Selections Masks and Layers

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Introduction:

This article will discuss the purpose of selections and masks and the use of layers. Selections and masks do similar things, but they are different.

1. Selections are created using selection tools
2. Selections are denoted by a boundary of "marching ants"
3. Selections restrict a Photoshop operation to a particular area of an image
4. Selections can be used to create masks
5. Selections can have softened edges by "feathering"
6. Selections when saved are saved as masks
7. Selections are lost when you close the file
8. A mask is a black and white layer "attached" to another layer
9. A mask can be used to generate a selection
10. A mask operates on a layer (it need not have pixels)
11. A mask can have softened edges (created a number of ways)
12. A mask can be modified with tools, and filters (it is a black and white layer)
13. Masks are saved in the mask palette
14. Masks are saved with the file when saved in .PSD format

Decide what needs to be done to improve the image:

The process of improving your image involves what is called a "workflow". Each person develops a workflow that they find most suited for themselves. I will suggest one that I use. You will find that the order that you do things matters and some things can be done out of order.

1. Save the original in a special place on your computer (with a special name) or on a CD/DVD that can be placed in a safe place. ALWAYS DO THIS FIRST.
2. Crop the image to attain a good composition
3. Straighten horizon line
4. Compensate for lens distortions and correct perspective
5. Assure proper exposure
6. Assure proper white balance (color rendition)
7. Improve contrast as necessary
8. Improve the shadow and highlight details (this can be done many ways)
9. Check for dust spots on your image sensor (usually noticed in the sky)
10. Decide if there are special areas that need attention and what type of work needs to be done to improve the image.
    a. Lighten or darken certain areas (dodge/burn)
    b. Blur certain areas (filter)
    c. Specific area sharpening (for example edges)
    d. Remove certain parts of the image (cloning/healing brush)
    e. Add things to the image (a sky for example)
    f. Special effects

g. Provide vignetting (corner darkening) if appropriate

11- Address each special issue and create separate layers to address each one separately. Some operations may require numerous layers to execute.

12- Save your work with a name or location that will identify it as not your original, but a work in progress or a completed work. ALWAYS SAVE YOUR WORK AS A .PSD FILE TO ASSURE YOUR LAYERS ARE PRESERVED.

    a. JPG is a destructive format since it compresses the file to save disk space. The compression procedure causes the loss of some picture information and doing this over and over will eventually develop noticeable artifacts that you can not remove.

    b. Once data is lost you can not get it back.

        i. This is an important point to keep in mind when working on your images and the reason to keep your operations on separate layers and try to avoid operations that are basically destructive operations in Photoshop. (That is; they modify the pixels of the image permanently).

            1. Some operations do not modify pixels and are therefore not destructive. (For example; adjustment layers)

13- Prepare Image for viewing by others

    a. Flatten

    b. Change size

    c. Sharpen for printing (ALWAYS DO THIS LAST)

    d. Add a border

    e. Save in appropriate format for distribution/email or prints (JPG, TIF)

The above workflow is presented to act as a guide and show you the process that one goes through to review and prepare an image as art. Many people have a problem with how to use Photoshop because they are unable to separate the various processes in their minds and organize their work into a step-by-step process if improvements.

I will not go into the details of each step above, which would comprise a number of books on the subject of each feature of Photoshop tools, adjustments, and filters. Instead; I will pick out a few of the pertinent features to explain the layers, selections and masks.

Layers:

Layers provide an ability to isolate your work efforts and concentrate on one image correction at a time. The layers palette provides you a visual structure to help you understand the affects of your efforts.

The first nine items above are global image adjustments while item ten is referring to things that involve only a portion of the image. To work on only a portion of an image the particular part of the image must be isolated from the rest of the image. This is done by a selection or by masking the operation performed so that it is applied only to the un-masked portion of the image. By using layers we are able to separate out each operation

we are doing and replace or modify the operation if we decide we want to change it slightly.

A layer can be thought of as a transparent piece of film that is placed over the layers below. At the bottom we have what is called the "background" layer. Each new image is opened as a "background" layer. This layer is locked (notice the lock icon to the right of the layer indicated in the layer palette). It is the original recorded image and should be carefully preserved since it is the original. If we make a mistake we would like a simple way to get back to it, short of throwing away our work and opening the image again from our safely stored original image location. In addition, the lock protects it from certain operations.

Copy the background layer:
I, therefore, suggest the first thing you do is copy the background layer to a new layer above the background layer. To copy any layer; assure the layer is selected (highlighted) by clicking on the area along side the layer name in the layer palette and then press and hold the control key (Ctrl) and press "j" on the keyboard. Alternatively; drag the background layer to the "create a new layer" icon (box-in-a-box" icon). Notice the new layer does not have a lock on it.
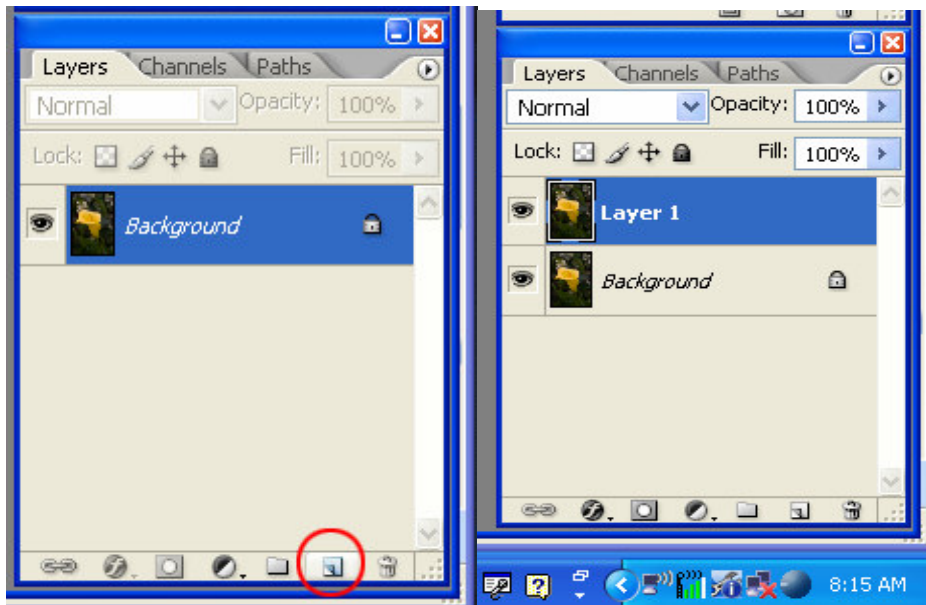
Both of these layers contain pixels of the image. Layers can contain pixels image information) or just instructions. It is important to understand that adjustment layers contain instructions and there are no pixels to modify on these layers. Masks can mask instructions as well as pixels and can be attached to all layers. Adjustment layers automatically include an attached mask. Pixel carrying layers created by the user are created without a mask and if a mask is desired must be added by the user.

The Layers Palette:
The layers palette is accessible by a tab in the default docked workspace. It is bundled with two other palettes that are also tabbed (the "channels" palette and the "paths" palette).

Looking at the layers palette shown above; the layers are clearly shown with one highlighted in blue. Each layer is given a name when created. By double clicking the name on a layer, the name is highlighted and you can type in a different name that may be more descriptive.

There is an eye icon to the left of the layer. This eye indicates the layer is a visible layer among the stack of layers. By clicking on the eye you can shut the visibility of the layer off. This removes the layer temporarily from all picture calculations. Click the box for the eye again and it will turn the layer back on in the stack.

At the top of the layers palette, under the tab labeled layer is the word "normal" in a window. There is a menu drop down arrow to the right of the word normal. The window is indicating the blending mode. You will notice that the left image of the layers palette, with only the background layer, has the word "normal" grayed out. The right image above with the "layer 1" highlighted has the word normal clearly displayed. This is due to the lock that is attached to the background layer. Clicking on the menu drop down arrow will display other layer blending modes if you would like to blend the layer with others below. "Normal" blending mode is a default for a new layer and displays the layer fully. Blending modes is a separate topic and will not be discussed in detail in this article.

To the right of the blending mode window is the opacity window. As a default this is set to 100% opacity. This means it has no transparency. All information in the layer stops at this layer and you do not see the layers below (unless the layer has transparent areas). The layer can be modifying the layers below but you no longer can see them without the modifications in the composite view. Clicking on the arrow to the right of the 100% will reveal a slider that allows you to change the opacity from 0 opacity to 100% opacity. This controls the amount of transparency in the layer. 0 opacity is fully transparent.

The layers can be locked for different types of operations. I do not use these locks.

The "Fill" window is similar to the opacity window; however it pertains more to the pixels and color fill that has been placed on the layer (I suggest you concentrate on using the "opacity" slider).

At the bottom of the layers palette are short cut icons. Draging a layer to the garbage can on the right will delete the layer. Clicking the "add a layer" icon (box in a box) icon will create a new layer above the highlighted layer. Create a new group, add adjustment layer, add a mask, and special effects are the other icons from right to left.

Adjustment Layers:

Photoshop provides a number of adjustments that will enhance certain aspects of your image. These adjustment layers provide the same adjustment to the entire image. To make these adjustments more powerful, Photoshop includes a mask attached to every adjustment layer. The mask will be discussed later.

To select an adjustment layer, use layer>new adjustment layer. Clicking an adjustment will open the "new layer" dialog box. You can name your layer, select a blending mode, fill it with a color, direct it to affect only the layer below, and select an opacity. Usually one leaves the mode at "normal" and "opacity" at 100%, since these can all be changed later. The layer is usually not filled with a color for an adjustment operation and unless there is a reason, one doesn't limit the adjustment to only the layer below. An alternative way to select an adjustment layer is to click the black and white cookie icon to bring up a menu of adjustment layers. This will not bring up the "new layer" dialog box, which is required only to direct the adjustment to affect the layer below. If you want to get the dialog box you can press and hold the alt key while clicking the cookie icon and selecting an adjustment layer.

Starting with step number 4 in the list of workflow steps;

Adjust exposure:
Two adjustments can be used for exposure, levels and curves. These two adjustment layers are among the most powerful tools available to you. Levels primarily adjusts the exposure, while curves can do all that levels can do plus adjust contrast and can mimic film sensitivity curves. Books can be written on these adjustments, and I will describe some uses later for these tools.

Adjust white balance:
Both the levels and curves adjustment layers can correct white balance. There are three eyedroppers included in the adjustment window, "set black point", "set gray point", "set white point". If you can find a spot on your photo that is a neutral (near gray color) activate the set gray point (center eye dropper) and click on that spot in your image. This will automatically set the spot to a neutral shade of gray near the brightness level of the point. Assure the eyedropper tool on the tool bar is set for 3x3 or higher pixel averaging as indicated on the tool bar when it is selected.

Improve contrast:
The curves adjustment layer is a little difficult to master, however it is a wonderful tool to adjust contrast. By increasing the slope of the line on the graph in the vicinity of a particular brightness area on the image you can increase contrast either generally or locally.
  1- With none of the eyedroppers selected placing the cursor over the image will change it to an eyedropper and clicking it will display a circle on the curve indicating the brightness of that specific point on the image. To place a point on the graph hold the control key (ctl) down while clicking on the image area. A black point will appear on the graph. You can now make that point brighter by

raising it up, or darker by lowering it. This can be done with the mouse (dragging) or the arrow keys.
2- Observe the slope of the line at that point. Increasing the slope will increase contrast, decreasing the slope will decrease contrast.

Shadow and Highlights:
This adjustment is not really an adjustment layer. As such it acts more like a filter on a layer with pixels. Therefore, assure you have pixels on your layer before trying to apply the "shadows and highlight" adjustment. It is accessed via image>adjustments>shadow and highlight. This tool is wonderful and will bring out information in the shadows or improve contrast for you in the highlights. Simply play with the sliders.

Selections:
There are many ways to make a selection. I will talk about a number of ways later. When you make a selection you are reserving the space selected for operations to affect only the selected area.
1- Filters will affect only the area selected
2- Cloning will be restricted to the selected area
3- Painting with the brush tool is restricted. This is a good way to paint a mask and protect near-by image pixels.
4- With a selected area active (marching ants) an adjustment layer will automatically create a mask to limit the adjustment to the active area (an automatic and powerful feature).
5- With a selected area active, after copying a pixel image, a "paste into" command will generate a mask automatically and the new layer generated will be masked.
6- A pixel carrying layer with a selected area active will create a new layer containing only the selected area pixels when you use layer>new>layer via copy.

Masks:
These differ from selections in that they are attached to layers to hide information in certain parts of the image while allowing other parts of the image to be affected by the layer properties. The mask is a black and white canvas that allows the layer to function where it is white (numerically 255), stops the layer function where it is black (numerically 0) and allows partial layer function for in-between gradations of gray.

Layers can be turned on or off by clicking the "eye" icon to the left of the layer.   You can think of it as making the layer totally transparent. This allows you to see how any layer is affecting the composite image by turning the layer on or off. In a similar way, a mask makes a portion of the layer transparent. The black part will cause that part to be transparent, while the white part will cause the layer to be fully visible. Gray areas in the mask will be partially transparent. This is similar to the opacity control in the layers palette (which works on the entire layer) but the mask works on a part of the layer instead of on the entire layer.

1- To create a mask on a pixel layer that is activated click the "add a mask" icon in the layer palette (front loader washing machine).
2- All adjustment layers have a mask attached as default.
3- To activate the mask on a layer; click the mask icon (a highlight appears around the mask icon to indicate it is active.
4- For all masks; white reveals and black conceals.
5- Masks can be generated automatically if created with an active selection already existing.
    a. Create the mask on a pixel carrying layer by clicking the "create a mask" icon (front loader washing machine icon in the layer palette).
6- Masks can be painted using a brush and setting the foreground and background colors to defaults of black and white by pressing the letter "d" on the keyboard.
    a. Masks must be active to paint on them (see 3 above).
    b. After setting the foreground and background to default – pressing "d", you can toggle the two by pressing the letter "x". This permits easily switching black and white for painting with a brush tool.
    c. Changing brush opacity will allow you to paint with shades of gray. This allows fine tuning the amount of opacity/transparency.
    d. Painting additional gray strokes over other gray strokes will paint more white or black in the same place to accentuate your mask.
    e. Only full black (0) or full white (255) will allow for total transparency or total opacity.
7- Masks are automatically created for all adjustment layers and defaulted to be filled with white.
8- You can invert the mask by using the keyboard shortcut Ctl+i. You can also use the menu select>inverse.