layer and the cloning layer, the same adjustments will apply evenly to both layers.

Tonal Adjustments

I strongly recommend that all adjustments to your images be made with adjustment layers. That way you are applying the changes you want to the image without changing the original pixel data. This provides incredible flexibility for your images, without the risk of changing the pixel values.

For tonal adjustments, I start with a Levels adjustment layer. Click the new adjustment layer button on the layers palette, and select Levels from the list. Set the black point and white point by sliding the black and white sliders inward as needed. As a general rule, you will slide each in to the beginning of data on the Levels histogram, setting the darkest pixel to black and the lightest pixel to white. This will obviously not always be the best adjustment, but it is a relatively good rule of thumb. Once the black and white points have been set, you can adjust the overall brightness of the image by sliding the middle tone slider.

For even greater tonal control, you can use a Curves adjustment layer. More detailed tonal adjustments, including the use of Curves, will be covered in a future column I’ll write for NPN.

Color Adjustments

I generally make my color balance adjustments in the Levels control, so that I can do all my basic tonal and color adjustments in one place. To adjust the color balance with the Levels control, select each color channel individually and slide the middle tone slider for that channel. I’ll start with the color channel that requires the largest adjustment, and then go through each other channel in turn to achieve the perfect color balance.

When deciding what color balance adjustments are necessary, or deciding if you made a good adjustment, it can be helpful to create a Hue/Saturation adjustment layer and increase the saturation to its highest value. This will shift the colors to neon values,

and make any color cast in the image quite obvious. When you are finished using this adjustment layer to evaluate your image, you can simply drag it to the trash can on the layers palette.

Once you have perfected the color balance in your image, you can use a Hue/Saturation adjustment layer to increase or decrease the saturation. For most images I generally increase saturation slightly, but generally never more than an increase of 20 points. For some images I'll actually reduce the saturation to produce a more subtle appearance.

Advanced Adjustments

Once you have completed your basic adjustments, you can proceed to more sophisticated changes. These may include non-destructive dodging and burning, masking adjustment layers, masking multiple image layers, and other changes. I'll discuss some of these advanced techniques in future columns.

Save Early and Often!

One of the most important things to include in your digital workflow is saving the image. How often should you save the image? That depends on how much work you want to repeat if your computer crashes or the power fails. For most photographers, that isn't much work, so I recommend saving after every major adjustment.

Before You Print

I recommend saving the file without sharpening or resizing. These tasks should be performed as the last step before printing. If you want to save the sharpened version of the file, be sure to do so on a separate image layer in case you later decide that you applied too much sharpening.

As for resizing the image, I recommend not saving after a resize. If you reduced the image size, then you'll need to interpolate the image later to get back to the original image size. If you have interpolated the file to a larger size, there will be some loss of sharpness and quality. Therefore, I always recommend saving the image with the original pixel dimensions as your "original". If you want to save the resized version, use the File > Save As option to save a copy of the resized image.

Just a Start

This basic workflow is just the beginning. In future columns I will include more specific details on making the best basic adjustments, as well as some advanced techniques for making the most of your images.

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About Tim Grey...

Tim enjoys sharing information about digital imaging as much as he enjoys learning it in the first place. Tim publishes an almost-daily [Digital Darkroom Questions](#) (DDQ) e-mail service that provides a forum for photographers to have their questions related to the digital darkroom answered. He is editor of *The Digital Image*, a quarterly journal published by [George Lepp](#). He also teaches courses to help photographers master the digital darkroom at the [Lepp Institute of Digital Imaging](#).

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