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.

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

To change resolution of an image:

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

1. Open an image in Photoshop.
2. Save the image with a new name.

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

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

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

   - *Pixel Dimensions* refers to the actual number of pixels contained in the image. The number of pixels represents the amount of data in the image. Unless you select the Resample Image option, number of pixels remains the same as you resize and change the resolution of the image.
   - *Document Size* refers to how the document appears when printed. Document size is also a starting point for how the document will appear in another document, such as an InDesign file. In later projects, you will place Photoshop images in InDesign files.
4. Make sure the Resample Image option is not selected.

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

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

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

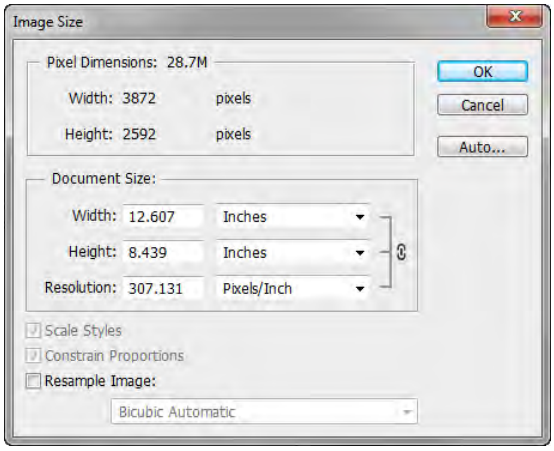

Figure 1 Image Size dialog box with resolution at 300 dpi

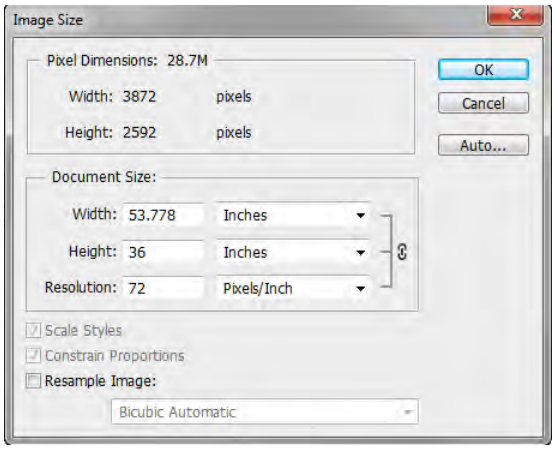

Figure 2 Image Size dialog box with resolution changed to 72 ppi

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Reducing an image's size (pixel dimensions)

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

To reduce an image's pixel dimensions:

1. Choose Image > Image Size.

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

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

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

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

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

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

3. Choose Bicubic Sharper from the Resample Image menu.

   This option is best for reductions.

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

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

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

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

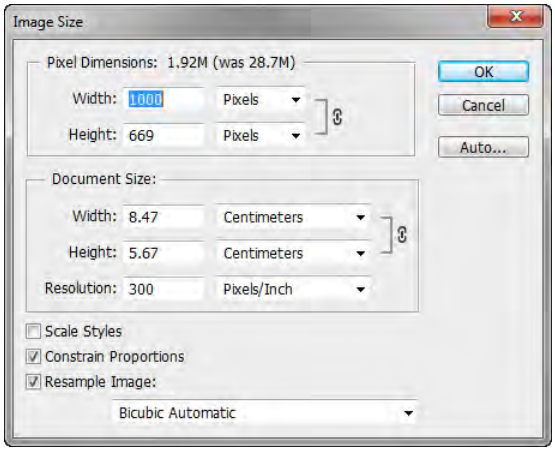

Figure 3 Image Size dialog box

Rotating images

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

To rotate an image:

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

1. Choose Image > Image Rotation (**Figure 4**), and choose one of the following commands from the submenu:
   - *180°* Rotates the image by a half-turn.
   - *90° CW* Rotates the image clockwise by a quarter-turn.
   - *90° CCW* Rotates the image counterclockwise by a quarter-turn.
   - *Arbitrary* Rotates the image by the angle you specify. If you choose this option, enter an angle between 0 and 359.99 in the Angle text box. Select °CW or °CCW to rotate clockwise or counterclockwise. Then click OK.
2. Choose File > Save to save the rotated image.

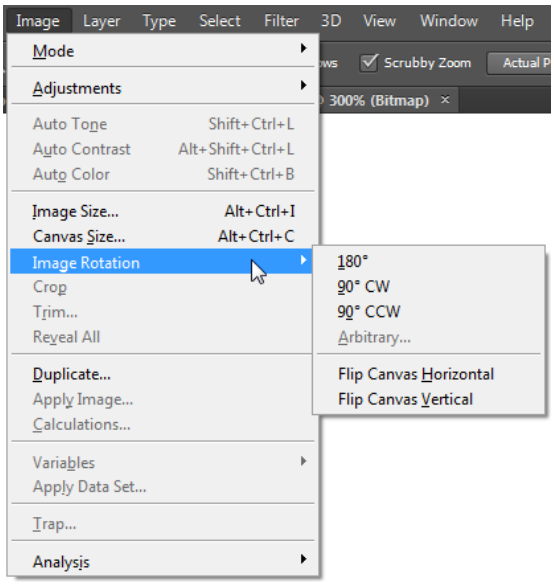

Figure 4 The Image Rotation submenu

Cropping Images

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

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

Grid overlays

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

To crop an image by using the Crop tool:

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

   The pointer changes to the Crop tool.

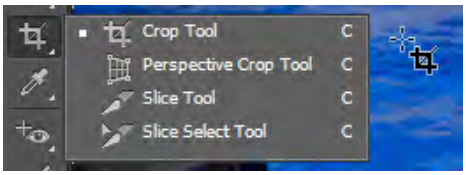

Figure 5 Crop tool

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

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

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

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

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

   A Rule of Thirds grid appears.

5. If necessary, adjust the cropping selection:

   - To move the selection to another position, place the pointer inside the bounding box and drag.
   - To scale the selection, drag a handle in any of the corners. To constrain the proportions, hold down Shift as you drag a corner handle.
   - To rotate the selection, position the pointer outside the bounding box (the pointer becomes a curved arrow), and drag. To move the center point around which the marquee rotates, drag the circle at the center of the bounding box. The selection can't be rotated in Bitmap mode.

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

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

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

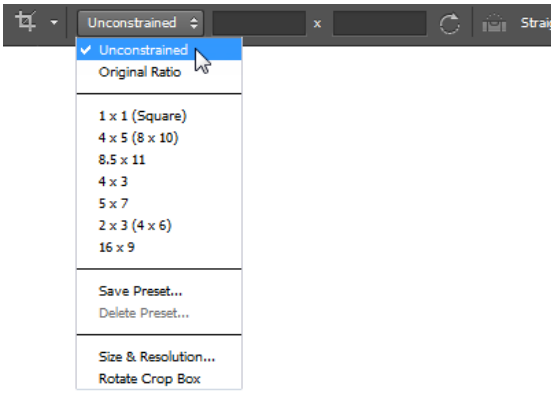

Figure 6 Menu of preset aspect ratios

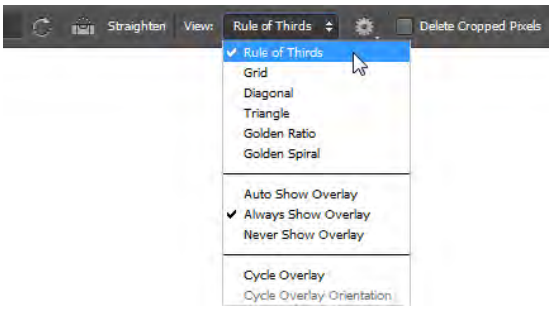

Figure 7 Menu of preset View options

Figure 8 Crop area selected

Figure 9 Crop applied