Dear Candidate,

In preparation for the Visual Communication certification exam, we've put together a set of practice materials and example exam items for you to review. What you'll find in this packet are:

- Topic areas and objectives for the exam.
- Practice materials with image assets.
- Practice exam items.

We've assembled excerpted material from the Visual Design Curriculum guide to highlight a few of the more challenging techniques covered on the exam. You can work through these technical guides and with the provided image files (provided separately). Additionally, we've included the certification objectives so that you are aware of the elements that are covered on the exam. Finally, we've included practice exam items to give you a feel for some of the items.

These materials are meant to help you familiarize yourself with the areas of the exam so are not comprehensive across all the objectives.

Thank you,

Adobe Education

Adobe Visual Communication using Adobe Photoshop

Exam and Objectives

After taking the exam, your score is electronically reported. Please allow 2-4 weeks from the date you pass the exam to receive your ACA Welcome Kit.

Exam Structure

The following lists the topic areas for the exam:

- Setting project requirements
- Identifying design elements when preparing images
- Understanding Adobe Photoshop
- Manipulating images
- Evaluating digital images

Number of Questions and Time

- 39 questions
- 50 minutes

Exam Objectives

Domain 1.0 Setting Project Requirements

1.1 Identify the purpose, audience, and audience needs for preparing image(s).

1.2 Demonstrate knowledge of standard copyright rules for images and image use.

1.3 Demonstrate knowledge of project management tasks and responsibilities.

1.4 Communicate with others (such as peers and clients) about design plans.

Domain 2.0 Identifying Design Elements When Preparing Images

2.1 Demonstrate knowledge of image resolution, image size, and image file format for web, video, and print.

2.2 Demonstrate knowledge of design principles, elements, and image composition.

2.3 Demonstrate knowledge of typography.

2.4 Demonstrate knowledge of color correction using Photoshop.

2.5 Demonstrate knowledge of image-generating devices, their resulting image types, and how to access resulting images in Photoshop.

2.6 Understand key terminology of digital images.

Domain 3.0 Understanding Adobe Photoshop

3.1 Identify elements of the Photoshop user interface and demonstrate knowledge of their functions.

3.2 Demonstrate knowledge of layers and masks.

3.3 Demonstrate knowledge of importing, exporting, organizing, and saving.

3.4 Demonstrate knowledge of producing and reusing images.

3.5 Demonstrate an understanding of and select the appropriate features and options required to implement a color management workflow.

Domain 4.0 Manipulating Images by using Adobe Photoshop

4.1 Demonstrate knowledge of working with selections.

4.2 Use Photoshop guides and rulers.

4.3 Transform images.

4.4 Adjust or correct the tonal range, color, or distortions of an image.

4.5 Demonstrate knowledge of retouching and blending images.

4.6 Demonstrate knowledge of drawing and painting.

4.7 Demonstrate knowledge of type.

4.8 Demonstrate knowledge of filters.

Domain 5.0 Publishing Digital Images by using Adobe Photoshop

5.1 Demonstrate knowledge of preparing images for web, print, and video.

Overview of Adobe Photoshop

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, see “Choosing a file format” in Photoshop Help.

In this guide, you’ll learn your way around the Adobe Photoshop 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 (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.

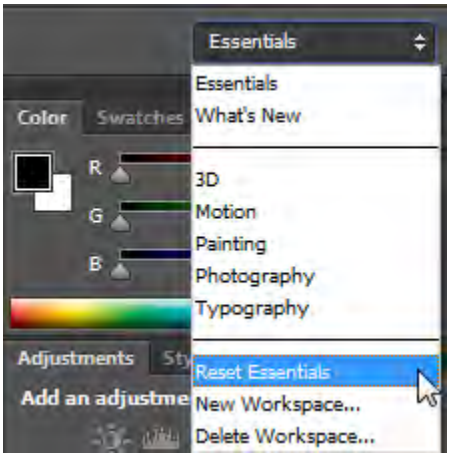

Figure 1 Workspace switcher menu

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

3. The default Essentials 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 properties of your masks, adjustments, and video layers. The Mini Bridge panel lets you work with assets to create thumbnails, keep files synchronized, and perform other tasks.

   Two other options appear beneath the document window: the Sync Settings to Creative Cloud and the Share On Behance. These options permit you to manage your settings and files on Creative Cloud, and upload your images as work-in-progress to Behance, an online platform to showcase and discover creative work.

   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.

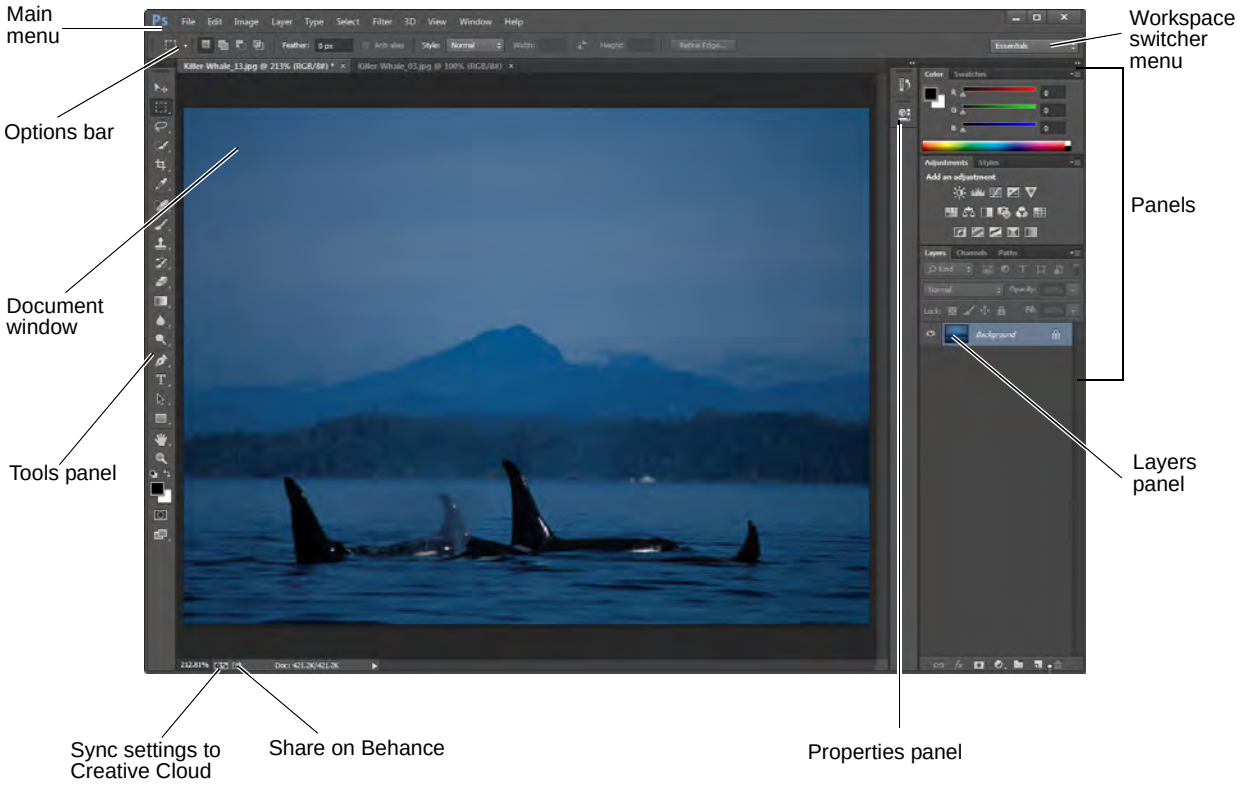

Figure 2 Adobe Photoshop interface

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**).

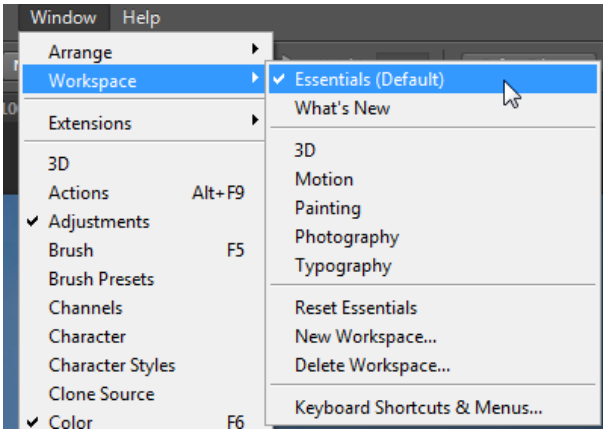

Figure 3 Selecting the default workspace

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 Switcher menu, select New Workspace (**Figure 5**).

Figure 4 Custom interface layout

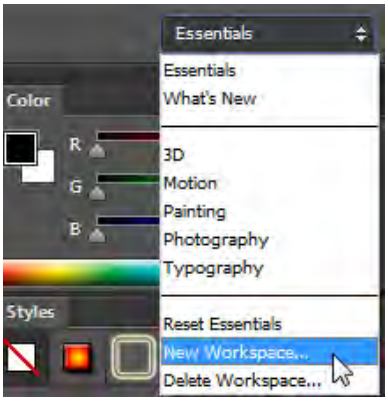

Figure 5 Creating the New Workspace

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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**).

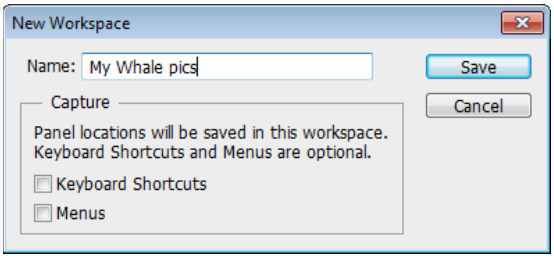

Figure 6 New Workspace dialog box

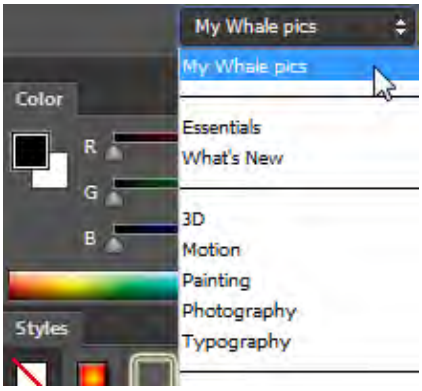

Figure 7 Reselecting a saved workspace

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 separate, 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, choose File > Browse In Mini Bridge (**Figure 9**).

   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.

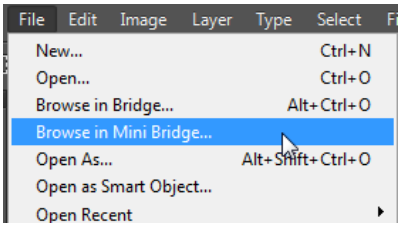

Figure 9 File menu

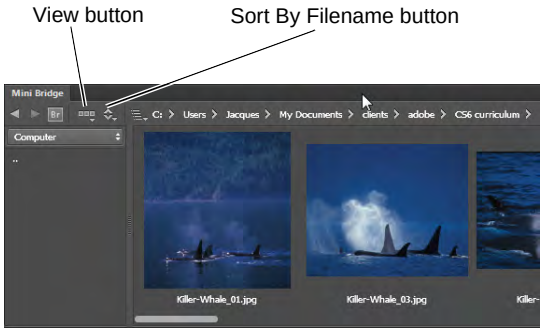

Figure 10 Mini Bridge panel

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.

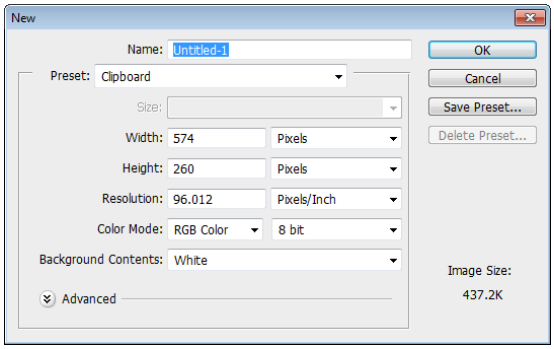

Figure 11 New Photoshop document dialog box

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.

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.

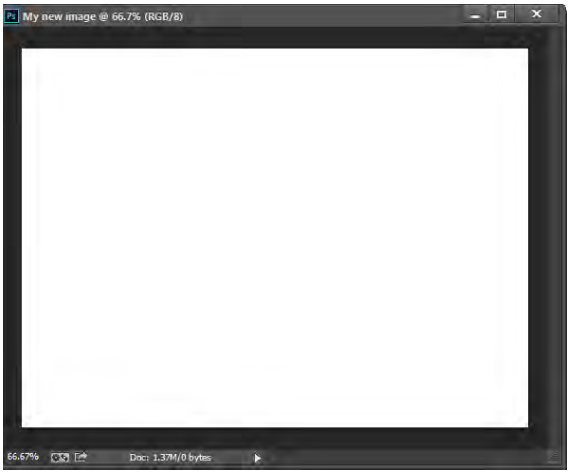

Figure 12 New image window

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.

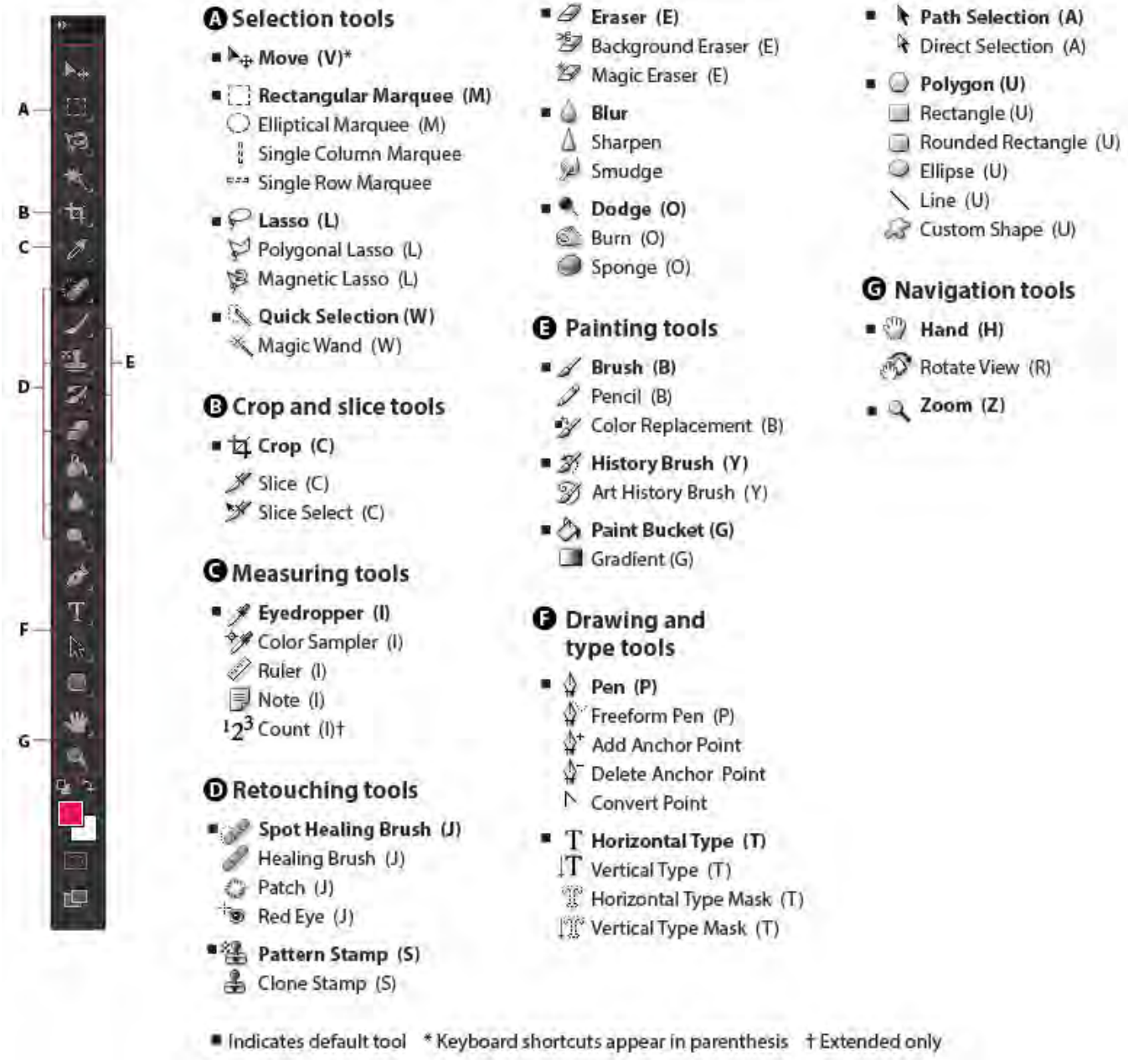

Figure 13 Overview of Tools panel

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.

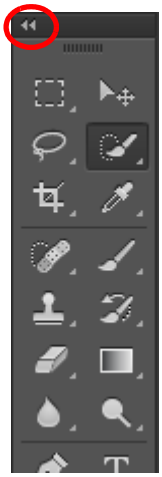

Figure 14 Tools panel

Figure 15 Zoom level and Status bar in an image

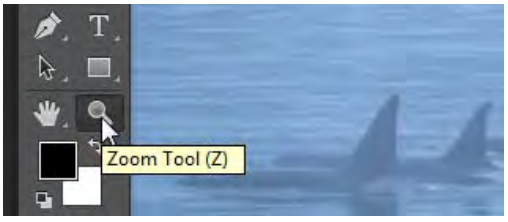

Figure 16 Tool tip

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.

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.

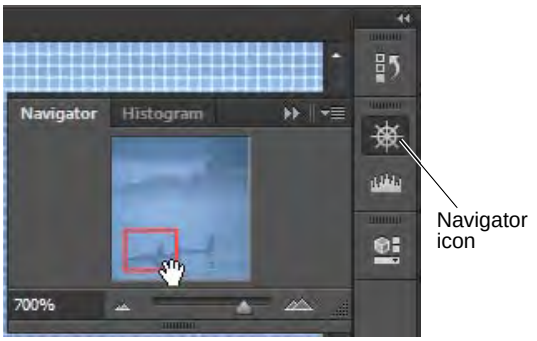

Figure 17 Navigator panel showing zoom area

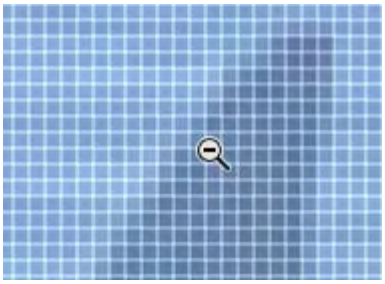

Figure 18 Using the Zoom tool with a minus sign

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.

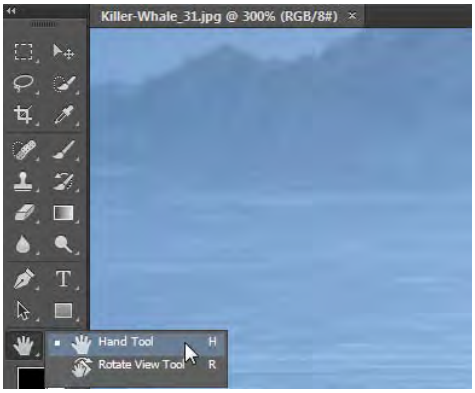

Figure 19 Hand tool in the Tools panel

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

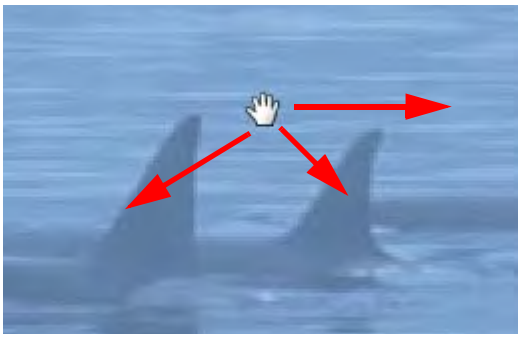

Figure 20 Dragging the Hand tool

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.

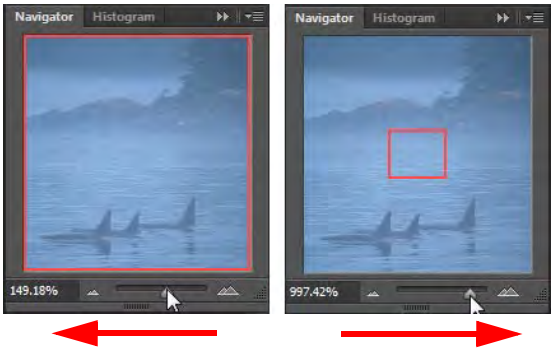

Figure 21 Using the slider to zoom in or out

How to create a new document

When you create a new document in Adobe Photoshop, 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.

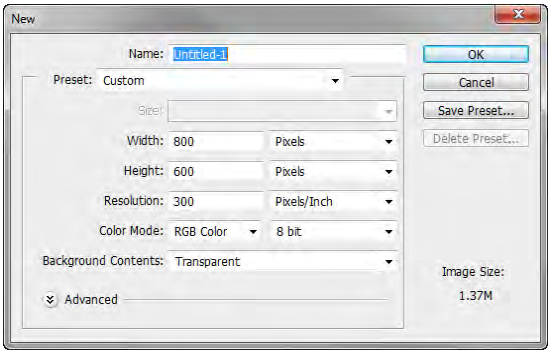

Figure 1 New dialog box

This document requires Adobe Photoshop CS6. Technical instructions may differ depending on your version.

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**).

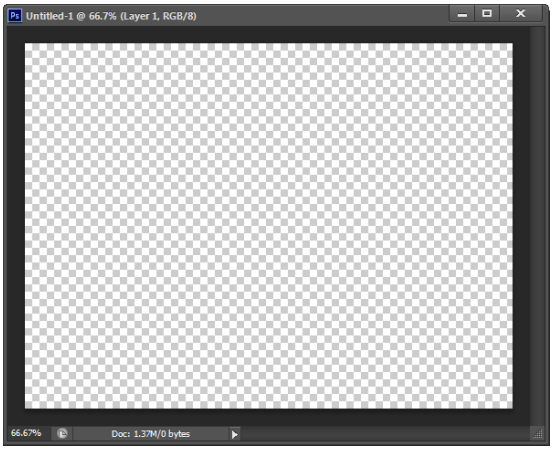

Figure 2 Newly created document with transparent background

How to 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.

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

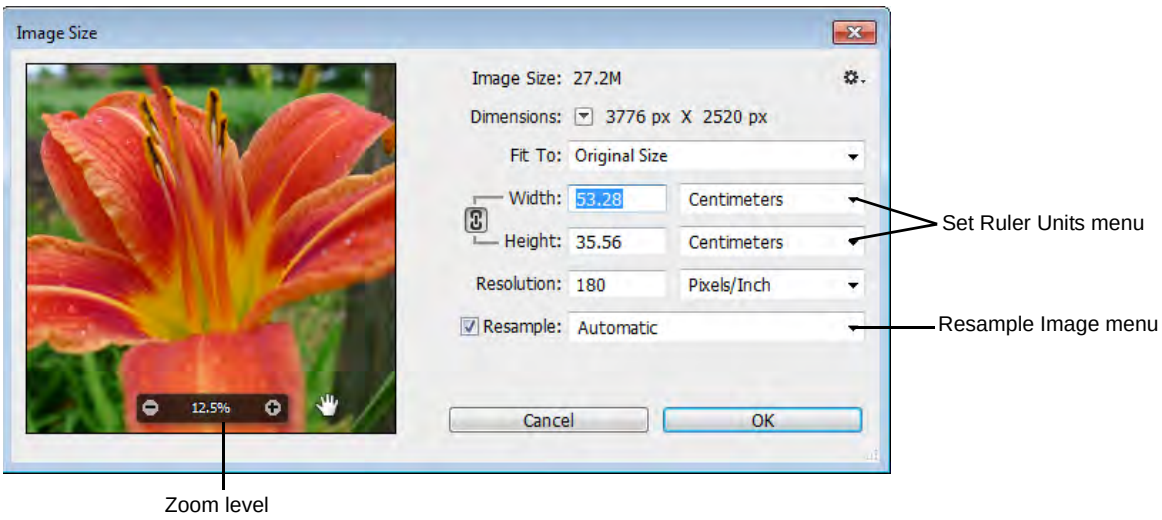

Figure 1 Image Size dialog box

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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.

   - *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.

   Note: A window displays the preview image from the resizing parameters. Resizing the dialog box resizes the preview window. Mousing over the preview window reveals an image zoom level control.
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, the example image is set at 180 ppi measures approximately 53 by 36 cm. The same image when set to 72 ppi measures approximately 133 by 89 cm (**Figure 2**).
6. Click OK to close the Image Size dialog box.

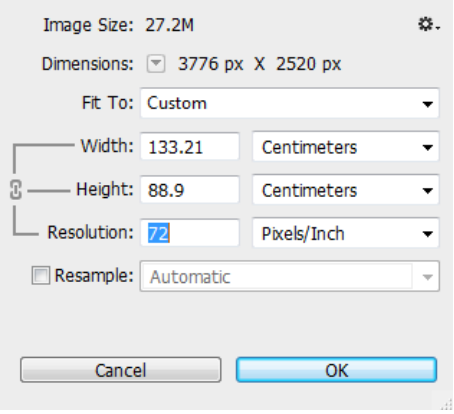

Figure 2 Image Size dialog box with resolution changed to 72 ppi

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.

   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 Pixels for the unit of measurement by clicking on the triangle next to Dimensions and choose from the menu (**Figure 3**).

3. Confirm the Resample Image option near the bottom of the dialog box is selected.

   When selected, observe that the Pixel Dimensions menus and the Constrain Proportions option are 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.

4. Choose Bicubic Sharper from the Resample Image menu (**Figure 4**).

   This option is best for reductions because it maintains the detail in a resampled image.

5. In the Width box, enter the desired width in pixels.

6. Click OK to reduce 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.

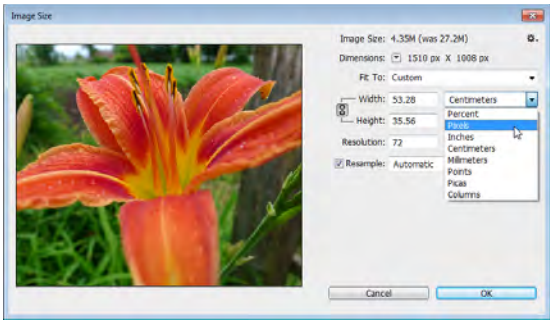

Figure 3 Image Size dialog box with Set Ruler Units menu open

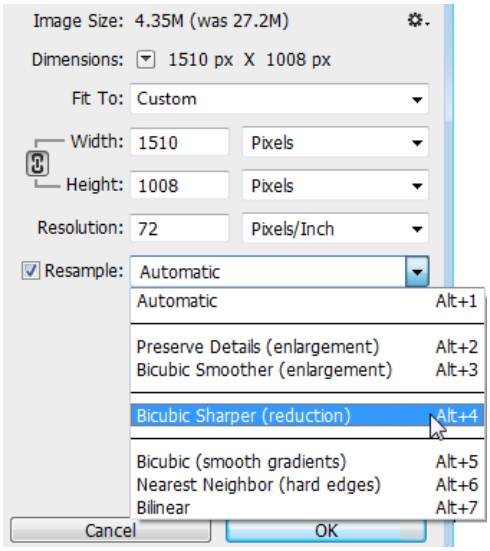

Figure 4 Image Size dialog box with Resample Image menu open

Increasing an image's size

Sometimes you need to upsample a picture: take a smaller image and make it larger, or take a small area of a larger image and scale it up. This can be problematic because when making an image bigger, it tends to get blurry. The Preserve Details option in the Image Size dialog box helps maintain sharpness when enlarging images.

Figure 5 Original uncropped image (left) and sharp resized image with details preserved (right)

To expand an image's pixel dimensions:

1. Choose Image > Image Size.

   The Image Size dialog box opens.

2. Select Percent for the unit of measurement by clicking on the triangle next to Dimensions and choose from the menu (**Figure 3**).

   The Width and Height changes to 100%. Using Percent as a unit of measurement makes it easier to scale up image.

3. Confirm the Resample Image option near the bottom of the dialog box is selected.

   When selected, observe that the Pixel Dimensions menus and the Constrain Proportions option are active.

4. Choose Preserve Details from the Resample Image menu (**Figure 4**).

   The Reduce Noise slider becomes active (**Figure 6**). The Noise reduction slider is used for smoothing out visual noise that has been introduced as you upscale the image.

5. In the Width box, enter the desired width in percent to increase the image size. For example, you might enter 300 into the percent box to make the image 3x larger.

6. Drag the Reduce Noise slider to find the ideal degree of image sharpness.

7. Click OK to increase the image's pixel dimensions.

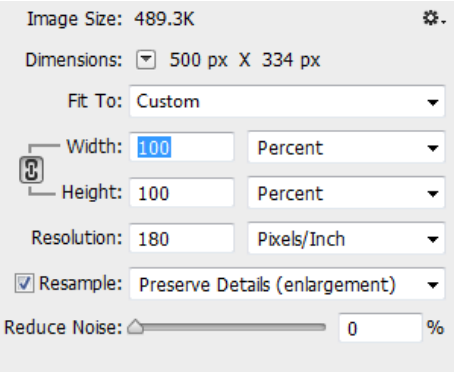

Figure 6 Image Size dialog box with Preserve Details option selected and Reduce Noise slider

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 7**), 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.

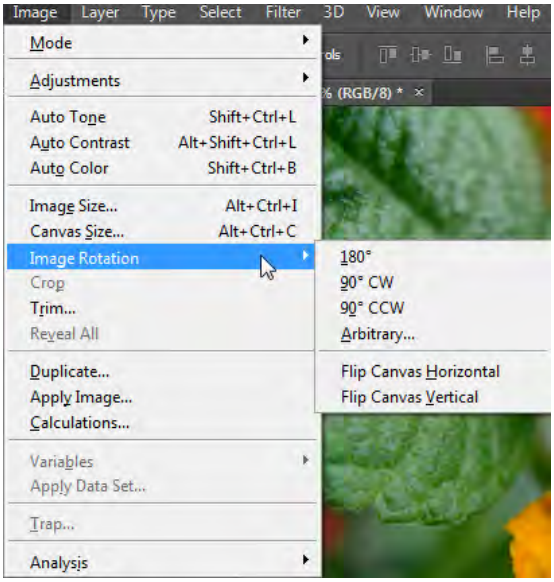

Figure 7 The Image Rotation submenu

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 8**).

   The pointer changes to the Crop tool and cropping marquee appears around the edges of the image.

2. Choose the Rule of Thirds option from the Crop Tool overlay grid options in the Options bar (**Figure 9**).

   A Rule of Thirds Grid overlays the image.

3. Adjust the cropping marquee by:

   - 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 (**Figure 10**). 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 (**Figure 11**). To move the center point around which the marquee rotates, drag the circle at the center of the bounding box.

Figure 8 Crop tool

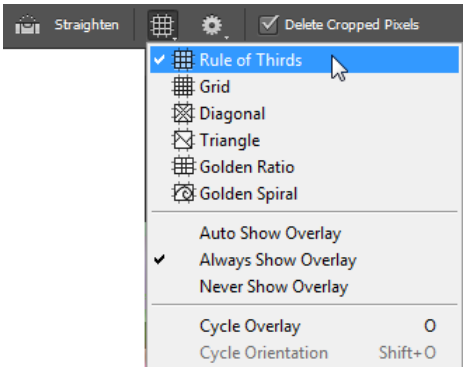

Figure 9 Crop Tool overlay options

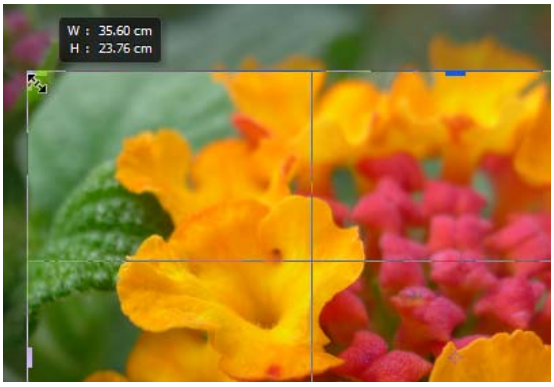

Figure 10 Drag handle to scale a crop area

Figure 11 Drag handle to rotate a crop area

4. Alternatively, you can choose a crop option from the list of menu of preset aspect ratios in the Options bar (**Figure 12**).

   For example, you may choose Ratio, 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.

5. 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.

6. Once you are satisfied with the crop area (**Figure 13**), press Enter (Windows) or Return (Mac OS).

   The image is trimmed to the selected region (**Figure 14**).

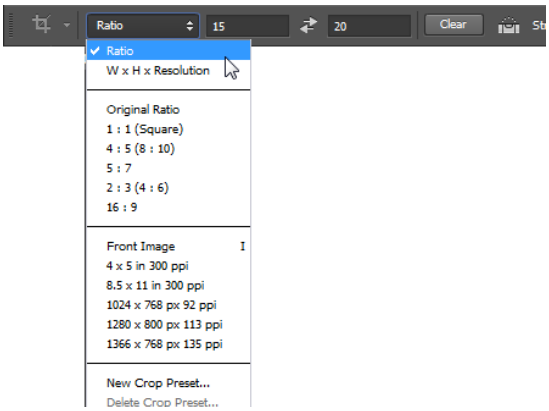

Figure 12 Menu of preset aspect ratios

Figure 13 Crop area

Figure 14 Crop applied

How to use selection tools

When using Adobe Photoshop, 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.

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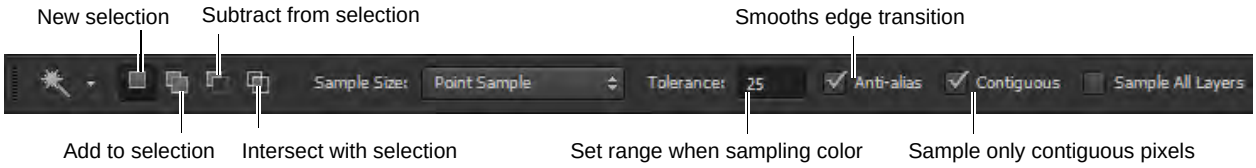

Figure 2 Selection options

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 butterfly 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

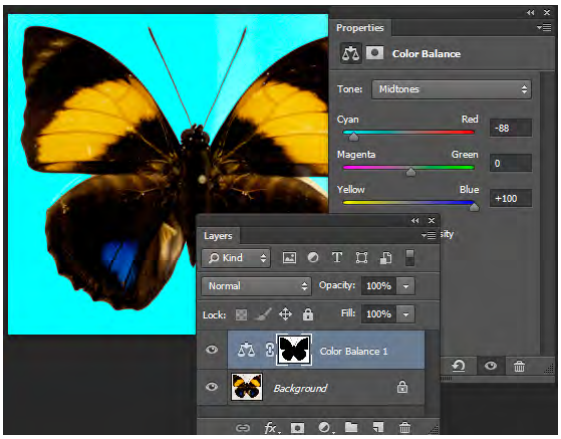

Figure 4 Color Balance Adjustment layer applied to selection

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

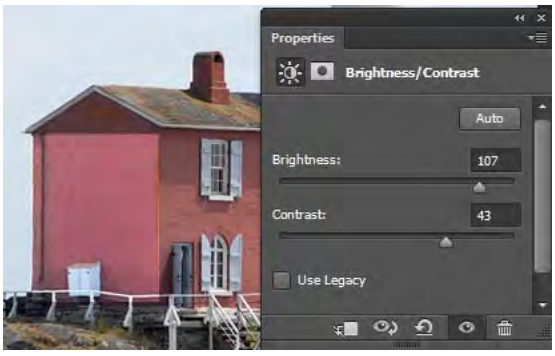

Figure 7 Photo Filter applied to selection

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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**).

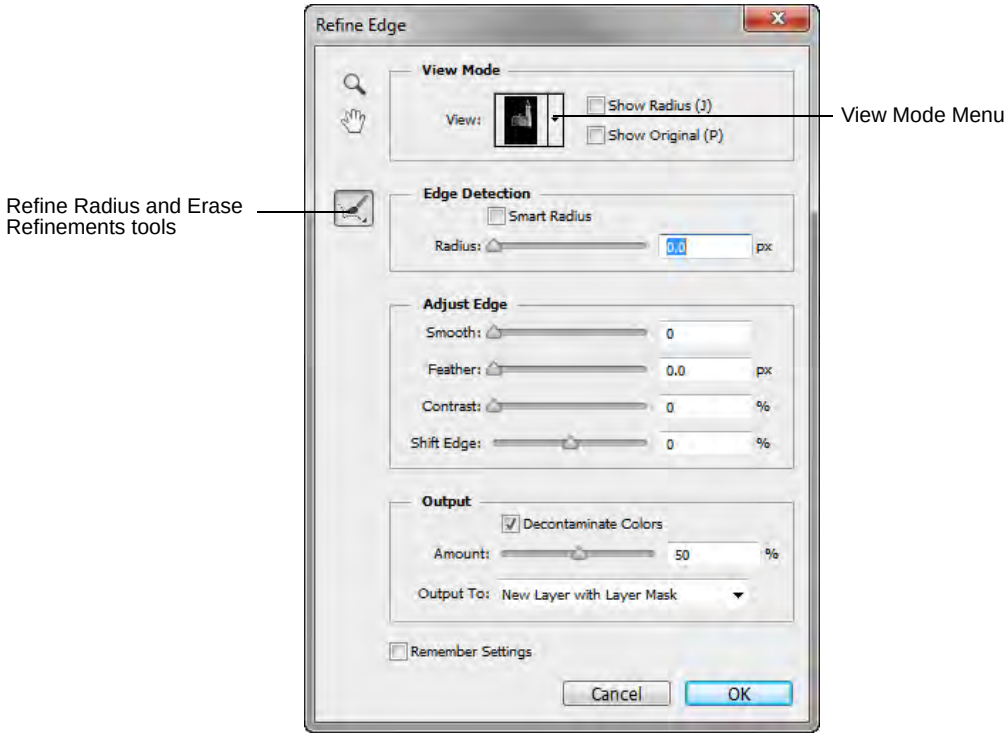

Figure 9 Refine Edge dialog box

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.

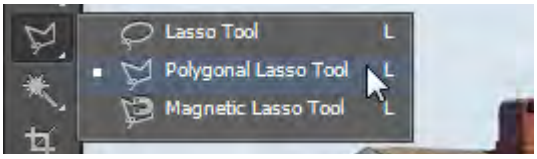

Figure 10 Lasso tools in the Tools panel

Figure 11 Polygonal Lasso options

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

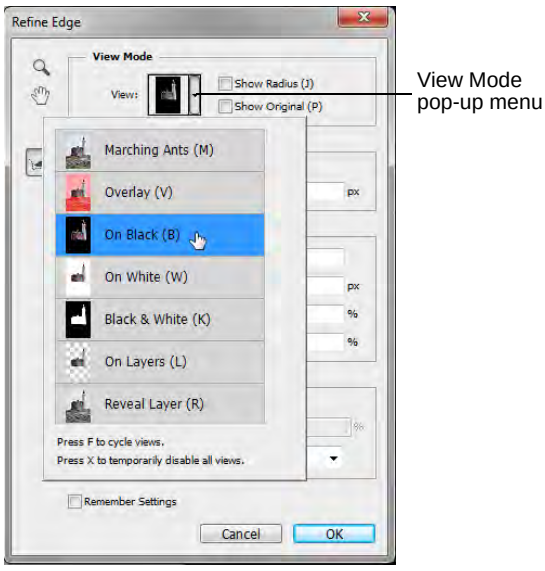

Figure 13 View Mode options

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.

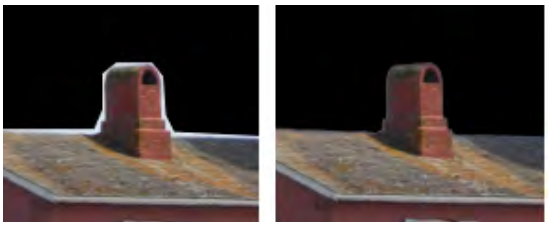

Figure 14 Edge radius adjustment, before and after

Figure 15 Refine Radius and Erase Refinements Tools

Figure 16 Refine Radius tool

Figure 17 Refine Radius Tool results

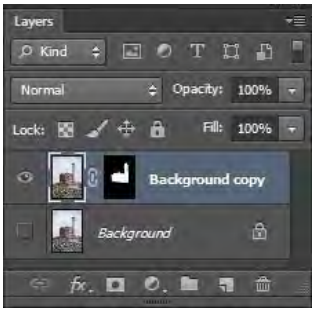

Figure 18 New layer with layer mask

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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.

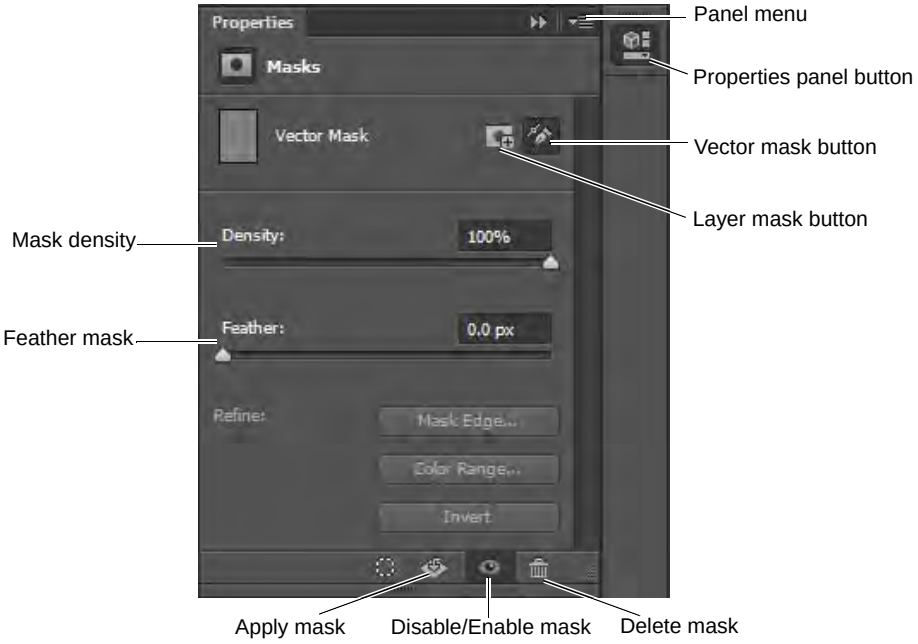

Figure 20 Properties panel

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**).

   Note:
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**).

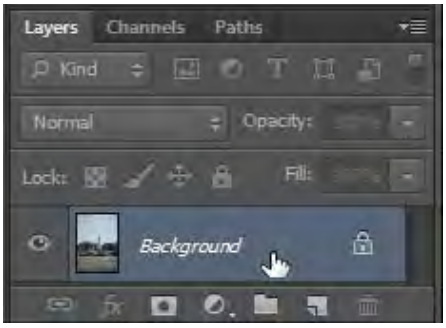

Figure 21 Layers panel

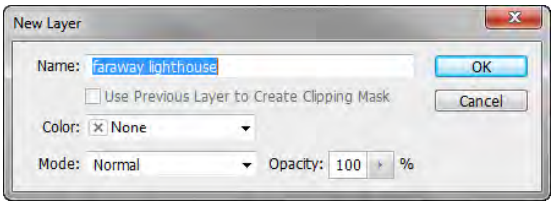

Figure 22 New Layer dialog box

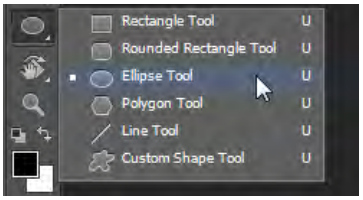

Figure 23 Shape tools in the Tools panel

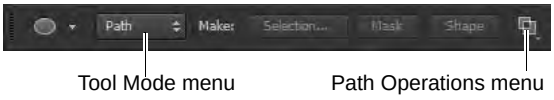

Figure 24 Shape option bar

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

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

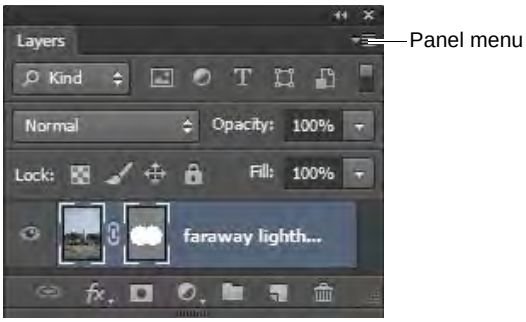

Figure 27 Layers panel

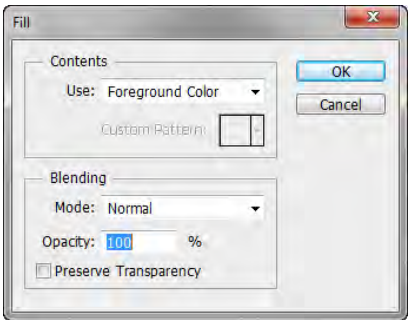

Figure 28 Fill dialog box

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

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.

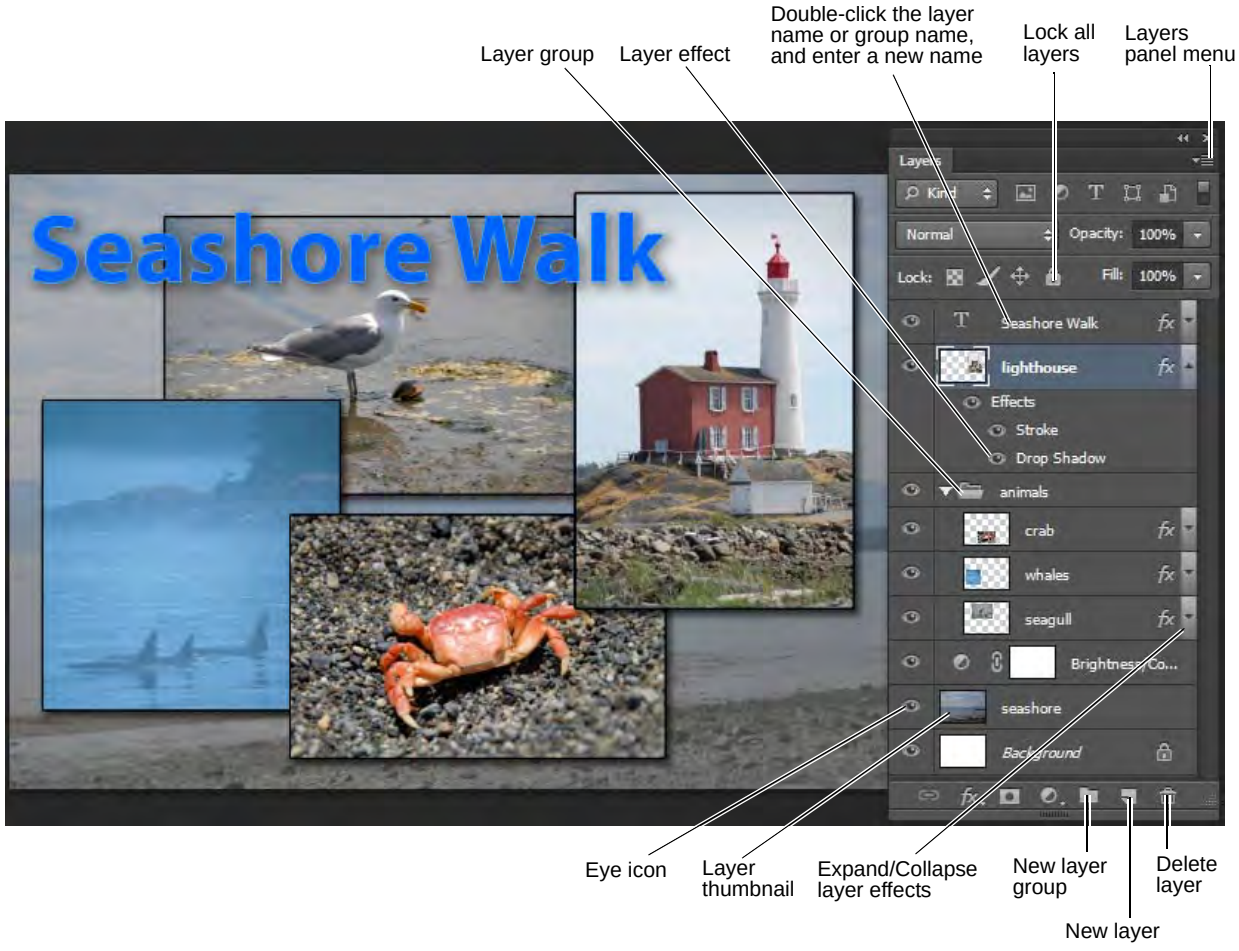

Figure 1 Photoshop Layers panel

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.

- 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.

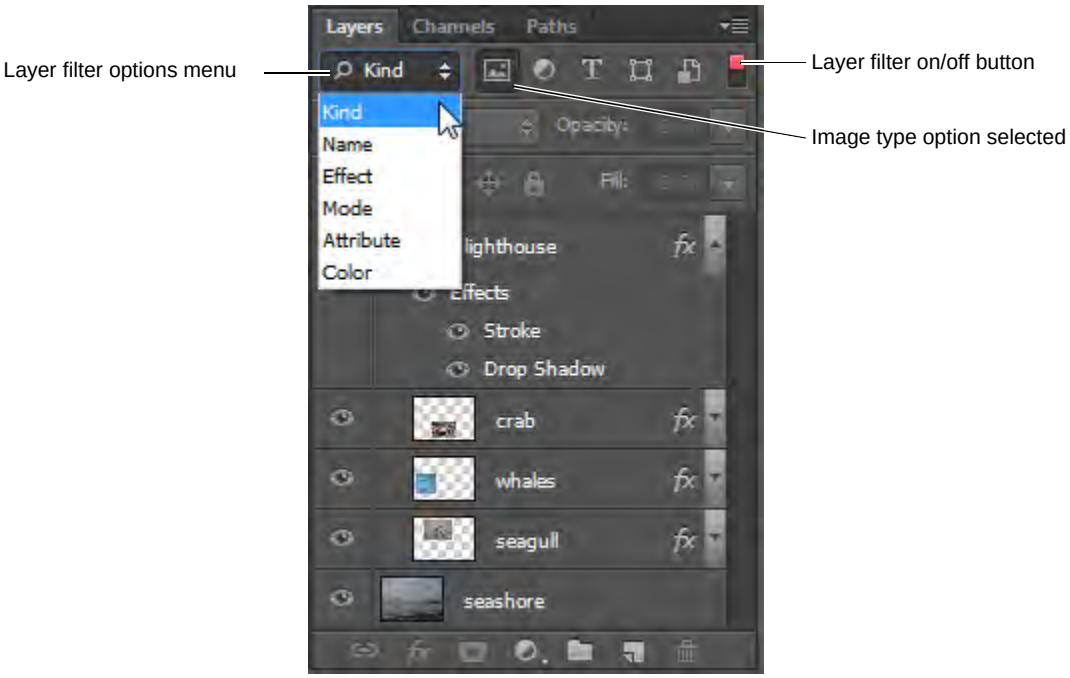

Figure 2 Filter and search options in the Layer panel

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**).

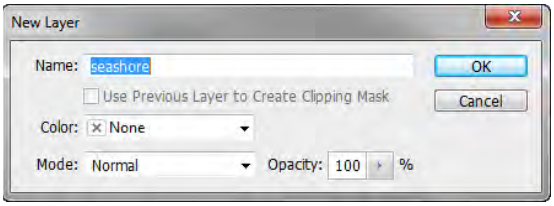

Figure 3 New Layer dialog box

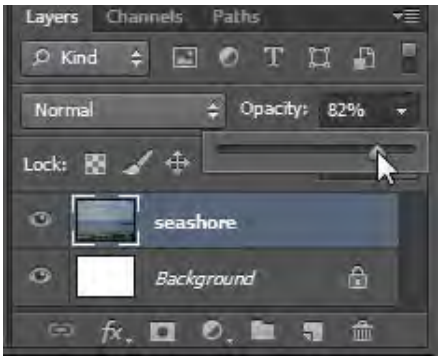

Figure 4 Opacity slider

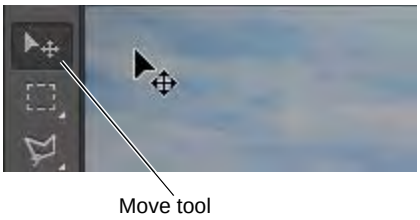

Figure 5 Select the Move tool

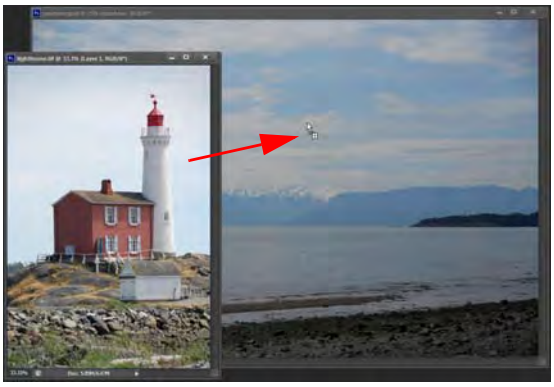

Figure 6 Drag an image to create a new layer

This document requires Adobe Photoshop CS6. Technical instructions may differ depending on your version.

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 fix images

Other than correcting color, one of the most common tasks you will perform in Adobe Photoshop is fixing images 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. Smart Sharpen and Camera Shake Reduction can help fix blurred images. 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, multi-layered 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.

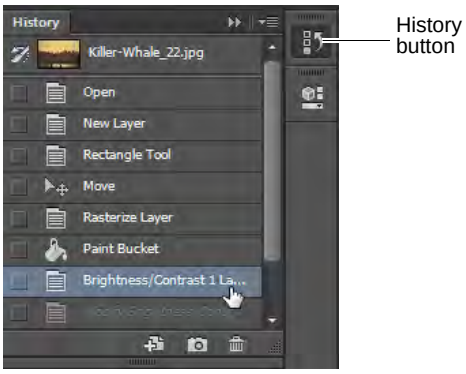

Figure 2 History panel

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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.

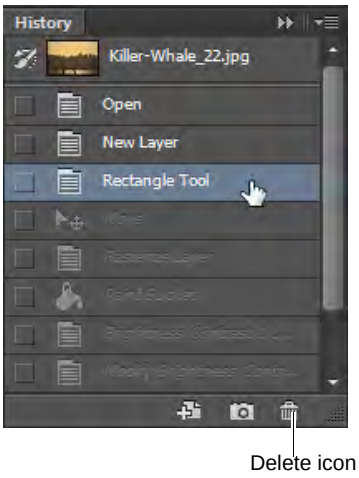

Figure 3 Earlier command selected

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.

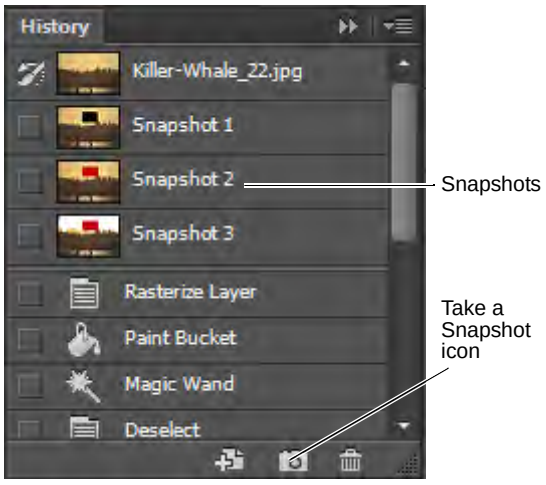

Figure 4 Snapshots in the History panel

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**).

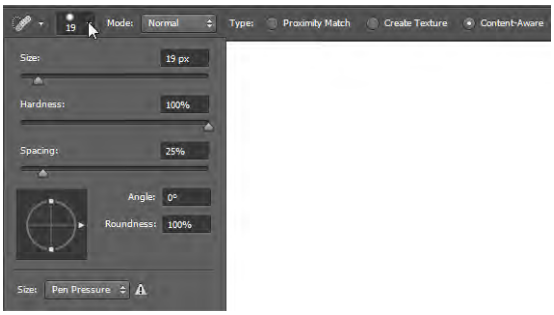

Figure 5 Brush options

Figure 6 Spot Healing brush positioned over a blemish

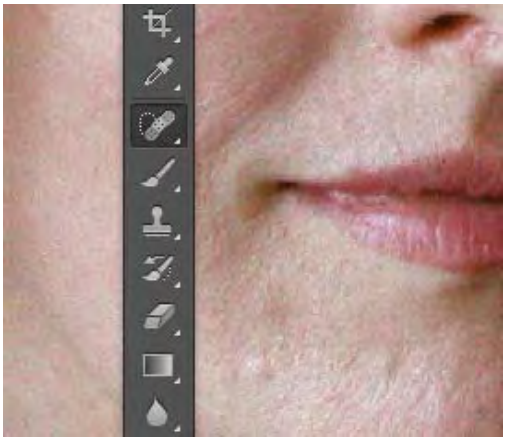

Figure 7 Spot Healing brush applied

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.

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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**).

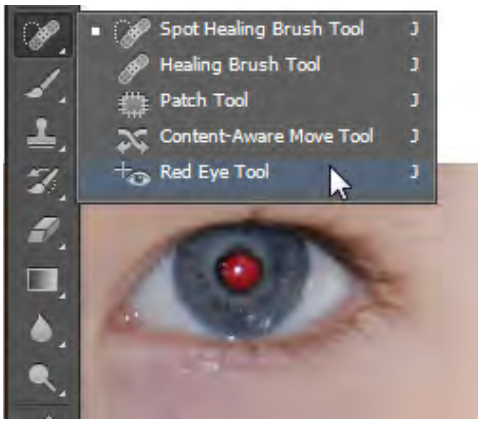

Figure 8 Red Eye tool

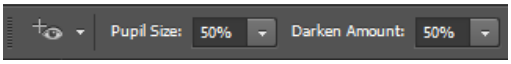

Figure 9 Red Eye tool options

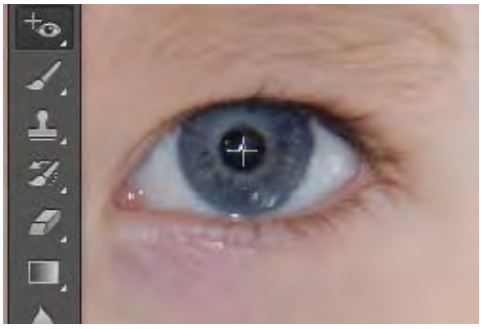

Figure 10 Red Eye tool applied

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

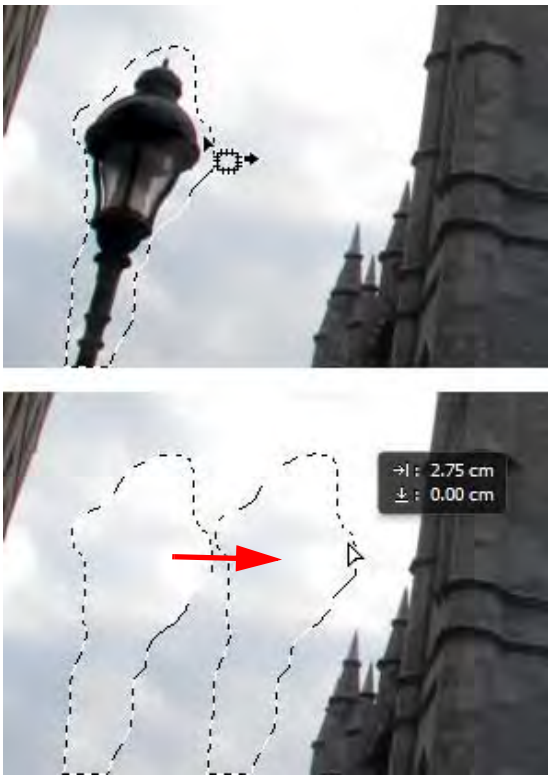

Figure 13 Drag the selection to the sample area

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**).

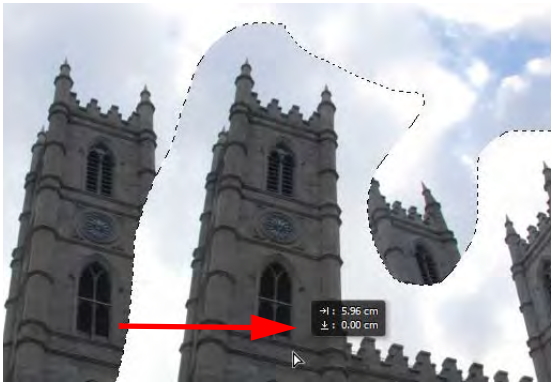

Figure 15 Dragging the image content to be moved

Figure 16 The final retouched image

Sharpen using Smart Sharpen

Sharpening enhances the definition of edges in an image. Whether your images come from a digital camera or a scanner, most images can benefit from sharpening. The degree of sharpening needed varies depending on the quality of the digital camera or scanner. Keep in mind that sharpening cannot correct a severely blurred image. The Smart Sharpen filter offers enhanced controls not available with other sharpening filters (**Figure 17**). You can set the sharpening algorithm or control the amount of sharpening that occurs in shadow and highlight areas.

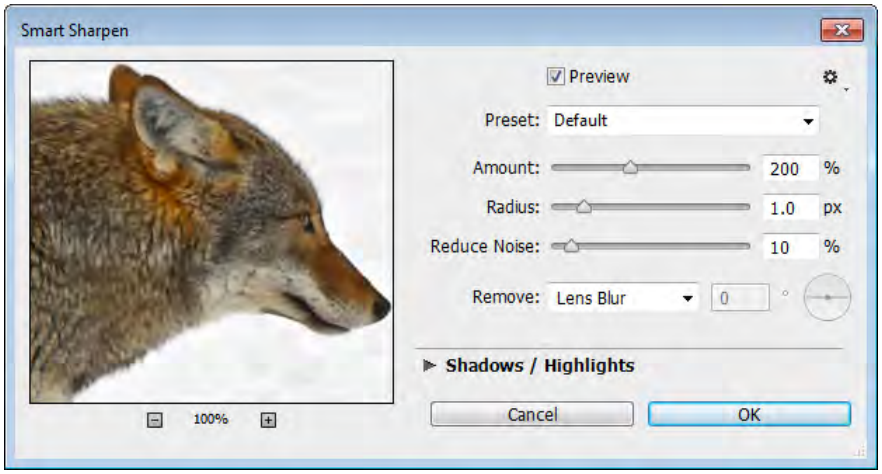

Figure 17 Smart Sharpen dialog box

To use the Smart Sharpen filter:

1. Open the image and zoom the document window to 100% to get an accurate view of the sharpening.
2. Choose Filter > Sharpen > Smart Sharpen.
3. Confirm the Preview option is selected and set the controls in the Smart Sharpen dialog box (**Figure 17**):

   Amount Sets the amount of sharpening. A higher value increases the contrast between edge pixels, giving the appearance of greater sharpness.

   Radius Determines the number of pixels surrounding the edge pixels affected by the sharpening. The greater the radius value, the wider the edge effects and the more obvious the sharpening.

   Reduce Noise Reduce unwanted noise while keeping important edges unaffected.

   Remove Sets the sharpening algorithm used to sharpen the image.

   - Gaussian Blur is the method used by the Unsharp Mask filter.
   - Lens Blur detects the edges and detail in an image, and provides finer sharpening of detail and reduced sharpening halos.
   - Motion Blur attempts to reduce the effects of blur due to camera or subject movement. Set the Angle control if you choose Motion Blur option of the Remove control.
4. Click Shadow/Highlights to expand the options and adjust sharpening of dark and light areas using in the Shadow and Highlight options (**Figure 18**). If the dark or light sharpening halos appear too strong you can reduce them with these controls, which are only available for 8-bits and 16-bits-per-channel images:

   Fade Amount Adjusts the amount of sharpening in the highlights or shadows.

   Tonal Width Controls the range of tones in the shadows or highlights that are modified. Move the slider to the left or right to decrease or increase the Tonal Width value. Smaller values restrict the adjustments to only the darker regions for shadow correction and only the lighter regions for highlight correction.

   Radius Controls the size of the area around each pixel that is used to determine whether a pixel is in the shadows or highlights. Moving the slider to the left specifies a smaller area, and moving it to the right specifies a larger area.
5. Click OK to close the Smart Sharpen dialog box.

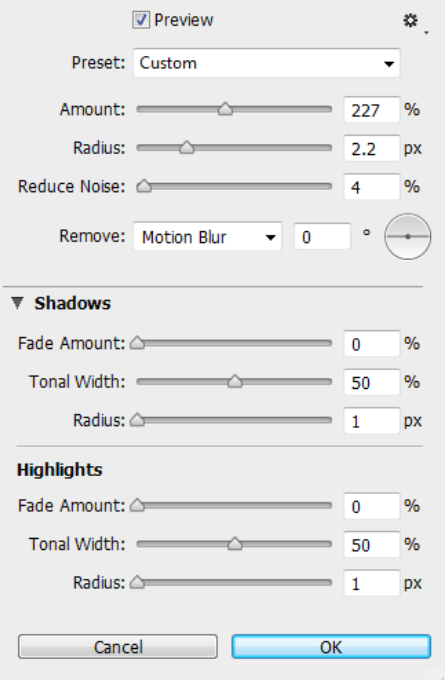

Figure 18 Shadow and Highlights options in the Smart Sharpen dialog box

Using the Camera Shake Reduction filter

Photoshop features an intelligent mechanism to automatically reduce image blurring caused by camera motion (**Figure 19**).

Figure 19 Camera shake reduction, before (left) and after (right)

The Shake Reduction filter can reduce blurring resulting from several types of camera motion (**Figure 20**); including linear motion, arc-shaped motion, rotational motion, and zigzag motion. If necessary, you can adjust advanced settings to further sharpen the image.

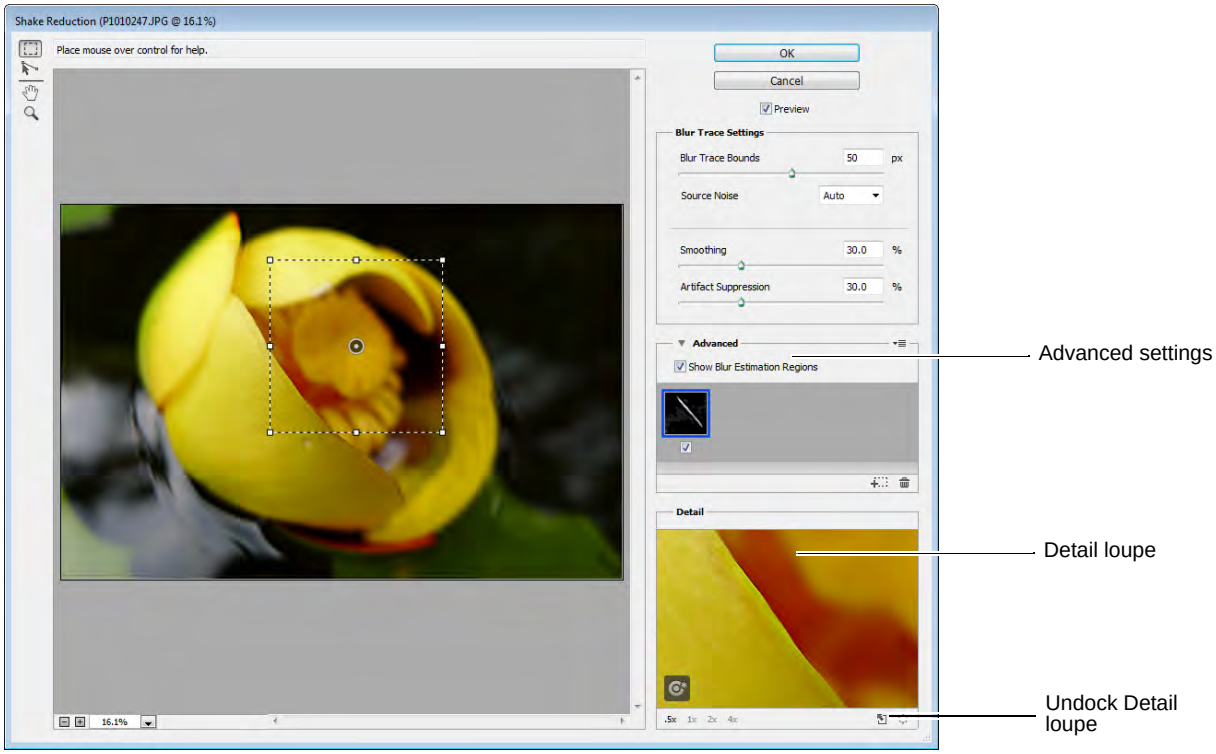

Figure 20 Shake Reduction dialog box

The camera shake reduction feature works best with decently lit still camera images having low noise. The following types of still images are particularly suitable for shake reduction:

- Indoor or outdoor images captured using a lens with a long focal length
- Indoor images of a static scene taken with a slow shutter speed and no flash

In addition, shake reduction can help sharpen blurred text in images affected by camera motion.

To use the Camera Shake Reduction filter:

1. Open the image.
2. Select Filter > Sharpen > Shake Reduction. Photoshop automatically analyzes the region of the image best suited for shake reduction, determines the nature of the blur, and extrapolates the appropriate corrections to the entire image. The corrected image is displayed for your review in the Shake Reduction dialog box (**Figure 20**).

   The Detail loupe in the lower-right pane lets you closely examine the region in focus. If necessary, zoom in or zoom out on an image element. As you drag the Hand tool over the Detail loupe to examine an image region, release the mouse button to see a quick preview of the shake reduction changes for that region.
3. Confirm the Preview option is selected then click the Undock Detail Loupe button.

   The loupe window detaches and is placed over the image (**Figure 21**). You can move the Detail loupe around the image to focus on a new image region suitable for camera shake reduction.
4. If needed, use the options in the Advanced panel of the Shake Reduction dialog box to modify blur traces.

Figure 21 Undocked Detail loupe

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.

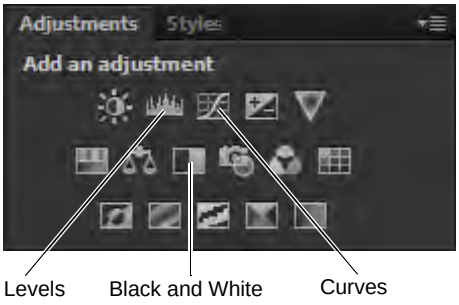

Figure 1 Adjustments panel

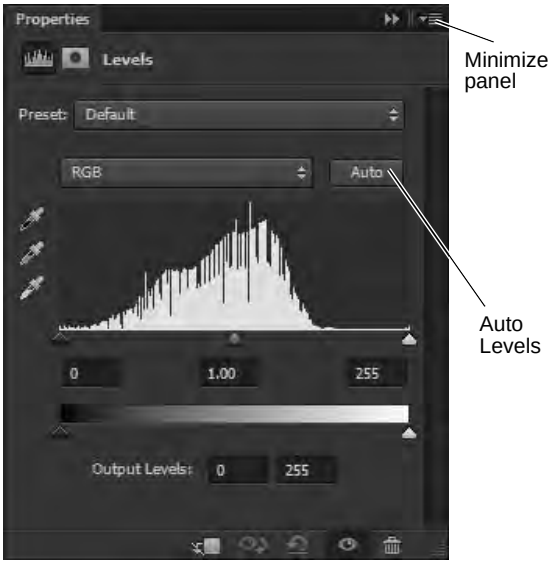

Figure 2 Properties panel with Levels options

This document requires Adobe Photoshop CS6. Technical instructions may differ depending on your version.

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.

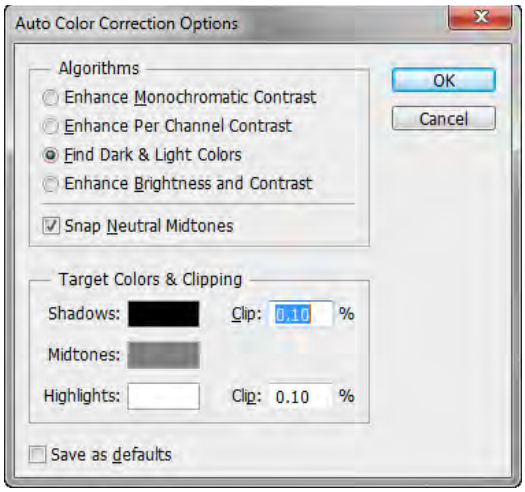

Figure 3 Auto Color Correction Options dialog box

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

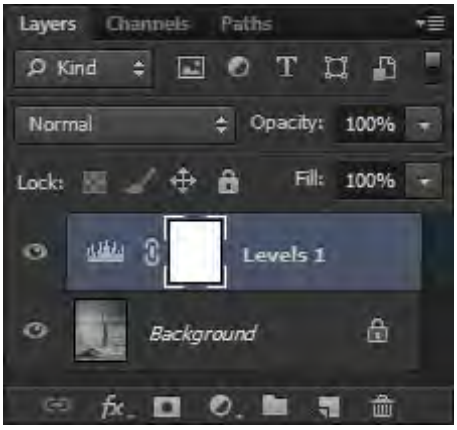

Figure 5 Layers panel with levels adjustment layer

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.

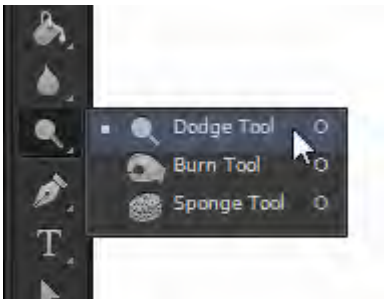

Figure 6 Dodge and Burn tools in the Tools panel

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.

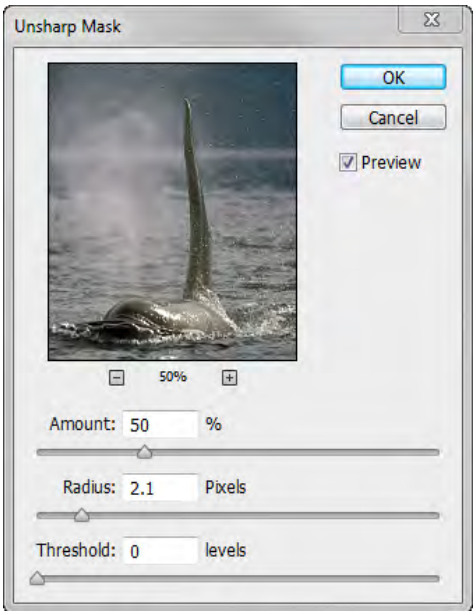

Figure 8 Unsharp Mask dialog box

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.

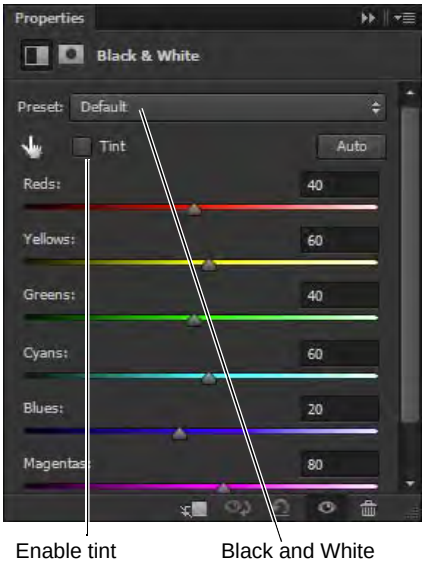

Figure 9 Properties panel with Black & White options

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.

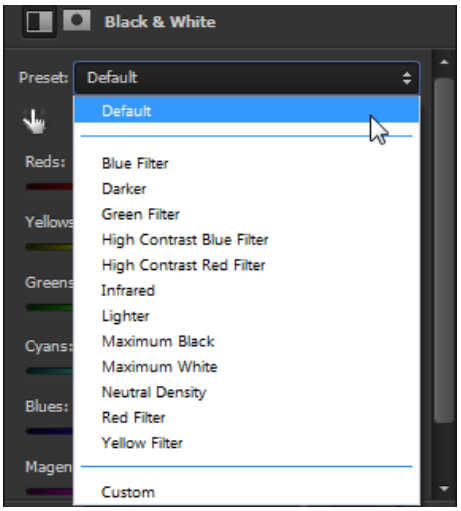

Figure 10 Black and White Preset menu

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.

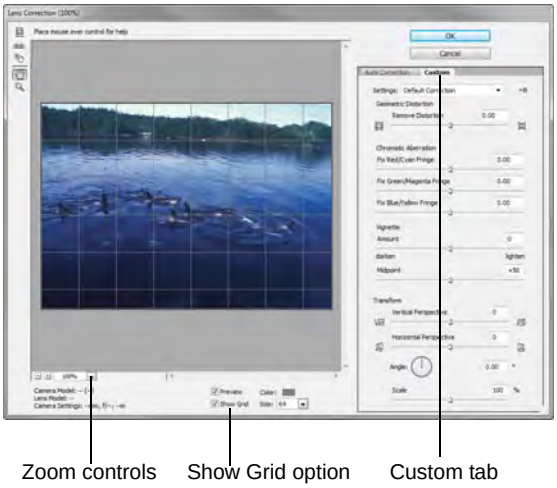

Figure 11 Lens Correction dialog box

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 add text to images

In Adobe Photoshop, 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.

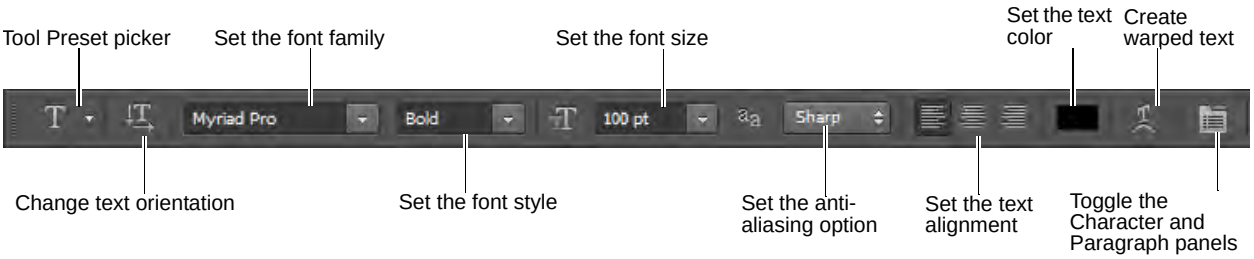

Figure 1 Text options bar

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**).

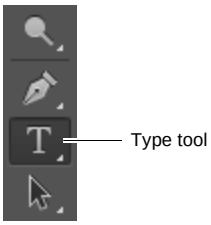

Figure 2 Tools panel

Figure 3 Drawing a text box

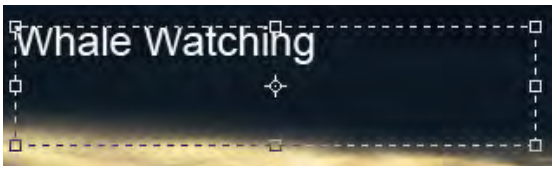

Figure 4 Adding text to a text box

This document requires Adobe Photoshop CS6. Technical instructions may differ depending on your version.

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.

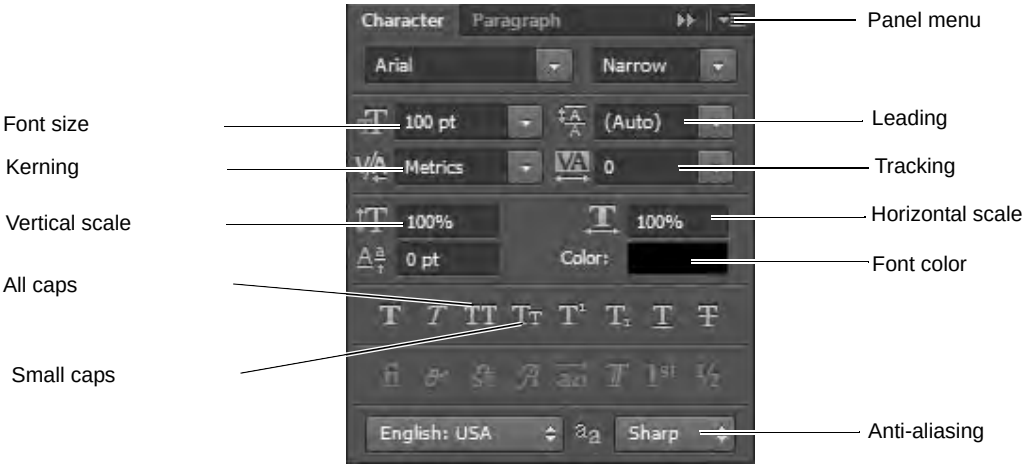

Figure 5 Character panel

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.

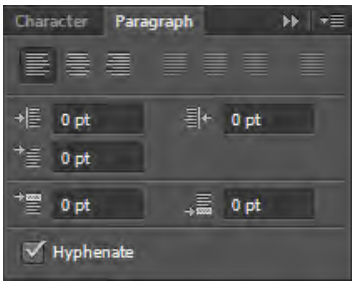

Figure 7 Paragraph panel

Figure 8 Text formatted in Paragraph panel

This document requires Adobe Photoshop CS6. Technical instructions may differ depending on your version.

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.

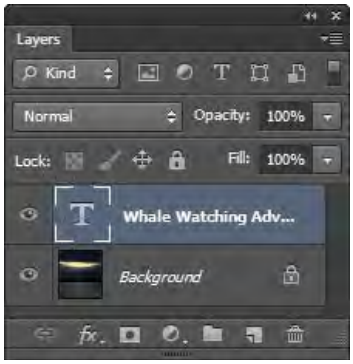

Figure 9 Layers panel

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.

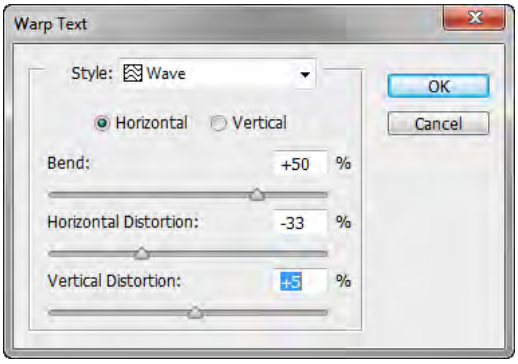

Figure 11 Warp Text dialog box

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**).

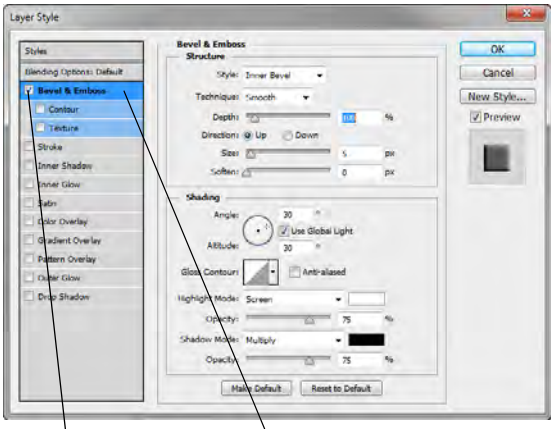

Figure 13 Layer Style dialog box

Figure 14 Layer effects applied to text

This document requires Adobe Photoshop CS6. Technical instructions may differ depending on your version.

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.

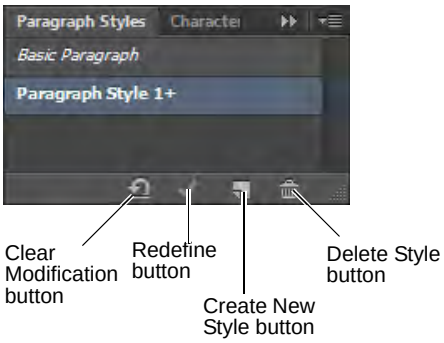

Figure 15 Paragraph Styles panel

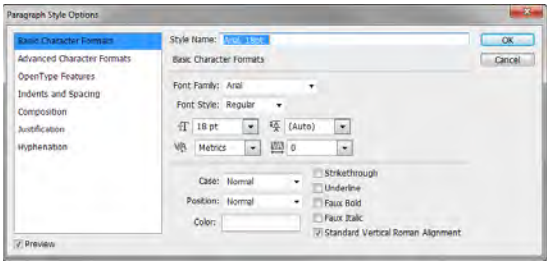

Figure 16 Paragraph Style Options dialog box

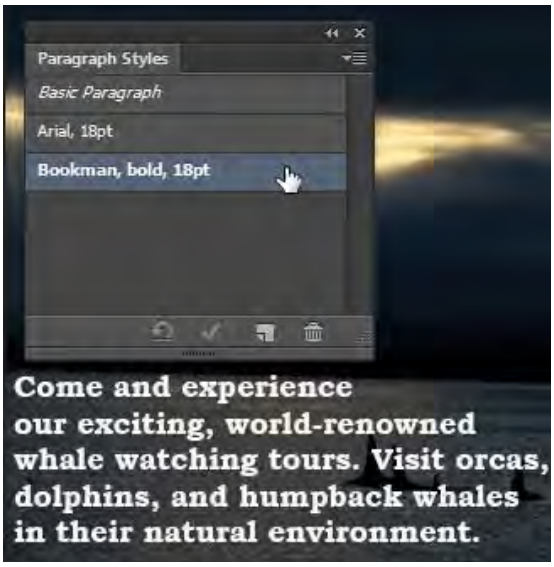

Figure 17 Paragraph Styles panel

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.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.

The CSS Copy function in Photoshop lets you quickly export CSS code for text and shape styling

You can save your generated file formats to the Adobe Creative Cloud. Your account comes with online storage so that your files are available to you anywhere and on any device or computer

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**).

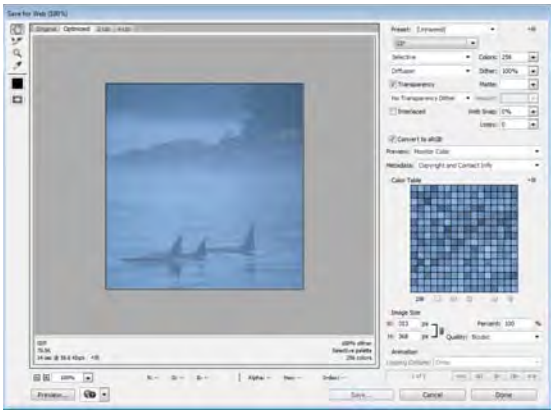

Figure 1 Save For Web dialog box

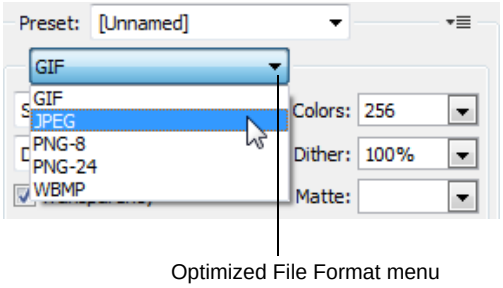

Figure 2 Optimized File Format menu

This document requires Adobe Photoshop CC, June 2013. Technical instructions may differ depending on your version.

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

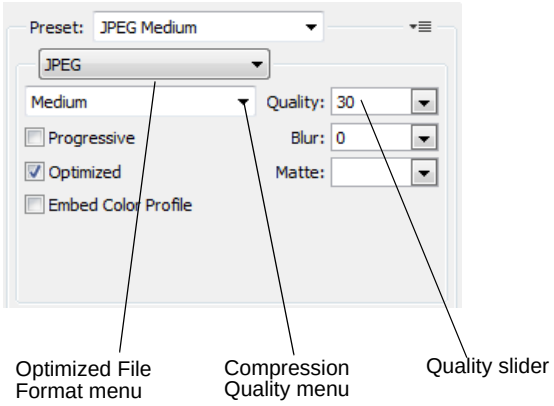

Figure 4 Save For Web settings

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. Deselect the Resample Image option if 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.

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

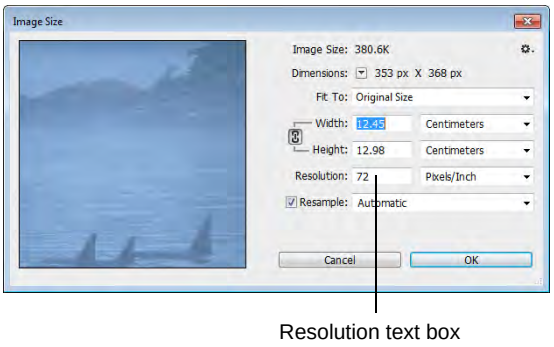

Figure 5 Image Size dialog box

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.

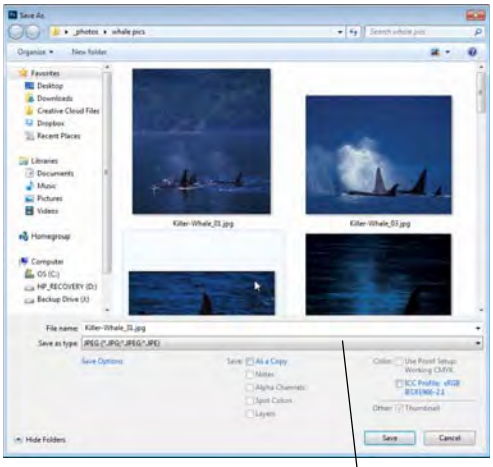

Figure 6 Save As dialog box

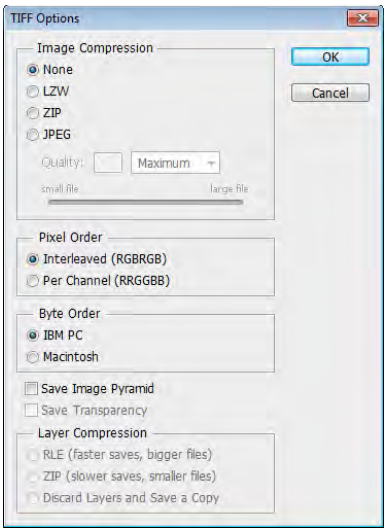

Figure 7 TIFF Options dialog box

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.

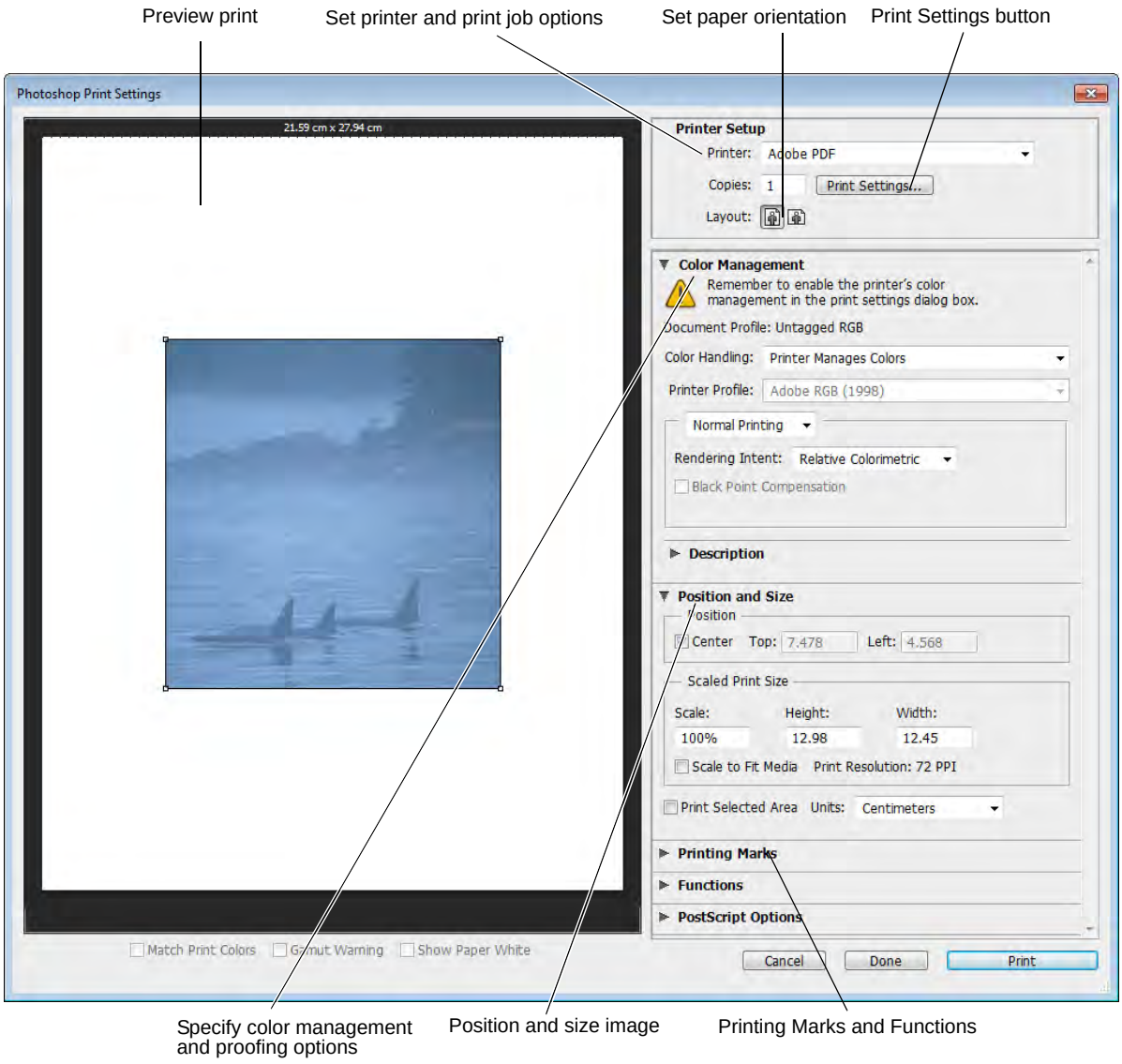

Figure 8 Print dialog box

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 non-printing 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.

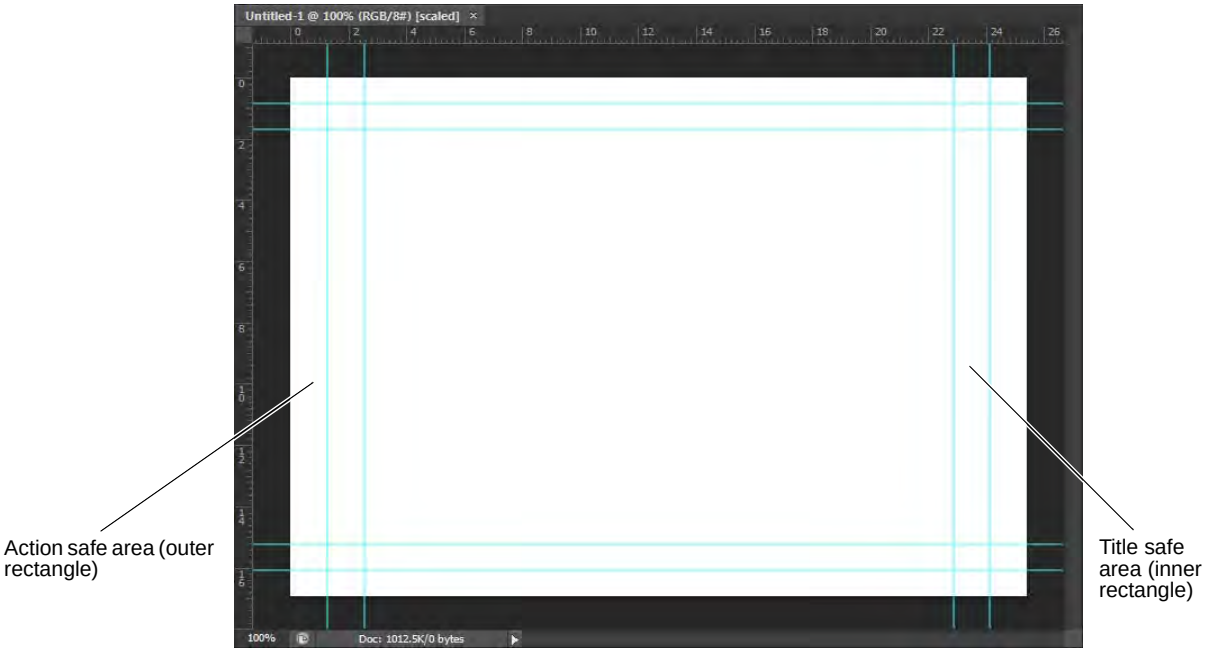

Figure 9 Video preset file size guides in a new document

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, non-square pixel documents open with Pixel Aspect Ratio Correction enabled. This setting scales the image so it appears as it would on the non-square 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**).

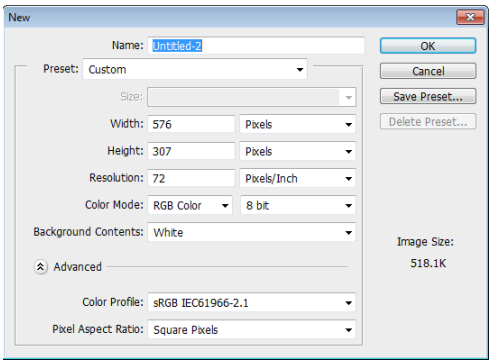

Figure 10 New document dialog box

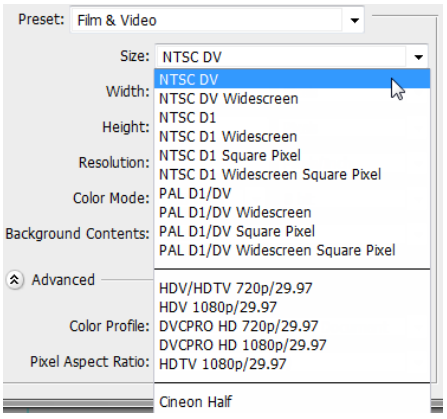

Figure 11 Film and video size preset options

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 non-square 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.

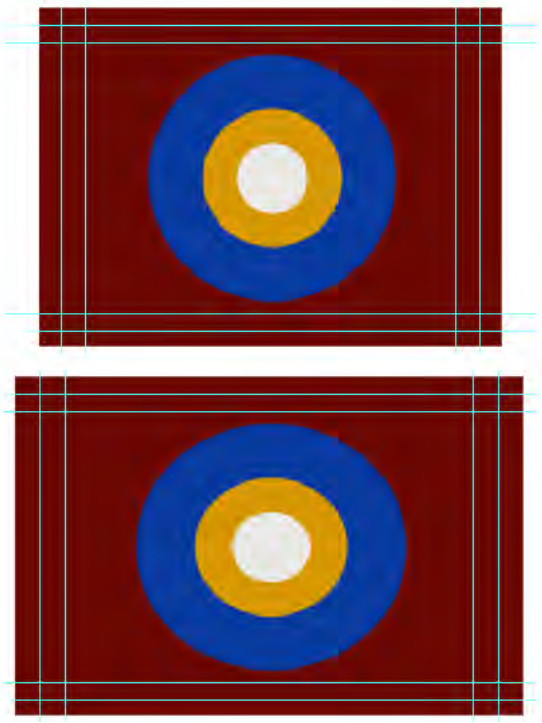

Figure 12 Circle in NTSC DV (720 x 480 pixels) document viewed on computer (square pixel) monitor with Pixel Aspect Ratio Correction turned on (top) and Pixel Aspect Ratio Correction turned off (bottom)

Copy CSS from Photoshop layers

The Copy CSS function in Photoshop generates Cascading Style Sheet (CSS) properties from shape or text layers (**Figure 13**). The CSS is copied to the clipboard and can be pasted into a style sheet of your favorite web development software, such as Adobe Dreamweaver.

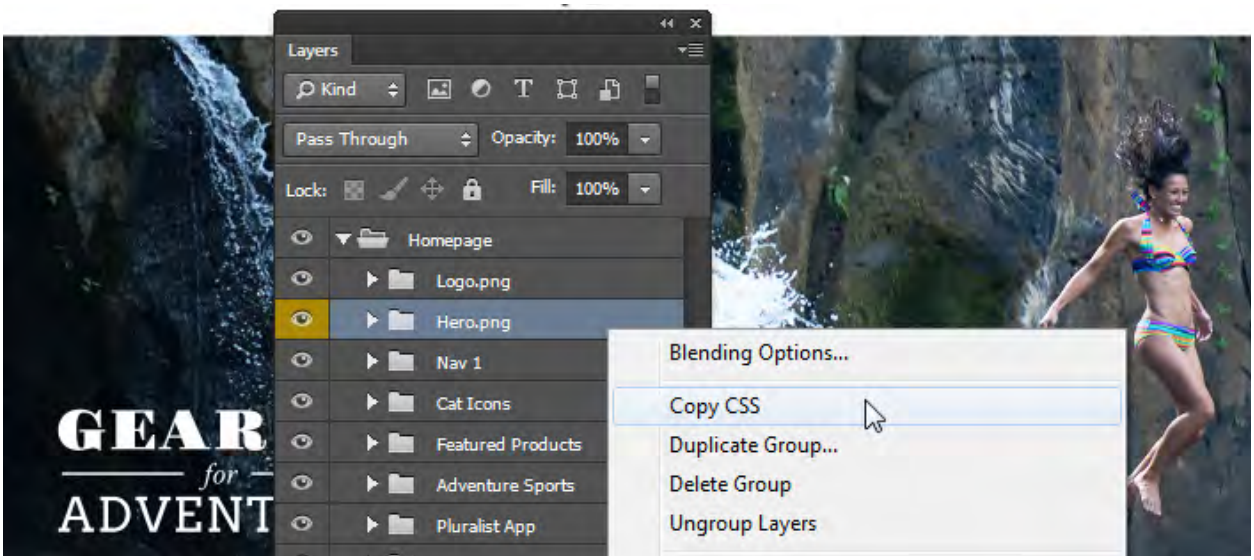

Figure 13 Layers panel and layer context menu

For shapes the Copy CSS function captures values for the following:

- Size
- Position
- Stroke color
- Fill color (including gradients)
- Drop shadow

For text layers, Copy CSS also captures the following values:

- Font family
- Font size
- Font weight
- Line height
- Underline
- Strikethrough
- Superscript
- Subscript
- Text alignment

Copying CSS from a layer group containing shapes or text creates a class for each layer as well as a Group class. The Group class represents a parent div containing child divs that correspond to the layers in the group. The top/left values for the child divs are in relation to the parent div.

Note: The Copy CSS command does not work with Smart Objects or when selecting multiple shape/text layers that are not grouped.

How to copy CSS from layers:

1. In the Layers panel, do one of the following:
   - Right-click a shape/text layer or layer group and choose Copy CSS from the context menu (**Figure 13**).
   - Select a shape/text layer or layer group and choose Copy CSS from the Layers panel menu.
2. Paste the code into your style sheet document into a CSS editor (**Figure 14**).

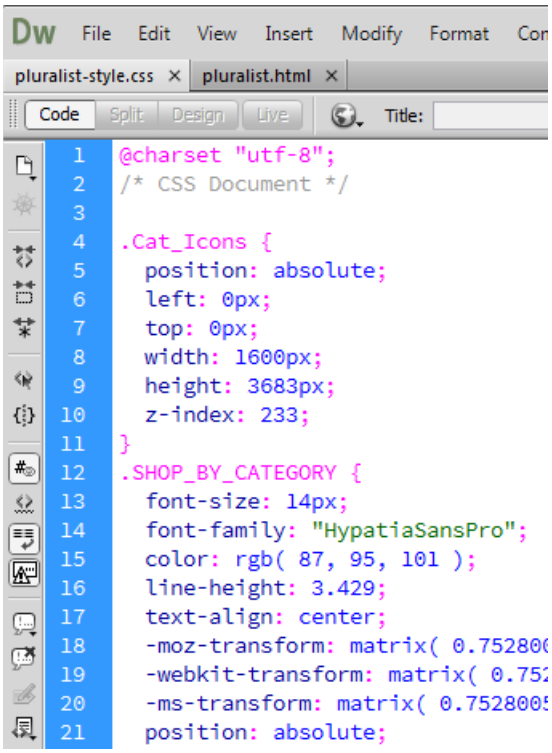

Figure 14 Pasted CSS in Dreamweaver

Saving to Creative Cloud

Your Adobe Creative Cloud account comes with online storage so your files are available to you anywhere and on any device or computer (**Figure 15**). You can preview many creative file types directly in a web browser on your computer, tablet, or smartphone. These file types include PSD, AI, INDD, JPG, PDF, GIF, PNG, Photoshop Touch, Ideas, and others.

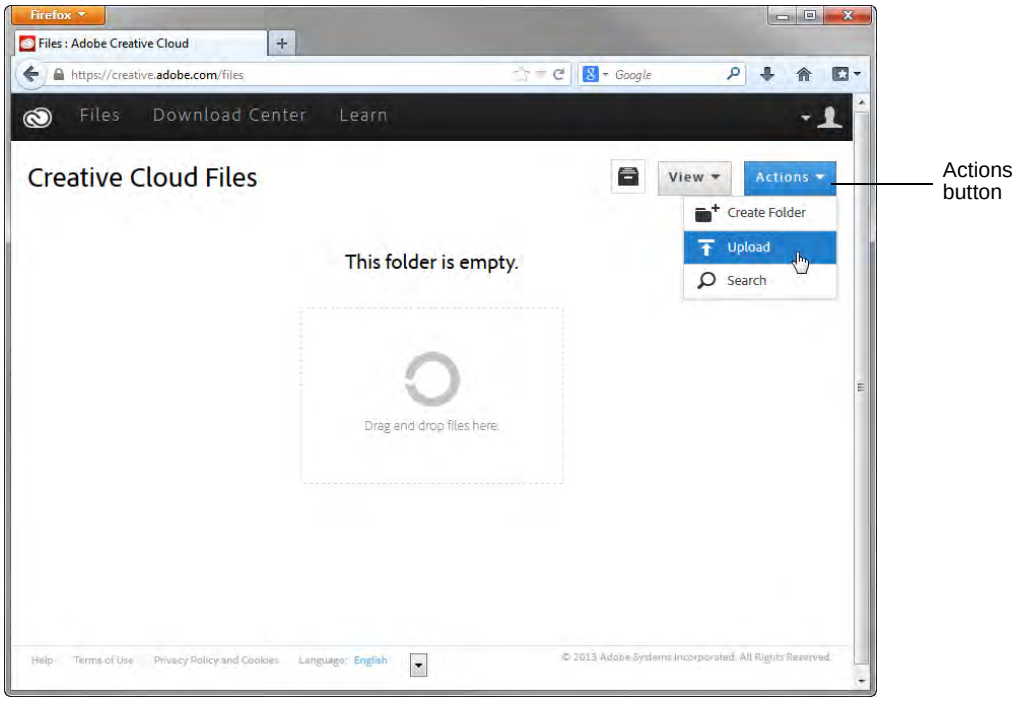

Figure 15 Creative Cloud Files page

How to save to Creative Cloud:

1. Log into your Creative Cloud account.
2. Drag and drop assets from your desktop to the Files page on Creative Cloud (**Figure 16**).

   You can also upload and manage your files on Creative Cloud by using the Actions button on the Creative Cloud Files page (**Figure 15**).

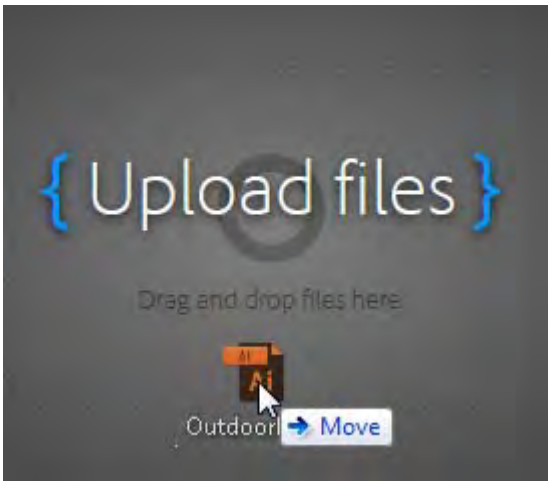

Figure 16 Drag and drop files

3. To delete files, select the Archive option by clicking the menu triangle in the lower-right corner of the file (**Figure 17**).
4. Click the Archive button to confirm.

   The item is moved to the Archive page (**Figure 18**).
5. To permanently delete files, select the files to delete permanently and click the Permanently Delete option in the Action menu (**Figure 19**).
6. In the confirmation dialog box, click Permanently Delete (**Figure 20**).

Figure 17 Menu triangle

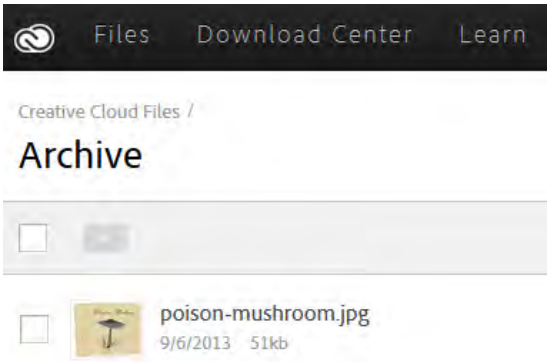

Figure 18 Creative Cloud Archive page

Figure 19 Action menu

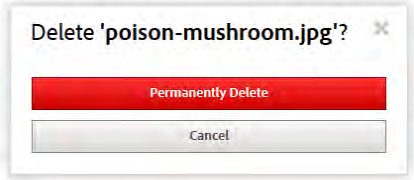

Figure 20 Permanently Delete confirmation dialog box

Adobe Certified Associate

Photoshop CC—Study Guide Sample Questions

RESPONSE EXAMPLES

1. Which of the following would you do first in order to present initial ideas to a client for their approval and feedback?

A. Show the client the final project
B. Present sketches
C. Give the client an invoice
D. Set up a conference call

Correct Answer: B

2. Which two ways can background images affect text? (Choose two.)

A. Readability
B. Alignment
C. Loading time
D. Language choice

Correct Answer: A and B

3. Which option is NOT a benefit of producing reusable images?

A. Ability to apply consistent settings to multiple projects.
B. Allows the user to save time and resources during production.
C. Reduces user error in production.
D. Improved quality when used for print and web.

Correct Answer: D

4. Which two options below represent Auto Color Correction tools available in Adobe Photoshop? (Choose two.)

A. Auto Tone
B. Auto Color
C. Auto Crop
D. Auto Hue

Correct Answer: A and B

5. Which option below allows users to saturate pixels?

A. Dodge Tool
B. Burn Tool
C. Sponge Tool
D. Mixer Brush Tool

Correct Answer: C

6. Which two options are considered best practices when using the Pen tool to create curves and angles? (Choose two.)

A. Place anchors at every acute or abrupt angle.
B. Mid-curve anchors should be placed to comfortably accommodate curve transitions.
C. Place anchor points in the middle of a curve to change direction.
D. Always use as many anchor points as possible to create smooth curve transitions.

Correct Answer: A and B

7. Which filter would a user choose to create image results that are more realistic because the edits are properly oriented and scaled to the perspective planes?

A. Vanishing Point Filter
B. Liquefy Filter
C. Displace Filter
D. Lighting Effects Filter

Correct Answer: A

8. Which color mode is the most effective to use for final output when a project will be printed on an offset press?

A. CMYK
B. HSB
C. LAB
D. RGB

Correct Answer: A

9. Which two options describe the design practice of framing? (Choose two.)

A. The technique of placing the subject of an image in such a way that the viewer's attention is focused in that area.
B. The process of defining the border of an image.
C. The process of changing the contrast, brightness, and cropping of an image to highlight the subject.
D. The process of defining a decorative border for an image.

Correct Answer: A and C

10. Which file formats are best suited for high-quality images that will be displayed on a webpage?

A. JPG and BMP
B. JPG and TIFF
C. GIF and TIFF
D. PNG and JPG

Correct Answer: D

SIMULATION EXAMPLES

1. Without altering any of the pixels of the image itself, adjust the Levels of the image to the following settings:

- **Shadows: 15**
- **Midtones: 0.80**
- **Highlights: 239**

(Note: Accept all other default settings.)

Method of Completion:

1. Click on the Adjustment Layer icon at the bottom of the Layers panel
2. Choose Levels…
3. Drag the black triangle to 15 **OR** Type 15 in the Shadows field
4. Drag the white triangle to 239 **OR** Type 239 in the field below Highlights
5. Drag the grey triangle to 0.8 **OR** Type 0.8 in the Midtones field

OR

1. Click on the Levels Adjustment Layer icon in the Add an adjustment panel above the Layers panel
2. Drag the black triangle to 15 **OR** Type 15 in the Shadows field
3. Drag the white triangle to 239 **OR** Type 239 in the field below Highlights
4. Drag the grey triangle to 0.8 **OR** Type 0.8 in the Midtones field

2. Use Color Range to make a selection of the entire sky with Sampled Colors. Set the Fuzziness to 95 and add to the sky selection using the Add to Sample eyedropper. (Note: Accept all other default settings.)

Method of Completion:

1. Choose Select > Color Range…
2. Select Sampled Colors from the Select drop menu
3. Drag the slider to the right so the Fuzziness value reads 95 **OR** Type 95 in the field for Fuzziness
4. Use the eyedropper plus to click in the sky (three different areas is enough) to select the sky
5. Click OK **OR** Click Enter

3. Load both the *right_headlight* and *left_headlight* selections so both headlights are part of the

same selection.

Method of Completion:

1. Choose Select > Load Selection…
2. Choose right_headlight **OR** Choose left_headlight
3. Click OK or Press Enter
4. Choose Select > Load Selection
5. Choose left_headlight (if right selected previously) **OR** Choose right_headlight (if left selected previously)
6. In the Operation area, select radio button Add to Selection
7. Click OK or Press Enter

4. Create a nondestructive Hue/Saturation adjustment layer with a Sepia tone. Set the adjustment layer to clip to the layer containing the image.

Method of Completion:

1. Select Layer 1 (if necessary)
2. Select the Hue/Saturation icon from the Adjustments panel
3. Click on the Presets dropdown menu
4. Choose Sepia
5. Click on the clip to layer icon at the bottom of the Hue/Saturation dialog box
6. Click the double arrows in the top right corner of the panel to close the window (Not necessary to complete item correctly)

OR

1. Select Layer 1 (if necessary)
2. Click the create new fill or adjustment layer icon at the bottom of the Layers panel
3. Select the Hue/Saturation icon from the Adjustments panel
4. Click on the Presets dropdown menu
5. Choose Sepia
6. Click on the clip to layer icon at the bottom of the Hue/Saturation dialog box
7. Click the double arrows in the top right corner of the panel to close the window (Not necessary to complete item correctly)

5. Use the Quick Selection Tool to select one of the lower bodies in the top right corner of the image, and then replace the selected pixels using Content-Aware fill. Repeat the task for the second lower body.

Method of Completion:

1. Select the Quick Selection Tool
2. Click and drag through one of the lower bodies
3. Hit the Delete key **OR** Click Edit > Fill… **OR** Hit Shift + F5 **OR** Right click on the selection and select Fill…
4. Click on the dropdown next to Background and choose Content-Aware
5. Click OK.

6. Click and drag through the legs of the second lower body
7. Hit the Delete key **OR** Click Edit > Fill… **OR** Hit Shift + F5 **OR** Right click on the selection and select Fill…
8. Right click on the selection and select Fill…
9. Click OK

6. Set the Spot Healing Brush tool size to 20 px and use it to remove the scratch on the front fender above the left tire. Then, set the brush size to 10 px and remove the scratch above the left door handle.

Method of Completion:

1. Select the Spot Healing Brush
2. Click on the Options bar dropdown next to brush size
3. Set the brush size to 20px
4. Click and drag over the white line on the fender of the truck cab
5. Click on the Options bar dropdown next to brush size
6. Set the brush size to 10px
7. Click on the scar above the door handle of the truck cab

7. In the text, replace the word *Acre* with Acres. Set the text font size to 48 pt, and apply a Rise Warped Text effect to it. (Note: Accept all other default settings.)

Method of Completion:

1. Select the Type tool and then click after the letter E in Acre on the text in the image
2. Type the letter S
3. Click and drag through the text
4. Click on the dropdown next to the font size icon in the Options bar above the image
5. Select 48
6. Select the Create Warped Text icon in the Options bar **OR** Right Click and Select Warp Text…
7. Click on the dropdown next to None
8. Select Rise
9. Click OK

OR

1. Hit "T" and then click after the letter E in Acre on the text in the image
2. Type the letter S
3. Use Control + A to select the text
4. Click in the text field next to the font size icon in the Options bar above the image
5. Type 48
6. Select the Create Warped Text icon in the Options bar
7. Click on the dropdown next to None
8. Select Rise
9. Hit the Enter key

8. Crop the image at a width of 500 px, a height of 500 px, and a resolution set to 72 ppi. Save the

file for the web using the PNG-24 Preset, enabling Transparency, and the file name logo. (Note: Accept all other default settings.)

Method of Completion:

1. Click the Crop tool icon **OR** Press C
2. Click inside the text field next to W x H Resolution
3. Type 500 px and click into the text field to the right
4. Type 500 px and click into the text field to the right
5. Type 72 in the text field
6. Click the Check icon at the end of the Options bar to commit the crop **OR** Hit Enter
7. Select File > Save for Web…
8. Choose PNG-24 from the Preset dropdown
9. Place a checkbox to the left of Transparency
10. Click Save **OR** Hit Enter
11. Name the file logo.png and click OK

OR

1. Hit the C key on the keyboard
2. Click inside the text field next to W x H Resolution
3. Type 500 px and hit the tab key
4. Type 500 px and hit the tab key
5. Type 72 in the text field
6. Click the Check icon at the end of the Options bar to commit the crop
7. Use keyboard shortcut Alt + Shift + Control + S to bring up the Save for Web window
8. Choose PNG-24 from the Preset dropdown
9. Place a checkbox to the left of Transparency
10. Hit the Enter key
11. Name the file logo.png and hit the Enter key

9. Save the current project as a JPEG file in the Documents folder. Name the file Cards and set the Quality of the file to 5. (Note: Accept all other default settings.)

Method of Completion:

1. Click File in the above menu
2. Click Save As
3. Make sure you are in the Documents Folder
4. Change the file-type to "JPEG"
5. Change the file name to "BusCards.jpg"
6. Click OK
7. Change the quality to 5
8. Click OK

OR

1. On the keyboard, click "CTL + ALT + S" to trigger the "Save as" function
2. Make sure you are in the Documents Folder
3. Change the file-type to "JPEG"
4. Change the file name to "BusCards.jpg"
5. Click OK

6. Change the quality to 5
7. Click OK

10. Display the ruler and change the unit of measurement to pixels. Disable Snap to Layers.

Method of Completion:

1. Click View > Ruler **OR** Hit Ctrl + R
2. Right click on either the horizontal or vertical ruler and select Pixels
3. Click View > Snap To > Layers

OR

1. Click View > Ruler **OR** Hit Ctrl + R
2. Click Edit > Preferences > Units and Rulers…
3. Change the Ruler Units to Pixels
4. Click OK
5. Click View > Snap To > Layers