How to combine images in Photoshop

In Photoshop, you can use multiple layers to combine images, but there are two other ways to create a single image from mulitple images.

- Create a panoramic image with the Photomerge command. This command combines several photographs into one continuous image. Photomerge can assemble photos that are tiled horizontally or vertically.

- Create a High Dynamic Range (HDR) image that combines multiple exposures into a single image that preserves the full tonal range of a scene.

Creating panoramic images

A *panorama* is a cinematic, often scenic image that captures a wide field of view, such as the example in **Figure 1**. In Adobe Photoshop CS5 you can create panoramas by stitching together a series of photographic images. This guide shows you how to combine images automatically in Photoshop by using the Photomerge command.

Take pictures for use with Photomerge

Your source photographs play a large role in panoramic compositions. To avoid problems, follow these guidelines when taking pictures for use with Photomerge:

- Overlap images sufficiently. Images should overlap by approximately 40%. If the overlap is less, Photomerge may not be able to automatically assemble the panorama. However, keep in mind that the images shouldn't overlap too much. If images overlap by 70% or more, Photomerge may not be able to blend the images. Try to keep the individual photos at least somewhat distinct from each other.

- Use one focal length. If you use a zoom lens, don't change the focal length (zoom in or out) while taking your pictures.

- Keep the camera level. Although Photomerge can process slight rotations between pictures, a tilt of more than a few degrees can result in errors when the panorama is assembled. Using a tripod with a rotating head helps maintain camera alignment and viewpoint.

- Stay in the same position. Try not to change your position as you take a series of photographs, so that the pictures are from the same viewpoint. Using the optical viewfinder with the camera held close to the eye helps keep the viewpoint consistent. Or try using a tripod to keep the camera in the same place.

- Avoid using distortion lenses. Fish-eye and other distortion lenses can interfere with Photomerge.

- Maintain the same exposure. Avoid using the flash in some pictures and not in others. The blending features in Photomerge help smooth out different exposures, but extreme differences make alignment difficult. Some digital cameras change exposure settings automatically as you take pictures, so you may need to check your camera settings to be sure that all the images have the same exposure.

Figure 1 A panoramic image

Photomerge and advanced blending

Advanced blending allows Photomerge to assess a series of images and find the ideal location to create a seam that serves as a transition from one image to another. Each image becomes a layer, with a mask applied to the blend seam. In **Figure 2** you can see how three images are layered with advanced blending masks to stitch together the scene in **Figure 1**.
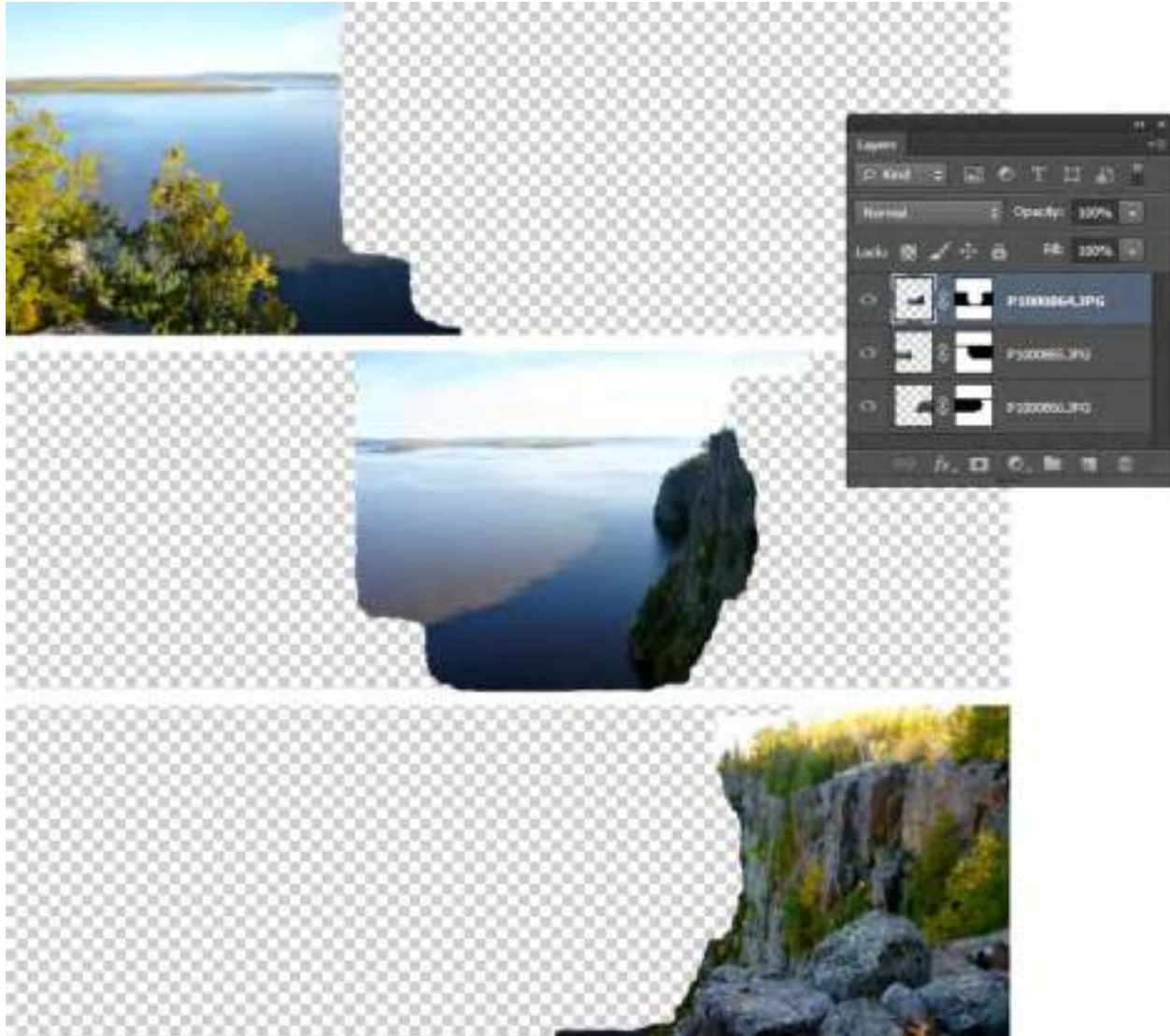
Figure 2 Layered images that comprise the panorama in Figure 1

Creating a panorama by using Photomerge in Photoshop

To create a panorama, you need a series of scenic photographs that overlap slightly.

To create a panorama:

1. Choose File > Automate > Photomerge.

   The Photomerge dialog box appears (**Figure 3**).

Figure 3 The Photomerge dialog box

2. Select a Layout option.

   - *Auto* Photoshop chooses a Perspective or Cylindrical layout, depending on which produces a better photomerge.

   - *Perspective* Creates a consistent composition by designating one of the source images (by default, the middle image) as the reference image. The other images are then transformed (repositioned, stretched or skewed as necessary) so that overlapping content across layers is matched.

   - *Cylindrical* Reduces the "bow-tie" distortion that can occur with the Perspective layout by displaying individual images as on an unfolded cylinder. Overlapping content across layers is still matched. The reference image is placed at the center. Best suited for creating wide panoramas.

   - *Spherical* Similar to the Perspective layout option but creates gradually arcing upper and lower edges of the image border.

   - *Collage* Choose this option to open the source images in a dialog and position them manually for the best result.

   - *Reposition* Aligns the layers and matches overlapping content, but does not transform (stretch or skew) any of the source layers.

3. Click Browse, locate and select the files to be merged, and click Open.

   The selected files appear in the Source Files list.

4. Make sure the Blend Images Together option is selected.   5. Click OK.

Photomerge automatically combines your images into a panorama by using layers and masking (**Figure 4**). The masking is determined by the advanced blending feature in Photomerge. To turn a layer on or off, click the visibility icon in the Layers panel.

Figure 4 Merged layers

6. The next step is to crop your panorama to fill a rectangular frame. In the Tools panel, select the Crop tool and frame your panorama.

   A Rule of Thirds grid appears with sizing handles (**Figure 5**).

Figure 5 Framing the final panorama

7. To crop your selection, press Enter (Windows) or Return (Mac OS).

8. Save your image.

Accessing Photomerge from Adobe Bridge

You can also begin the process of creating a panorama from Adobe Bridge CS6. This is useful if you use Adobe Bridge to manage your image collections.

To access Photomerge from Adobe Bridge:

1. In Adobe Bridge, select the images that will form a panorama.

2. In the menu bar, select Tools > Photoshop > Photomerge
(**Figure 6**).

Photoshop starts and the Photomerge dialog box appears, listing the images you selected in Adobe Bridge.
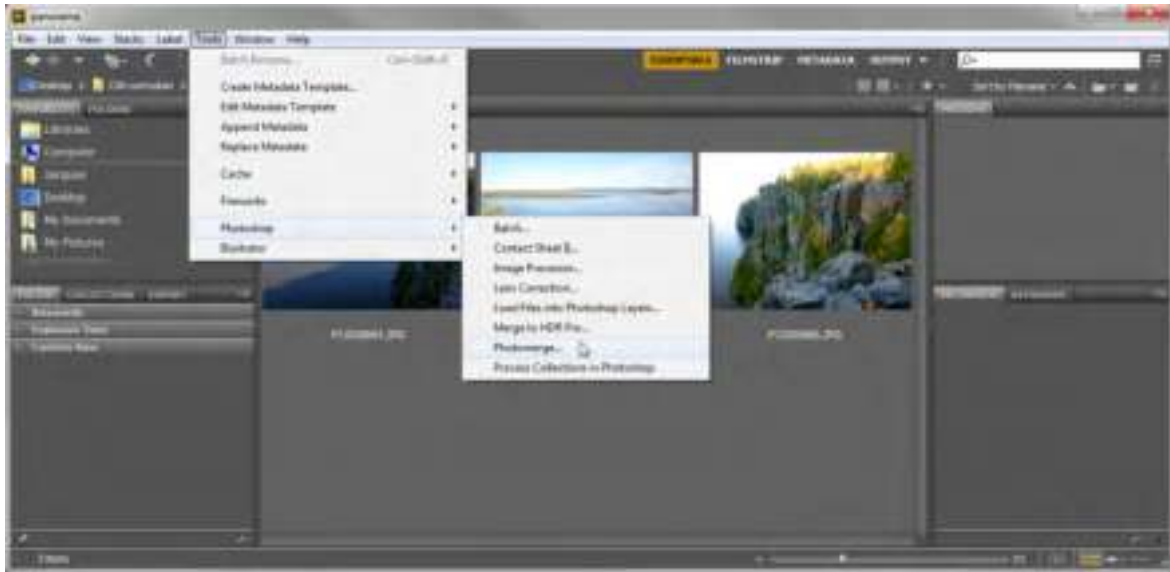

Figure 6 Photomerge from Adobe Bridge

3. Continue the process of creating your panorama as
described earlier in this guide.

Creating High Dynamic Range (HDR) images

The *dynamic range* (ratio of dark to bright regions) in the visible world far exceeds what can be displayed on a monitor or printed. Human eyes can adapt to very different brightness levels, but most cameras and computer monitors can reproduce only a fixed dynamic range. Photographers, motion picture artists, and others working with digital images must be selective about what's important in a scene because they are working with a limited dynamic range.

High dynamic range (HDR) images open up a world of possibilities because they can represent the entire dynamic range of the visible world. Because all the luminance values in a real-world scene are represented proportionately and stored in an HDR image, adjusting the exposure of an HDR image is like adjusting the exposure when photographing a scene in the real world. This capability lets you create blurs and other real-world lighting effects that look realistic. Currently, HDR images are used mostly in motion pictures, special effects, 3D work, and some high-end photography.

You can create an HDR image using multiple photographs, each captured at a different exposure. In Photoshop, the Merge To HDR Pro command lets you create HDR images from multiple bracketed exposures into a single image that preserves the full range of light in a scene.

Taking photos for HDR images

Keep the following tips in mind when you take photos to be combined with the Merge To HDR command:

- Keep the camera steady. Secure the camera to a tripod.

- Capture many exposures. Take enough photos to cover the full dynamic range of the scene. You can try taking at least five to seven photos, but you might need to take more exposures depending on the dynamic range of the scene. The minimum number of photos should be three.

- Vary the shutter speed. Changing the aperture changes the depth of field in each exposure and can produce lower-quality results. Changing the ISO or aperture may also cause noise or vignetting in the image.

- Don't use auto-bracketting. In general, if you use your camera's auto-bracket feature, the exposure changes are usually too small.

- Use a wide range of exposures. The exposure differences between the photos should be one or two EV (exposure value) steps apart (equivalent to about one or two f-stops apart).

- Use consistent lighting. Don't vary the lighting; for instance, don't use a flash in one exposure but not the next.

- Use only a still life. Make sure that nothing is moving in the scene. Exposure Merge works only with differently exposed images of the identical scene.

To create an HDR image:

1. Choose File > Automate > Merge To HDR Pro.

2. In the Merge To HDR Pro dialog box, click Browse, browse to select the images, and click Open.

   The images appear in the files list (**Figure 7**). To remove an item, select it in the Merge To HDR dialog box and click Remove.

   Note: If you want to add a folder of images or images that are open in Photoshop, choose Folder from the Use menu or click the Add Open Files button.

3. (Optional) Select the Attempt To Automatically Align Source Images option if you hand held the camera in your hands when you photographed the multiple images.

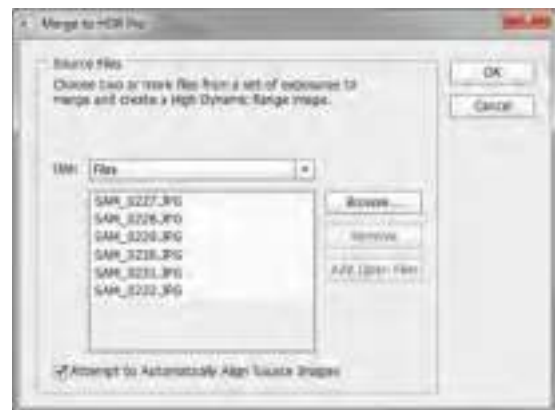**Figure 7** Merge To HDR Pro dialog box

4. Click OK.

   Photoshop processes the images.

   A second Merge To HDR dialog box displays thumbnails of the images being used in the merged result, a preview of the merged result, a bit depth menu, and a slider for setting the white point preview (**Figure 8**).
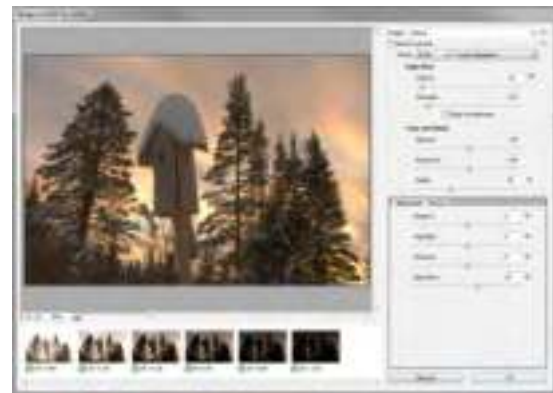
5. If necessary, do one of the following to set the view options for the merged result preview:

   - Click the Minus or Plus buttons below the preview image to zoom out or zoom in.

   - Choose a view percentage or mode from the pop-up menu below the preview image.

Figure 8 Merge to HDR preview with thumbnails

6. Choose a bit depth for the merged image from the Mode menu and confirm Local Adaptation is selected for tone-mapping method.

   You can output the merged image as a 32-, 16-, or 8-bit file. However, only a 32-bit file can store all the HDR image data.

   Local Adaptation adjusts HDR tonality by adjusting local brightness regions throughout the image.

7. Adjust settings to preview the merged image:

    • In 32-bit mode, move the slider below the histogram to adjust the white point preview of the merged image. To readjust the white point preview at any time, choose View > 32-Bit Preview Options.

    • In 16- or 8-bit mode, move the Edge Glow sliders and the Tone And Detail sliders to refine the preview image.

8. Click OK to create the merged image (**Figure 9**).

    Photoshop processes the images.

    If you chose to save the merged image as an 8-bit or 16-bit image, the HDR Conversion dialog box opens. Make the exposure and contrast corrections to produce an image with the dynamic range (tonal range) you want.

**Figure 9** Completed HDR image

Accessing Merge To HDR Pro from Adobe Bridge

You can also begin the process of creating a high dynamic image from Adobe Bridge. This is useful if you use Adobe Bridge to manage your image collections.

To access Merge To HDR Pro from Adobe Bridge:

1. In Adobe Bridge, select the images that will form an HDR image.

2. In the menu bar, select Tools > Photoshop > Merge To HDR Pro (**Figure 10**).

Photoshop starts and the Merge To HDR Pro dialog box appears, listing the images you selected in Adobe Bridge.
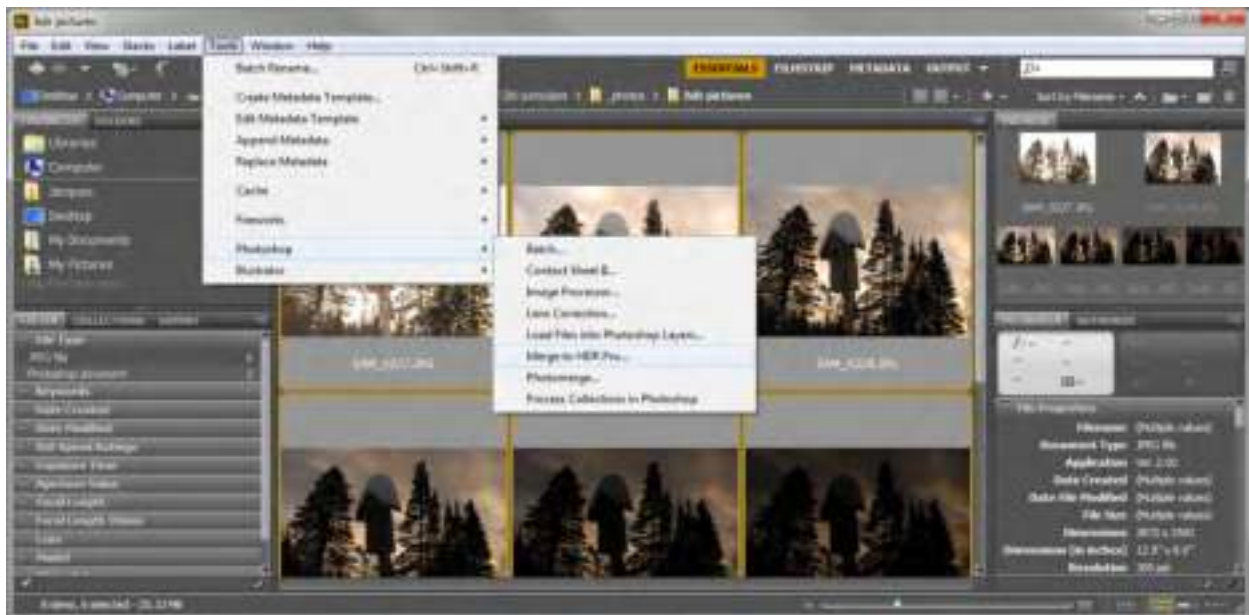
Figure 10 Merge To HDR Pro from Adobe Bridge

3. Continue the process of creating your HDR image as described earlier in this guide.

How to correct color

Once you've opened an image in Photoshop, you may want to adjust color quality or light levels, convert it to black and white, or correct color or lens distortions. This can improve an image's appearance and correct problems that arise during scanning or taking a photograph.

Note: Most of the tasks in this guide apply primarily to photographs.

Using automatic adjustments

Photoshop includes several commands to adjust image quality automatically. In many cases, these will be all you need. The latter part of this guide covers how to make such adjustments manually.

The Auto Color command adjusts the contrast and color of an image by searching the image to identify shadows, midtones, and highlights.
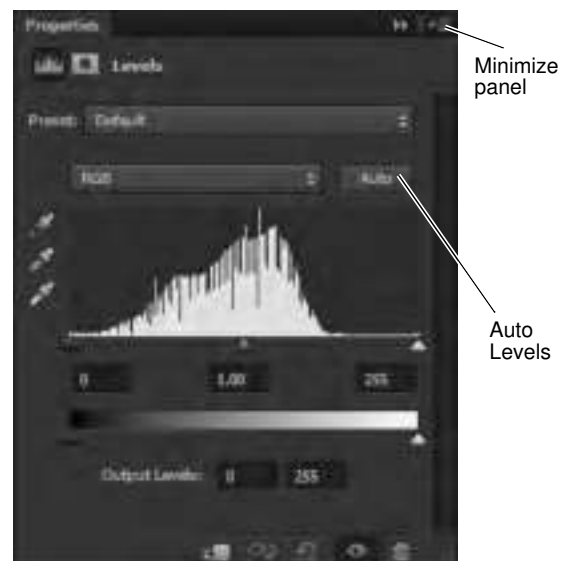
To use Auto Color:

1. Open the image you wish to correct.

2. Do one of the following:

    •   Click the Levels or Curves icon in the Adjustments panel (**Figure 1**).

    •   Choose Layer > New Adjustment Layer and choose either Levels or Curves. Click OK in the New Layer dialog box.

    The Properties panel opens (**Figure 2**).

    Note: You can also choose Image > Auto Color to apply the adjustment directly to the image layer. Keep in mind that this method discards image information and is automatic. You cannot adjust any of the options described in the following steps.

Levels   Black and White   Curves
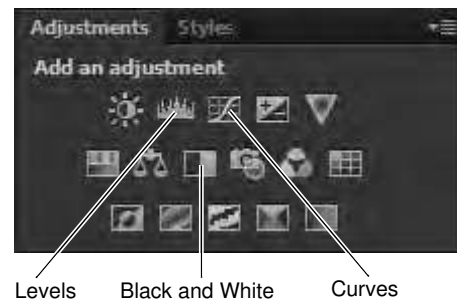
Figure 1 Adjustments panel

Minimize panel

Auto Levels

Figure 2 Properties panel with Levels options

3. In the Properties panel, Alt-click (Windows) or Option-click (Mac OS) the Auto button.

   The Auto Color Correction Options dialog box opens (**Figure 3**).

4. In the Algorithms section of the Auto Color Correction Options dialog box, select the Find Dark & Light Colors option.

   Color correction *algorithms* adjust tonal ranges using specific settings such as clippping all channels identically, adjusting channels individually, or finding an average of lightest and darkest pixels in a image.

5. Select the Snap Neutral Midtones option.

   Photoshop finds an average nearly-neutral color in an image and then adjusts the gamma (midtone) values to make the color neutral.

6. Specify the shadows and highlights that are clipped, and adjust the target color for the midtones.

   By default, Photoshop clips the black and white pixels by 0.1%—that is, it ignores the first 0.1% of either extreme when identifying the lightest and darkest pixels in the image.

7. Confirm Save As Default is not selected and click OK to apply Auto Color.

   Photoshop applies Auto Color to the image.

   Observe the changes in the photo. It should lighten in some areas and darken in others. Overall, the color's clarity (though not its sharpness) should improve.

Figure 3 Auto Color Correction Options dialog box

Adjusting levels with an adjustment layer

Every image has a range of tone, from the darkest pixels to the lightest pixels. Photographs tend to look better when their darkest pixels are close to black and their lightest pixels are close to white, giving the photograph a wide *tonal range*. You can use the Levels command in Photoshop to adjust the darkest and lightest pixels in your picture. You can also adjust the *midtones*: the gray or gamma tones of your picture that are in the middle of the brightness range.

In an adjustment layer, you can make changes to tonal levels while preserving the original image. *Nondestructive editing* means you can experiment endlessly without worrying about losing or changing your original photo. By using adjustment layers to alter an image, your original remains intact. At any point, you can turn layers on or off to fine-tune your image.

To use the Levels command through the Adjustments panel:

1. Make sure nothing in the photo is selected. (You want to apply your changes to the entire image.)

2. If the Adjustments panel is not visible, choose Window > Adjustments.

3. In the Adjustments panel, click the Levels button (**Figure 1**).

   The Properties panel opens dispaying a histogram, levels options and some commonly used presets (**Figure 4**).

   You can try some options in the Preset menu or use the histogram to tonal range of the image.

   A *histogram* illustrates how pixels in an image are distributed by graphing the number of pixels at each color intensity level. The histogram shows detail in the shadows (shown in the left part of the histogram), midtones (shown in the middle), and highlights (shown in the right part). A histogram can help you determine whether an image has enough detail to make a good correction.

4. Drag the left (black) triangle to the point where the darkest colors begin.

   Observe that the darker parts of the image become darker.

5. Drag the right (white) triangle to the point where the lightest colors begin.

   Observe that the lighter parts of the image become lighter.

6. Drag the middle (gray) triangle slightly to the left.

   Observe that the midtones lighten.

7. When the image looks right to you, close the Properties panel.

   Note: The Adjustments panel with Levels options includes an Auto button. The Auto button automatically adjusts the black point and white point in an image. This may give good results in certain images that need a simple increase in contrast; however, because the Auto option adjusts each color channel individually, it may remove color or introduce color casts. Manually adjusting levels often yields more subtle adjustments to your images.

8. Choose Windows > Layers.

   The Layers panel appears. Notice that a new adjustment layer named Levels 1 has been created (**Figure 5**). The original image remains unaltered in the Background layer.

Figure 4 Properties panel with levels options

Figure 5 Layers panel with levels adjustment layer

Adjusting lightness and darkness with the Dodge and Burn tools

The commands in the previous section change lightness and darkness in the image as a whole. Sometimes you might need to lighten or darken particular areas of an image. For example, you might want to lighten the shadows on someone's face or brighten the colors in an area of the image without much light.

You can use the Dodge and Burn tools to change the lightness and darkness of particular areas of an image. Dodging and burning may seem like odd names, but like many other features in Photoshop, they are named after film-

development processes. *Dodging* allows more light to show through the negative, making the area lighter, while *burning* allows less light to show, making the area darker.

Both tools are available in the Tools panel above the Pen tool. The Dodge tool appears by default. To access the Burn tool, click the Dodge tool and hold down the mouse button (**Figure 6**).

To use the Dodge tool:

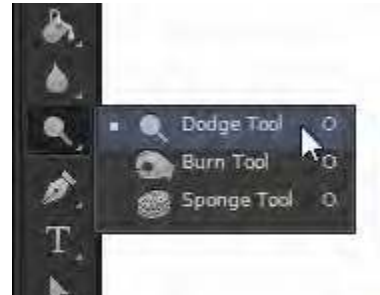1. Select the Dodge tool in the Tools panel (**Figure 6**).

   The pointer changes to a brush. Usually, the brush appears as a circle.

2. You can change the size and shape of the brush in the Options bar (**Figure 7**).

   Size the brush in proportion to the area you want to lighten.

3. Drag the brush across the photograph in the areas you want to lighten.

   Note: Dodging requires some practice. You may want to keep the History panel open so you can undo your actions.

Figure 6 Dodge and Burn tools in the Tools panel

Figure 7 Brush options

To use the Burn tool:

1. Select the Dodge tool in the Tools panel, hold down the mouse button, and select the Burn tool (**Figure 6**).

   The pointer changes to a brush. Usually, the brush appears as a circle.

2. You can change the size and shape of the brush in the Options bar (**Figure 7**).

   Size the brush in proportion to the area you want to darken.

3. Drag the brush across the photograph in the areas you want to darken.

   Note: Burning requires some practice. You may want to keep the History panel open so you can undo actions.

Applying the Unsharp Mask filter

After retouching a photo, many Photoshop professionals apply a filter called the Unsharp Mask filter. When you apply color corrections, you can sometimes produce subtle blurriness in the image. The Unsharp Mask filter makes the image appear sharper by adjusting the contrast of edge detail.

Note: The Unsharp Mask filter is just one of Photoshop's many powerful filters. Many of these apply an artistic look to images. You can experiment with these by selecting different options in the Filter menu.

How to apply Unsharp Mask

1. Make sure nothing in the photo is selected. (You want to apply changes to the entire image.)

2. Choose Filter > Sharpen > Unsharp Mask.

   The Unsharp Mask dialog box appears (**Figure 8**).

3. Make sure the Preview option is selected so you can see changes in the image as you make them.

4. Drag the Amount slider until your image is as sharp as you want it.

5. Drag the Radius slider to change its setting.

   The Radius slider determines the number of pixels surrounding the edge pixels that affect sharpening. *Edge pixels* are pixels located where two different colors meet. The default setting is 1 pixel. Higher-resolution photos may benefit from a higher setting.

6. Set the Threshold setting to 0 pixels.

   Threshold determines how different pixels need to be before they are considered edge pixels. A setting of 0 sharpens all pixels in the image. Generally, set Threshold between 0 and 20 to avoid introducing unwanted "noise" into the image.

7. When the image looks right to you, click OK to apply changes and close the Unsharp Mask dialog box.

Figure 8 Unsharp Mask dialog box

Converting images to black and white

The Black & White adjustment enables you to convert a color image to grayscale while maintaining full control over how individual colors are converted. You can also tint the grayscale by applying a color tone to the image, to create a sepia effect, for example. Black & White functions like the Channel Mixer, which also converts color images to monochrome while allowing you to adjust color channel input.

How to convert images to black and white:

1. Do one of the following:

   • In the Adjustments panel, click the Black & White icon.

   • Choose Layer > New Adjustment Layer > Black & White. In the New Layer dialog box, type a name for the adjustment layer and then click OK.

   Photoshop applies a default grayscale conversion and the Properties panel opens with Black & White options (**Figure 9**).

   Note: You can also choose Image > Adjustments > Black & White. But keep in mind that this method makes direct adjustments to the image layer and discards image information.

Enable tint   Black and White

Figure 9 Properties panel with Black & White options

2. In the Properties panel, manually adjust the conversion using the color sliders, apply an Auto conversion, or select a Preset grayscale mix (**Figure 9**).

Preset menu Select a predefined grayscale mix or a previously saved mix (**Figure 10**). To save a mix, choose Save Black & White Preset from the panel menu.

Auto Sets a grayscale mix based on the color values of the images, maximizing the distribution of gray values. The Auto mix often produces excellent results, or can be used as the starting point for tweaking gray values using the color sliders.

Color sliders Adjust the gray tones of specific colors in an image. Drag a slider left to darken or right to lighten the gray tones of an image's original color.

3. (Optional) To apply a color tone such as a sepia tint, select the Tint option in the Properties panel (**Figure 9**). To fine-tune the tint color, click the Tint color swatch to open the Color Picker.

**Figure 10** Black and White Preset menu

Correct lens distortion and adjust perspective

The Lens Correction filter fixes common lens flaws such as barrel and pincushion distortion, vignetting, and chromatic aberration. The filter only works with 8- and 16-bits-per-channel images.

You can also use the filter to rotate an image or fix image perspective caused by vertical or horizontal camera tilt. The filter's image grid makes these adjustments easier and more accurate than using the Transform command.

How to correct lens distortion

1. Choose Filter > Lens Correction.

2. Click the Custom tab in the Lens Correction dialog box (**Figure 11**).

3. Select the Show Grid option. As you work you may want to adjust the grid lines to help you judge the amount of correction to make. You can also use the Zoom controls to adjust the level of magnification.

Zoom controls   Show Grid option   Custom tab
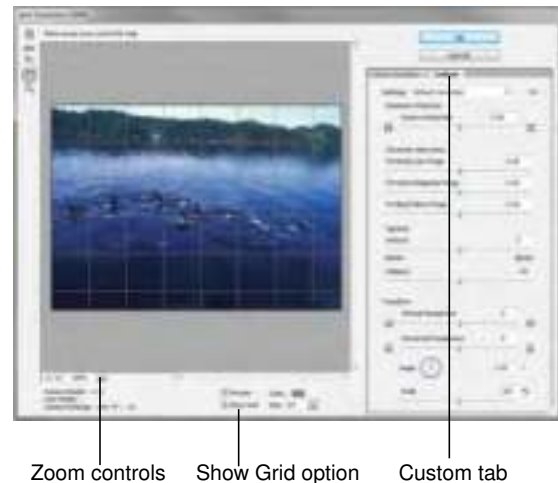
Figure 11 Lens Correction dialog box

4. Set any of the following options to correct your image, and then click OK to close the dialog box

Remove Distortion Corrects lens barrel or pincushion distortion. Move the slider to straighten horizontal and vertical lines that bend either away from or toward the center of the image. You can also use the Remove Distortion tool to make this correction. Drag toward the center of the image to correct for barrel distortion and toward the edge of the image to correct for pincushion distortion.

Chromatic Aberration Corrects Red/Cyan, Green/ Magenta, or Blue/Yellow fringing. Zoom in on the image preview to get a closer view of the fringing as you make the correction.

Vignette Corrects images that have darkened edges caused by lens faults or improper lens shading.

Amount Sets the amount of lightening or darkening along the edges of an image.

Midpoint Specifies the width of area affected by the Amount slider. Specify a lower number to affect more of the image. Specify a higher number to restrict the effect to the edges of the image.

Vertical Perspective Corrects image perspective caused by tilting the camera up or down. Makes vertical lines in an image parallel.

Horizontal Perspective Corrects image perspective, making horizontal lines parallel.

Angle Rotates the image to correct for camera tilt or to make adjustments after correcting perspective. You can also use the Straighten tool to make this correction. Drag along a line in the image that you want to make vertical or horizontal.

Scale Adjusts the image scale up or down. The image pixel dimensions aren't changed. The main use is to remove blank areas of the image caused by pincushion, rotation, or perspective corrections. Scaling up effectively results in cropping the image and interpolating up to the original pixel dimensions.

Note: Fixing images with similar problems is easy with the preset settings. You can also use some preset list of Lens Correction settings, available from the Settings menu. Lens Default uses settings that you previously saved for the camera, lens, focal length, and f-stop combination used to make an image. Previous Conversion uses the settings used in your last lens correction. Any group of custom settings you saved are listed at the bottom of the menu.

5. Choose File > Save to save the image.

How to generate different file formats

Different mediums—print, web, and video—require different file formats. This guide describes how to generate appropriate file formats for these mediums by using Adobe Photoshop CS6.

When generating any image in Photoshop, it's important to remember that when you save an image, Photoshop saves the image as it appears onscreen. That is, if you have hidden some layers, they will not appear in the saved image.

Saving files for the web

For web pages, you will generally want to save photos in JPEG format. JPEG is used more than any other format for photos on web pages. (Other web formats include GIF—usually used for images with limited colors—and PNG—a less often used, but flexible format.)

JPEG is popular because it compresses well—that is, you can make files smaller without sacrificing quality. However, if you compress too much, file quality will suffer; the trick is to find the right balance between image quality and compression.

Photoshop makes this process easier through a command called Save For Web. You can use Save For Web to preview JPEGs with different compression settings before you save them.

Note: When you save a file for the web, it appears at its full pixel size. The document size does not affect how the image appears in a browser. For example, an image whose pixel size is 640 x 480 displays at that size in a browser. The document size affects only how the image prints.

To save a file as a JPEG:

1. Start Photoshop and open an image.

2. Choose File > Save For Web.

    The Save For Web dialog box appears (**Figure 1**).

3. In the Optimized File Format pop-up menu, choose JPEG, if it is not selected. (**Figure 2**).

Figure 1 Save For Web dialog box

Optimized File Format menu
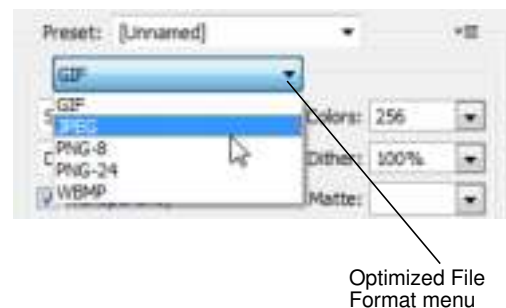
Figure 2 Optimized File Format menu

4. Click the 2-Up tab to display both the original and a preview of the file to be saved (**Figure 3**).

5. Adjust quality by using either the Compression Quality pop-up menu or the Quality slider (**Figure 4**).

   As you change settings, observe how the quality of the lower (preview) photo appears compared to the file size. Ideally, you want to find the right balance between preserving compressed image quality against smallest file size.
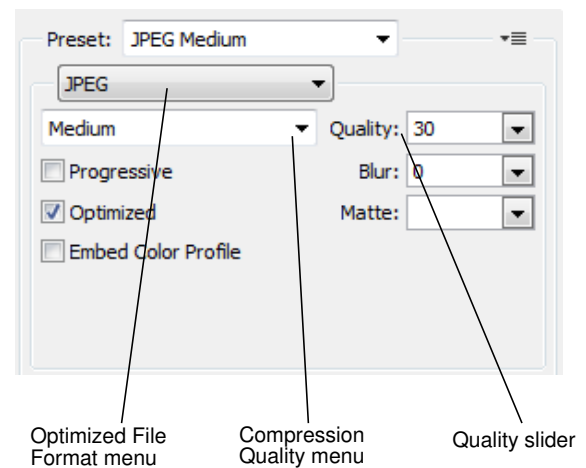
6. When you are satisfied, click Save.

   Clicking Save automatically saves a copy of the image as a JPEG with the settings you indicated. The original image is left unchanged. For working purposes, you may want to incorporate some of the settings into the filename, such as "banner_medium.jpg" for an image saved as a medium-quality JPEG.

   After you save, the original file stays open in Photoshop.

   Note: If the original image is also a JPEG (many digital cameras use JPEG as a format), you need to save the copy in a different location from the original (or give it a different name) to avoid confusion.

Figure 3 Save For Web dialog box, 2-up mode

Figure 4 Save For Web settings

Generating files for print

Generating files for print use is different from saving images for the web: you use an uncompressed file format and you must be sure the file is at a high enough resolution (preferably 300 ppi) before you save it. It is always good to import the image into Photoshop at the highest possible resolution to give more flexibility in the kinds of images you can generate.

Note: You can print to a printer directly from any computer running Photoshop. The options described here are for sending an image to a printer, to another computer to be printed, or to another application.

Generating files for print involves three steps:

1. Setting the image resolution to 300 ppi.

2. Converting the image to CMYK (if the image is going to an offset print vendor).

3. Generating a print-friendly (compression-free or lossless) format, such as TIFF.

Setting resolution to 300 ppi

Setting a higher resolution is important to maintain flexibility and quality.

To set resolution to 300 ppi:

1. Open an image in Photoshop.

2. Choose Image > Image Size.

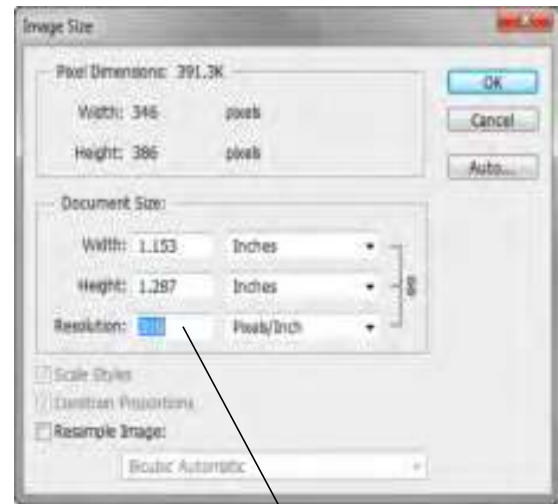   The Image Size dialog box appears (**Figure 5**).

3. Make sure the Resample Image option is not selected.

   When you leave this option unselected, you ensure that you're only changing the image's resolution, not removing or adding pixels.

4. Enter 300 in the Resolution text box (**Figure 5**).

   Make sure pixels/inch is selected as the units for Resolution.

5. Click OK.

Resolution text box

Figure 5 Image Size dialog box

To preview an image at the size it will appear when printed, choose View > Print Size.

Converting images to CMYK

Computers use combinations of red, green, and blue (RGB) to display photos. Offset printing presses print full-color photos, using cyan (blue), magenta (red), yellow, and black. This is known as *CMYK* printing. If you are printing to an inkjet printer, you can leave the image in RGB mode, but if you are sending the image to an offset print vendor, you need to convert the image to CMYK.

To view how the image will appear in CMYK, choose View > Proof Setup > Working CMYK. (For some images, you may not observe any difference at all.) This preview is called a *soft proof*.

Note: Soft proofs are approximations. What you see onscreen depends on the quality and settings of your monitor as well as the lighting conditions of your work environment. You may observe different results when you actually print. Nevertheless, soft proofs can be useful.

Photoshop also enables you to preview how the image will appear on a range of different printers, including most Epson models and offset printing. To view these, choose View > Proof Setup > Custom.

To convert an image to CMYK:

1. Save a copy of the image.

2. Choose Image > Mode > CMYK Color.

3. If the image has layers, Photoshop asks whether you wish to flatten. Click Flatten.

   (Because you saved a copy of the file, you can open the saved copy to recover the layers.)

Generating TIFFs

After you convert the image to CMYK and make sure it is at the correct resolution, you can save it in a print-friendly format (a format with no compression, known as a *lossless* format). In this exercise, you will choose the TIFF format.

Note: Although TIFF is the most common lossless image format, you can also use EPS or an Adobe PDF.

To generate a TIFF:

1. Choose File > Save As.

   The Save As dialog box appears (**Figure 6**).

2. In the Format box, choose TIFF (*.TIF, *.TIFF) (Windows) or TIFF (Mac OS).

3. Click Save.

   The TIFF Options dialog box appears (**Figure 7**).

4. Because the image is going to a printer, you do not need to compress it. Leave Image Compression set to None. Leave Pixel Order set to Interleaved.

   Note: In practice, TIFF files are seldom compressed.

5. Set Byte Order to your operating system (Windows or Mac OS).

6. Because the image is going to a printer, you also don't need to save the layers. Make sure Discard Layers And Save A Copy is selected.

   This option flattens the layers in the image.

7. Click OK.

   Note: If the image has only the Background layer, the option Discard Layers And Save A Copy is not available.

Format pop-up menu

Figure 6 Save As dialog box

Figure 7 TIFF Options dialog box

Printing images and saving print dialog settings

There may be occasions where you want to print a copy of your image to a local printer. Photoshop provides many printing options, including the following printing commands:

Print Displays the Print dialog box, where you can preview the print job and select the printer, number of copies, output options, and color management options.

Print One Copy Prints one copy of a file without displaying a dialog box.

Once you have established a preferred combination of format and color management options, you can save the print dialog settings as a preset for use later.

To set Photoshop print options and print:

 1. Choose File > Print.

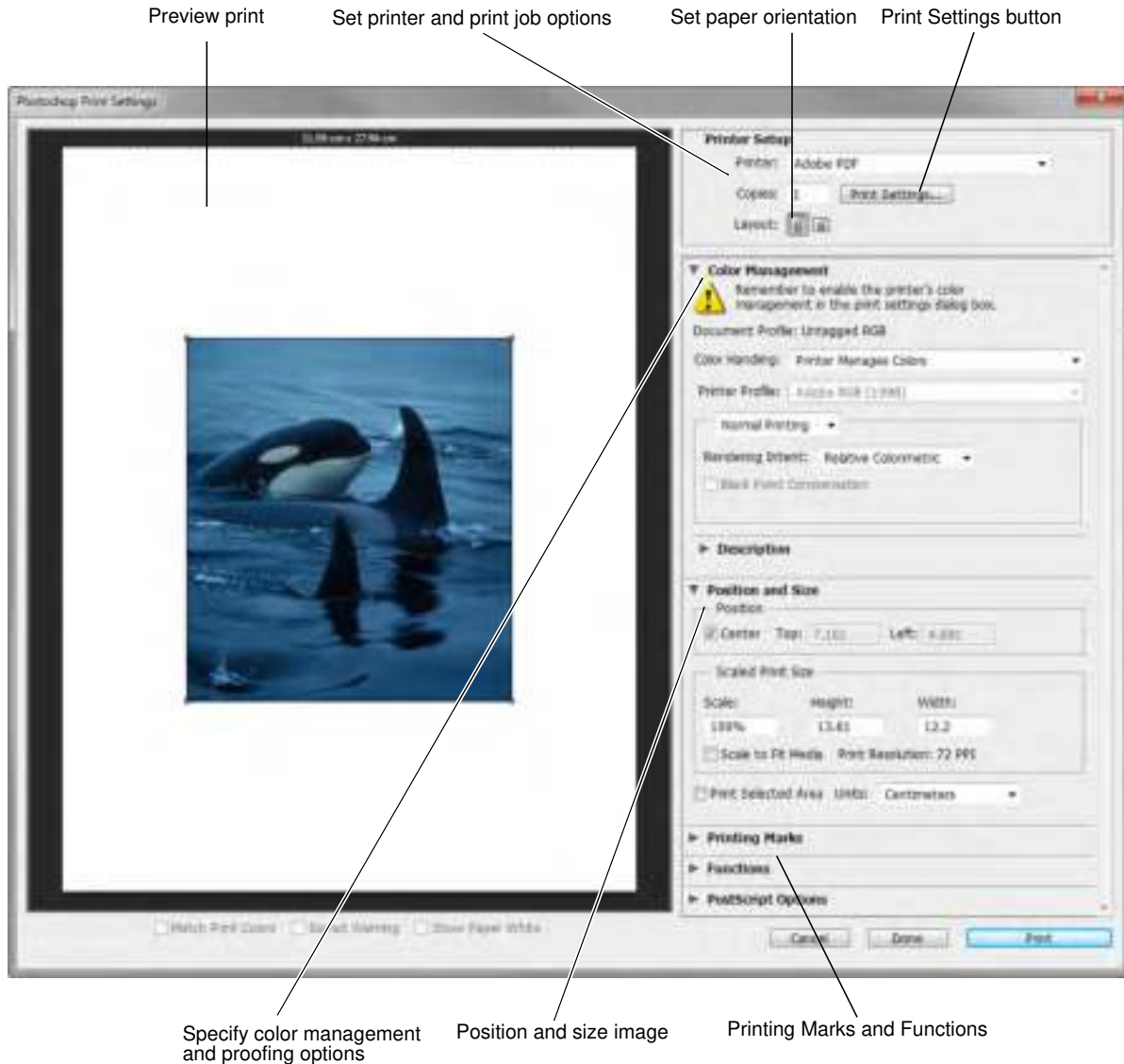   The Print dialog box appears (**Figure 8**).

 2. Do one or more of the following:

    • Use the Printer menu to select a printer.

    • Select the number of copies to print.

    • Set the paper orientation to portrait or landscape.

    • If needed, click the Print Settings button to set page setup options specific to your printer, printer drivers, and operating system, such as paper size and layout.

    • Set Color Management and proofing options

    • Adjust the position and scale of the image in relation to the selected paper size and orientation.

    • Set output options (Printing Marks and Functions)

 3. Do one or more of the following:

    • To print the image, click Print.

    • To close the dialog box without changing the options, click Cancel.

    • To preserve the options and close the dialog box, click Done.

    Note: If you get a warning that your image is larger than the printable area of the paper, click Cancel, choose File > Print, and select the Scale To Fit Media option.

Preview print   Set printer and print job options   Set paper orientation   Print Settings button

Specify color management   Position and size image   Printing Marks and Functions
and proofing options

Figure 8 Print dialog box

Creating images for video

Photoshop can create images of various aspect ratios so that they appear properly on devices such as video monitors. You can select a specific video option (using the New dialog box) to compensate for scaling when the final image is incorporated into video.

Safe zones

The Film & Video preset also creates a document with nonprinting guides that delineate the action-safe and title-safe areas of the image (**Figure 9**). Using the options in the Size menu, you can produce images for specific video systems—NTSC, PAL, or HDTV.

Safe zones are useful when you edit for broadcast and videotape. Most consumer TV sets use a process called *overscan*, which cuts off a portion of the outer edges of the picture, allowing the center of the picture to be enlarged. The amount of overscan is not consistent across TVs. To ensure that everything fits within the area that most TVs display, keep text within the title-safe margins, and all other important elements within the action-safe margins.
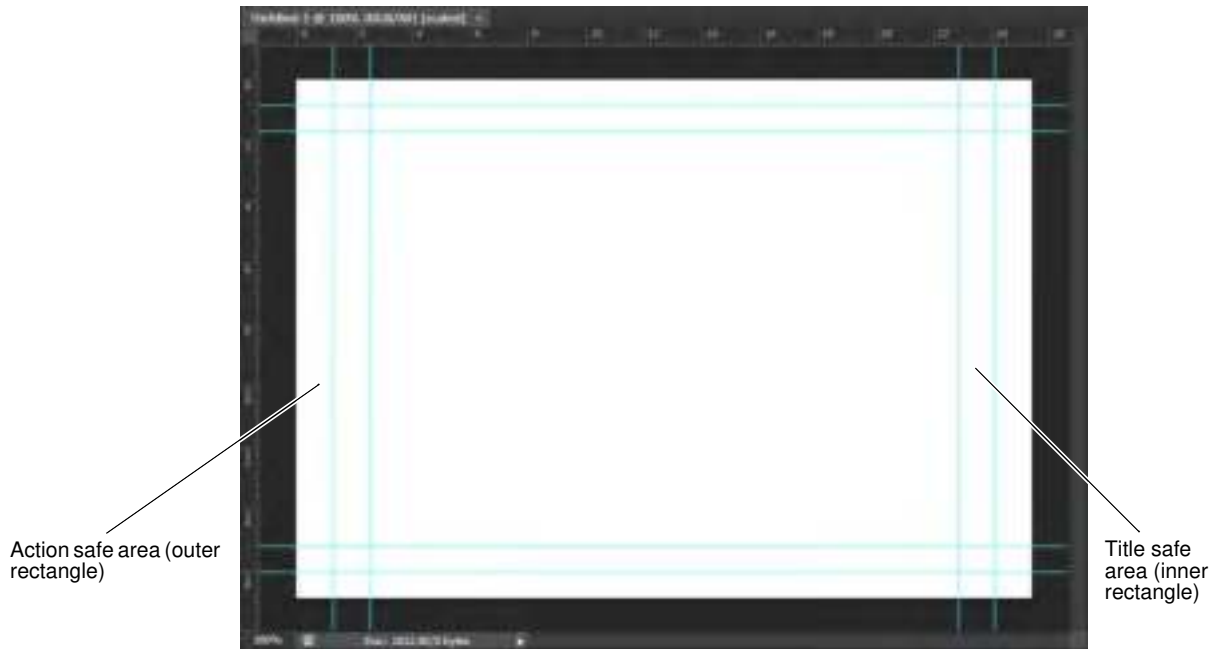
Figure 9 Video preset file size guides in a new document

To create an image for use in video:

1. Create a new document.

    The New document dialog box appears (**Figure 10**).

2. From the Preset menu in the New dialog box, choose the
    Film & Video preset.

3. Choose the size that is appropriate for the video system
    on which the image will be shown.

     In this case, the NTSC DV option is selected
    (**Figure 11**).

4. Click Advanced to specify a color profile and specific
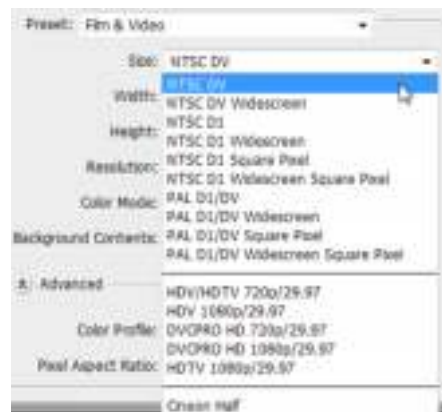   pixel aspect ratio.

    Important: By default, nonsquare pixel documents open
    with Pixel Aspect Ratio Correction enabled. This setting
    scales the image so it appears as it would on the
    nonsquare-pixel output device (usually a video monitor).

5. Click OK to close the New document dialog box.

6. Click OK to close the message "Pixel aspect ratio
    correction is for preview purposes only. Turn it off for
    maximum image quality."

    The new document opens (**Figure 9**).

Figure 10 New document dialog box

**Figure 11** Film and video size preset options

7. To view the image as it would appear on a computer monitor (square pixel), choose View > Pixel Aspect Ratio Correction.

   For example, in **Figure 12**, a circular image is shown displayed with Pixel Aspect Ratio Correction turned on and then turned off.

   Note: You can simultaneously view an image with the Pixel Aspect Ratio Correction turned on and off. With the nonsquare pixel image open and Pixel Aspect Ratio Correction enabled, choose Window > Arrange > New Window For [name of document]. With the new window active, choose View > Pixel Aspect Ratio Correction to turn off the correction.

8. If you have a display device, such as a video monitor, connected to your computer, you can preview the document on the device by choosing File > Export > Render Video.

   Note: When creating images for video, you can load a set of video actions (included with Photoshop) that automate certain tasks—such as scaling images to fit video pixel dimensions and setting the pixel aspect ratio.
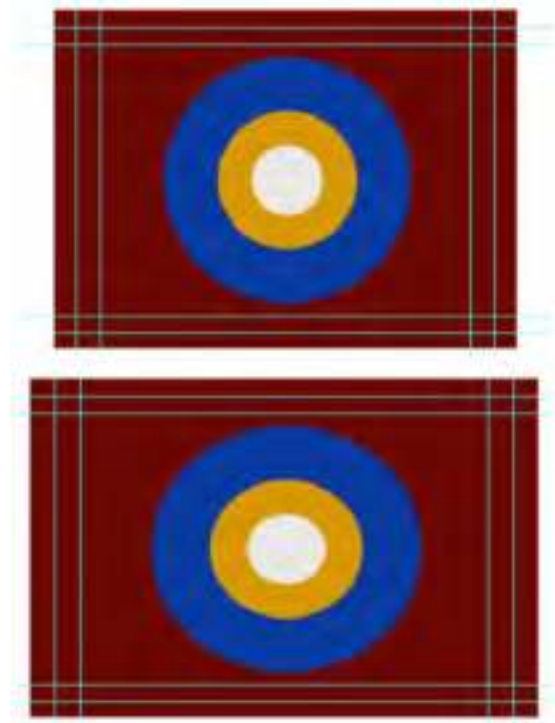
Figure 12 Circle in NTSC DV (720 x 480 pixels) document viewed on computer (square pixel) monitor with Pixel Aspect Ratio Correction turned on (top) and Pixel Aspect Ratio Correction turned off (bottom)

How to resize, rotate, and crop images

You will frequently want to resize and crop an image after opening it in Photoshop from a digital camera or scanner. *Cropping* means cutting some parts of the image away so only the parts you want remain.

Backing up your original

Before making any changes to an image, you should always save the image with a new filename. You will have the most flexibility if you save it as a PSD—Photoshop's native format. You can generate TIFFs (for print) and JPEGs (for the web) from a single PSD file. For example, PSD files preserve layers, so the layers are available when you reopen the file.

Resizing images

When working in Photoshop, it is generally best to leave your image at as high a resolution as possible to allow for greater flexibility when generating images.

About pixel dimensions and resolution

The *pixel dimensions* (image size or height and width) of a bitmap image is a measure of the number of pixels along an image's width and height. *Resolution* is the fineness of detail in a bitmap image and is measured in pixels per inch (ppi). The more pixels per inch, the greater the resolution. Generally, an image with a higher resolution produces a better printed image quality.

- For images to print well, they generally should have a resolution of 300 ppi.

- For most web pages, you can safely save images at 72 ppi. Because most monitors do not display resolutions higher than this, you can reduce file size by reducing resolution.

Note: Monitor technology and Internet connection speeds are continually evolving. However, the 72-ppi standard continues to be widely used, and for the most part, you can't go wrong with it.

The combination of pixel dimension and resolution determines the amount of image data. Unless an image is resampled, the amount of image data remains the same as you change either the pixel dimension or resolution. If you change the resolution of a file, its width and height change accordingly to maintain the same amount of image data. And, vice versa.

In Photoshop, you can see the relationship between image size and resolution in the Image Size dialog box (**Figure 1**).

To change resolution of an image:

Changing an image's resolution affects not only its on-screen size but also its image quality and its printed characteristics.

1. Open an image in Photoshop.

2. Save the image with a new name.

   This step preserves the original image in case you want to revert to it. You should always make a copy of the original before making changes.

3. Choose Image > Image Size.

   The Image Size dialog box opens (**Figure 1**).

   Notice that the dialog box lists two major categories of information about the size of the image.

   • *Pixel Dimensions* refers to the actual number of pixels contained in the image. The number of pixels represents the amount of data in the image. Unless you select the Resample Image option, number of pixels remains the same as you resize and change the resolution of the image.

   • *Document Size* refers to how the document appears when printed. Document size is also a starting point for how the document will appear in another document, such as an InDesign file. In later projects, you will place Photoshop images in InDesign files.

4. Make sure the Resample Image option is not selected.

   The Resample option changes the amount of data or information in the image as you resize. For now, it's best to leave this option deselected.

   Note: You can use resampling to make enlargements. However, because resampling can only estimate pixels, it is best to use a picture with a larger resolution in the first place.

5. Change the Resolution value.

   Observe that the other two numbers for width and height change accordingly. For example, suppose an image set at 300 dpi measures approximately 13 by 9 inches. The same image when set to 72 dpi measures approximately 54 by 36 inches (**Figure 2**).

6. Click OK to close the Image Size dialog box.

Figure 1 Image Size dialog box with resolution at 300 dpi
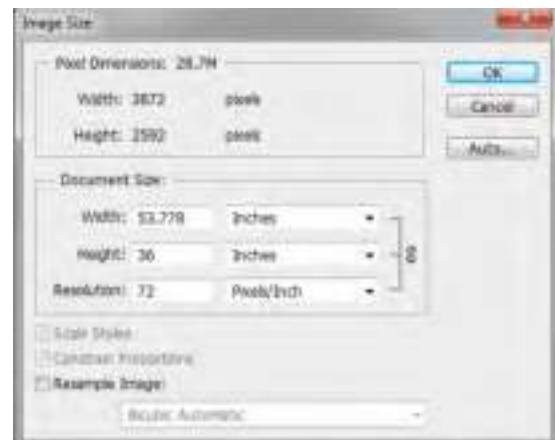
Figure 2 Image Size dialog box with resolution changed to 72 ppi

Reducing an image's size (pixel dimensions)

Although you will often want to keep pixel information, sometimes you need to reduce the total (pixel) size of an image. This step removes pixels and reduces file size. You will usually do this when preparing the image for the web or other electronic medium; for print, you will generally want to simply change the document's size. (Of course, you may want to reduce file size for other reasons, such as to preserve hard disk space or to speed up image rendering.)

To reduce an image's pixel dimensions:

1. Choose Image > Image Size.

   The Image Size dialog box opens (**Figure 3**).

   In the previous steps you attended only to the resolution, or document size of the image. This time you will ignore that area and focus on the pixel dimensions.

2. Select the Resample Image option near the bottom of the dialog box.

   Observe that the Pixel Dimensions menus and the Constrain Proportions option become active.

   This option automatically changes the width as you change the height, and vice versa. For example, if you start with an image of 2000-pixel width and 1000-pixel height (a 2:1 width/height ratio) and change the width to 1000 pixels, the height automatically changes to 500 pixels when Constrain Proportions is checked. Generally, selecting this option is a good idea.

   Note: You can ignore Scale Styles for now. This option comes into play only when you have styles applied to layers.

3. Choose Bicubic Sharper from the Resample Image menu.

   This option is best for reductions.

4. In the Pixel Dimensions Width box, enter the desired width in pixels.

   You can also choose a percentage by changing the unit beside the Width box from Pixels to Percent.

5. Click OK to change the image's pixel dimensions.

   Note: After the size reduction, you should apply the Unsharp Mask filter to the image by choosing Filter > Sharpen > Unsharp Mask. This will clear up any blurriness that results from the reduction.

**Figure 3** Image Size dialog box

Rotating images

There may be times when you open an image in Photoshop to find that it is not in its proper orientation. Alternatively, a photograph that you have taken is just a little bit crooked. There are easy ways to fix both of these situations.

To rotate an image:

The Image Rotation commands let you rotate or flip an entire image. The commands do not work on individual layers or parts of layers, paths, or selection borders. If you want to rotate a selection or layer, use the Transform or Free Transform commands.

1. Choose Image > Image Rotation (**Figure 4**), and choose one of the following commands from the submenu:

   • *180°* Rotates the image by a half-turn.

   • *90° CW* Rotates the image clockwise by a quarter-turn.

   • *90° CCW* Rotates the image counterclockwise by a quarter-turn.

   • *Arbitrary* Rotates the image by the angle you specify. If you choose this option, enter an angle between 0 and 359.99 in the Angle text box. Select °CW or °CCW to rotate clockwise or counterclockwise. Then click OK.

2. Choose File > Save to save the rotated image.
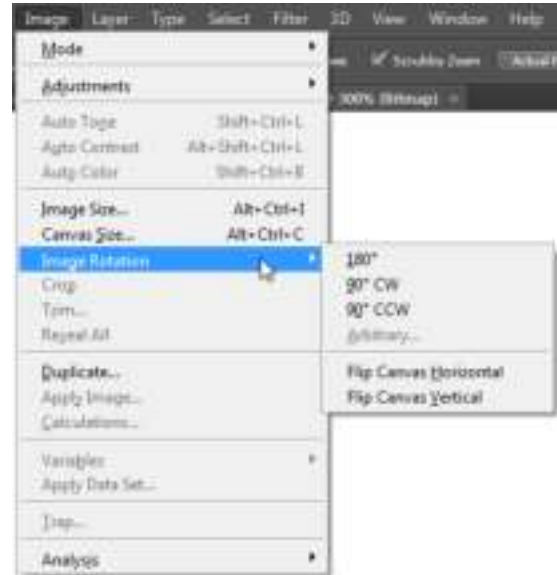
Figure 4 The Image Rotation submenu

Cropping Images

You'll often take pictures that are larger than you need, or you'll want to reframe an image to remove unnecessary parts. Taking pictures that are larger than you need, at as high a resolution as possible, gives you flexibility in selecting parts of an image to crop. Cropping is the process of removing portions of an image to create focus or strengthen the composition.

You can crop an image in Photoshop by selecting an area with one of the selection tools and using the Image > Crop command. The Crop tool in the Tools panel provides additional options for cropping images. You can use the Crop tool to select an area to crop, or set the Crop tool to trim an image to a specified aspect ratio. This guide covers how to use the Crop tool.

Grid overlays

A variety of grids for overlaying an image you are cropping are available from the View menu in the Options bar. The Rule of Thirds grid, for example, illustrates a general rule of thumb in the visual arts. This grid consists of two equally spaced horizontal and vertical lines. Visual interest and a strengthened composition are created when objects are placed along (or at the intersection of) these horizontal and vertical lines.

To crop an image by using the Crop tool:

1. Click the Crop tool in the Tools panel (**Figure 5**).

   The pointer changes to the Crop tool.

Figure 5 Crop tool

2. Choose a crop option from the list of menu of preset aspect ratios in the Options bar (**Figure 6**).

   For example, you may choose Unconstrained, which allows you to crop an image to dimensions that you specify. Alternatively, you can select from a series of preset aspect ratios, such as Original Ratio or other common ratios, such as 16:9, also known as *widescreen*. If you are processing several images and want to maintain a specific crop size, you can save your customized setting by using the Save Preset option.

3. Choose an overlay grid from the View menu in the Options bar (**Figure 7**).

4. Create a marquee selection by dragging over the part of the image you want to keep (**Figure 8**).

   The selection doesn't have to be precise—you can adjust it in the next step.

   A Rule of Thirds grid appears.

5. If necessary, adjust the cropping selection:

   • To move the selection to another position, place the pointer inside the bounding box and drag.

   • To scale the selection, drag a handle in any of the corners. To constrain the proportions, hold down Shift as you drag a corner handle.

   • To rotate the selection, position the pointer outside the bounding box (the pointer becomes a curved arrow), and drag. To move the center point around which the marquee rotates, drag the circle at the center of the bounding box. The selection can't be rotated in Bitmap mode.

6. If necessary, use the Straighten tool to correct for camera tilt. Click the Straighten tool in the Options bar and then drag along a line in the image that you want to make vertical or horizontal.

7. Once you are satisfied with the crop area, press Enter (Windows) or Return (Mac OS).

   The image is trimmed to the selected region (**Figure 9**).

Figure 6 Menu of preset aspect ratios

Figure 7 Menu of preset View options

Figure 8 Crop area selected

Figure 9 Crop applied

How to retouch photos

Other than correcting color, one of the most common tasks you will perform in Adobe Photoshop is retouching photos to correct imperfections, edit out undesired parts of the photo, and correct problems that result from the photo-taking process. This guide covers several ways to retouch photos using the Retouching tools (**Figure 1**), including use of the Spot Healing Brush tool, the Red Eye tool, the Patch tool, and the Content-Aware Move tool. Use these tools individually, or in combination to fine-tune your photo retouching tasks.

Figure 1 Retouching tools

Using the History panel

Because retouching can require trial and error, you should know how to use the History panel to undo steps.

Like most computer users, you're probably aware of the Undo command available in many applications. This command lets you undo the effects of whatever command you've just applied.

Photoshop takes the Undo command several steps further with the History panel. The History panel keeps track of the last 20 commands you've applied to an image, allowing you to revert to any one of these. When you execute a command, such as transforming an image or adding text, these are added to the History panel. The commands appear in the list in the order in which you performed them. Each command is listed with the name of the tool or command you used to change the image.

You can also take a "snapshot" of a particular set of commands, allowing you to revert to this snapshot later.

Note: Although the History panel is great, it does consume memory (RAM), as do layers. So, if you're working with a complex, multilayered image, you may want to reduce the number of History commands saved. You can do so by choosing Edit > Preferences > Performance (Windows) or Photoshop > Preferences > Performance (Mac OS).

To use the History panel:

1. Open an image in Photoshop.

2. Click the History button in the right-side panel set (or choose Window > History) to open the History panel (**Figure 2**).

3. Execute several commands—such as selecting a part of the image, applying a filter, and adding a layer.

   The point is to add some commands to the History panel.

Figure 2 History panel

4. Click one of the earlier commands, such as Move (**Figure 3**).

Observe that the image reverts to its appearance at the time this command was executed. Any commands executed afterward are temporarily discarded and appear dimmed. In **Figure 3**, for example, the Eraser, Paint Bucket and New Layer are dimmed and the effects no longer appear in the image.

At this point, the later commands are still available in the panel (if you select either). However, if you execute another command, the dimmed commands will be permanently discarded.

5. To delete a command, select it and then click the Delete icon (**Figure 3**).

The image permanently reverts to the command prior to the deleted command.


Delete icon

Figure 3 Earlier command selected

Taking a snapshot

You can use the Snapshot feature to capture the image as it appears at any point in the list of History commands. Once you're satisfied with an image, it's a good idea to take a snapshot.

To take a snapshot:

1. Click the History command you want to capture.

2. Click the Snapshot icon (**Figure 4**).

3. Scroll to the top of the History panel as necessary to view the snapshot (**Figure 3**).

4. To revert to the snapshot, click it as you would any other History command.

You can compare different snapshots by clicking on them.
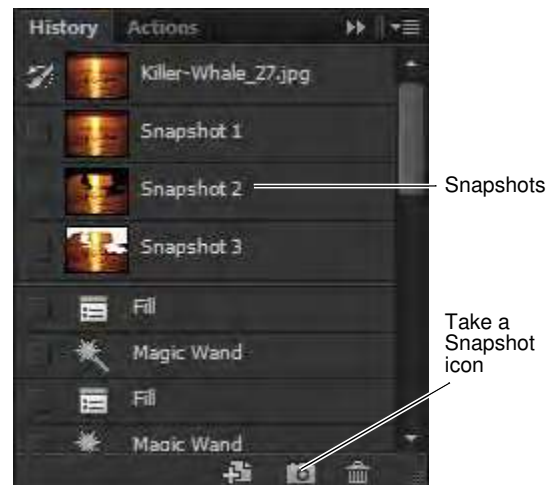
Snapshots

Take a Snapshot icon

Figure 4 Snapshots in the History panel

Using the Spot Healing Brush tool

The Spot Healing Brush tool quickly removes blemishes and other imperfections in your photos. The Spot Healing Brush works similarly to the Healing Brush: it paints with sampled pixels from an image or pattern and matches the texture, lighting, transparency, and shading of the sampled pixels to the pixels being healed. Unlike the Healing Brush, the Spot Healing Brush doesn't require you to specify a sample spot. The Spot Healing Brush automatically samples from around the retouched area.

Note: If you need to retouch a large area or need to better define the source sampling area, you can use the Healing Brush instead of the Spot Healing Brush.

To use the Spot Healing Brush tool:

1. Click the Spot Healing Brush tool in the Tools panel.

    The pointer changes to a brush. Usually the brush appears as a circle.

2. You can change the size or shape of the brush in the Options bar (**Figure 5**).

    The brush should be large enough to cover the entire spot, with some room around the edges.

3. Confirm that the Content-Aware option is selected.

    Content-Aware seamlessly fills the selection with similar image content from nearby. For the best results, create a selection that extends slightly into the area you want to replicate.

4. Position the Spot Healing Brush tool over the area you want to correct (**Figure 6**).

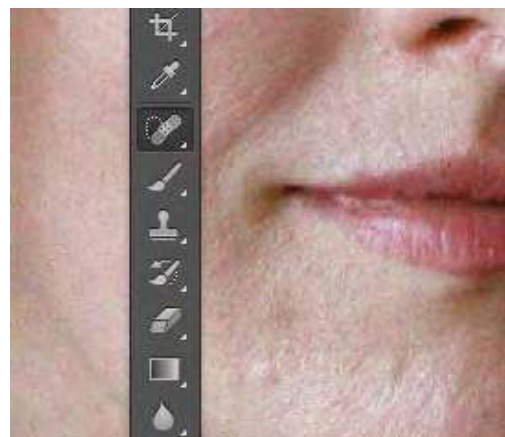5. Click to apply the correction (**Figure 7**).

Figure 5 Brush options
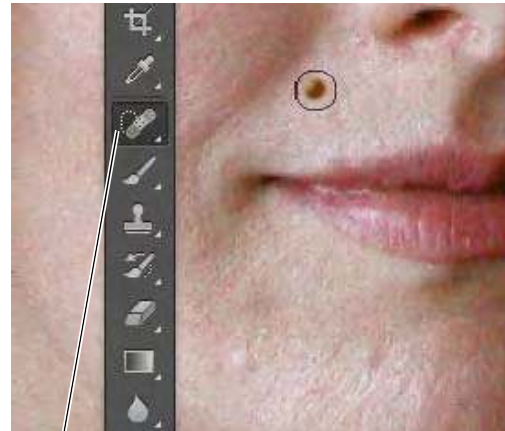
Spot Healing Brush tool

Figure 6 Spot Healing brush positioned over a blemish

Figure 7 Spot Healing brush applied

Using the Red Eye tool

When you take photos with a flash, red eye can often result. You can quickly correct red eye in flash photos of people or animals with the Red Eye tool.

To use the Red Eye tool:

1. Click the Red Eye tool in the Tools panel (**Figure 8**).

2. Position the Red Eye tool over the pupil you want to correct.

3. If you are not satisfied with the result, undo the correction, set one or more of the following options in the options bar (**Figure 9**), and click the red eye again.

    Pupil Size increases or decreases the area affected by the Red Eye tool.

    Darken Amount sets the darkness of the correction.
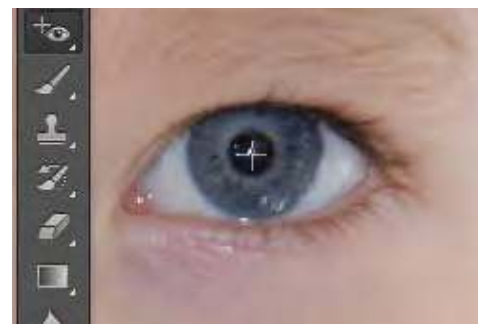
4. Click to apply the correction (**Figure 10**).
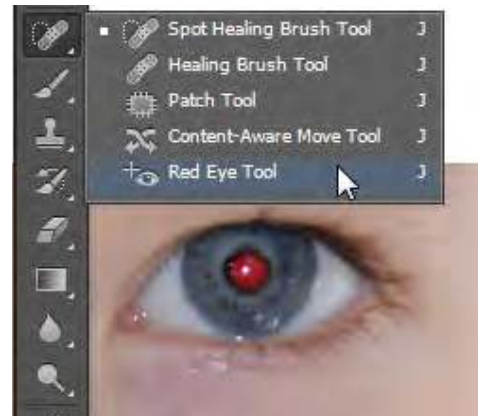
Figure 8 Red Eye tool

Figure 9 Red Eye tool options

Figure 10 Red Eye tool applied

Using the Patch tool

The Patch tool lets you repair a selected area with pixels from another area or a pattern. The Patch tool matches the texture, lighting, and shading of the sampled pixels to the source pixels, making an imperfection disappear into the surrounding image. You can also use the Patch tool to clone isolated areas of an image.

Note: When repairing with pixels from the image, select a small area to produce the best result.

To use the Patch tool:

1. Identify the object you want to remove from an image.

    For example, you can remove the lightpost from the tourist landmark photo shown in **Figure 11**.


**Figure 11** Initial image to be patched

2. Select the Patch tool.

3. Drag in the image to select the area you want to repair, and confirm that the Source option is selected in the options bar (**Figure 12**).

   Note: You can also make a selection prior to selecting the Patch tool.

4. To adjust the selection, do one of the following:

   • Shift-drag in the image to add to the existing selection.

   • Alt-drag (Windows) or Option-drag (Mac OS) in the image to subtract from the existing selection.

   • Alt+Shift-drag (Windows) or Option+Shift-drag (Mac OS) in the image to select an area intersected by the existing selection.

5. Position the pointer inside the selection, and drag the selection border to the area from which you want to sample (**Figure 13**). When you release the mouse button, the originally selected area is patched with the sampled pixels (**Figure 14**).

Figure 12 Patch tool options
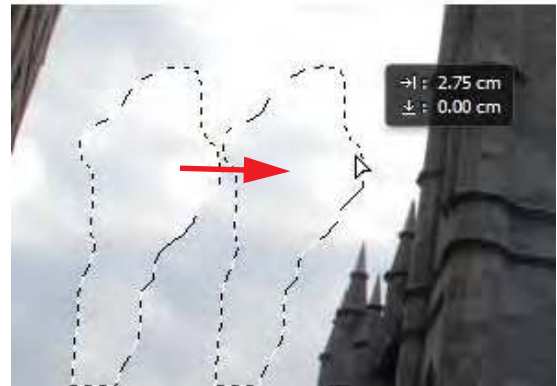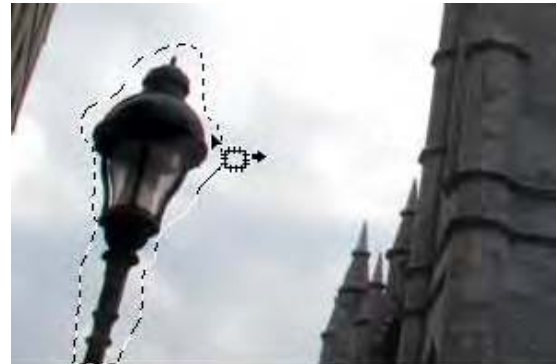
Figure 13 Drag the selection to the sample area

Figure 14 The patched image

Using the Content-Aware Move tool

The Content-Aware Move tool functions in a similar way to the Patch tool, with the exception that dragging a selection relocates a selected part of an image to a new location. The Content-Aware Move tool automatically samples from around the selection area are to blend together the moved content with the background pixels.

To use the Content-Aware Move tool:

1. Identify the object you want to move in an image.

    For example, continuing work on the tourist landmark photo shown in **Figure 11**, it might be preferable to move the right-most building away from the looming office building on the left.

2. Drag in the image to select the area you want to move. Be sure to leave enough of a margin that edge-region pixels can be suitably blended with background pixels.

    Note: You can also make a selection prior to selecting the Patch tool.

3. To adjust the selection, do one of the following:

    •   Shift-drag in the image to add to the existing selection.

    •   Alt-drag (Windows) or Option-drag (Mac OS) in the image to subtract from the existing selection.

    •   Alt+Shift-drag (Windows) or Option+Shift-drag (Mac OS) in the image to select an area intersected by the existing selection.

4. Position the pointer inside the selection, and drag the selection border to the area from which you want to move the selection (**Figure 15**). When you release the mouse button, the originally selected area is moved (**Figure 16**).
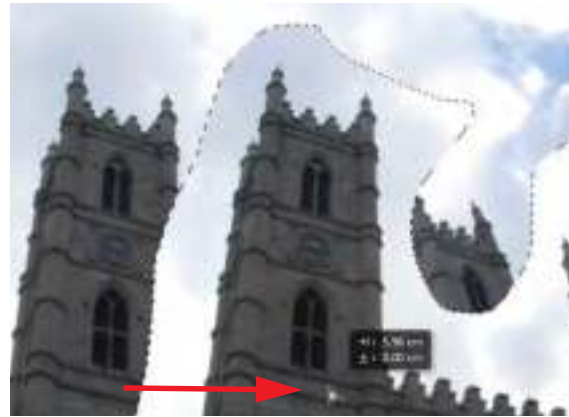
Figure 15 Dragging the image content to be moved

Figure 16 The final retouched image

How to use layers in Photoshop

Photoshop *layers* are like sheets of stacked paper. You can see through transparent areas of a layer to the layers below. You move a layer to position its content, like sliding a sheet of paper in a stack. You can also change the opacity of a layer to make content partially transparent. You use layers to perform such tasks as compositing multiple images, adding text to an image, and adding vector graphic shapes. You can apply a layer style to add a special effect such as a drop shadow or a glow.

A new image has a single layer. The number of additional layers, layer effects, and layer sets you can add to an image is limited only by your computer's memory and your imagination.You work with layers in the Layers panel.

Layers panel overview

The Layers panel lists all layers, layer groups, and layer effects in an image (**Figure 1**). You can use the Layers panel to show and hide layers, create new layers, and work with groups of layers. You can access additional commands and options in the Layers panel menu.

Figure 1 Photoshop Layers panel

Show/hide, move, nest, and lock/unlock layers, groups, or layer effects

You can manage and organize layers easily in the Layers panel. Do one of the following to manipulate layers:

* Click the eye icon next to a layer, group, or layer effect to hide its content in the document window. Click in the column again to redisplay the content. You can also drag through the eye column to change the visibility of multiple items in the Layers panel.

　　　　　　　　　　　　　　　　　　　　How to use layers in Photoshop　　**1**

- Drag a layer or group up or down in the Layers panel. Release the mouse button when the highlighted line appears where you want to place the layer or group.

- Click the New Layer Group button to create a folder group. Nested layer groups help you organize and manage layers. You can use groups to arrange your layers in a logical order and to reduce clutter in the Layers panel. You can nest groups within other groups. You can also use groups to apply attributes and masks to multiple layers simultaneously.

- You can lock layers fully or partially to protect their contents. For instance, you may want to lock a layer fully when you finish with it. You may want to lock a layer partially if it has the correct transparency and styles but you are still deciding on positioning. When a layer is locked, a lock icon appears to the right of the layer name. The lock icon is solid when the layer is fully locked and hollow when the layer is partially locked. (**Note:** Locked layers can be shown or hidden, but cannot be moved around in the Layers panel.)

- Add, delete, or duplicate layers by choosing the appropriate item in the Layers panel menu.

Filter and search layers

If you are working on a file with many different kinds of layers, it may be helpful to locate specific layers by using the filter and search options available in the Layers panel (**Figure 2**). Use one of the following options to filter layers:

- *Kind,* filter layers for images, adjustments, type, shape layers, and smart objects

- *Name* use the text search field to find named layers

- *Effect* filter by layer effect types such as Bevel & Emboss or Drop Shadow

- *Mode* filter by layer blending modes such as Normal, Color Dodge, or Overlay

- *Attribute* filter by layer aspect such as Visible, Locked, Masks, or Effects

- *Color* filter by layer color, including Red, Orange, Yellow, Green, Blue, Violet, or Gray

Turn layer filtering on or off by using the toggle button.
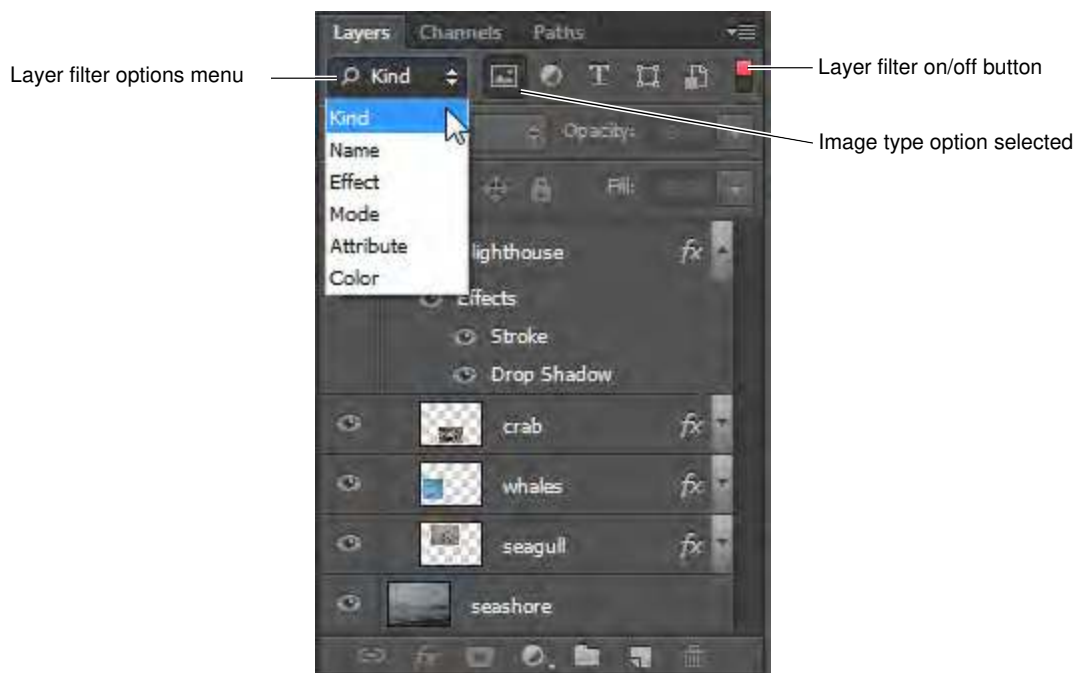
Figure 2 Filter and search options in the Layer panel

To create a composite image:

1. Open an image you wish to use as a backdrop for a composite image.

2. Double-click Background in the Layers panel, or choose Layer > New > Layer From Background.

3. In the New Layer dialog box (**Figure 3**), name the layer, and click OK .

    The background layer is converted to a regular layer.

4. Click the Layers panel menu (**Figure 1**), choose New Layer, and click OK (it is not necessary to name this new layer).

5. Ensure that the new layer is selected in the Layers panel.

6. Choose Layer > New > Background From Layer.

    Note: The new Background layer assumes the background color assigned in the toolbar. You can modify this as needed.

7. Select the backdrop image layer (in this example, the layer with the seashore landscape).

    Note: Clicking the eye icon beside the image thumbnail shows and hides the selected layer.

8. In the Layers panel, enter a value in the Opacity text box or drag the Opacity pop-up slider (**Figure 4**).

    Note: Hover over the Opacity text to activate the pop-up slider.

9. Open an image you wish to use as the second layer of the composite image.

10. Select the Move tool (**Figure 5**) or hold down Ctrl (Windows) or Command (Mac OS) to activate the Move tool.

11. Hold down Alt (Windows) or Option (Mac OS), and drag the selection you want to copy and move.
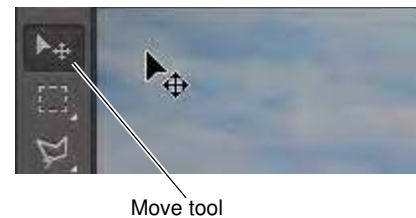
    When copying between images, drag the selection from the active image window into the destination image window. If you have nothing selected, you will copy the entire active layer. As you drag the selection over another image window, a border highlights the window where you can drop the selection (**Figure 6**).
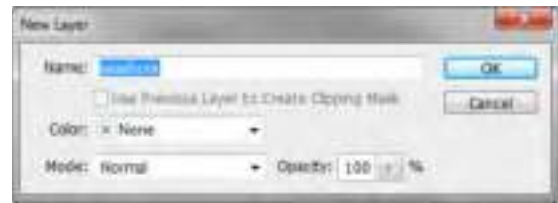
Figure 3 New Layer dialog box
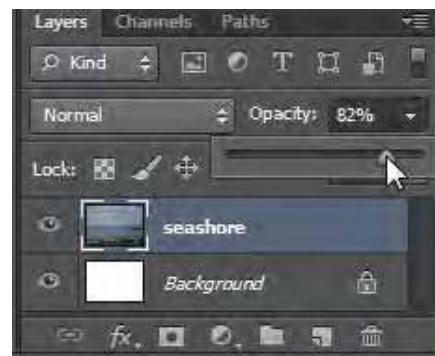
Figure 4 Opacity slider

Move tool

Figure 5 Select the Move tool
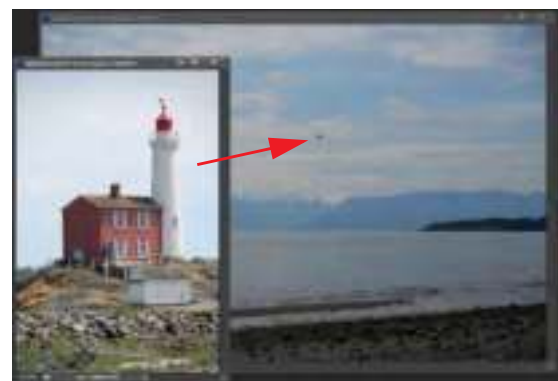
Figure 6 Drag an image to create a new layer

12. Double-click the layer name in the Layers panel, and enter a new name.

13. (Optional) Continue to add a variety of effects—such as drop shadows and strokes—to change the appearance of the layer's contents (**Figure 7**), as well as to add more layers to your image.

Figure 7 Drop shadow and stroke applied to layer

How to use selection tools

When using Adobe Photoshop CS6, you will frequently need to select only parts of an image. Then you can make changes only to those parts. You can also cut and paste a selection to a new background. Practice using the selection tools. They can be tricky, but learning them is well worth the effort. The better you are at using them, the more flexibility you have with changing parts of images.

This guide covers the basics of using three different types of selection tools:

   •   *Quick Selection and Magic Wand tools:* Select parts of an image that have similar colors.

   •   *Marquee tools:* Select a geometrically shaped area, such as a rectangle or circle.

   •   *Lasso tools:* Define a selection area by hand.

After you make your selection, you can place the selection on a new layer mask. You can use masks to hide portions of a layer and reveal portions of the layers below. Two types of masks are available: layer and vector. *Layer masks* are resolution-dependent bitmap images you can edit with the painting or selection tools in our list. *Vector masks* are resolution independent; you can create them with a pen or shape tool. This guide looks at creating a vector mask by using a shape tool.

About the Quick Selection and Magic Wand tools

You can use two similar yet related selection tools to select parts of an image: the Quick Selection tool and the Magic Wand tool (**Figure 1**).

You can use the Quick Selection tool to quickly "paint" a selection using an adjustable round brush tip. As you drag, the selection expands outward and automatically finds and follows defined edges in the image.

You can use the Magic Wand tool to select an area of consistent color (for example, a sky background) without having to trace its outline. You specify the color range, or tolerance, for the Magic Wand tool's selection, based on similarity to the pixel color you click.

Figure 1 Selection tools

To use the Magic Wand tool:

  1. Click the Magic Wand tool in the Tools panel.

   The pointer changes to a magic wand.

New selection   Subtract from selection   Smooths edge transition

Add to selection   Intersect with selection   Set range when sampling color   Sample only contiguous pixels

Figure 2 Selection options

2. Specify one of the selection options in the options bar. The pointer changes, depending on which option you select (**Figure 2**).

3. In the options bar, specify any of the following options:

   Tolerance determines the similarity or difference of the pixels selected. Enter a value in pixels, ranging from 0 to 255. A low value selects the few colors very similar to the pixel you click. A higher value selects a broader range of colors.

   Anti-aliased creates a smooth-edged selection.

   Contiguous selects only adjacent areas that use the same colors. Otherwise, all pixels in the entire image that use the same colors are selected.

   In the example illustrated in **Figure 2**, the Add To button is selected, the Sample Size is set to Point Sample, the tolerance is set to 32, and the Anti-alias and Contiguous options are selected.

4. In the image, click the color you want to select (**Figure 3**).

   Figure 3 illustrates what happens when the background of the landscape image is clicked with the settings shown in **Figure 2**.

   Note: After your initial click, the pointer changes to a magic wand with a plus (+) symbol. This indicates that more clicks will add to the selected area. Continue clicking until you have selected the entire area.

5. After you select the entire area, you can make changes to it, such as creating a Color Balance adjustment layer to alter the sky background color (choose Window > Adjustments, and then click the Color Balance button) (**Figure 4**).

Figure 3 Using the Magic Wand tool

Figure 4 Color Balance Adjustment layer applied to selection

Using the marquee tools

The marquee tools enable you to select rectangles, ellipses, and 1-pixel rows and columns (**Figure 5**).

- *Rectangular Marquee:* Makes a rectangular selection (or a square, when used with the Shift key).

- *Elliptical Marquee:* Makes an elliptical selection (or a circle, when used with the Shift key).

- *Single Row or Single Column Marquee:* Defines the border as a 1-pixel-wide row or column.

Figure 5 Marquee tools with Rectangular Marquee tool selected

To use the Rectangular Marquee tool:

1. Click the Rectangular Marquee tool in the Tools panel.

   The pointer changes to a cross.

2. Drag the pointer across the area you wish to select (**Figure 6**).

3. When you have completed your selection, release the mouse.

   The area remains selected.

   Note: To adjust the location of the selection slightly, press the arrow keys.

   Any changes you make now apply only to the selection. For example, you can alter the lightness of the selected area (choose Window > Adjustments, and then click the Brightness/Contrast button) by adjusting the sliders (**Figure 7**).

Figure 6 Rectangular selection

Figure 7 Photo Filter applied to selection

Smoothing the edges of selections

Often you can improve results by softening the edges of selections, especially if you plan to copy them to a new background. You can use two options to smooth edges: feathering and anti-aliasing. Both options are available through the options bar when you choose selection tools (**Figure 8**).

Figure 8 Elliptical Marquee tool options bar

- Anti-aliasing smoothes the edges of a selection by softening the color transition between edge pixels and background pixels. Because only the edge pixels change, no detail is lost. The effect of anti-aliasing is slight, but it can be effective in many situations. You can apply anti-aliasing to selections made by the Lasso tool, the Polygonal Lasso tool, the Magnetic Lasso tool, the Elliptical Marquee tool, and the Magic Wand tool. (**Note:** You must select anti-aliasing before using the tool. After you make a selection, you cannot add anti-aliasing.)

- *Feathering* blurs a selection's edges by adding a transition boundary between the selection and its surrounding pixels. You can set the width of this boundary in the options bar. In many cases, a boundary of 3–5 pixels is sufficient. (This blurring can cause some loss of detail at the edge of the selection.) The effect of feathering is more dramatic than anti-aliasing, but you may prefer the results when you move objects to a markedly different background. You can define feathering for the Lasso tool, the Polygonal Lasso tool, the Magnetic Lasso tool, and the marquee tools as you use each tool, or you can add feathering to an existing selection. (**Note:** You will not see the effects of feathering until you move, cut, copy, or fill the selection.)

The Refine Edge option improves the quality of selection edges, letting you view the selection against different backgrounds for easy editing. Click the Refine Edge button in the options bar to access the advanced options (**Figure 9**).
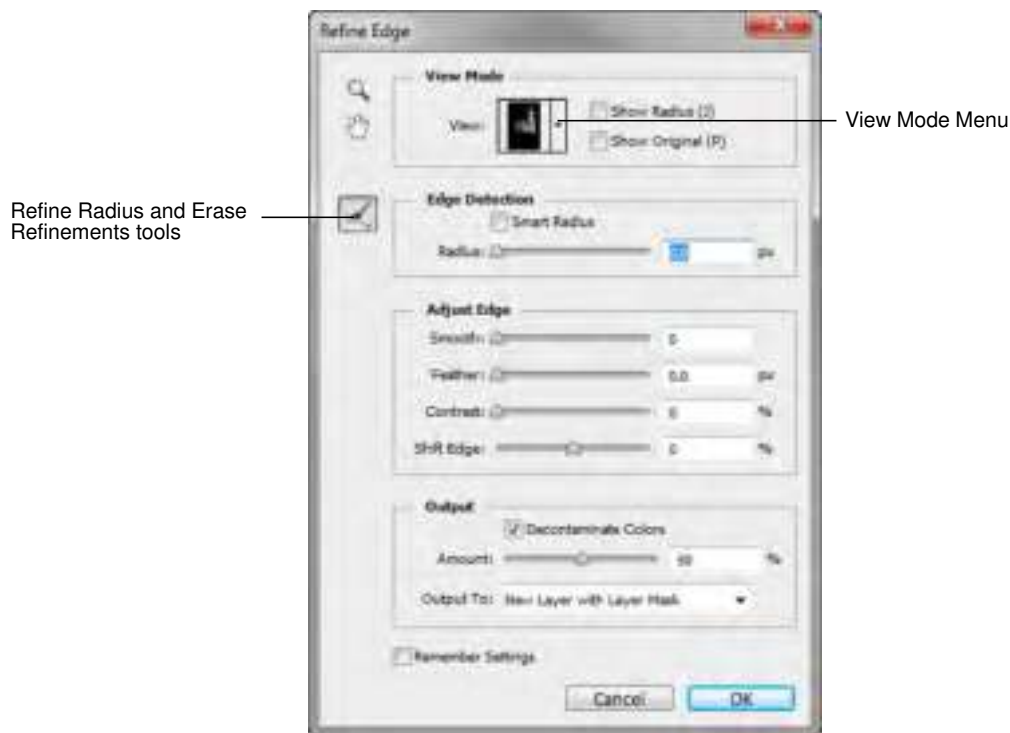
Figure 9 Refine Edge dialog box

The options available from the Refine Edge dialog box include:

- *View Mode:* From the pop-up menu, choose a mode to change how the selection is displayed. Show Original displays the image without a selection preview. Show Radius displays the selection border where edge refinement occurs.

- *Refine Radius and Erase Refinements tools:* Let you precisely adjust the border area in which edge refinement occurs.

- *Smart Radius:* Automatically adjusts the radius for hard and soft edges found in the border region.

- *Radius:* Determines the size of the selection border in which edge refinement occurs. Increase the radius to create a more exact selection boundary in areas with soft transitions or fine detail. The ideal radius depends upon selection size and content, so experiment with different settings.

- *Smooth:* Reduces irregular areas ("hills and valleys") in the selection border to create a smoother outline.

- *Feather:* Create a soft-edged transition.

- *Contrast:* Sharpen selection edges and remove fuzziness. Typically, however, the Smart Radius option and refinement tools are more effective.

- *Shift Edge:* Shrink or enlarge the selection boundary. Enter a positive value to expand or a negative value to contract. Most useful for making subtle adjustments to soft-edged selections. Shrinking the selection can help remove unwanted background colors from selection edges.

- *Decontaminate Colors:* Replaces color fringes with the color of the subject.

  Note: Because this option changes pixel color, it requires output to a new layer or document, preventing unexpected changes to the current layer.

- *Amount*: Changes the level of decontamination and fringe replacement.

- *Output To:* Determines whether the refined selection becomes a selection or mask on the current layer, or produces a new layer or document.

Using the lasso tools

Photoshop has three lasso tools, so named because you can enclose a selection in a flexible shape—just like a rope.

- *Lasso selection tool:* Useful for drawing freeform segments of a selection border. The most difficult selection tool to use but the most precise.

- *Polygonal Lasso tool:* Slightly easier to use, enabling you to select areas by using straight lines and selection points.

- *Magnetic Lasso tool:* Automatically snaps to the borders of defined areas in the image. Best used with objects that contrast sharply with their background.

This guide explains how to use the Polygonal Lasso tool. Using the Lasso tool is similar, but the selection is entirely freehand. Experiment with all three lassos after you are comfortable with the Polygonal Lasso.

To use the Polygonal Lasso tool to create a cutout image on a new background:

1. Click and hold the Lasso in the Tools panel, and select the Polygonal Lasso tool from the menu (**Figure 10**).

   The pointer changes to a polygon.

   Note: Once you select the Polygonal Lasso, it appears by default in the menu until you select a different lasso tool.

2. In the options bar, make sure Add To Selection is selected and set Feather to 3 px (**Figure 11**).

   When you increase Feather slightly, you ensure that the edges of the selection will be soft and the object will blend well into a new background.

3. Click the border of the object you wish to select.

   It may help to increase the object's magnification.

4. Next, move the pointer a short distance away along the object's border and click again.

   As you do so, you form a connected segment with endpoints.

5. Continue creating small segments until you enclose the entire object.

   When you move the pointer over your original starting point, a closed circle appears next to the Polygon lasso pointer (**Figure 12**).
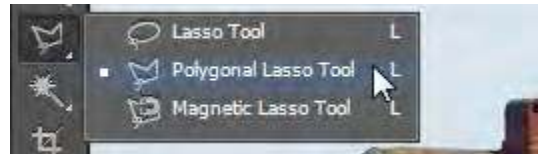
6. Click to close the selection.

7. Click the Refine Edge button in the options bar.

   The Refine Edge dialog box opens (**Figure 9**).

8. Select a View Mode option (**Figure 13**) so that the edges of the selection are easy to isolate against the background.

   For example, a dark background will be more useful for defining the edges of the lighthouse illustrated in the example.

   Note: For information about each mode, hover the pointer over it until a tool tip appears. Press **F** to cycle through the View Mode options, or press **X** to temporarily disable all views.

Figure 10 Lasso tools in the Tools panel

Add To Selection   Set Feather

Figure 11 Polygonal Lasso options

Closed circle

Figure 12 Click to create selection segments until the loop is closed

View Mode pop-up menu

Figure 13 View Mode options

9. In the Edge Detection area, select the Smart Radius option.

10. Adjust the Radius slider to change the size of the refinement area and soften the edges of the border region..

    Observe the results of the edge refinement (**Figure 14**).

    Occasionally you may have to fine-tune an edge selection beyond using the Smart Radius. To do this, use the Refine Radius tool.

11. Click the Refine Radius and Erase Refinements tools button and select the Refine Radius tool (**Figure 15**).

    The pointer changes to a circle brush with cross hair.

12. Drag along the edge to refine the edge selection (**Figure 16**).

    Observe the results of the edge refinement (**Figure 17**).

    Note: To change the brush size, press the bracket keys, or use the Size slider in the Control panel .

13. In the Output area, select the Decontaminate Colors option and set the Output To option to New Layer With Layer Mask.

14. Click OK.

    The selection is placed on its own masked layer (**Figure 18**).

15. Click on the square beside the original layer (the background layer) to activate the eyeball icon and make the layer visible.

16. If the image layer is the background layer, double-click the image layer in the Layers panel to convert it from a background layer into a regular layer.

17. Click OK in the New Layer dialog box.

18. Click the Background layer itself to select it.

19. Choose Select > All.

20. Press Delete to remove the original background.

21. With the background layer still selected, click the Paint Bucket tool.

22. Click the Set Foreground button in the Tools panel and choose a color to lay down behind the selection.

Figure 14 Edge radius adjustment, before and after

Figure 15 Refine Radius and Erase Refinements Tools

Figure 16 Refine Radius tool

Figure 17 Refine Radius Tool results

Figure 18 New layer with layer mask

23. Click in the background layer to add a new background
color (**Figure 19**).

Observe that the object's layers blend into the
background. This is because of the refined radius you
added to the selection.

Figure 19 Object with a new background

About vector mask layers

In the previous section, you used a polygonal lasso to select an area of an image so you could paste it into a new layer.
You can also use a vector mask to create a cutout image. A vector mask creates a sharp-edged shape on a layer and is
useful any time you want to add a design element with clean, defined edges. After you create a layer with a vector
mask, you can apply one or more layer styles to it.

Vector masks are resolution independent and are created with a pen or shape tool. Vector masks are nondestructive,
which means you can re-edit the masks later without losing the pixels they hide. In the Layers panel, a vector mask
appears as an additional thumbnail to the right of the layer thumbnail. The vector mask thumbnail represents a path
that clips out the contents of the layer.

The Properties panel with Masks (**Figure 20**) provides controls to adjust a mask. You can change the opacity of a
mask to let more or less of the content show, invert the mask, or refine the mask borders, as with a selection area.
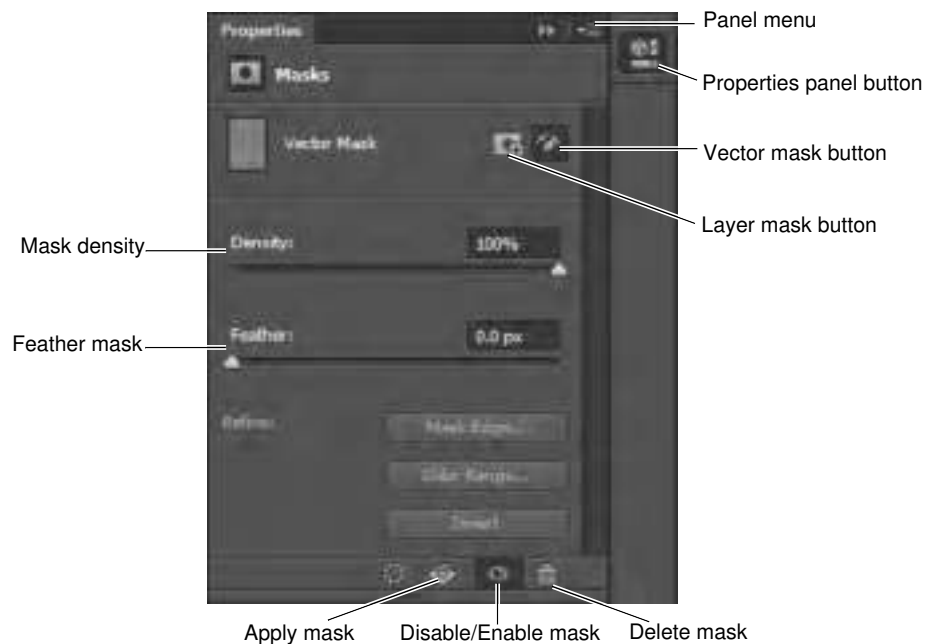
Figure 20 Properties panel

To create a vector mask layer:

1. Open the image file to which you want to add a vector mask layer.

2. Click the Layers tab to bring the Layers panel to the front or, if the panel isn't visible, choose Window > Layers.

3. If the image layer is the background layer, double-click the image layer in the Layers panel to convert it from a background layer into a regular layer (**Figure 21**). If the image is already a regular layer, skip ahead to step 5.

    Note: Because background layers are locked, you can't move them in the Layers panel. You need to convert background layers to regular layers to unlock them.

    The New Layer dialog box appears (**Figure 22**).

4. In the New Layer dialog box, you can rename the layer. Click OK to close the dialog box and convert the image layer from a background to a regular layer.

5. Confirm the new layer is selected in the Layers panel and choose Layer > Vector Mask > Hide All.

    The layer contents disappear due to the new vector mask that hides the entire layer.

6. Click the Properties panel button to open the Masks options (**Figure 20**).

7. Select one of the shape tools, such as the Ellipse tool (**Figure 24**).

    The pointer appears as a cross hair.

8. Click the vector mask thumbnail in the Layers panel to highlight it.

9. Select the Path option from the Tool Mode menu in the Shape option bar and select the Combine Shapes option in the Path Operations menu (**Figure 24**).

10. Shift-drag the shape tool to draw one or more shapes over the image.

    The vector mask creates sharp-edged shapes on a layer that reveals the parts of the image within the shapes (**Figure 25**).
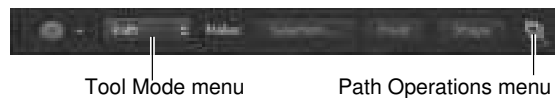

Figure 21 Layers panel
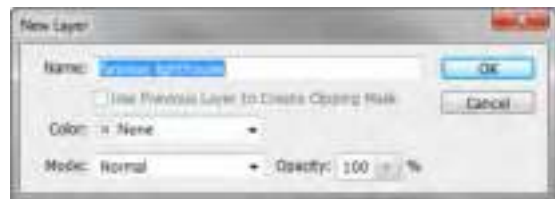
Figure 22 New Layer dialog box

Figure 23 Shape tools in the Tools panel

Tool Mode menu   Path Operations menu

Figure 24 Shape option bar

Figure 25 Parts of the image revealed through combined shapes of vector mask

How to use selection tools   **9**

11. Drag the Density slider in the Properties panel to adjust the mask opacity.

At 100% density, the mask is completely opaque and blocks out any underlying area of the layer. As you lower the density, more of the area under the mask becomes visible. In the example (**Figure 26**), the mask density is set to 30% so that the area under the mask is partially visible.

12. To create a background layer with a solid fill color, click the Layers panel menu (**Figure 27**) and choose New Layer.

The New Layer dialog box appears.

13. Click OK to close the New Layer dialog box and create a new layer.

14. In the Layers panel, drag the new layer below the vector mask layer and confirm that the new layer is selected.

15. Choose Edit > Fill.

The Fill dialog box appears (**Figure 28**).

16. In the Fill dialog box, choose one of the following options for Use, or select a custom pattern:

Foreground Color, Background Color, Black, 50% Gray, or White: Fills the selection with the specified color.

Color: Fills with a color you select from the Color Picker.

Pattern: Fills the selection with a pattern. Click the inverted arrow next to the pattern sample, and select a pattern from the pop-up palette. You can load additional patterns by using the pop-up panel menu. Select the name of a library of patterns, or choose Load Patterns and navigate to the folder containing the patterns you want to use.

History: Restores the selected area to a state or snapshot of the image set as the source in the History panel.

Note: If you fill a CMYK image by using the Black option, Photoshop fills all the channels with 100% black. This may result in more ink than is allowable by the printer. For best results when filling a CMYK image, use the Foreground option with the foreground color set to an appropriate black.

17. Specify the blending mode and opacity for the paint.

18. Select the Preserve Transparency option.

Figure 26 Adjusting the mask density

Panel menu

Figure 27 Layers panel

Figure 28 Fill dialog box

19. Click OK to apply the fill.

20. (Optional) To crop the image, select the Crop tool from the Tools panel.

21. Drag over the part of the image you want to keep to create a marquee. The marquee doesn't have to be precise—you can adjust the cropping marquee as needed.

22. To complete the crop (**Figure 29**), press Enter (Windows) or Return (Mac OS).

Figure 29 Completed image crop

Overview of Adobe Photoshop CS6 workspace

Starting to work in Adobe Photoshop

The Adobe Photoshop workspace includes the command menus at the top of your screen and a variety of tools and panels for editing and adding elements to your image. You can also add commands and filters to the menus by installing third-party software known as *plug-in modules*.

Photoshop works with *bitmapped*, digitized images (that is, continuous-tone images that have been converted into a series of small squares, or picture elements, called *pixels*). You can also work with *vector* graphics, which are drawings made of smooth lines that retain their crispness when scaled. You can create original artwork in Photoshop, and you can import images into the program from many sources, such as:

-   Photographs from a digital camera

-   Commercial CDs of digital images

-   Scans of photographs, transparencies, negatives, graphics, or other documents

-   Captured video images

-   Artwork created in drawing programs

For information on the kinds of files you can use with Adobe Photoshop CS6, see "Choosing a file format" in Photoshop Help.

In this guide, you'll learn your way around the Adobe Photoshop CS6 workspace, how to create custom workspaces, how to open images, use the Properties panel, create new Photoshop documents, and use basic pan and zoom tools.

Exploring the Photoshop workspace

You can customize the layout and functionality of the Photoshop workspace by using the workspace switcher.

To open Photoshop and explore the workspace:

1. Start Adobe Photoshop.

    If you don't see the Photoshop icon, choose Start > All Programs > Adobe Photoshop CS6 (Windows) or look in either the Applications folder or the Dock (Mac OS).

2. From the workspace switcher menu, confirm the option is set to Essentials. Choose Reset Essentials to restore the default workspace (**Figure 1**).

    The Photoshop workspace appears as shown in the following illustration.
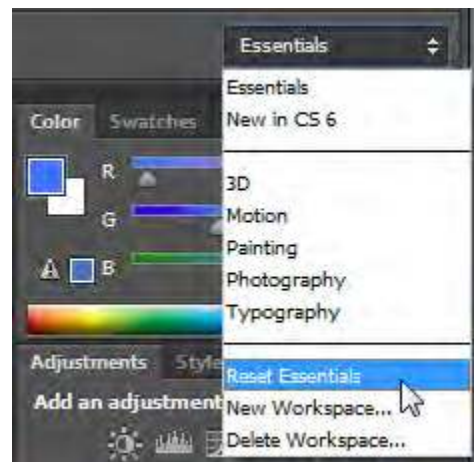
Figure 1 Workspace switcher menu

3. The default Essentails workspace in Photoshop (**Figure 2**) displays the main menu (Windows), or title bar (Mac OS). Below the main menu is the Options bar, with the Tools panel on the left, other panels, and one or more document windows that are opened separately.

The *main menu* organizes commands in individual menus.

The *Options bar* displays options for the currently selected tool and the workspace switcher menu.

The *document window* displays the file you're working on.

The *Tools panel* contains tools for creating and editing images, artwork, page elements, and so on. Related tools are grouped together.

Panels help you monitor and modify your work. An example is the Layers panel. Another is the *Properties* panel which provides context-sensitive tools to make quick updates to the properites of your masks, adjustments, and video layers. Two other panels appear beneath the document window: the Mini Bridge panel and the Timeline panel.

Certain panels are displayed by default, but you can add any panel by selecting it from the Window menu. Many panels have menus with panel-specific options. You can separate, group, stack, and dock panels into your preferred layout.

Figure 2 Adobe Photoshop CS6 interface

You can restore the default workspace at any time by choosing Window > Workspace > Essentials (Default) (**Figure 3**) or by choosing Reset Essentials from the workspace switcher menu (**Figure 1**).
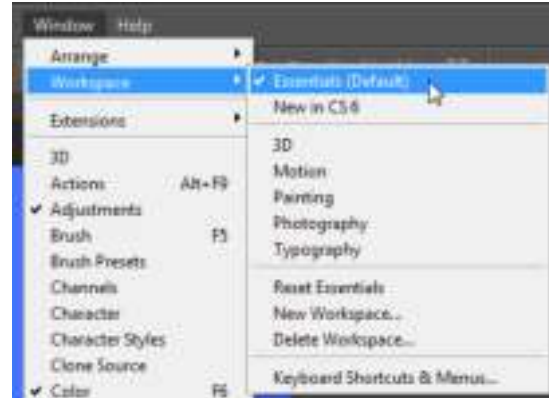

Figure 3 Selecting the default workspace

## Customizing your workspace by using the workspace switcher

You may prefer your own panel layout when working on a document. You can save a current size and position of panels as a uniquely named workspace and restore that workspace even if you move or close a panel. The names of saved workspaces appear in the Window > Workspace menu.

To customize the workspace:

1. To create a custom workspace, move and manipulate the interface layout in Photoshop (**Figure 4**).

2. From the Workspace Swticher menu, select New Workspace (**Figure 5**).
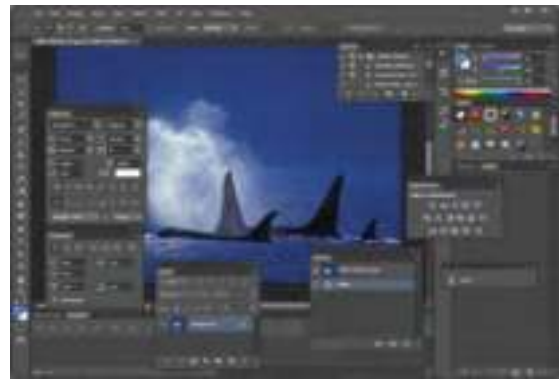
Figure 4 Custom interface layout
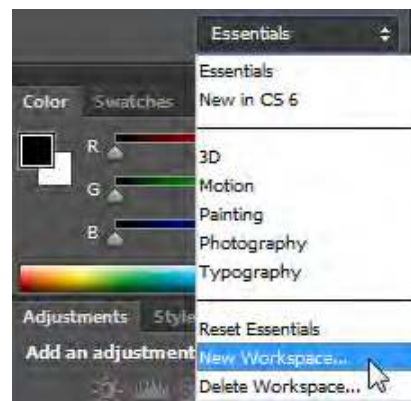
Figure 5 Creating the New Workspace

The New Workspace dialog box appears (**Figure 6**).

3. Name your workspace and select the Capture options to save in the workspace (Keyboard Shortcuts and Menus).

4. Click Save.

   Your new workspace appears in the upper-right corner of the interface in the workspace switcher area (**Figure 7**).

5. Open the workspace switcher menu.

   Even if you change to another type of workspace, at any time you can return to your saved workspace by reselecting it from the workspace switcher menu.

   Photoshop also records any changes you make to your task-specific or saved layouts, so that if you switch to a different workspace and then switch back during an editing session, the panels will be exactly where you left them.

   You can restore the saved workspace at any time by choosing Reset [your named] Workspace from the workspace switcher menu (**Figure 7**).
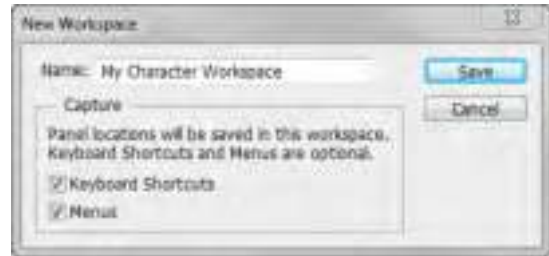
Figure 6 New Workspace dialog box

Figure 7 Reselecting a saved workspace

Opening a file in Photoshop

You can open files by using the Open command or the Open Recent command.

To open a file:

1. To open a file, choose File > Open and navigate to the location of your image.

2. Select your file and click Open.

   The file opens in its own window, called the image window (**Figure 8**).

3. To close the image file, choose File > Close or click the close button on the title bar of the window in which the photograph appears. (Do not close Photoshop.)

Figure 8 File open in the image window

How to open a file by using Adobe Bridge or Mini Bridge

You can also open a file by using Adobe Bridge, a visual file browser that helps take the guesswork out of finding the image file you need. There are two versions of Adobe Bridge to choose from: the full version which opens a seperate, full image browser window and works across the Creative Suite software family, or Mini Bridge, which allows you to access images directly within the Photoshop interface. The following steps illustrate how to use Mini Bridge, but you could just as easily use the full version to browse and open files.

To open a file by using Adobe Mini Bridge:

1. If the Mini Bridge panel is not already open, click the Mini Bridge tab beneath the document window (**Figure 9**).

   **Note:** You can also open Mini Bridge by choosing File > Browse In Mini Bridge.

   Note: If this is the first time opening Mini Bridge, you may see a message stating "Bridge must be running to browse files" and a Launch Bridge button. Click the Launch Bridge button to start Bridge in the background and to open the Mini Bridge panel in Photoshop.

2. Use the file navigator in Mini Bridge to browse to the folder where you store your images.

3. Thumbnail previews of the folder contents appear in the Content pane of Mini Bridge (**Figure 10**).
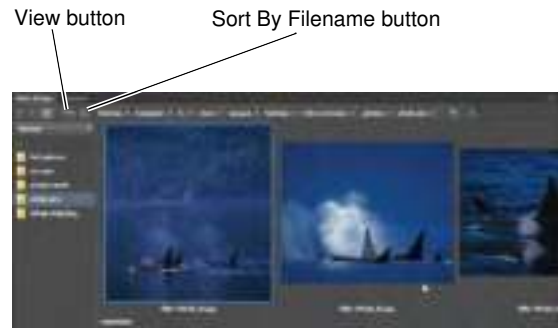
   You can sort and filter images by using the View and Sort By Filename buttons.

4. Select a file in the Content pane and open the file by double-clicking its thumbnail.

   The image opens in Photoshop.
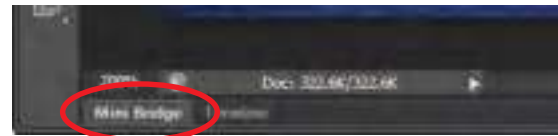
Figure 9 Mini Bridge tab

Figure 10 Mini Bridge panel

Creating a new Photoshop document

You can create a new Photoshop document and define a document size, resolution, color mode, and background contents.

To create a new Photoshop document:

1. Select File > New.

   The New Photoshop document dialog box appears, with options for your file (**Figure 11**).

2. Type a filename and values for the width and height of the canvas.

3. Type a value for Resolution.

   For an image to be used on the web, 72 pixels/inch is suitable. For an image to be printed, use a higher resolution, from 300 to 1200 pixels/inch.
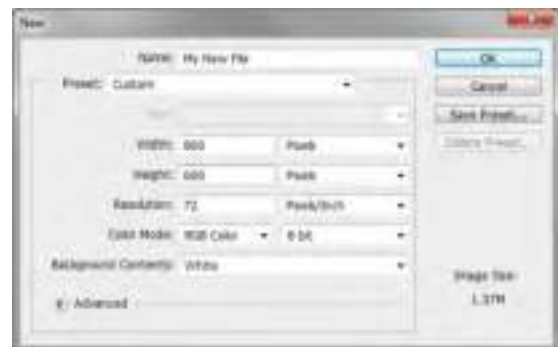
Figure 11 New Photoshop document dialog box

4. Choose a setting for Color Mode.

Color Mode determines which color method is used to display and print the image you're working on. Photoshop bases its color modes on the color models that are useful for images used in publishing. Choose from RGB (Red, Green, Blue), CMYK (Cyan, Magenta, Yellow, Black), Lab Color (based on CIE L* a* b*), and Grayscale.

5. Choose a setting for Background Contents.

You can choose to use a white, transparent, or specific color background behind your image.

In the lower-right corner, notice that the file size information changes as you adjust the settings for the new file.

Figure 12 New image window

6. Click OK.

The new file opens in the image window, ready to use (**Figure 12**). Be sure to save your file as you work in it.

7. To save a file for the first time, select File > Save As from the main menu.

Overview of the Tools panel

Photoshop provides an integrated set of tools with which you can produce sophisticated graphics for print, web, and mobile viewing (**Figure 13**). Some tools are arranged in groups, with only one tool shown for each group and the other tools in the group hidden behind that tool. A small triangle in the lower right corner of a tool icon is your clue to look for hidden tools. Select a hidden tool by clicking and holding down the small triangle.

A Selection tools

- Move (V)*
- Rectangular Marquee (M)
  - Elliptical Marquee (M)
  - Single Column Marquee
  - Single Row Marquee
- Lasso (L)
  - Polygonal Lasso (L)
  - Magnetic Lasso (L)
- Quick Selection (W)
  - Magic Wand (W)

B Crop and slice tools

- Crop (C)
  - Slice (C)
  - Slice Select (C)

C Measuring tools

- Eyedropper (I)
  - Color Sampler (I)
  - Ruler (I)
  - Note (I)
  - 1_2^3 Count (I)†

D Retouching tools

- Spot Healing Brush (J)
  - Healing Brush (J)
  - Patch (J)
  - Red Eye (J)
- Pattern Stamp (S)
  - Clone Stamp (S)

- Eraser (E)
  - Background Eraser (E)
  - Magic Eraser (E)
- Blur
  - Sharpen
  - Smudge
- Dodge (O)
  - Burn (O)
  - Sponge (O)

E Painting tools

- Brush (B)
  - Pencil (B)
  - Color Replacement (B)
- History Brush (Y)
  - Art History Brush (Y)
- Paint Bucket (G)
  - Gradient (G)

F Drawing and type tools

- Pen (P)
  - Freeform Pen (P)
  - Add Anchor Point
  - Delete Anchor Point
  - Convert Point
- Horizontal Type (T)
  - Vertical Type (T)
  - Horizontal Type Mask (T)
  - Vertical Type Mask (T)

- Path Selection (A)
  - Direct Selection (A)
- Polygon (U)
  - Rectangle (U)
  - Rounded Rectangle (U)
  - Ellipse (U)
  - Line (U)
  - Custom Shape (U)

G Navigation tools

- Hand (H)
  - Rotate View (R)
- Zoom (Z)

■ Indicates default tool   * Keyboard shortcuts appear in parenthesis   † Extended only

**Figure 13** Overview of Tools panel

The following section covers the Zoom tool. The process for selecting and using this tool is similar to that for the rest of the tools in the panel.

How to select and use the Zoom tool from the Tools panel

The Tools panel—the long, narrow panel on the left side of the workspace—contains selection tools, painting and editing tools, foreground- and background-color selection boxes, and viewing tools.

To use the Zoom tool:

1. Notice the Tools panel appears as a single column. Click the double-arrow button at the top of the Tools panel to toggle to a double-column view (**Figure 14**). Click the arrow again to return to a single-column panel that uses your screen space more efficiently.

2. Open an image, examine the status bar at the bottom of the image window, and notice the percentage listed on the left end (**Figure 15**).

    This represents the current enlargement view, or zoom level of the image.

    Note: In Windows, the status bar may appear across the bottom of the workspace.

3. Move the pointer over the Tools panel and hover over the magnifying-glass icon until a tool tip appears, identifying the tool by name and providing its keyboard shortcut (**Figure 16**).

4. Select the Zoom tool either by clicking the Zoom tool button in the Tools panel or by pressing Z, the keyboard shortcut for the Zoom tool.

5. Move the pointer over the image window. Notice that it now appears as a tiny magnifying glass with a plus sign in the center of the glass.
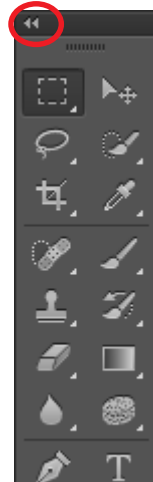
Figure 14 Tools panel

Zoom level   Status bar

Figure 15 Zoom level and Status bar in an image

Figure 16 Tool tip

6. Click anywhere in the image window.

    The image zooms in according to a preset percentage
    level, which replaces the previous value in the status bar.
    The location you clicked when you used the Zoom tool
    becomes the center of the enlarged view. If you click
    again, the zoom advances to the next preset level, up to a
    maximum of 3200%.

7. Click the Navigator icon in the right side of the
    workspace (or select Window > Navigator) to open the
    Navigator panel.

    Notice a red box is displayed around the zoomed area of
    the image (**Figure 17**). You can grab the box and move it
    around the Navigator to locate a specific area of an
    image.

Navigator
icon

Figure 17 Navigator panel showing zoom area

8. Hold down the Alt key (Windows) or Option key (Mac
    OS) so that the Zoom tool pointer appears with a minus
    sign in the center of the magnifying glass (**Figure 18**),
    and then click anywhere in the image. Then release the
    Alt or Option key.

    Now the view zooms out to a lower preset magnification.

    Note: You can also hold the Alt key (Windows) or
    Option key (Mac OS) and use the mouse scroll wheel to
    zoom in and out of an image.

Figure 18 Using the Zoom tool with a minus sign

How to scroll around an image with the Hand tool

The Hand tool moves an image within its window. This is useful if you want to see a part of the image that is
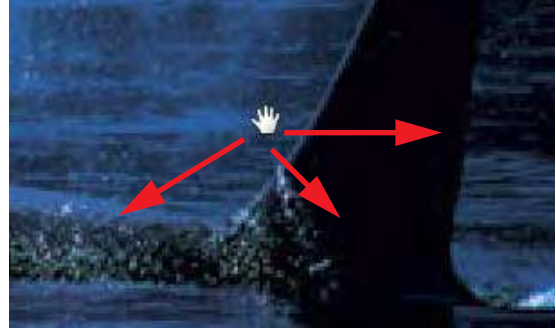currently out of view.

To use the Hand tool:

1. Open an image and zoom in until scroll bars appear on
    the image window.

2. Select the Hand tool from the Tools panel (**Figure 19**).
    You can also press Shift+H.

Figure 19 Hand tool in the Tools panel

3. Using the Hand tool, drag to scroll around and view different parts of the image (**Figure 20**).

Figure 20 Dragging the Hand tool

Using the Navigator panel

Panning or zooming an image in the Navigator panel is another quick way to make large changes in the zoom level, especially when the exact percentage of magnification is unimportant. It's also a great way to scroll around in an image, because the thumbnail shows you exactly what part of the image appears in the image window.

To use the Navigator panel:

1. If the Navigator panel is not visible, choose Window > Navigator, or click the Navigator icon in the right side of the workspace (**Figure 17**).

2. Locate the slider under the image thumbnail in the Navigator panel and drag it to the right.

   The image in the image window enlarges (**Figure 21**).

3. Now drag the slider to the left and reduce the scale of the image in the image window.

Figure 21 Using the slider to zoom in or out

How to add text to images

In Adobe Photoshop CS6, you can add text directly to an image. As with shapes, you add text in its own layer, which is named after the first few words of your text. Once you add text, you can modify it by using the Character and Paragraph panels, by transforming the text box, and by applying layer styles to the text's layer.
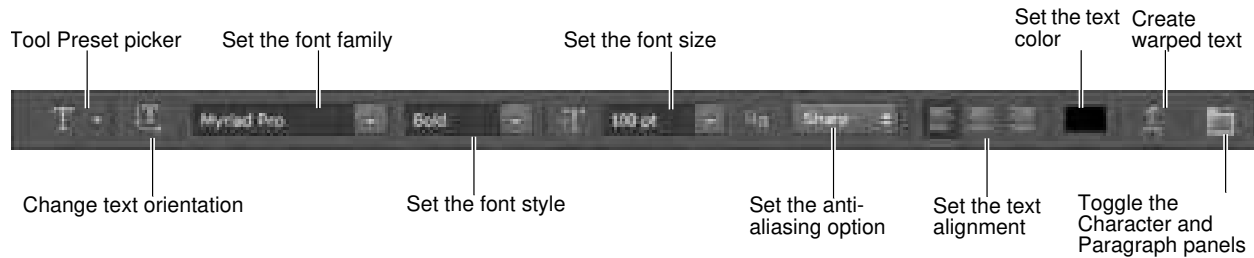
Tool Preset picker   Set the font family   Set the font size   Set the text Create
                                                                                                          color   warped text

Change text orientation   Set the font style   Set the anti-   Set the text   Toggle the
                                                                            aliasing option   alignment   Character and
                                                                                                                 Paragraph panels

Figure 1 Text options bar

Adding text to an image

1. Start Photoshop and open an image.

2. Select the Type tool (**Figure 2**).

3. In the Text options bar, set a font family, font style, size, alignment, and color for the text (**Figure 1**).

   Note: When you're working with a font on-screen, you may observe that it seems smaller or larger than its point size. This is because the on-screen appearance of fonts depends on the document size and magnification. To see the font sized as it will appear when printed, choose View > Print Size.

4. Select an anti-aliasing option from the Anti-aliasing pop-up menu.

5. Drag on the image to draw a text box (**Figure 3**). When you are satisfied with the size of the box, release the mouse.

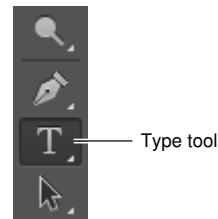6. Click in the text box you've created and type to add text (**Figure 4**).

Type tool

Figure 2 Tools panel
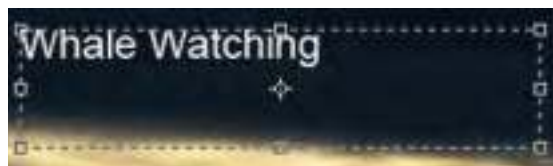
Figure 3 Drawing a text box

Figure 4 Adding text to a text box

Modifying text by using the Character and Paragraph panels

You can change textual characteristics through the Character and Paragraph panels. These options are similar to those found in many word-processing and layout applications.

Modifying text by using the Character panel

To set an option in the Character panel, you first open the panel and select the text you want to change. For each option in the panel, choose a value from the pop-up menu (**Figure 5**) or type a value. When you type a value directly, press Enter (Windows) or Return (Mac OS) to apply it.
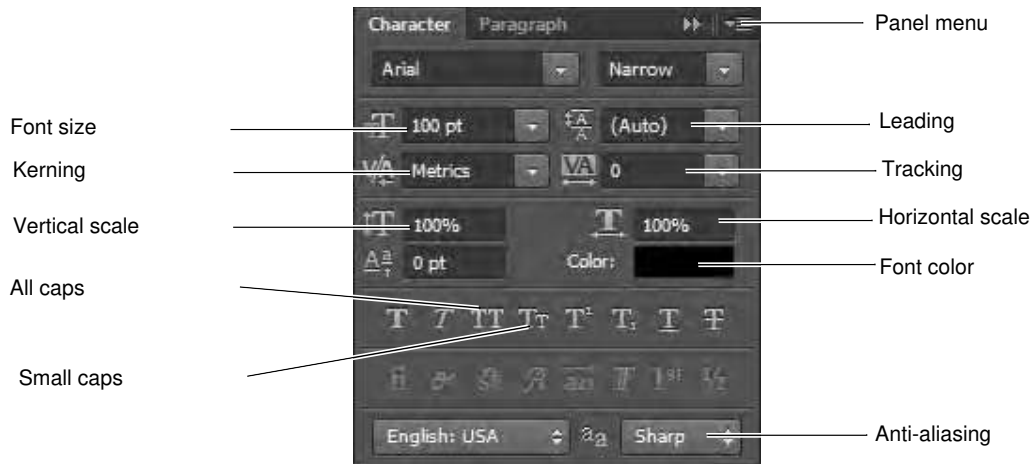
Figure 5 Character panel

The options in the Character panel include the following:

- *Font size:* Depends on document size. You set this in points.

- *Leading:* Space between lines. You set leading in points.

- *Tracking:* Space between characters. You set tracking in points. You can also fine-tune the space between any two characters by selecting them and adjusting *kerning*. Usually you only need to adjust kerning for large font sizes—at least 16 points.

- *Horizontal scale:* Height of the letters. You set this as a percentage.

- *Vertical scale:* Width of the letters. You set this as a percentage.

Anti-aliasing

Anti-aliasing produces smooth-edged type by partially filling the edge pixels so the edges of the type blend into the background. For print jobs, you will generally want to apply anti-aliasing to your text, especially for larger text. For smaller text or for web images, you may want to leave anti-aliasing turned off.

- *None:* Applies no anti-aliasing.

- *Sharp:* Type appears at its sharpest. (This option is set by default.)

- *Crisp:* Type appears somewhat sharp.

- *Strong:* Type appears heavier.

- *Smooth:* Type appears smoother.

Note: When you use anti-aliasing, type may be rendered inconsistently at small sizes and low resolutions (such as the resolution used for web graphics). To reduce this inconsistency, deselect the Fractional Widths option in the Character panel menu.

To modify text by using the Character panel:

1. Choose Window > Character.

   The Character panel appears (**Figure 5**).

2. Apply changes to the text

   In the example (**Figure 6**), the following changes have been applied:

   • Font style set to Bold

   • Font size set to 43 pt.

   • Small Caps is selected

   • Anti-aliasing set to Crisp

Figure 6 Text formatted in Character panel

Modifying text by using the Paragraph panel

You can make further changes to the text in the Paragraph panel. Most importantly, you can change the text's *alignment*—whether the text lines up with the right, left, or center of the text box. You can also *justify* the text. Justification means spacing the text so it meets both margins.

To modify text by using the Paragraph panel:

1. Choose Window > Paragraph.

   The Paragraph panel appears (**Figure 7**).

2. Apply changes to the text.

   In the example (**Figure 8**), the text has been center-aligned inside the text box.

Figure 7 Paragraph panel

Figure 8 Text formatted in Paragraph panel

Transforming a text box

As with most objects in Photoshop, you can transform text boxes. After you apply transformations, the text remains editable.

To transform a text box:

1. Choose Windows > Layers and confirm the text layer is selected (**Figure 9**).

2. Choose Edit > Free Transform.

3. Drag a transform control to change the shape of the text box.

4. Move the pointer over a corner of the text box until the pointer changes into a rotation tool (**Figure 10**).

5. Drag the rotation tool to rotate the text box.

6. Choose the Type tool in the Tools panel.
   A message appears asking if you want to apply the transformation.

7. Select Yes (Windows) or Apply (Mac OS).

8. Click in the text box.

   Observe that the text remains editable even while rotated. If you resize the text box vertically, the font size changes accordingly.

Figure 9 Layers panel

Rotation pointer

Figure 10 Text rotated

Warping text

You can also curve, or warp, text by using the Create Warped Text option.

To warp text:

1. Select the Type tool.

2. Select the text you wish to warp.

3. Click the Create Warped Text icon in the Text options bar.

   The Warp Text dialog box appears (**Figure 11**).

4. Select a style, such as Wave.

5. Choose Horizontal or Vertical to determine a direction for the warp.

6. Select a degree of bend for the warp.

Figure 11 Warp Text dialog box

7. Change the Horizontal Distortion and Vertical Distortion.

   These settings let you create asymmetrical warps in either a horizontal or vertical direction. You can experiment with these settings later, but for now, keep the warp straightforward.

8. Click OK to apply the warp (**Figure 12**).

Figure 12 Text with Wave warp applied

Modifying text by using layer styles

Because text is added to its own layer, you can also change the appearance of text by using layer styles. You can add a drop shadow to the text, make the text appear embossed or beveled, or outline each letter with a stroke.

To modify text by using layer styles:

1. If the Layers panel is not already visible, choose Window > Layers.

2. Double-click the text layer to open the Layer Style dialog box (**Figure 13**).

   Layer styles appear in a column on the left. To apply a style, check its box. You can also reveal options for modifying a style by clicking its name.

3. Apply one or more layer styles to the text.

   Outer Glow, Bevel, Contour, and Stroke have been applied to the text in the example (**Figure 14**).

Check a box   Click a style's name to
to apply style   modify options for it

Figure 13 Layer Style dialog box

Figure 14 Layer effects applied to text

Reusing text formats with type styles

You can achieve a consistent look and feel with saved type styles, which let you apply formatting to selected characters, lines, or paragraphs of text with a single click.

A *character style* is a collection of character-formatting attributes that you can apply to a selected range of text. A *paragraph style* includes both character- and paragraph-formatting attributes and can be applied to a selected paragraph or range of paragraphs.

To use type styles:

1. Create a paragraph of text in your image.

2. Choose Window > Paragraph Styles.

   The Paragraph Styles panel opens (**Figure 15**).

3. To create a new paragraph style, click the Create New Style button.

4. Double-click the new style in the Paragraph Style panel.

   The Paragraph Style Options dialog box opens (**Figure 16**).

5. Type a new Style Name, if desired.

6. Define the text and paragraph options you want in the Paragraph Style Options dialog box and then click OK.

7. Select the text paragraph again.

8. Create a second paragraph style in the same way.

9. To apply a paragraph style, select a character, line, or paragraph of text and click a style name in the Paragraph Styles panel (**Figure 17**).

   Note: You can update any of the paragraph styles you create by double-clicking the style name and editing the options you want in the Paragraph Style Options dialog box. A plus sign next to a style name in the Paragraph Styles panel indicates that a style has been overriden, or modified in the document. To clear overrides and return text to the appearance defined by the style, click the Clear Modification button. To redefine the style and maintain the current text appearance, click the Redefine button.

Clear Modification button   Redefine button   Create New Style button   Delete Style button
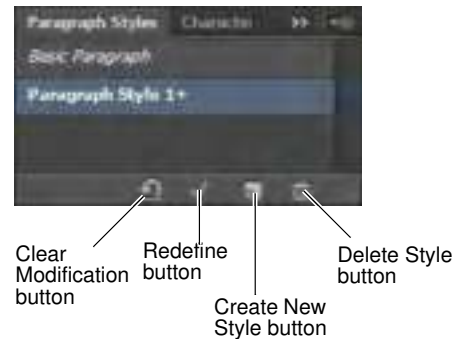
Figure 15 Paragraph Styles panel

Figure 16 Paragraph Style Options dialog box
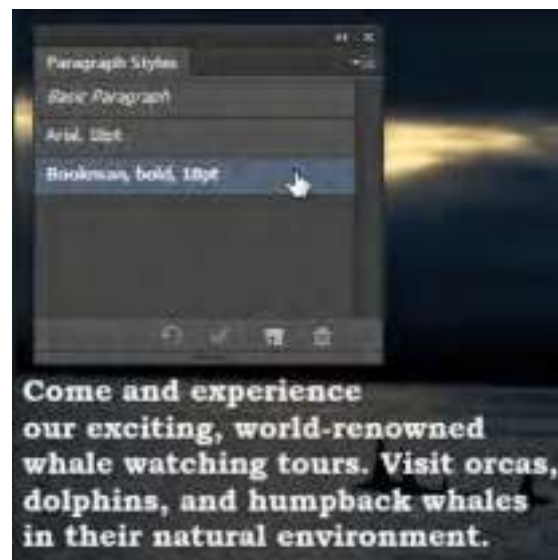
Figure 17 Paragraph Styles panel

How to understand color management

In working with images, you'll likely move color images from device to device. For example, you might scan an image, view the image on your monitor at home, print the image on an inkjet printer to preview it, and then have it printed professionally by a print vendor.

At each stage in this process, you can end up with color variations. The reason is this: These devices all have a limited color gamut. *Color gamut* refers to the range of colors a device displays. After all, no device can reproduce the full range of colors the human eye can see.

For example, monitors use RGB color. This color is created through a mix of red, green, and blue light. Because it depends on light, RGB tends to be better at bright colors—like those in a neon sign—and less adept with dull colors—blacks and some pastels. CMYK, in contrast, is used by four-color printers, and is a mix of cyan, magenta, yellow, and black. Because it depends on light being reflected off a page, CMYK tends to be better at pastels and pure black.

Colors might vary for one of the following reasons:

- Differences in image sources—whether the image is from a camera or scanned in.

- The way software applications define color.

- Your choice of print media. For example, newsprint paper reproduces a smaller gamut than magazine-quality paper.

- Natural variations between devices—monitors differ based on manufacturer and monitor age.

Each device operates within a specific color space that can produce a certain range, or gamut, of colors. Because of these varying color spaces, colors can shift in appearance as you transfer documents between different devices. For example, a shade of blue with the values R 25, G 200, B 225 might appear slightly different when you scan an image with this color than when you view it on a monitor or print it.

Monitor profiles describe how the monitor is currently reproducing color. You should create this profile first, because you need to view colors accurately on your monitor to make design decisions. If what you see on your monitor does not represent the actual colors in your document, you will not be able to maintain color consistency. For more information on creating monitor profiles, see Monitor Profiles in Photoshop Help.

Input device profiles describe what colors an input device is capable of capturing or scanning. If your digital camera offers a choice of profiles, Adobe recommends selecting Adobe RGB. Otherwise, use sRGB (this is the default for most cameras).

Output device profiles describe the color space of output devices such as a desktop printer or a printing press. If you're printing to your desktop printer, you can set this through the Print dialog box. When you print, the color management system uses output device profiles to properly map the colors in a document to the colors within the gamut of an output device's color space. Ideally, the output profile should also consider specific printing conditions, such as the type of paper and ink. For example, glossy paper can display a different range of colors than matte paper. Most newer inkjet printers include profiles to handle a range of such conditions, and you can often use these profiles to best effect.

Managing color when you open files

You can solve the problem of working with different color spaces by using a color management system, such as the one included with Adobe Photoshop CS6. This color management system handles a lot of these choices automatically, but it's useful to understand color management so you can address problems as they crop up. Photoshop provides options for you to manage the way color profiles are interpreted when you open files. You set these options through the Color Settings dialog box, available through the Edit menu.

The settings you choose in the Color Settings dialog box determine the way colors are applied for both RGB and CMYK. When you choose RGB or CMYK in the Image > Mode menu, the colors displayed in these modes are determined by the Color Settings dialog box.

Pretested sets of options in the Color Settings dialog box

Although you can customize the options in the Color Settings dialog box, Adobe provides pretested sets of options you can use. These are available in the Settings menu at the top of the Color Settings dialog box.These settings have been tested by Adobe to work with most monitors (for screen output) and printers (for print output) in North America.

Here are three sets of settings you will find useful:

- **North America General Purpose 2** works well if you are exporting to both web and print formats. For example, this setting group uses the sRGB IEC61966-2 setting for the RGB working space. This working space reflects the settings on most computer monitors, low-end printers, and scanners.

- **North America Prepress 2** works well if you are exporting to a printing press. For example, this setting group uses the Adobe RGB (1998) setting for the RGB working space. This working space reflects an RGB range that corresponds more closely to CMYK (which is what printing presses use).

- **North America Web/Internet** works well if you are exporting to the Internet only. All images are converted to the sRGB IEC61966-2 working space.

How Photoshop handles color spaces in opened files

When you open a file, Photoshop compares the colors in the file's color space with the colors defined in the Color Settings dialog box. By selecting the Ask When Opening option, you can have Photoshop ask you how to proceed when it encounters a different color space. If this option is not selected, Photoshop automatically converts these colors to the working space settings in the Color Settings dialog box. For example, if the image you're opening has been created by using an sRGB IEC61966-2 B color space, and the Color Settings dialog box has Adobe RGB (1998) working space for RGB, Photoshop converts the sRGB colors to Adobe RGB.

To use the Color Settings dialog box:

1. Start Photoshop.

2. Choose Edit > Color Settings.

   The Color Settings dialog box appears (**Figure 1**).

   In the Settings menu, you can choose from a series of preset settings. For most print purposes, you can use North America General Purpose 2.

3. Move the pointer over the menus in the Color Settings dialog box to view more information on these options.

   Information appears in the Description box at the bottom of the dialog box.

4. Change the Settings to North America Prepress 2 and observe the results.

   Remember, North American Prepress 2 is best for exporting to a printing press, so Photoshop changes RGB to Adobe RGB (1998). With North American Prepress 2, Ask When Opening is selected to preserve the integrity of colors as you import them.

Description box   Color Settings menus

Figure 1 Color Settings dialog box

Using soft proofing

You can use soft proofing to proof on-screen. *Soft proofing* refers to changing on-screen colors to mimic the colors at printing.

To use soft proofing:

1. Start Photoshop and open an image. If possible, open an image with a wide color range, so as to best observe the effects of soft proofing.

    First, you're going to soft proof the image as it would appear with CMYK printing.

2. Choose View > Proof Setup > Working CMYK. As you do, look carefully at the image's colors. You should notice a slight shift.

    Note: The amount of color shift depends on the current settings in the Color Settings dialog box, the image's colors, and other factors.

    Now you're going to soft proof an inkjet printer.

3. Choose View > Proof Setup > Custom.

    The Customize Proof Condition dialog box appears (**Figure 2**).

4. Confirm the Preview option is selected.

    This lets you view changes on-screen as you make them.

5. Select Fujifilm ETERNA 250D Printing Density (By Adobe) from the Device To Simulate menu.

    Photoshop soft proofs the image as it would appear when printed with Fujifilm ETERNA 250D film.

    Observe the results in the image.

6. Click Cancel to close the Customize Proof Condition dialog box without keeping changes.

Figure 2 Customize Proof Condition dialog box

Managing colors when printing

You can also set options for color management when you print to your printer. In the Color Management area of the Print dialog box, you can configure whether colors are managed by Photoshop or your printer and specify preferences for how colors are handled.

Most new inkjet photo printers come with fairly accurate profiles built into the driver. You may end up with the best results—and save time—by letting the printer select the profile.

To view the Color Management area of the Print dialog box:

1. Open an image in Photoshop.

2. Choose File > Print. (You do not need to have a printer currently connected to your printer for this exercise.)

The Print dialog box appears (**Figure 3**).

The Color Management will be visible on the right side of the dialog box.

3. Move the pointer over the menus in the sections labeled Color Handling, Printer Profile, and Rendering Intent.

Information on the option selected in each menu appears in the Description section of the dialog box. For example, in the section Color Handling, you should see Printer Manages Colors selected in the menu. This option asks your printer to determine how colors are printed.

4. When you've reviewed these options, click Cancel to close the Print dialog box.
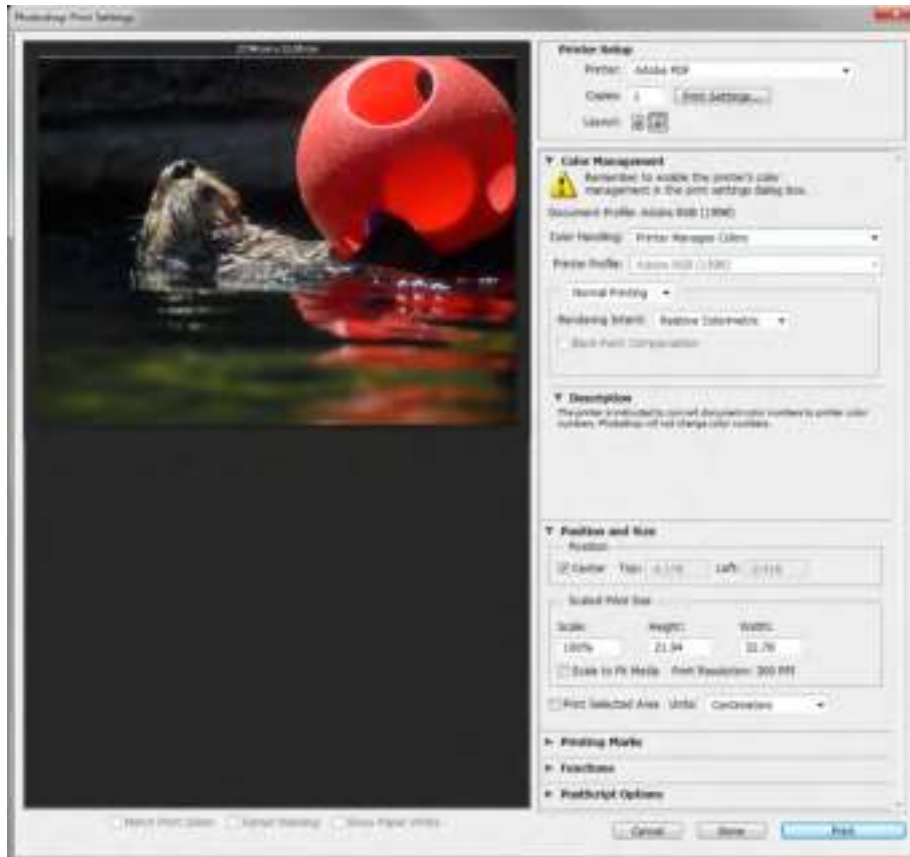
Figure 3 Print Settings dialog box

Rendering intent

Rendering intent refers to the way colors are converted from one system to another. When you print, you're converting from one colorspace (Photoshop) to another (your printer). Rendering intents set the rules that determine how colors are adjusted. The product of a rendering intent depends on the colors in your image and the current settings in the Color Settings dialog box. Some profiles produce identical results for different rendering intents.

Photoshop sets a default rendering intent according to the profile you've selected in the Color Settings dialog box. For example, if you chose a color setting for North America or Europe, the default rendering intent is Relative Colorimetric. Generally, it's a good idea to go with these defaults, especially if you're still learning about color management.

How to create a new document

When you create a new document in Adobe Photoshop CS6, you set options such as resolution, color type, and size. Your choices depend on the type of image you're creating. Although you can change these options later, setting them right at the beginning is best. Sometimes changing the options later can affect the appearance of your image.

To create a new document:

1. Start Photoshop.

2. Choose File > New.

   The New dialog box appears (**Figure 1**).

3. First, assign the document a name, such as "Logo."

4. Set a width and height in inches for the images.

   To set inches as the measurement unit, click the menus to the right of the Width and Height text boxes, and select inches.

   Note: You can select from a number of default document sizes by using the Preset pop-up menu. Observe that the names of open documents also appear in the Preset menu. When you choose one of these, Photoshop fills in the settings for the document. This lets you quickly create a number of images with the same settings.

5. Enter a resolution for the image.

   If you plan to generate images for print, 300 pixels/inch is a good standard. (It's best to set the resolution at the highest you need. If you're planning to create a logo for use in print and the web, use 300 ppi, which is what print requires.)

6. Set Color Mode to RGB Color.

   You can also work in Grayscale or CMYK.

   You should generally select CMYK Color only if you know you are using an offset print vendor. Even if you choose RGB at this stage, you can convert the image to CMYK later before sending the image to the print vendor.

Figure 1 New dialog box

7. Set a background color in the Background Contents menu (you can change this setting later):

   • *White* fills the background with white, the default background color.

   • *Background Color* fills the background with the current background color.

   • *Transparent* makes the background transparent (it appears as a gray checkerboard). This option is useful when you want to create an image for transfer into another background. For example, you might want to create a circular logo with a transparent background so you could later place the logo on a colored background

8. Click OK to create the new document (**Figure 2**).
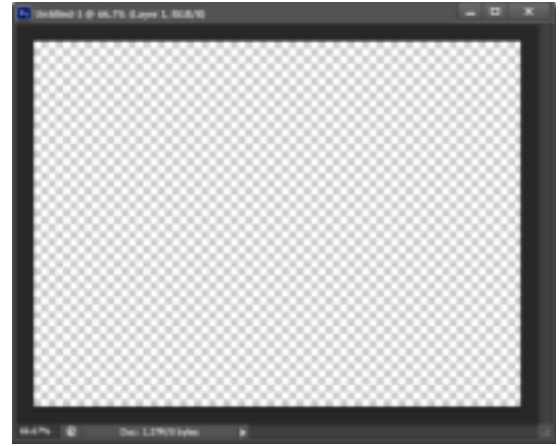
Figure 2 Newly created document with transparent background

How to use drawing tools

In addition to its photo-editing features, Adobe Photoshop CS6 has a full suite of drawing tools. This guide teaches you how to draw shapes in Photoshop. If you've used other drawing tools, such as Adobe Illustrator CS6, you will see that Photoshop's approach to drawing is slightly different. Everything in Photoshop is based on the idea of film exposure, of letting light show through rather than placing things onto a canvas.

Photoshop uses both bitmapped and vector images. *Bitmapped* images are made up of individual pixels and do not scale well; *vector* images are constructed from mathematical formulas and scale very well.

Types of shapes

This guide addresses adding shapes as shape layers, which gives you the most flexibility in determining how your shapes appear. However, adding shapes as separate layers adds to your image's file size and may eventually affect Photoshop's speed. Shape layers are added as vector *masks*—that is, they are vector shapes through which only part of the background shows.

If you're creating very simple shapes that do not need to be scaled, you can create bitmaps by using the Fill Pixels option. This option creates shapes that are *rasterized* or created from individual pixels. Because Fill Pixels shapes don't require additional layers, they can improve performance.

You set shape options in the Shape options bar (**Figure 1**).
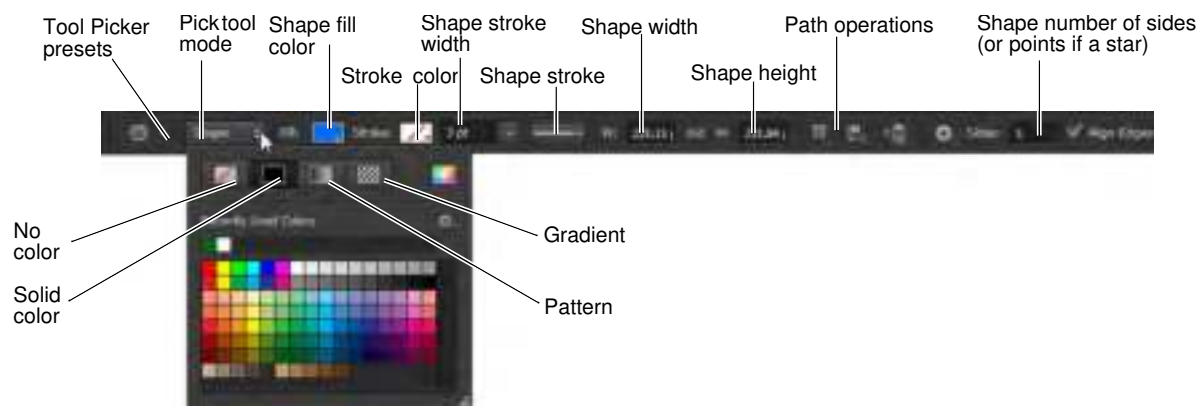
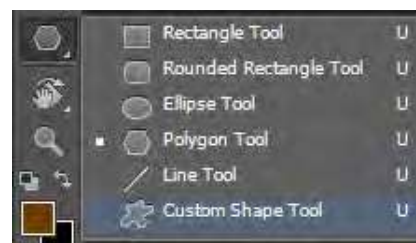**Figure 1** Shape options bar

Drawing shape layers

Shape layers are essentially vector masks that hide a background. They consist of two parts: a mask and a background color.

Shape layers offer the most flexibility in determining a shape's appearance, position, and visibility. Because the shape masks are vector shapes, you can transform these shapes without loss of clarity.

To draw a shape in a shape layer:

1. Start Photoshop and create a new file or open an image.

2. Click one of the shape tools in the Tools panel, such as the Polygon tool.

    By default, the Tools panel shows the Rectangle tool. To access other shapes, click the Rectangle tool and hold down the mouse button (**Figure 2**).

Figure 2 Tools panel

3. In the options bar, make sure Shape is selected in the Pick Tool Mode menu and New Layer is selected in the Path Operations menu (**Figure 1**).

4. From the Shape Fill Color menu (**Figure 1**), select color, gradient or pattern options for the color. Set stroke color from the Stroke Color menu.

   In the example (**Figure 3**), the polygon is set to Star, fill is yellow, stroke is blue, and leaving the Indent Sides By setting at its default of 50%. You can use the Polygon Options menu to select the option for the star shape and the amount by which the sides should be indented (**Figure 4**).

5. Draw the shape by dragging the pointer across the canvas.

   When the mouse is released, the shape and stroke fills with their selected colors (**Figure 5**).

6. If the Layers panel is not already visible, choose Window > Layers.

   Observe that the shape is on a separate layer with the default name of Shape 1 (**Figure 6**).

Figure 3 Shape appearance as you draw it

Figure 4 Polygon Options menu in the options bar

Figure 5 Shape filled with color
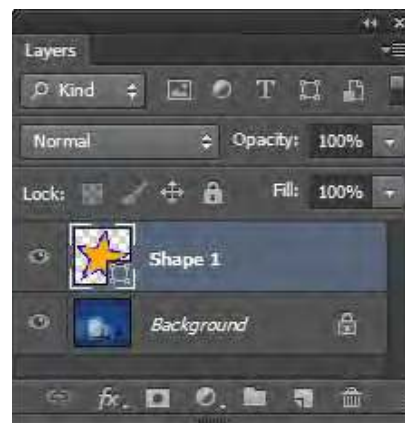
Figure 6 Shape layer in Layers panel

Adjusting a shape's path

A *path* is the edge of a vector shape. By changing the path, you change the appearance of the vector mask and thus the appearance of the shape. One way to change the shape's path is by moving one of its anchor points. *Anchor points* appear at the shape's corners.

To adjust a shape's path:

1. Click the Path Selection tool, hold down the mouse button, and select the Direct Selection tool (**Figure 7**).

2. Click the edge of the shape to select its path.

    Anchor points—small hollow squares—appear at the corners of the shape .

3. Move the pointer over an anchor point.

4. Click to select the anchor point.

    Observe that the anchor point changes from a hollow square to a solid square when you select it (**Figure 8**).

5. Drag to change the shape.

    In example (**Figure 9**), the shape of the star has been considerably altered by dragging several of the anchor points to new locations.

**Figure 7** Tools panel

Selected anchor point
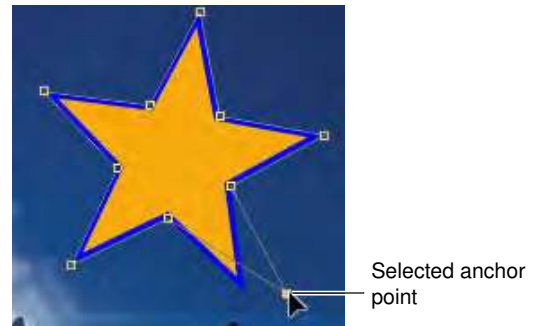
Figure 8 Moving a point with the Direct Selection tool
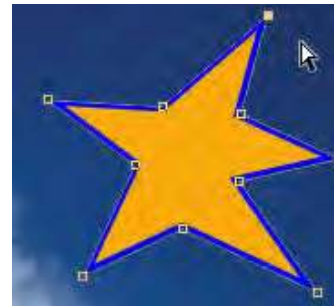
Figure 9 Result of moving several anchor points

Adding to and subtracting from shape areas

You can add to or subtract from a shape layer to show more or less of the background. You set add and subtract options in the Shape options bar by using the Path Operations menu (**Figure 10**).
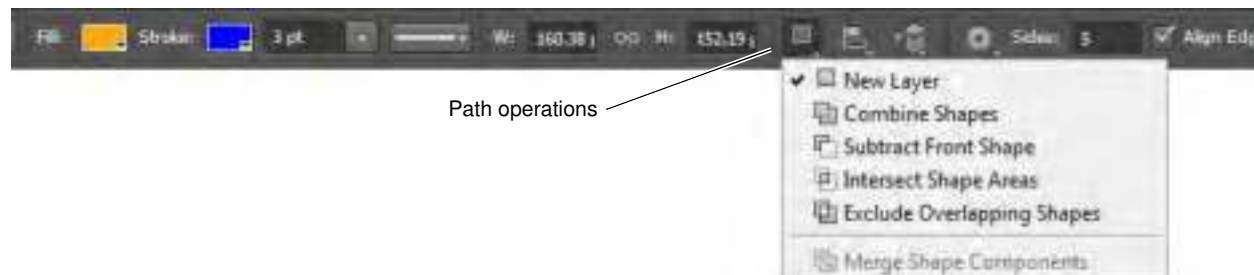
Path operations

**Figure 10** Path Operations menu in the options bar

Path options for shapes include:

- *New Layer* Create a new shape layer.

- *Combine Shapes* Add to the existing shape.

- *Subtract Front Shape* Subtract from the existing front shape. You will only observe the effect of subtracting if you draw over an existing shape.

- *Intersect Shape Areas* Show only those areas where the last two shapes drawn intersect.

- *Exclude Overlapping Shapes* Show all parts of a shape except where the last two drawn shapes intersect.

To add to a shape layer:

1. Click the shape thumbnail in the Layers panel to select the shape.

2. Select a shape tool, such as the Ellipse tool.

3. Click the Combine Shapes command from the Path Operations menu in the Shape options bar.

4. Draw a shape that adds to the image (**Figure 11**).

   Observe that the new shape appears in the shape layer (**Figure 12**).
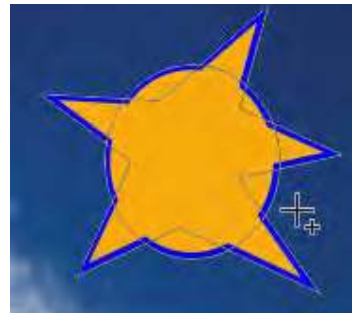
Figure 11 Adding to a shape layer
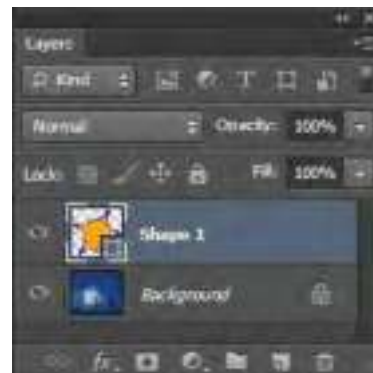
Figure 12 Layers panel

To subtract from a shape layer:

1. Click the mask thumbnail in the Layers panel to select the shape.

2. Select a shape tool, such as the Rounded Rectangle tool.

3. Click the Subtract Front Shape command from the Path Operations menu in the Shape options bar.

4. Draw a shape that overlaps the image (**Figure 13**).

5. Observe that the shape has been modified in the shape layer.
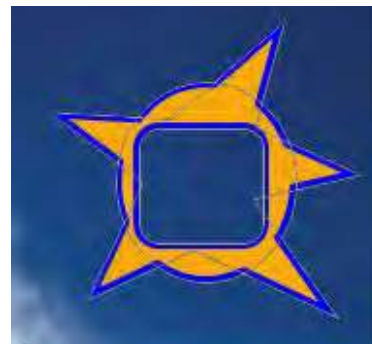
Figure 13 Subtracting from a shape layer

Controlling shape appearance with layer styles

Because shapes are on a layer, you can change their appearance by using layer styles. You can add a drop shadow to the shape, make the shape appear embossed or beveled, or more.

To modify a shape by using layer styles:

1. If it is not already visible, choose Window > Layers to open the Layers panel.

2. Double-click the shape's layer to open the Layer Style dialog box (**Figure 14**).

   A common element to add to a shape is to apply a drop shadow.

3. In the Layer Style dialog box, select the Drop Shadow option to apply a shadow. Make sure the Preview option is selected so you can observe the effects of applying the drop shadow.

4. Now, adjust the options for the shadow by clicking the phrase "Drop Shadow" itself. You can set Blend Mode, Opacity, Angle, Distance, Spread, Size, and other options for the drop shadow. Try adjusting the various options until you are happy with the effects.

5. Click OK to apply the drop shadow.

6. Apply one or more additional layer styles to the shape.

   Observe the effects that appear beneath the shape in the Layers panel (**Figure 15**).

   The example (**Figure 16**) shows the shape with an Outer Bevel and Texture style, to give the shape a slightly raised bumpy appearance, the Drop Shadow style, to make the shape appear slightly above the page, and a Pattern Overlay set to 30%.

   Note: You can apply layer styles to rasterized shapes as well. However, the advantage of creating shapes on shape layers is that you can resize them without loss of resolution.

Figure 14 Layer Style dialog box

**Figure 15** Effects applied to a shape layer

Figure 16 Bevel with Texture, Drop Shadow, and Pattern Overlay applied

How to use painting tools

Previous guides describe how to use Adobe Photoshop CS6 to modify an existing image. In this guide, you create new content by using Photoshop's painting tools.

The Brush tool and the Pencil tool work like traditional drawing tools by applying color with brush strokes.The Gradient tool, Fill command, and Paint Bucket tool apply color to large areas. Tools such as the Eraser tool, Blur tool, and Smudge tool modify the existing colors in the image. Some drawing tools provide a more natural and realistic exerience by eroding as you work. Save favorite blunted tips as presets that you can reuse over and over.

Photoshop gives you a remarkably wide set of options for brush tools that provide good starting points for creating realistic painting effects. You can select from a number of brush tips and then modify these further by using keyboard shortcuts or from within the Brush and Brush Presets panels (**Figure 1**). To see a selection of brush presets, try selecting different Brush tools from the Tools panel. Observe the changes in the Brush options and presets. You can even create your own brush settings and save these for later use.
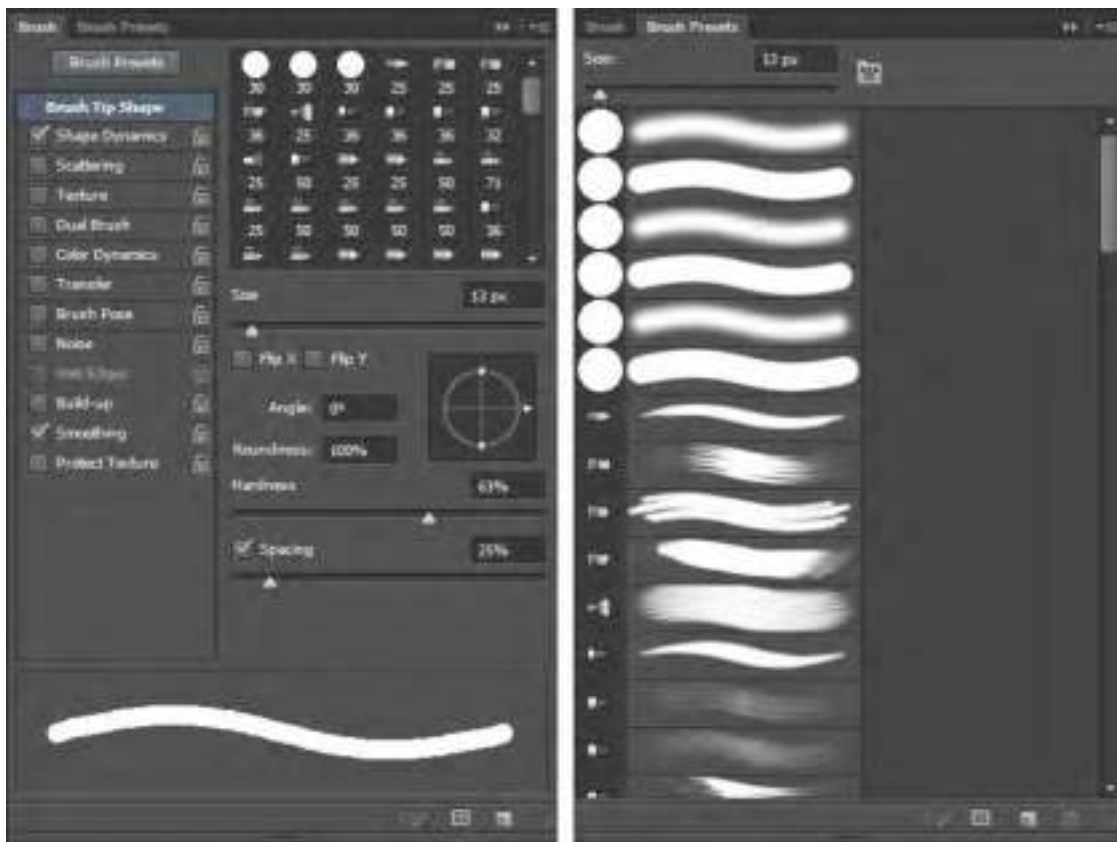
Figure 1 Brush panel and Brush Presets panel

This guide is a basic introduction to painting. After learning the basics, you should experiment with the other painting tools to find the settings that work for you.

This guide covers four tools:

- *Brush tool* Paint the current foreground color on an image and create soft strokes of color.

- *Pencil tool* Paint the current foreground color on an image and create hard-edged lines.

- *Mixer Brush tool* Simulate realistic painting techniques such as mixing colors on the canvas, combining colors on a brush, and varying paint wetness across a stroke

- *Pattern Stamp tool* Paint with the pattern selected in the Pattern picker.

Setting brush options

With each brush, you set one or more of the following options in the options bar (**Figure 2**). A *preset brush* is a saved brush tip with defined characteristics, such as size, shape, and hardness.

Tool Preset picker   Toggle Brush panel   Airbrush mode

Brush Preset picker   Mode   Opacity   Flow

Figure 2 Brush options bar

- *Tool Preset picker* Save settings for the current tool, such as Airbrush Soft Round 50% Flow. As you change settings for the Brush tools, you can save your settings for later use.

- *Brush Preset picker* Select from a series of preset brushes. There is a wide range of these preset brushes, and you can also create your own.

- *Mode* Describe how painted colors will blend with the underlying image. See the Photoshop Help topic "List of blending modes" for more detail.

- *Opacity* Set the transparency for painted lines, from 0% (invisible) to 100% (opaque). As you paint over an area, the color's transparency remains the same until you release the mouse button, no matter how many times you move the pointer over the area. When you release the mouse button and then paint over the same area, you apply additional color at the same opacity.

Brush only options

- *Flow* Set the rate at which color is applied as you paint. For example, if you set the opacity to 100% and the flow to 33%, the color moves 33% toward 100% opacity each time you move over an area.

- *Airbrush mode* Simulate painting with an airbrush. Paint builds up as you hold down the mouse button. Brush hardness, opacity, and flow options control how fast and how much paint is applied. Click the button to toggle this option on or off.

Pencil only option

- *Auto erase* Paint the background color over areas that contain the foreground color.

Mixer Brush only options

- *Current Brush Load swatch* From the pop-up panel, click Load Brush to fill the brush with the reservoir color, or Clean Brush to remove paint from the brush. To automatically perform these tasks after each stroke, click the Load or Clean buttons.

- *Preset pop-up menu* Apply popular combinations of Wet, Load, and Mix settings.

- *Wet* Control how much paint the brush picks up from the canvas. Higher settings produce longer paint streaks.

- *Load* Specify the amount of paint loaded in the reservoir. At low load rates, paint strokes dry out more quickly.

- *Mix* Control the ratio of canvas paint to reservoir paint. At 100%, all paint is picked up from the canvas; at 0%, all paint comes from the reservoir. (The Wet setting, however, continues to determine how paints mix on the canvas.)

- *Sample All Layers* Pick up canvas color from all visible layers.

Note: The options bar presents only a subset of brush options. Many other options—brush tips, settings, and more—are available through the Brushes panel. See Photoshop Help for more information on these options.

Painting with the Brush tool

Use the Brush tool to create soft strokes of color.

To paint with the Brush:

1. Open a new document in Photoshop.

2. From the painting tools, select the Brush tool (**Figure 3**).

3. Choose a color for the brush by using one of the following methods:

   • To open the Adobe Color Picker, click the Foreground Color selection box in the Tools panel. Select a color and click OK.

   • To open the heads-up-display (HUD) color picker in Windows, hold down Shift+Alt while you Right-click. Then drag to select a color hue and shade, and release (**Figure 4**).

   • To open the heads-up-display (HUD) color picker in Mac OS, hold down Control+Option+Command while you click and hold. Then drag to select a color hue and shade, and release (**Figure 4**).

4. Choose a relatively large brush, such as 50 px, from the Brush Preset picker.

   Note: You can also set the diameter and hardness manually in the Brush Preset picker. Hardness determines the softness of the line's edges.

5. In the options bar, leave Mode set to Normal.

6. Set Opacity to 100%.

7. Set Flow to 20%.

   When you set Flow to 20%, the darkness of the line moves 20% closer to full opacity each time you overlap lines.

8. Draw freehand by dragging in the image. Without lifting the pointer, drag back over the line you just painted (**Figure 5**).
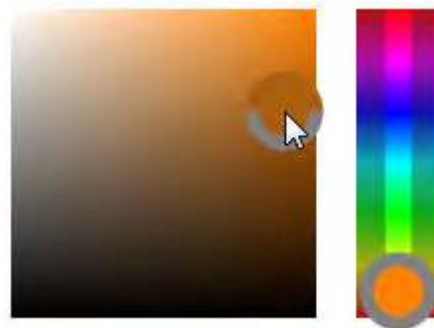
   Where the lines overlap, the paint becomes darker because you set Flow to 20%. In that area, the traced-over line has an opacity of 40%

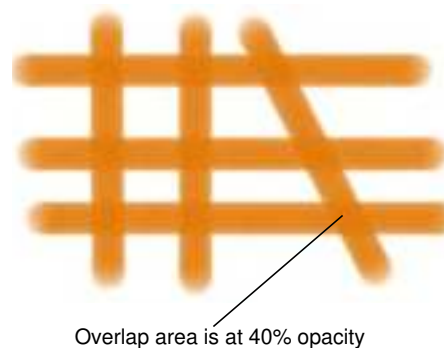   **Note:** To draw a straight line, click a starting point in the image. Shift-click an ending point for the line.

9. To draw a new line, release the mouse button and click on the image again.

Figure 3 Painting tools

Figure 4 HUD color picker

Overlap area is at 40% opacity

Figure 5 Drawing with Brush, Opacity 100%, Flow 20%

Painting with the Pencil tool

Use the Pencil Tool to create hard-edged lines.

To paint with the Pencil:

1. Create a new Photoshop document.

2. From the painting tools, select the Pencil tool (**Figure 3**).

3. Choose a color for the Pencil tool by using one of the following methods:

   • To open the Adobe Color Picker, click the Foreground Color selection box in the Tools panel. Select a color and click OK.

   • To open the heads-up-display (HUD) color picker in Windows, hold down Shift+Alt while you Right-click. Then drag to select a color hue and shade, and release (**Figure 4**).

   • To open the heads-up-display (HUD) color picker in Mac OS, hold down Control+Option+Command while you click and hold. Then drag to select a color hue and shade, and release (**Figure 4**).

4. From the Brush Preset picker, manually adjust the Diameter (brush size) to create a small-sized brush, perhaps 20 px (**Figure 6**).

   Note: You can also select a preset size and shape in the Brush Preset picker. Hardness determines the softness of the line's edges.

5. In the options bar, leave Mode set to Normal.

6. Make sure Opacity is set to 100%.

7. Draw by using one of the following methods:

   • To draw a straight line, click a starting point in the image. Shift-click an ending point for the line.

   • To draw freehand, drag in the image.

8. Change Opacity to 50% in the options bar and draw another line that overlaps the first line (**Figure 7**).

   Observe that the line is half as dark as the first line and that the first line shows through wherever you overlapped it.

Figure 6 Brush options in the Brush Preset picker

Figure 7 Overlap lines with opacity set to 50%

Painting with the Mixer Brush tool

Use the Mixer Brush to create realistic painting techniques such as mixing colors on the canvas, combining colors on a brush, and varying paint wetness across a stroke.

The Mixer Brush has two paint wells, a reservoir and a pickup. The *reservoir* stores the final color deposited onto the canvas and has more paint capacity. The *pickup* well receives paint only from the canvas; its contents are continuously mixed with canvas colors.
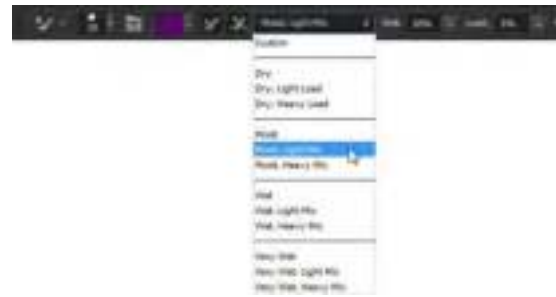
To paint with the Mixer Brush:

1. Open Photoshop and create a new document.

2. From the painting tools, select the Mixer Brush tool
   (**Figure 3**).

3. To load paint into the reservoir, Alt-click (Windows) or
   Option-click (Mac OS) the canvas. Or, choose a
   foreground color.

   Note: When you load paint from the canvas, the brush tip
   reflects any color variation in the sampled area. If you
   prefer brush tips of uniform color, select Load Solid
   Colors Only from the Brush Load menu in the options
   bar.

4. From the Brush Preset picker, manually adjust the
   Diameter to create a medium-sized brush, perhaps 25 px.

   Note: You can also select a preset size and shape in the
   Brush Preset picker.

5. In the options bar, set Mixer Brush Combinations options
   using the preset pop-up menu to apply popular
   combinations of Wet, Load, and Mix settings (**Figure 8**).

6. Do one or more of the following:

   • To draw a straight line, click a starting point in the
     image, and then Shift-click an ending point
     (**Figure 9**).

   • When using the Brush tool as an airbrush, hold down
     the mouse button without dragging to build up color
     (**Figure 10**).

   • Drag in the image to paint. Notice how the paint
     dries out towards the end of the stroke. Select
     another foreground color from the toolbox and drag
     over the painted area. Observe how the paint blends
     canvas colors and varies paint wetness (**Figure 11**).

Figure 8 Mixer Brush Combinations menu in the
options bar

**Figure 9** Shift-click to paint a straight line

Figure 10 Using the Mixer Brush as an airbrush

Figure 11 Dragging the Mixer Brush tool with
multiple colors

Using specialty brush tips

A large number of brush tips are included with Photoshop and are available across all of the painting tools. These range from artistic brushes—wet or calligraphic brushes—to specialty brushes such as starbursts or snowflakes. In the Brush panel, you can select preset brushes from the Brush Presets panel, but you can also modify existing brushes and design new custom brushes. The Brush panel contains the brush tip options that determine how paint is applied to an image. For example, advanced options include Brush Pose which allow you to change the Tilt, Rotation, and Pressure of your paint brush for a broader range of realistic painting effects (**Figure 12**).
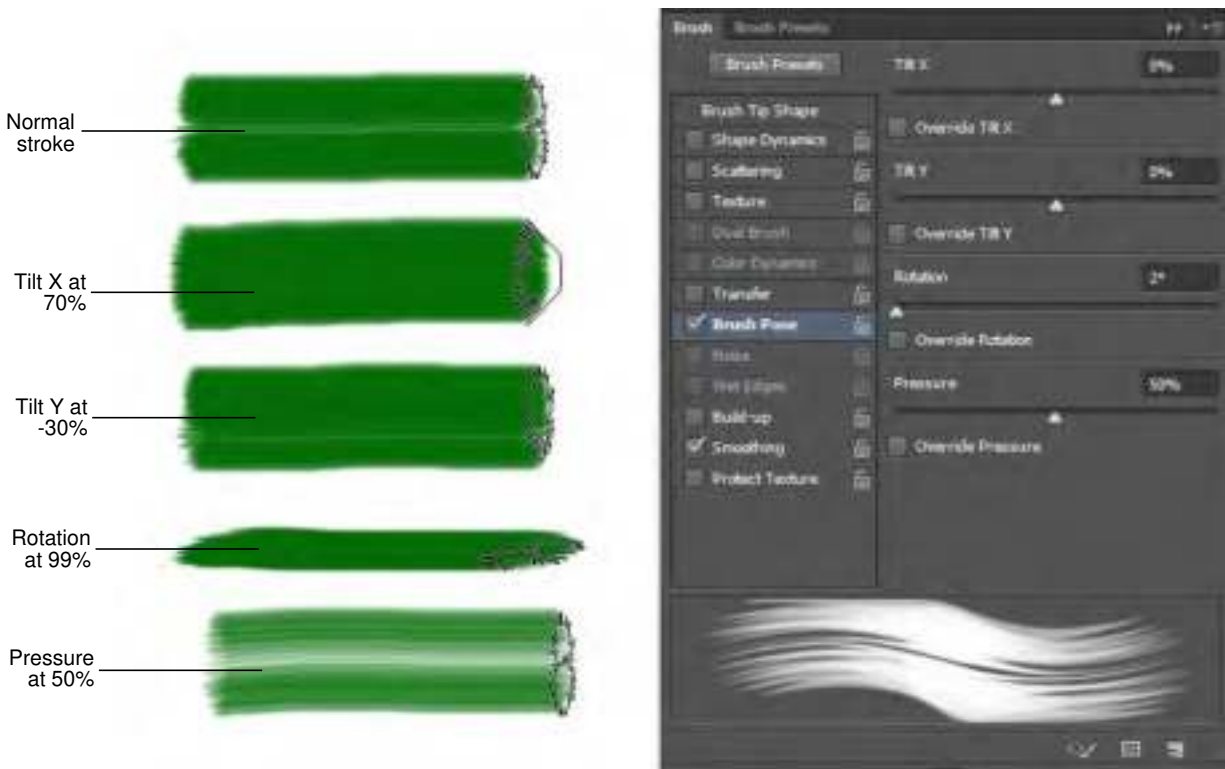
Figure 12 25px, Flat Fan Bristle strokes and Brush Pose settings

The brush stroke preview at the bottom of the panel shows how paint strokes look with the current brush options.

You can choose from two types of brush shape options from the Brush panel: Standard tip and bristle tip.

Standard brush tip options

For standard brush tips, you can set the following options in the Brush panel:

- *Diameter (Size)* Control the size of the brush. Enter a value in pixels or drag the slider.

- *Use Sample Size* Reset the brush to its original diameter. This option is available only if the brush tip shape was created by sampling pixels in an image.

- *Flip X* Change the direction of a brush tip on its x axis.

- *Flip Y* Change the direction of a brush tip on its y axis.

- *Angle* Specify the angle by which an elliptical or sampled brush's long axis is rotated from horizontal. Type a value in degrees, or drag the horizontal axis in the preview box.

- *Roundness* Specify the ratio between the brush's short and long axes. Enter a percentage value, or drag the points in the preview box. A value of 100% indicates a circular brush, a value of 0% indicates a linear brush, and intermediate values indicate elliptical brushes.

- *Hardness* Control the size of the brush's hard center. Type a number, or use the slider to enter a value that is a percentage of the brush diameter. You can't change the hardness of sampled brushes.

- *Spacing* Control the distance between the brush marks in a stroke. To change the spacing, type a number, or use the slider to enter a value that is a percentage of the brush diameter. When this option is deselected, the speed of the cursor determines the spacing

Bristle tip options

Bristle tips let you specify precise bristle characteristics, creating highly realistic, natural-looking strokes. Set the following bristle tip shape options in the Brush panel:

- *Shape* Determine the overall arrangement of bristles.

- *Bristles* Control overall bristle density.

- *Length* Higher settings simulate the extended, trailing strokes of long bristles; lower settings produce more abrupt strokes.

- *Thickness* Control the width of individual bristles.

- *Stiffness* Higher settings provide more precise control; lower settings produce more fluid strokes.

- *Angle* Determine the brush angle with painting with a mouse.

- *Spacing* Control the distance between the brush marks in a stroke. To change the spacing, type a number, or use the slider to enter a value that is a percentage of the brush diameter. When this option is deselected, the speed of the cursor determines the spacing.
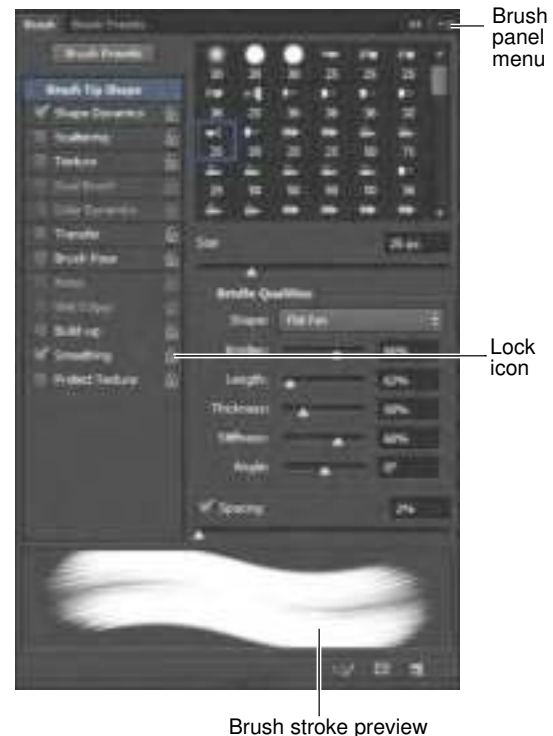
To use brush tips:

1. Choose Window > Brush.

   The Brush panel opens (**Figure 13**).

2. In the Brush panel, select a brush tip shape.

3. Select Brush Tip Shape on the left side of the Brush panel, and set options.

   In the example (**Figure 13**), the #25 Flat Fan bristle brush is used.

   Note: Some brushes present a thumbnail profile of the brush tip shape in the document window to help you select the appropriate brush (**Figure 14**).

Brush panel menu

Lock icon

Brush stroke preview

Figure 13 Brush panel

4. Drag in the image to paint with the specialty brush (**Figure 15**).

5. To lock brush tip shape attributes (retaining them if you select another brush preset), click the unlock icon . To unlock the tip, click the lock icon .

6. To save the brush for use later, choose New Brush Preset from the Brush panel menu.

Note: To save your new brush permanently or distribute it to other users, you must save the brush as part of a set of brushes. Choose Save Brushes from the Brush Presets panel menu, and then save to a new set or overwrite an existing set. If you reset or replace the brushes in the Brush Presets panel without saving it in a set, you could lose your new brush.

Figure 14 Thumbnail profile of a bristle brush tip

Figure 15 Painting with a specialty brush tip

Using the Pattern Stamp tool

A *pattern* is an image that is repeated, or tiled, when you use it to fill a layer or selection. You can select a pattern from the pattern libraries or create your own patterns.

To use the Pattern Stamp tool:

1. Click the Clone Stamp tool, and hold down the mouse button, and select the Pattern Stamp tool (**Figure 16**).

Observe that the options bar is slightly different than it is for the Brush tool.

2. In the options bar, open the Pattern picker (**Figure 17**).

Initially, the selection of patterns in the Pattern picker may be limited. You can choose to load additional patterns or to replace the current patterns.


Figure 16 Tools panel
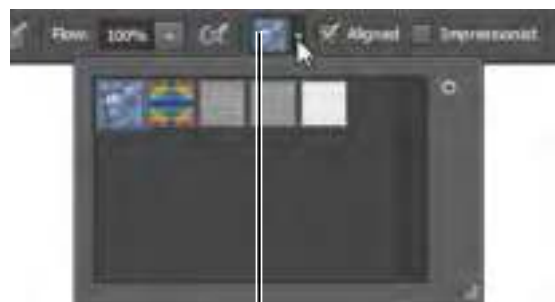
Selected pattern

Figure 17 Pattern picker

3. Open the panel menu to see the available pattern libraries (**Figure 18**).

4. Select the library file you want to use.

5. Click OK to replace the current list, or click Append to add the library to the current list.

6. Select a pattern from the Pattern picker.

7. Select the Aligned option in the options bar to keep the pattern aligned with your original starting point.

    Otherwise, the pattern starts anew each time you release the mouse button.

8. Leave the Impressionist option deselected.

    With this option on, the pattern appears in blocks of color.

9. Drag on the image to draw with the Pattern Stamp tool (**Figure 19**).
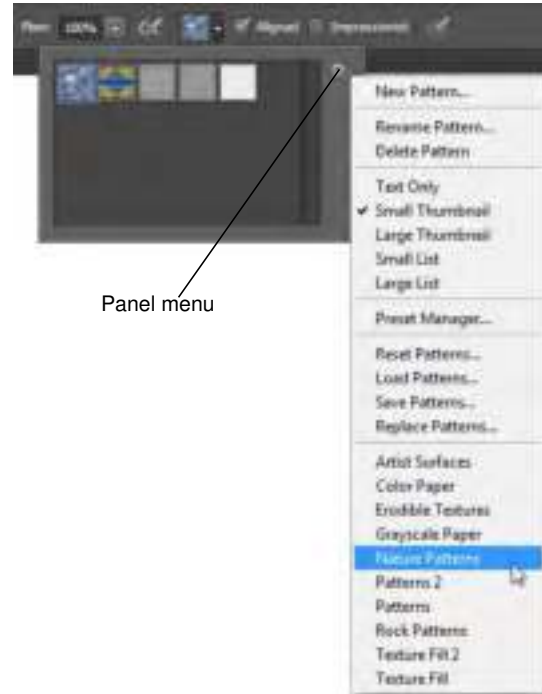
Figure 18 Panel menu in the Pattern picker

Figure 19 Painting with the Pattern Stamp tool

Using erodible brush tips

Soft drawing tools such as charcoal, pastel, or Conté are often used in art for expressive drawings and making rough sketches. As these drawing tools are used, the tips wear down and can be sharpened to create different drawing effects. Photoshop makes the experience of true-to-life, erodible drawing tools available with certain brush tips (**Figure 20**). You can draw with an erodible brush tip, sharpen it, and save your favorite blunted tips as presets.
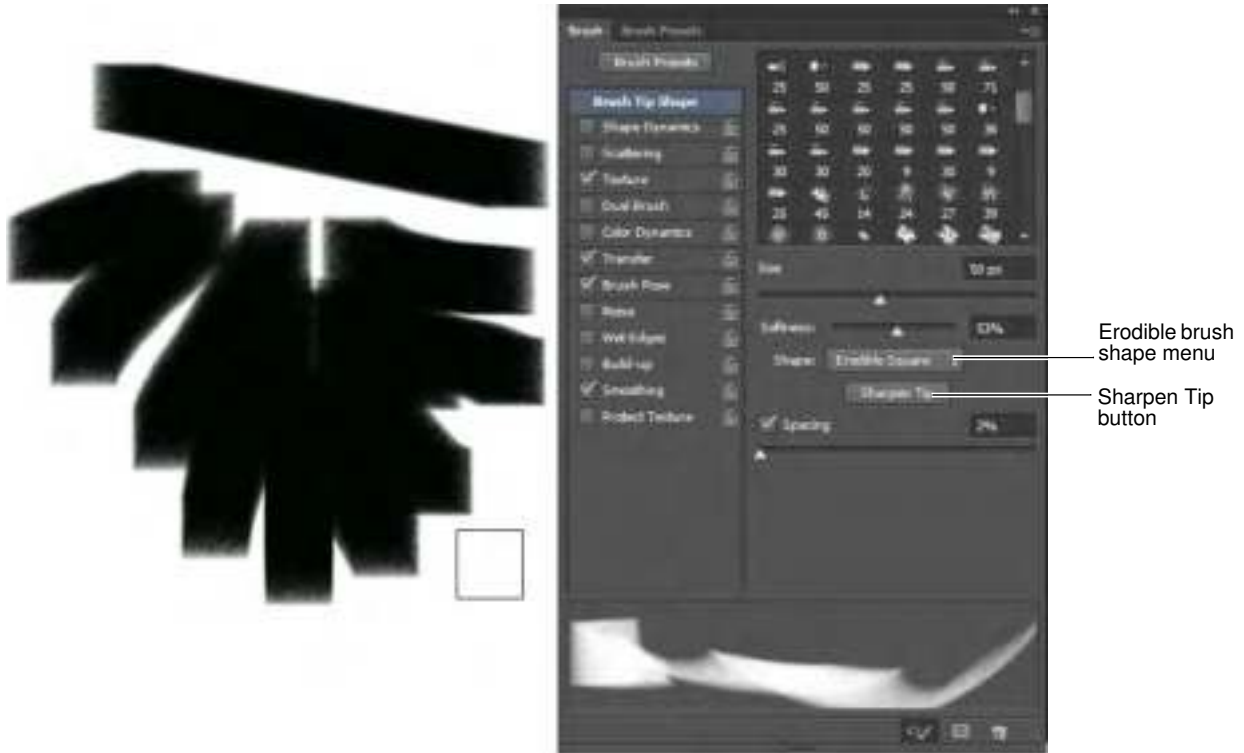

Erodible brush shape menu

Sharpen Tip button

Figure 20 50px, Square Charcoal brush tip, and Brush panel with Erodible Shape menu

To use erodible brush tips:

1. From the painting tools, select the Brush tool (**Figure 21**).

2. Choose Window > Brush.

   The Brush panel opens.

3. In the Brush panel, select the Brush Presets tab.

4. Scroll down to locate one of the erodible drawing brush tips such as the Square Charcoal, Rounded Watercolor, Crayon, Pastel, or Pencil brush presets.

   In the example (**Figure 20**), the Square Charcoal brush is used, with the size set to 50 pixels.

5. In the Brush panel, select the Brush tab.

   Confirm that the selected brush preset includes the erodible Shape menu options (**Figure 20**).

Figure 21 Painting tools

6. Select the Brush Pose option in the Brush panel and adjust the tilt, rotation or pressure of the brush tip. Experiment with the default settings for Tilt X, Tilt Y, Rotation, and Pressure.

Observe the change in the brush profile thumbnail as you make your adjusments (**Figure 22**).

7. Drag in the image to draw with the erodible brush tip.

Observe the changes in the stroke thickness and how the brush profile thumbnail changes as the tip wears down (**Figure 23**).

8. (Optional) To restore the brush tip to its original state, click Brush Tip Shape on the left side of the Brush panel, and then click the Sharpen Tip button on the right side of the panel.

Note: To save your new brush permanently, you must save the brush as part of a set of brushes. Choose Save Brushes from the Brush Presets panel menu, and then save to a new set or overwrite an existing set. If you reset or replace the brushes in the Brush Presets panel without saving it in a set, you could lose your new brush.

Figure 22 Thumbnail profile of a square charcoal brush tip

Figure 23 Drawing with the square charcoal erodible brush tip

How to use filters

Adobe Photoshop CS6 filters provide a range of options for changing your image's appearance. You can use filters to clean up or retouch your images, apply special art effects that give your image the appearance of a sketch or pastel painting, and apply distortions and lighting effects. These filters can create added interest or help you achieve design goals. As with many Photoshop features, though, you should take care not to overuse filters, as too many filters can make an image overly manipulated or unprofessional.

Each filter has a range of settings. The Filter Gallery provides a preview of many of the special effects filters (**Figure 1**). You can apply multiple filters, turn on the effect of a filter or turn it off, reset options for a filter, and change the order in which filters are applied. When you are satisfied with the preview, you can then apply it to your image.

Figure 1 Image in Filter Gallery with Grain and Diffuse Glow filters preview

Filters are applied to the active, visible layer or a selection. Not all filters in the Filter menu are available in the Filter Gallery. Experiment with different settings to achieve your design goals.

Filters have the following limitations:

- Some filters work only on RGB images.

- All filters work with 8-bit images. If you are using 16-bit or 32-bit images, please see Photoshop Help for information on which filters work with each.

- When applying filters to shape layers, Photoshop first rasterizes the shape. *Rasterizing* means converting the shape from vector to bitmap format.

Creating a custom shape

In the following steps, you create a shape and then apply filters to it to give it an artistic appearance.

To create a custom shape:

1. Start Photoshop and create a new document.

2. Click and hold the Rectangle tool in the Tools panel, and then select the Custom Shape tool (**Figure 2**).

3. In the options bar, make sure Shape is selected as the tool mode (**Figure 3**).

4. Select a shape from the Custom Shape picker in the options bar, such as Blob 1 (**Figure 4**).

5. Drag the pointer across the image to draw the custom shape, just as you would if you were drawing a rectangle.

   To make the shape uniform in size, hold down the Shift key while dragging.
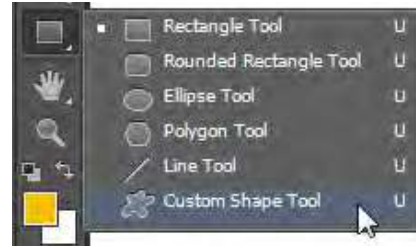
Figure 2 Custom Shape tool

**Figure 3** Custom Shape tool mode in the options bar

Figure 4 Custom Shape picker in the options bar

Applying a filter

You can apply a filter to the active layer.

To apply a filter:

1. Select the layer that contains the custom shape (**Figure 5**).

   By default, it will be labeled "Shape 1."

2. Choose Filter > Filter Gallery.

   Photoshop warns you it needs to rasterize the image before proceeding. This means the image will no longer be a vector mask.
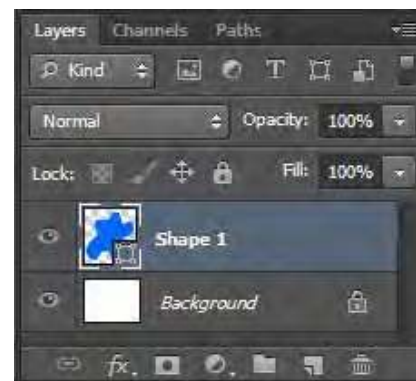
Figure 5 Layers panel

3. Click OK.

   The Filter Gallery appears (**Figure 6**).

4. Click the Sketch filter in the center column to display
   thumbnails of available filter effects.

5. Click the Halftone Pattern thumbnail.

   Halftone Pattern is just one of many filters with which
   you can achieve an artistic effect. The effect of the
   Halftone Pattern is similar to that of certain Pop Art
   techniques.

   Settings for the selected pattern appear in the right
   column.

6. Set Size to 10, Contrast to 35, and Pattern Type to Dot.

7. Click OK.

   The filter is applied to the custom shape (**Figure 7**).
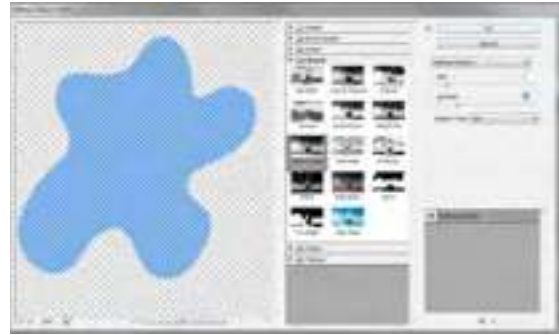
Figure 6 Filter Gallery

Figure 7 Halftone Pattern filter applied

Applying another filter

You can apply multiple filters to one image.

In these steps, you're applying filters to a custom shape. You can apply filters to almost any image, such as
photographs or other artwork.

To apply another filter:

1. Click the layer with the custom shape.

2. Choose Filter > Pixelate > Crystalize.

   As with the Halftone Pattern filter, a dialog box lets you
   preview and change settings for the Crystalize filter
   (**Figure 8**).
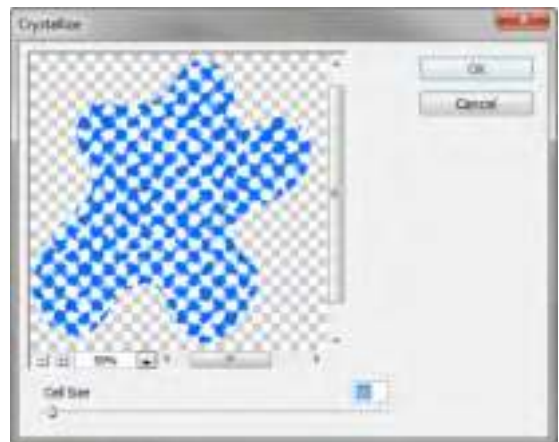
Figure 8 The Crystalize dialog box

3. Set Cell Size slider to 50.

4. Click OK.

The Crystalize filter is applied to the shape (**Figure 9**).

Observe how the Crystalize filter modifies the effects of the Halftone Pattern filter. You can create a wide range of effects by combining filters.

Figure 9 Crystalize filter applied

Using the Liquify filter

The Liquify filter is another interesting filter you can apply to images. It causes the image to appear melted, along the lines of a Salvador Dali painting.

Using the Liquify filter, you can push, pull, rotate, reflect, pucker, or bloat any area of an image.

To apply the Liquify filter:

1. Open an image in Photoshop.

2. Select the layer to which you wish to apply the Liquify filter.

3. Choose Filter > Liquify.

The Liquify dialog box appears (**Figure 10**).

4. In the right column, set a brush size to use.

The brush size needs to be big enough to modify your image.

5. On the left, choose the Forward Warp tool.

Forward warp tool   Set brush size
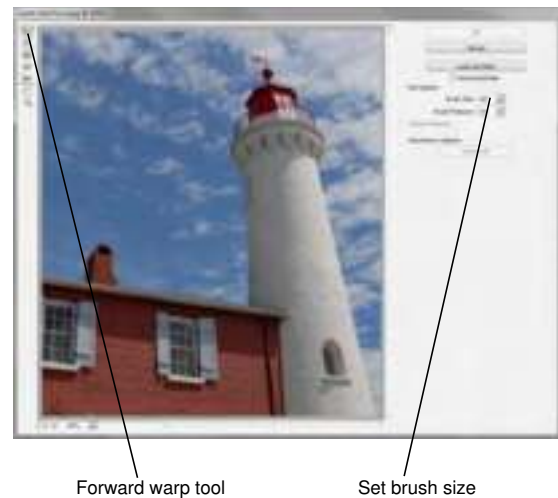
Figure 10 Liquify dialog box

6. Drag the pointer through a part of the image (**Figure 11**).

Note: The Reconstruct tool, positioned beneath the Forward Warp tool, will undo the effects of a liquify tool. To revert, choose the Reconstruct tool and then drag through the image.

Experiment with other liquify tools, such as the Pucker and Bloat tools.

7. When you are satisfied, click OK to apply your changes to the image.
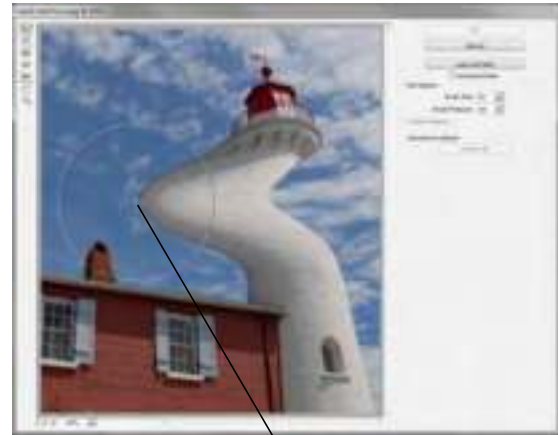
Brush pointer

Figure 11 Forward warp tool applied

Using the Blur Gallery

The Blur filters soften a selection or an entire image, and are useful for retouching. They smooth transitions by averaging the pixels next to the hard edges of defined lines and shaded areas in an image.

Advanced blur effects can be accomplished by using the Blur Gallery. Three blur effects make up the Blur Gallery:

- *Field Blur* Click to place one or more focal point pins, and apply uniform or graduated blur between the points. Use this filter on images for maximum customization for focal points settings and blur levels.

- *Iris Blur* Applies blur to create an elliptical region of focus based on your settings. The Iris Blur filter works best in images with a central element around which to focus attention.

- *Tilt-Shift Blur* Soften select areas with this filter which lets you create a band of focus with a shallow depth of field to simulate a minature scene. The Tilt-Shift Blur filter works best in images with elevated viewpoint, and well-defined foreground, midground, and background focal planes (**Figure 12**).

Figure 12 Image with Tilt-Shift Blur preview

To use the Blur Gallery:

1. Open an image in Photoshop.

2. Select the layer to which you wish to apply a Blur Gallery filter.

3. Choose Filter > Blur > Tilt-Shift.

   The Blur Tools and Blur Effects panels open with the Tilt-Shift options available (**Figure 13**). The Blur Gallery options bar and on-image controls and are also available.

4. Use the on-image tools to customize the Tilt-Shift Blur filter settings:

   • Click to add a focal point pin.

   • Click-drag between the solid lines to reposition the focal plane.

   • Click-drag a solid or dashed line to to change the percieved focal plane tilt and graduated blur areas.

   • Click-drag a handle on the solid line, or between the solid and the dashed lines to rotate the focal plane.

   • Click-rotate a dial that is around the focal pin to set blur level (**Figure 14**).

5. Compare the original image with the blur filter image by selecting and deselecting the Preview option in the Blur Gallery options bar. You can also clear focus points by clicking the Remove All Pins button.

6. You can preview other filters by clicking on the names in the Blur Tools panel. Experiment with the Field Blur and Iris Blur options and on-image controls to understand how they function.

   Note: More than one Blur Gallery filter can be applied at one time. Click the check box beside the Blur Tool filter name to turn a filter on or off.

   You can also experiment with the settings in the Blur Effects panel. *Bokeh* refers to the aethetic quality of a blur, or more specifically, how out-of-focus points of light are rendered.

7. When you are satisfied with the image, click OK to apply the Blue Gallery settings.

Turn filter on or off
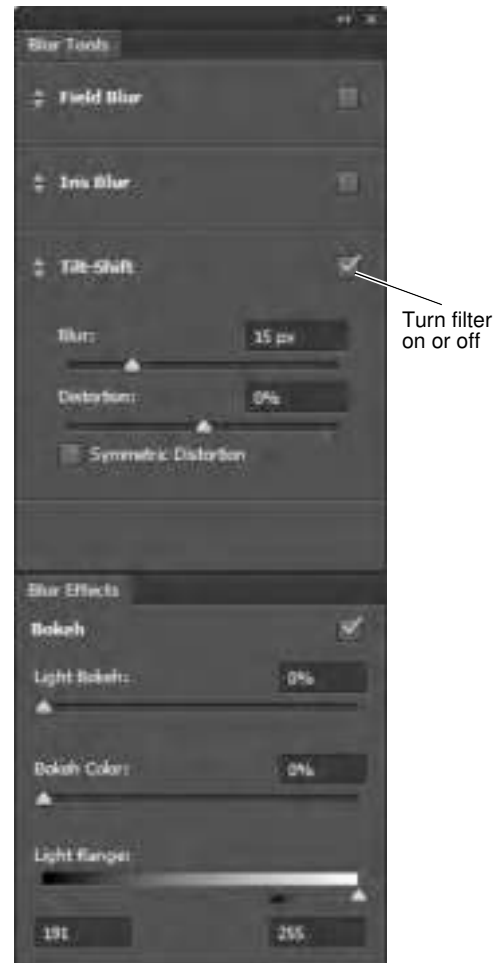
Figure 13 Blur Tools and Blur Effects panels

Figure 14 Setting the blur level

How to add a watermark to images

When showing others your work, it's a good idea to apply a watermark to your images so your intellectual property (the image you worked hard to create) is protected. A *watermark* is a partly visible message that marks the image as belonging to you.

You can apply a watermark in several ways. Most of these involve placing the watermark in a layer above the image itself and then formatting the watermark's layer so the image is visible through the watermark. One way to format the layer is by reducing its opacity. *Opacity* refers to a layer's degree of transparency. You set layer opacity through the Layer Style dialog box.

Adding a watermark to an image

1. Start Photoshop and open an image.

2. Select the Type tool from the Tools panel (**Figure 1**).

   When you select the Type tool, the Options bar changes to the Type options bar. The Type options bar should appear at the top of the workspace (**Figure 2**). If you do not see the Type options bar, choose Window > Options.

3. In the Type options bar, set a font family, font style, size, alignment, and color for the text. Make the font size relatively big and the font color elatively contrasting (dark on a light background, or light on a dark background), so readers will be able to see the text over the image.

4. Drag on the image to draw a text box.

5. Click in the text box you've created and type a copyright message, such as "Copyright 2012 Stubbs Island Whale Watching" and adjust the fonts as needed.

   Next, you're going to make the message translucent so viewers can still see the image. You'll do so by changing the style of the type layer.

6. Choose Layer > Layer Style > Blending Options.

   The Layer Style dialog box opens (**Figure 3**).

   Note: You can also double-click on the layer in the Layers panel to open the Layer Style dialog box.

7. Select the Preview option.

   This option lets you view the effects of your changes as you make them.

8. Drag the Opacity slider to the left until you are satisfied with the visibility of the copyright message.
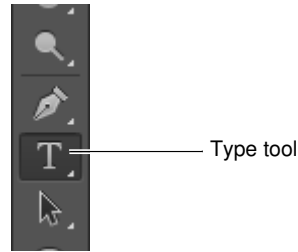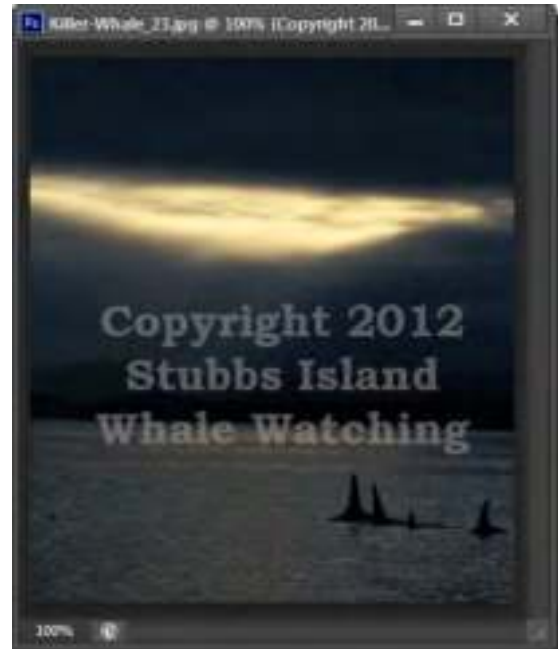

Figure 1 Type tool in the Tools panel

Figure 2 Type options bar

Figure 3 Layer Style dialog box

9. Select OK to close the Layer Style dialog box.

The watermark appears over the image (**Figure 4**). Observe that the image is still partly visible through the text. This is because you reduced the text's opacity.

Figure 4 Watermark added to image

How to create layer comps

Designers often create multiple compositions or "comps" of a design layout to show clients. You can create comps out of your image's layers by using the Layer Comps panel. Using this panel, you can create, manage, and view multiple versions of a layout in a single Adobe Photoshop CS6 file.

A *layer comp* is a snapshot of current layer visibility, position, and appearance. Layer comps capture the document as it currently appears.

- Layer *visibility* refers to whether a layer is showing or hidden.

- Layer *position* refers to the layer's position in the Layer panel, above or below other layers. In your documents, content in upper layers appears over content in lower layers.

- Layer *appearance* refers to whether a layer style is applied to the layer. It also refers to the layer's blending mode. For more information on layer styles and blending modes, see Photoshop Help.

When you create a layer comp, you can choose to capture one, two, or all three of these attributes.

Layer comps are best employed with images that have many layers. You will find it much easier to create layer comps if you are in the habit of giving layers meaningful names, such as "image_main" or "border" or "blue background." When you give layers names, you can more easily identify them later.

To create a layer comp:

1. Open a file with multiple layers in Photoshop.

2. Choose Window > Layer Comps to display the Layer Comps panel (**Figure 1**).

3. Click the Create New Layer Comp button at the bottom of the Layer Comps panel.

   This creates a new comp that shows layers as they currently appear.

   The New Layer Comp dialog box appears (**Figure 2**).
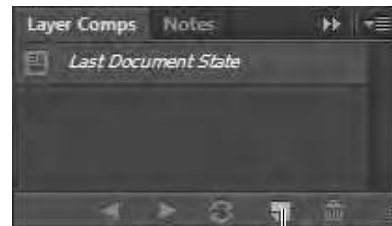
Create New Layer Comp

Figure 1 Layer Comps panel

Figure 2 New Layer Comp dialog box

4. Type a name for the comp and add descriptive comments.

5. Select Visibility, Position, and Appearance (Layer Style).

   Selecting all three options ensures that the layer comp will appear exactly as you want it to appear.

6. Click OK.

   The current state of the layers has been saved as a layer comp. This means that the image's current appearance has been saved as a layer comp (**Figure 3**).

7. Using the Layers panel, make changes to the image: hide some layers, show others, or add more images. Your goal is to make the image appear significantly different than it appears now so you can save a different layer comp (**Figure 4**).

   Note: To show or hide a layer, click the Eye icon to the left of it.

   Next you're going to create a new layer comp by saving the changes you just made in the Layers panel.

Figure 3 Original layout layer comp

Eye icon

Figure 4 Layers panel with layers selected for purple background highlighted

8. Repeat steps 3–6 to save your changes as another layer comp. In **Figure 5**, the new layer comp is called "Purple background version."

9. In the Layer Comps panel, click the left column next to the layer comp you first created (**Figure 6**).

   When you do so, the Apply Layer Comp icon appears next to the layer comp, indicating it is selected.

   The image changes to the first layer comp (**Figure 6**). You can now easily toggle between Layer Comps to compare changes.

   Observe that layer visibility has now changed in the Layers panel.

Figure 5 Purple background version layer comp

Apply Layer Comp icon

**Figure 6** Selecting a layer comp

Updating layer comps

After you've created them, you can also update layer comps.

To update a layer comp:

1. Select a layer comp in the Layer Comps panel.

2. Open the Layers panel and make changes to layer visibility or position.

   Once you make changes to the Layers panel, the Apply Layer Comp icon disappears from the selected layer (**Figure 7**). The layer comp has not yet been updated, and the document's current layer visibility is different from that saved in the layer comp.

3. Click the Update Layer Comp button to save your changes.
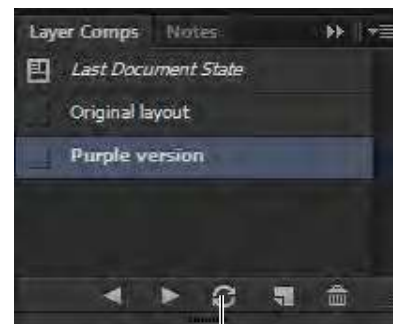
Update Layer Comp button

Figure 7 Layer Comps panel

                                                               How to create layer comps   **3**

Exporting layer comps

You need to export your layer comps in a form your clients can view. Photoshop generates a different PDF document for each layer comp.

To export multiple layer comps as PDF documents:

1. Choose File > Scripts > Layer Comps To Files.

   The Layer Comps To Files dialog box appears (**Figure 8**).

2. Click Browse to set a location on your system for the output file.

   The Choose Folder (Windows) or Choose A Folder (Mac OS) dialog box appears.

3. Click OK (Windows) or Open (Mac OS) to set the destination.

4. In the Layer Comps To Files dialog box, enter a name for File Name Prefix.

5. Deselect Selected Layer Comps Only.

   This ensures that all of the layer comps in the Layer Comps panel will be included in the PDF.
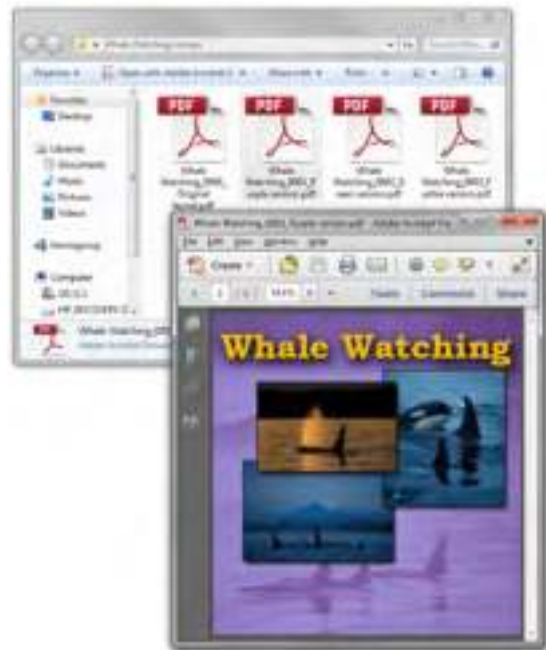
6. From the File Type drop down menu, select PDF.

7. Click Run.

   Photoshop creates individual PDF files according to your specifications in the location you indicated. A success message appears when the file creation is complete.

8. In your system, open the folder containing the PDFs.

9. Double-click a PDF file to open it (**Figure 9**).

Figure 8 Layer Comps To Files dialog box

Figure 9 PDFs output to selected folder

How to blend, feather, and smooth

Quite often, you need to select part of an image to modify it. When you select uniform geometric areas—squares, circles, ovals, rectangles—you don't need to worry too much about getting the selection exactly right. Unfortunately, most of the selections you'll make in Adobe Photoshop CS6 are likely to be irregular shapes, such as people, trees, or flags. In the example (**Figure 1**), the selection of the ship has plenty of irregular edges, most notably in the sails.

Figure 1 Irregular selection

Photoshop's smoothing, feathering, and blending features help you manage such irregular selections.

• *Smoothing:* Reduce the jagged edges that often result from making selections with one of the lasso tools.

• *Feathering:* Soften a selection's edges by making a boundary area between the selection and the pixels behind it. Feathering is especially useful when you copy a selection to a new background. A selection's jaggedness may be emphasized because of contrast between the selection and its new background. Feathering helps reduce this jaggedness.

• *Blending:* The way colors appear when overlaid—when one layer overlays another, for example. You can fine-tune the way a selection appears by adjusting how the selection blends with its background. Photoshop provides a wide range of blending options.

Smoothing and feathering with the Refine Edge command

You can use the Refine Edge command to change your selection and preview these changes over a dark or light background. This makes it easier to edit your selection before you copy and paste it elsewhere.

To smooth and feather an image:

1. Start Photoshop CS6 and open an image.

2. Double-click the Background layer.

   The New Layer dialog box opens (**Figure 2**).

3. Rename the layer or accept the default name, Layer 0.

4. Click OK to close the New Layer dialog box.

5. Select the Lasso tool in the Tools panel (**Figure 3**).

   Note: Some users find the Polygonal Lasso tool easer to use because you can make a series of short segments instead of one continuous line. To access the Polygonal Lasso tool, click the Lasso tool and hold down the mouse button.

6. Using the Lasso tool, select part of the image.

   Preferably, select some irregular shapes like the sails in the example (**Figure 1**).

7. Complete the selection by closing the selection loop, and release the mouse.

   For more information on making selections, see Photoshop Help.

8. Choose Select > Refine Edge.

   The Refine Edge dialog box appears (**Figure 4**).

   The selection appears on a white background by default. You can choose a different background option in the View Mode area. White or black will be most useful in adjusting smoothing and feathering.

9. Under Smooth, drag the slider to the right.

   Any jagged edges become smoother.

10. When you are satisfied with the selection's appearance, release the mouse button.

11. Under Feather, drag the slider to the right.

    The outline of the selection becomes blurred. This is the effect of the feathering.

    It is best to limit feathering to 3–5 pixels. Increasing the feathering beyond 5 pixels can produce interesting effects, but unless these effects are part of your design goals, you will not want to apply them.
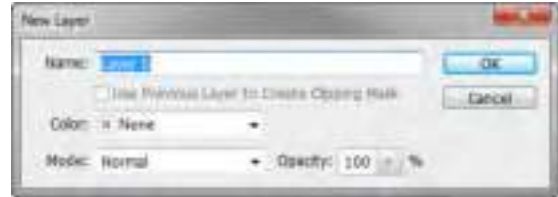
Figure 2 New Layer dialog box
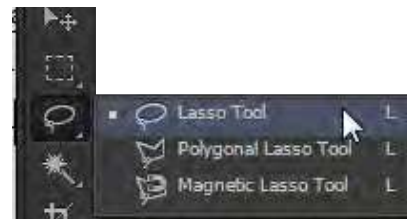
Figure 3 Lasso tool

Figure 4 Refine Edge dialog box

12. Click the Decontaminate Colors option.

Decontaminate Colors replaces color fringes with the color of the subject. Because this option changes pixel color, it requires output to a new layer or document, preventing unexpected changes to the current layer. You can accept the default Output To: New Layer With Layer Mask option.

13. When you are satisfied with the selection's appearance (**Figure 5**), click OK to close the Refine Edge dialog box.

14. Open the Layers panel.

Notice that now the selection is on a new layer with layer mask

15. Click the Create A New Layer button to add a new layer (**Figure 6**).

16. In the Layers panel, drag the new layer below the layer mask.

17. Select the Paint Bucket tool in the Tools panel (**Figure 7**).

18. Click The Set Foreground Color selection box in the Tools panel.

The Color Picker opens (**Figure 8**).

19. Select a color for the background layer behind the layer mask.

20. Click OK.
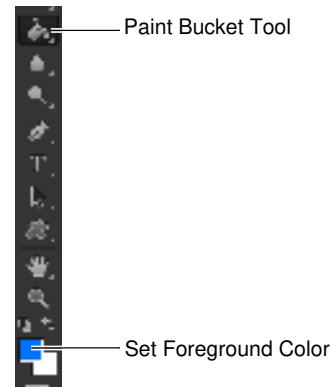
Make sure the Paint Bucket tool is still selected.

Figure 5 Smoothing and feathering applied

Turn visibility on   Create A New Layer button

Figure 6 Layers panel

Paint Bucket Tool

Set Foreground Color

Figure 7 Tools panel

Figure 8 Color Picker

21. Click in the new layer to add a new background color.

Observe that the background layer now displays a thumbnail of a solid color (**Figure 9**).

22. (Optional) To change the opacity of the solid color layer, enter a value between 0% and 100% in the Set Opacity text area (**Figure 9**). For example, **Figure 10** has the opacity set to 70% and the visibility of Layer 0 is turned on.

The selection now appears on a new transparent, colored background (**Figure 10**).

Figure 9 Layers panel with solid color layer

Figure 10 Selection on layered background

Layer blending options

Blending options let you determine how colors in the upper layer—known as the *blend color*—and the lower layer—known as the *base color*—blend with one another.

Photoshop offers a wide range of blending modes. A few are defined here. For more information on blending modes, see the topic "List of Blending Modes" in Photoshop Help. Blends only apply where the two layers overlap.

- *Lighten:* Photoshop looks at the colors in each layer and selects the lighter of the base or blend color as the result color. Pixels darker than the blend color are replaced, and pixels lighter than the blend color do not change.

- *Darken:* Photoshop looks at the colors in each layer and selects the darker of the base or blend color as the result color. Pixels lighter than the blend color are replaced, and pixels darker than the blend color do not change.

- *Color Dodge:* Photoshop compares the colors in each layer and brightens the base color to reflect the blend color by decreasing the contrast.

- *Hue:* Photoshop creates a new color with the luminance and saturation of the base color and the hue of the blend color.

Because you can preview these changes, the best way to decide which mode works for you is to experiment with different blends.

To apply blending options to a layer:

1. Open an image with at least two layers.

2. Click the top layer to select it.

3. Choose Layer > Layer Style > Blending Options.

    The Layer Style dialog box appears (**Figure 11**).

4. Make sure the Preview option is selected, so you can observe your changes as you make them.

5. Select Lighten from the Blend Mode pop-up menu.

    Observe the results (**Figure 12**).

6. Select Darken from the Blend Mode pop-up menu.

    Observe the results (**Figure 12**).

7. Select Color Dodge from the Blend Mode pop-up menu.

    Observe the results (**Figure 12**).

8. Select Hue from the Blend Mode pop-up menu.

    Observe the results (**Figure 12**).

Blend Mode pop-up menu

Figure 11 Layer Style dialog box
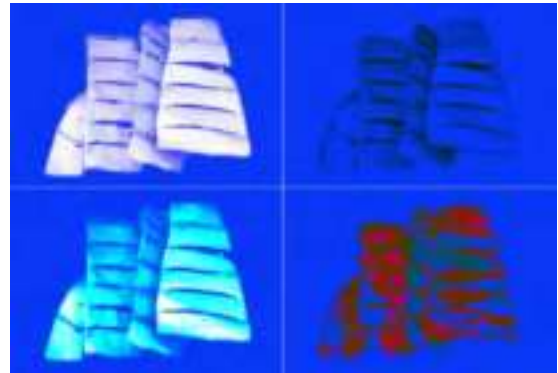
Figure 12 Blending modes: Lighten upper-left, Darken upper-right, Color Dodge lower-left, Hue lower-right

How to use advanced color techniques

In Adobe Photoshop CS6, you can adjust an image's colors in a variety of ways. Using the techniques described in this guide, you can take the raw material of your image and transform it into an image with different or flattened colors, improved warmth, or various types of grayscale. You will need practice to get these techniques right, and you will have to try them to see how they can help you meet design goals.

This guide discusses the following techniques:

- Changing the hue and saturation of an image
- Inverting the colors in an image
- Brightening selective colors in an image
- Posterizing an image

- Applying photo filters to an image
- Using the Channel Mixer
- Using the Replace Color function
- Localized color corrections

You will implement most of these changes in adjustment layers. The first section of this guide describes adjustment layers.

Using adjustment layers

As you apply color changes to an image, you will usually want to preserve your original image. One way is to save a copy of your original image (this is always a good idea). Photoshop also lets you make changes in special layers called *adjustment layers*.

An *adjustment layer* applies changes to your image without changing the image's pixels permanently. For example, instead of changing hue and saturation in your original image, you can create a Hue & Saturation adjustment layer. The adjustments are stored in the adjustment layer.

These changes apply to all layers below the adjustment layer. Using the Layers panel, you can discard your changes and restore the original image at any time.

You access adjustment layers through the Layer > New Adjustment Layer menu. To make most of the color modifications discussed in this guide, you can also use the individual adjustment features in the Adjustments and Properties panels (**Figure 1**). These panels provide quick access to every tool you need to adjust the color and tone of images without losing any of the original image data.

Properties panel button
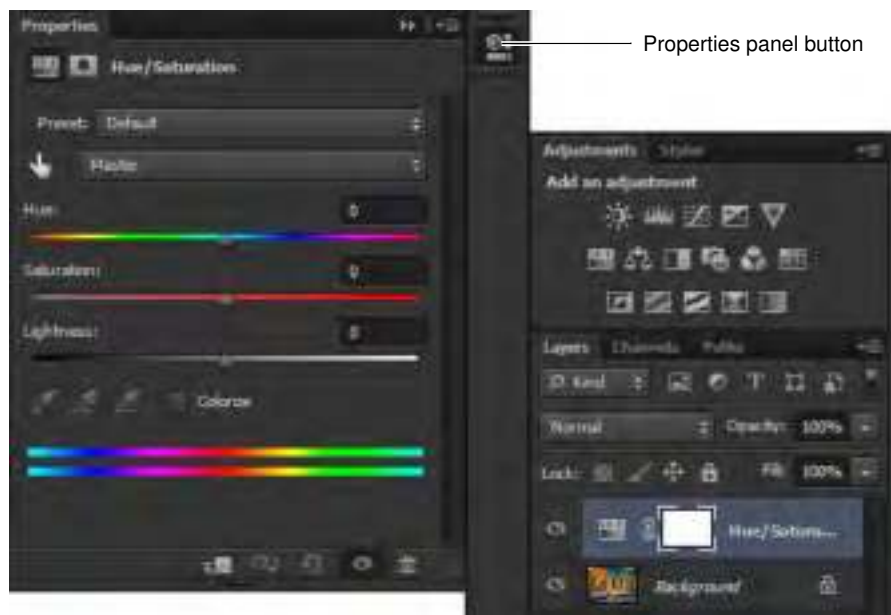
Figure 1 Properties panel and Adjustments panel

Changing hue and saturation

Hue identifies easily named colors such as red, orange, and pink and simply refers to the color's specific place on the color wheel. *Saturation* describes relative intensity or dullness of a color from the inside to the outside of the wheel (**Figure 2**).

Figure 2 Color wheel

For hue, values reflect the number of degrees of rotation around the wheel from the pixel's original color. A positive value indicates clockwise rotation; a negative value, counterclockwise rotation. Values can range from 180 to +180. In other words, when you change hue positively, blues become more purple, yellows become more green, and so on. As you decrease hue, the opposite happens.

Saturation changes as you move out from the center of the wheel. That is, yellows become more yellow, and oranges become more orange. Values can range from 100 to +100.

To change hue and saturation in an adjustment layer:

1. Start Photoshop and open an image.

2. Choose Layer > New Adjustment Layer > Hue/ Saturation.

   The New Layer dialog box appears. By default, the layer is named "Hue/Saturation 1."

   Note: You can change this name if you wish, but this layer will change hue and saturation, so this name is meaningful and therefore useful.

3. Click OK.

   The New Layer dialog box closes.

   The Properties panel appears, with Hue/Saturation options (**Figure 3**).

Figure 3 Properties panel, Hue/Saturation options

4. Move the Hue slider about halfway to the right.

    The colors of your image shift dramatically (**Figure 4**), with greens becoming more blue and oranges becoming more green (**Figure 5**).

Figure 4 Image original

Figure 5 Hue increased

Using the Invert command

The Invert command reverses the colors in an image. When you invert an image, the brightness value of each pixel in the channels is converted to its opposite value on the color wheel. For example, shades of blue convert to shades of orange, and shades of purple convert to shades of green.

To use the Invert command in an adjustment layer:

1. Choose Layer > New Adjustment Layer > Invert.

    The New Layer dialog box appears.

2. Click OK.

    Your image is inverted (**Figure 6**).

Figure 6 Invert command applied

Using selective colors

With the Selective Color command, you can change the intensity of selected color groups—such as blues, reds, or magentas—along the CMYK scale.

To use the Selective Color options:

1. Choose Layer > New Adjustment Layer > Selective Color.

   The New Layer dialog box appears.

2. Click OK.

   The Properties panel appears, with Selective Color options (**Figure 7**).

3. Choose a color family from the Colors pop-up menu, such as Magentas.

4. Drag the cyan, magenta, yellow, and black sliders and observe the effect each has on the image.

   Note: The effect on your image may be subtle, depending on your image's colors.

   For example, if you increase cyan with Magentas selected, the image's reds become more purplish or bluish. If you select Blacks, the image's reds take on more shadows.

5. When you are satisfied with the image's appearance, minimize the panel.

Figure 7 Properties panel, Selective Color options

Posterizing an image

The Posterize command lets you specify the number of colors in each channel (either RGB or CMYK) in an image and then maps pixels to the closest matching level. The different colors—or values—in each channel are known as *tonal levels*.

The Posterize command immediately reduces the total number of colors in the image. For example, if you choose two tonal levels in an RGB image, Photoshop limits the total number of colors to six: two each for red, green, and blue. When you enter 255 in the Posterize dialog box, the result is a "normal–looking" image because you get 255 colors in each channel, the same as for RGB images.

This command is useful for creating special effects such as large, flat areas in a photograph.
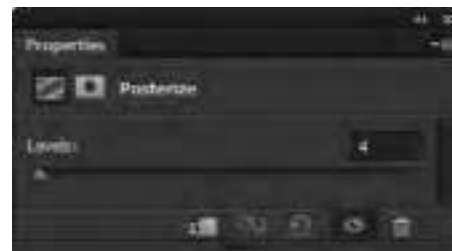
To apply the Posterize image command in an adjustment layer:

1. Open an image in Photoshop.

2. Choose Layer > New Adjustment Layer > Posterize.

   The New Layer dialog box appears.

3. Click OK.

   The Properties panel appears, with Posterize options (**Figure 8**).

Figure 8 Properties panel, Posterize options

4. In the Levels text box, enter a number between 4 and 8, or use the slider to select the Posterize level.

The image's colors flatten (**Figure 9**).

You can preview your changes in the image window.

The effects of the Posterize command are most dramatic with a low number.

Figure 9 Posterize command applied

Using photo filters

The photo filters in Photoshop mimic the effects of a camera's lens filters, as though you applied a very thin layer of colored cellophane over your image. You can give a black-and-white photo an antiqued look by using a sepia filter, or you can make your image's colors seem warmer or cooler by using orange or blue filters.

To use a photo filter in an adjustment layer:

1. Open an image in Photoshop.

2. Choose Layer > New Adjustment Layer > Photo Filter.

The New Layer dialog box appears.

3. Click OK.

The Properties panel appears, with Photo Filter options (**Figure 10**).

4. Choose a filter from the pop-up menu.

In the example (**Figure 10**), one of three warming filters is selected.

Each filter applies a color to the image. You can also choose a custom color by selecting the Color option and clicking the color box.

The Density slider changes how much color is applied to the image. For example, with the warming filter in Figure 10, the warm (orange) color tint intensifies when you increase Density.

The warming filter is applied. The light parts of the image appear slightly more orange, giving the photo a warmer look (**Figure 11**).

Figure 10 Properties panel, Photo Filter options

Figure 11 Photo-warming filter applied

Using the Channel Mixer

You can use the Channel Mixer command to increase or decrease the color values in the red, green, or blue channels. Each *channel* contains a set of colors; the three channels combine to create the millions of colors in an image.

In practice, this filter is often used to modify black-and-white images. You can also choose from a set of Channel Mixer presets. With these presets, you can create black-and-white photos with a variety of shading. Because the channels have distinct color ranges, they appear dramatically different when converted to black-and-white.

To use the Channel Mixer:

1. Open an image in Photoshop.

2. Choose Layer > New Adjustment Layer > Channel Mixer.

   The New Layer dialog box appears.

3. Click OK.

   The Properties panel appears, with Channel Mixer options (**Figure 12**).

4. From the Preset menu, choose Black & White With Blue Filter.

   Observe the results (**Figure 13**).

Figure 12 Properties panel, Channel Mixer options

Figure 13 Black & White With Blue Filter applied

5. From the Preset menu, choose Black & White With Green Filter.

   Observe the results (**Figure 14**).

   Although both photos are black-and-white, the two images have depths of gray in different areas. For example, in the Black & White With Blue Filter, the halo in the figure on the left—appears much darker than in the Black & White With Green Filter.

Figure 14 Black & White With Green Filter applied

Using the Replace Color function

You can use the Replace Color function to change the hue and saturation of a limited set of colors in your picture. For example, you can change a purple sweater to red or a green flag to blue.

To change hue and saturation:

1. Open an image in Photoshop.

2. Choose Image > Adjustments > Replace Color.

   The Replace Color dialog box appears (**Figure 15**).

3. Move the pointer over the image and click an area with a specific color.

   In the preview area in the center of the Replace Color dialog box, all of the areas of your image with the selected color turn white.

   The Fuzziness slider adjusts the degree to which colors close to the chosen color are also selected.

4. Move the Fuzziness slider until you have selected the amount of the color you want to select.

   In the example (**Figure 15**), the Fuzziness slider has been moved to the right until all of the orange areas in the image are selected.

Color chosen here   Parts of image with chosen color turn white here

Figure 15 Replace Color dialog box

How to use advanced color techniques   **7**

5. You can also adjust the saturation and lightness of the selected color.

   In the example (**Figure 16**), all of the orange areas in the image have been bumped up to maximum Saturation, and the Lightness reduced by half to create a deeper, darker shade of orange.

6. When you finish selecting the area you want, move the Hue slider to adjust the Result color (shown in the lower right corner).

   In the example (**Figure 17**), the previously orange areas in the image have changed to magenta.

7. Click OK to close the Replace Color dialog box.

Figure 16 Hue of selected color changed

Figure 17 Selected color changed

Localized color corrections

Sometimes all you need to do to achieve a desired effect is make a minor color adjustment to a small, localized area of your image. Use selection tools to define a precise area to adjust localized color.

To make localized color changes using a selection tool:

1. Click the Magic Wand tool in the Tools panel.

   The pointer looks like a magic wand.

2. Click the Add To Selection option in the options bar and set Tolerance to 20 (**Figure 18**).

Add to selection

Figure 18 Magic Wand options bar

3. Move the Magic Wand over a small area of your image and click an area with a specific color.

    In this case, the green halo and the belt are selected with the Magic Wand (**Figure 19**).

    You may need to use the Magnify tool to view the areas to be selected.

4. Choose Layer > New Adjustment Layer > Color Balance. Click OK in the New Layer dialog box.

    The Properties panel appears, with Color Balance options (**Figure 20**).

5. Select the Shadows, Midtones, or Highlights you want to adjust.

6. Adjust the color balance sliders to achieve the localized color correction you want.

    Notice in the example how the selected areas of the image appear more saturated and brighter than in the original (**Figure 21**).

Figure 19 Selected areas

Figure 20 Properties panel., Color Balance options

Figure 21 Selected areas of enhanced localized color

To make color changes using a lasso tool and the HUD color picker:

You may want to make color changes to an area in an image with more variation than the Magic Wand tool will accommodate. In that case, try using a lasso tool.

1. Select the Magnetic Lasso tool (**Figure 22**).

   The pointer looks like a triangular lasso with a magnet.

2. Click in the image to set the first fastening point.

   Fastening points anchor the selection border in place.

3. To draw a freehand segment, either release or keep the mouse button depressed, and then move the pointer along the edge you want to trace.

   The most recent segment of the selection border remains active. As you move the pointer, the active segment snaps to the strongest edge in the image, based on the detection width set in the options bar. Periodically, the Magnetic Lasso tool adds fastening points to the selection border to anchor previous segments.

4. If the border doesn't snap to the desired edge, click once to add a fastening point manually. Continue to trace the edge, and add fastening points as needed (**Figure 23**).

5. Close the selection border:

   • To close the border with a freehand Magnetic segment, double-click, or press Enter (Windows) or Return (Mac OS).

   • To close the border with a straight segment, hold down Alt (Windows) or Option (Mac OS), and double-click.

   • To close the border, drag back over the starting point and click.

   In this case, the whole figure is selected.

6. Choose Layer > New > Layer Via Copy.

   The selection is placed on its own layer with the unselected areas knocked out (**Figure 24**).

7. From the Tools panel, select the Paint Bucket tool.

   The pointer changes to a paint bucket icon.

8. Hold down Shift+Alt while you Right-click (Windows) or hold down Control+Option+Command while you click and hold (Mac OS).

   The heads-up-display (HUD) color picker appears (**Figure 25**). You can release the keys after the HUD appears.

Figure 22 Lasso tools

Figure 23 Tracing an edge

Figure 24 Selection on a new layer

Figure 25 Using the HUD color picker

9. Then drag to select a color hue and shade, and release the mouse button.

    Note: To quickly select a color from the canvas to apply to a shape, Alt-click (Windows) or Option-click (Mac OS) and drag the eyedropper.

10. Click in the background area of your image to fill in a background color (**Figure 26**).

Figure 26 Using the Paint Bucket tool

How to use gradient maps

In Adobe Photoshop CS6 you can change an image's colors by using a gradient. The Gradient Map command maps the tonal range of an image to the colors of a gradient fill. *Tonal range* describes the image's colors, with the lightest color (usually white) at one end and the darkest color (usually black) at the other end. Every color in between can be expressed in a shade of gray. This tonal range is known as *grayscale range*.

A *gradient fill* is a blend of two or more colors. When you apply a two-color gradient map to an image, shadows are mapped to the left end of the fill and highlights (the lightest parts of the image) are mapped to the right end of the fill. Midtones—normally grays—are mapped to the gradations in between.

Gradient maps can produce interesting effects when you apply them to photos or other images. You can change ordinary photos to science fiction landscapes or give an image a silvery shimmer. Photoshop provides a number of built-in gradient maps that work well with images. You can modify these or create your own gradients.

Applying a gradient map

You can apply a gradient map to any type of image in Photoshop by using the Gradient Map command.

To apply a gradient map:

1. Start Photoshop and open an image.

2. Ensure that the image layer is selected in the Layers panel.

3. Choose Image > Adjustments > Gradient Map.

    The Gradient Map dialog box appears (**Figure 1**).

    By default, the gradient appears as a simple blue-to-white gradient. If the Preview option is selected, your image switches to a monochromatic scale.

    Note: Once you create a new gradient in the Gradient Map dialog box, the new gradient will appear instead of the default gradient.

4. Click the triangle to the right of the gradient fill.

    A selection of gradient fills appears in the Gradient picker (**Figure 2**).

5. Click on a gradient fill to select it.

6. Click OK.

    The Gradient Map dialog box closes and the gradient map is applied to your image (**Figure 3**).
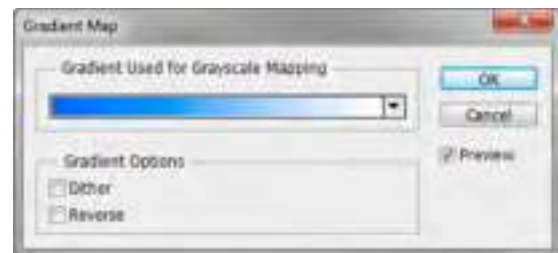
Figure 1 Gradient Map dialog box

Figure 2 Gradient picker

Figure 3 Gradient map applied

Customizing a gradient map

You may want to create a custom gradient map as an alternative to the presets in Photoshop.

To customize a gradient map:

1. Start Photoshop and open an image.

2. Choose Image > Adjustments > Gradient Map.

    The Gradient Map dialog box appears (**Figure 1**).

3. Click the gradient fill to edit it.

    The Gradient Editor appears (**Figure 4**).

4. Type a name for your new gradient in the Name text box.

5. Click New.

    A new gradient appears in the Presets pane. (At first, it won't look any different from the default gradient.)

6. In the pane below the Name box, click one of the stops on the gradient bar.

    Stops determine the colors in the gradient.

    The triangle above the stop turns yellow (or whatever color is currently selected), indicating that the starting color is being edited (**Figure 5**).

7. Click the Color box to edit the stop color.

    The Color Picker (Stop Color) dialog box appears (**Figure 6**).

8. Click a color in the Color Picker (Stop Color) dialog box to select it.

Gradient stop   Name text box

Figure 4 Gradient Editor

Click to edit stop color

Figure 5 Gradient stop selected

**Figure 6** Color Picker (Stop Color) dialog box

9. Click OK.

   The Color Picker (Stop Color) dialog box closes.

   The stop has changed to the new color.

10. In the center of the gradient bar, click below the bar in two or three places to add new stops (**Figure 7**).

11. Repeat steps 6–9 to change the colors of the new stops (**Figure 8**).

12. Click OK to close the Gradient Editor. Click OK again to apply the gradient map (**Figure 9**).
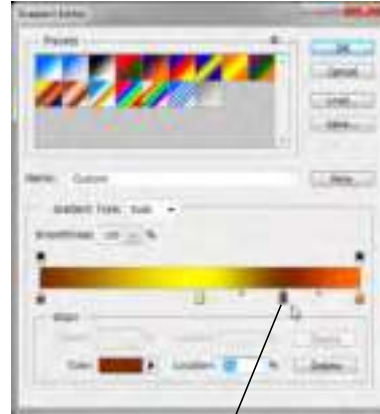
Click here to add a new stop

Figure 7 New stop color applied
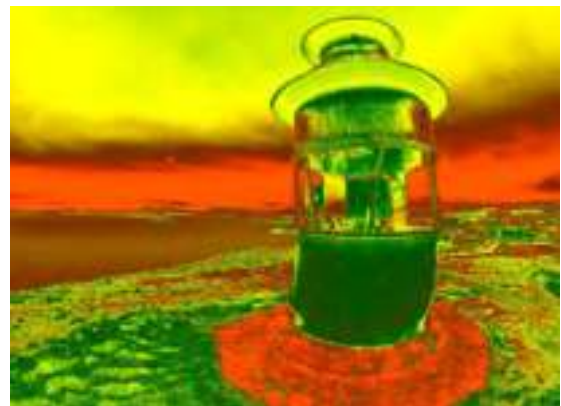

Figure 8 Multiple stops added

Figure 9 Custom gradient applied

How to use the Vanishing Point filter

In many of the images you work with, you'll need to make edits that involve *perspective*—the way an object appears in relation to the viewer and the horizon. The Vanishing Point filter in Adobe Photoshop CS6 makes it easier to edit images that have *perspective planes*—rectangular surfaces that seem to get smaller as they approach the horizon. When you look up a hallway, for example, the walls appear to taper toward the horizon. In the illustration (**Figure 1**), the train track rails seem to get closer together towards the horizon.

Figure 1 Image with perspective plane

When you use the Vanishing Point filter, you specify the planes in an image, and then apply edits such as painting, cloning, copying or pasting, and transforming.

Your edits honor the perspective of the plane you're working in—that is, if they are oriented correctly.

To use the Vanishing Point filter:

1. Start Photoshop and open an image that contains a perspective plane.

2. Open the Layers panel.

3. Click the Create A New Layer button to add a new layer (**Figure 2**).

   When using the Vanishing Point filter, it is best to make your changes in a separate layer so you do not alter your original image.

4. Make sure the new layer in the Layers panel is selected (**Figure 2**).

Create A New Layer button

Figure 2 Layers panel

5. Choose Filter > Vanishing Point.

   The Vanishing Point dialog box appears (**Figure 3**).

6. Your first step is to select a perspective plane to modify. Make sure the Create Plane tool is selected (**Figure 4**).

7. Click the four points of a perspective plane.

   In the example (**Figure 5**), four points on the train track rails are selected. When you click the fourth point in the plane, a grid forms between the four points (**Figure 6**).

Figure 3 Vanishing Point dialog box
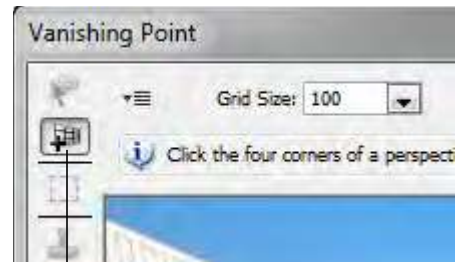
Create Plane tool

Figure 4 Create Plane tool

Figure 5 Creating a plane

8. Select the Brush tool in the Vanishing Point dialog box (*not* in the Tools panel).

   So you can see better, you can magnify the image by using the Zoom tool.

   The brush tip (normally a circle) becomes an oval that continually re-aligns with the image plane as you move the brush around (**Figure 7**).

9. Drag the pointer to paint in the image.

   Following the lines of the plane is easier than it would be without the Vanishing Point filter.

10. Select the Stamp tool in the Vanishing Point dialog box.

11. Hold down the Alt key (Windows) or Option key (Mac OS) and click within the perspective plane to select an area for cloning (**Figure 8**).

12. Drag in the image to clone the area.

    Observe that the shape of the clone area aligns with the plane.

13. When you have completed your changes, click OK to close the Vanishing Filter dialog box and apply the changes to the image.

    Because you began by adding a new layer, all changes appear in the new layer.

Zoom tool   Brush tool   Grid
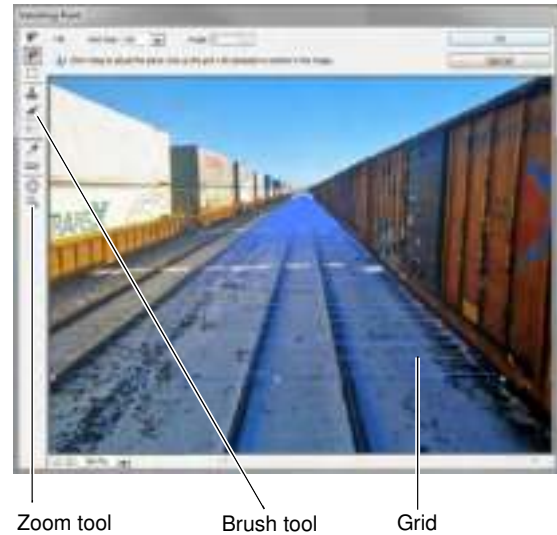
Figure 6 Perspective plane grid created

Figure 7 Painting with the Vanishing Point brush


Source area for cloning   Cloned area

Figure 8 Cloning with Vanishing Point

How to warp images

Puppet Warp provides a visual mesh that lets you drastically distort specific image areas, while leaving other areas intact. Applications range from subtle image retouching (such as shaping hair) to total transformations (such as repositioning arms or legs).

In addition to image, shape, and text layers, you can apply Puppet Warp to layer and vector masks. When a layer or vector mask is selected, the following are available in the Puppet Warp options bar (**Figure 1**):

- *Mode* Determines the overall elasticity of the mesh. Choose Distort for a highly elastic mesh good for warping wide-angle images or texture maps.

- *Density* Determines the spacing of mesh points. More Points increases precision but requires more processing time; Fewer Points does the opposite.

- *Expansion* Expands or contracts the outer edge of the mesh.

- *Show Mesh* Deselect to show only adjustment pins, providing a clearer preview of your transformatiokns.

- *Pin Depth* Click plus or minus buttons to reveal a mesh area you've overlapped with another.

- *Rotate* The degree of rotation appears in the options bar. To rotate the mesh automatically based on the selected Mode option, choose Auto from the Rotate menu in the options bar.
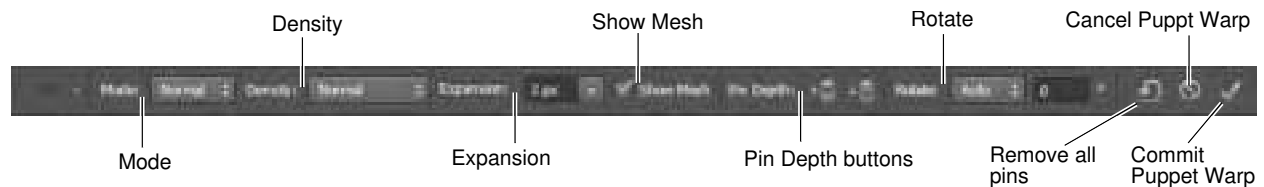
Figure 1 Puppet Warp options bar

To use Puppet Warp:

1. Start Photoshop and open an image that is suitable to be manipulated by using Puppet Warp.

    Note: It may be helpful to create a new layer and isolate the object you want to warp onto its own layer.

2. In the Layers panel, select the layer or mask you want to transform.

    If you want to edit a Background layer, click the lock icon that appears to the right of the layer name to unlock it.

3. Choose Edit > Puppet Warp.

    The figure is covered in a visual mesh (**Figure 2**).

4. In the options bar, adjust the mesh settings for Mode, Density, Expansion, and Show Mesh (**Figure 1**).

Figure 2 Figure with visual mesh

5. In the image window, click to add pins to areas you want to anchor in place and areas you want to transform (**Figure 3**).

   A black dot inside the yellow circle indicates a pin is selected and can be dragged. A yellow circle shows the pin is unselected and will not move when dragged.

6. To reposition or remove one or more pins, do any of the following:

   • Drag a pin to warp the mesh.

   • If mesh areas become overlapped during the transformation process, click the Pin Depth buttons in the options bar to change the order of overlapped mesh areas (**Figure 4**).

   • To remove selected pins, press Delete. To remove an individual pin, place the cursor directly over the pin and press Alt (Windows) or Option (Mac OS); when the scissors icon appears, click.

   • Click the Remove All Pins button in the options bar.

   Note: To select multiple pins, Shift-click them or choose Select All from the context menu. To move multiple selected pins, Shift-drag.

7. To rotate the mesh around a pin, select the pin so that a black dot appears inside the yellow circle.

8. Press Alt (Windows) or Option (Mac OS), and position the cursor near to, but not over the pins. When a circle appears, drag to visually rotate the mesh (**Figure 5**).

   Note: The degree of rotation appears in the options bar.

9. When your have added enough pins and feel the transformation is complete (**Figure 6**), click the Commit button in the options bar or press the Enter (Windows) or Return (Mac OS) key.
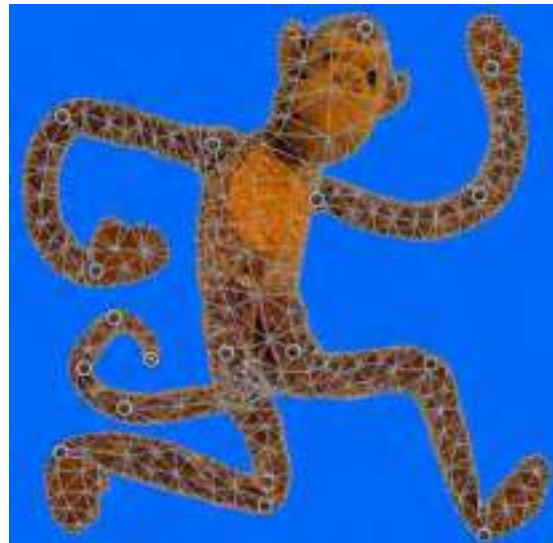

Figure 3 Click to add pins
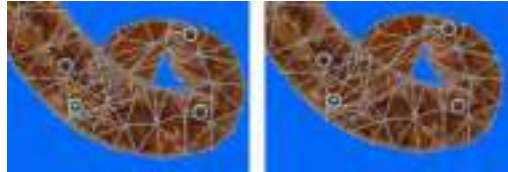
Figure 4 Reveal overlapped mesh areas

Figure 5 Drag the circle to rotate mesh around pin

Figure 6 Puppet Warp with pins in place