Image essentials

When it comes to image editing. Adobe Photoshop is one of the most powerful programs available. It is used by professionals worldwide to retouch and enhance images apply various artistic filters and effects and edit images in any way possible. Here we will explore some of the most basic features of Photoshop. Firstly, let's get to know the Photoshop user interface.

To open an image in **Photoshop**:

- Click File.
- Click Open.
- Find the image.
- Click Open.

On the left side of Photoshop's window there is a selection of image manipulation tools.

Most of the tools have a small arrow in the bottom right-hand corner of the icon. Click or right-click it to access more tools in this group.

Note that next to the name of some tools there is a small letter. You can choose a specific tool by pressing the corresponding key. This is called shortcut.

All tools within the same group share the same keyboard shortcut. If you press a tool shortcut key, the tool from that group that was used last is selected.

Image size and resolution

Every digital image consists of many tiny colored dots called pixels. Those pixels when put together side by side make our image. For example, an image coming straight from your digital camera, may be 4000 by 3000 pixels. These are your image's pixel dimensions and since every pixel takes up a certain amount of space on your computer, the pixel dimensions and the color depth: determine the final size of your picture on the computer.

You may have also heard the term resolution referring to image resolution, digital camera resolution etc. This is a very confusing term because it is used to mean different things in different cases. In many cases, resolution is used to refer to the total amount of pixels in an image. This is the case with digital camera resolution which is measured in megapixels. However, in Photoshop. resolution has nothing to do with the amount of pixels in the image file, so it doesn't affect the image file size at all. Resolution in Photoshop is about how detailed an image will appear if it is printed on paper (or other print medium) and it is measured in pixels per inch or ppi. In printed images with higher resolution, the pixels are more dense, resulting in better looking images.

To change an image's pixel dimensions and/or resolution:

- Click Image.
- Click Image Size.
- Change either the Width or Height under Pixel Dimensions.
- Under Document Size you can change the printed image's size and resolution.
- When done, click OK.

Note that when Constrain Proportions is checked, changing one dimension automatically changes the other to maintain the proportions of the original image.

If you want to change the Pixel Dimensions make sure Resample Image is checked.

Choose a color mode

A color mode is roughly how each color is represented in each pixel in the image.

To change the color mode of an image in Photoshop:

- From Image menu, click Mode.
- Click a color mode of your choice.

Some of the most important color modes are explained below.

RGB Red, Green and Blue The same color system that makes up viewing an image on a computer monitor (also the same as on a TV). Monitors emit light and each pixel creates its color by mixing various shades of the three primary colors (Red, Green and Blue) It's the color mode of choice for photos viewed on screen It gives the widest range of color available for your Photoshop image.

RGB uses additive color mixing to create all the colors Imagine you have 3 colored flashlights in a completely dark room. One red, one green and one blue. When no light is on, you have total darkness: black, the absence of colors. Adding red to green creates yellow, adding all three primary colors together creates white

CMYK-Cyan, Magenta, Yellow, Key (black). This process takes these four colors and blends them to achieve the desired color of your image. This is how your desktop printer works. It mixes those four inks in different intensities to print your image on paper. Use this color mode to work with images that you are planning te print. That way, the colors that you see on your monitor would be a more accurate representation of the final result you will get on paper.

CMYK uses subtractive color mixing to create all the colors. Here, we don't need to create white because that is the color of paper, or the background. You can imagine the three colors (Cyan, Magenta and Yellow) as filters. If we shine white light through a Yellow filter, the light will of course be yellow when it hits our eyes. If we put the yellow and the magenta filters together the light passing through will become red and so on. When all three colors are mixed together they block or absorb all light, thus creating black. In printers though to save money on ink, and to produce deeper black tones, unsaturated and dark colors are produced by using black ink instead of the combination of cyan, magenta and yellow.

You can see that RGB and CMY are complementary colors. Any two colors from one group can produce a basic color from the other group.

Indexed. A file using Indexed color mode can handle only a specific, user defined color palette, usually used for files to be emailed or on a website. You can use a color range of up to 256 colors to define your image making it a smaller file size, however the quality of your image is severely affected. A poor choice if you want to print your file, but if it still looks good on the screen, it is a good choice for the web.

Grayscale. Think of a black and white photo here. A grayscale image has black, white, and every shade of grey in between (256 shades actually) On the web, grayscale images are generally saved as jpg files and are smaller in size than those saved in a color format.

Color Depth

Photoshop also allows you to choose color depth while working on an image Color depth is how many different shades of each color you will have available to work with while making edits to your image This determines how many distinct colors can be represented. Color depth is measured in Bits/Channel in Photoshop A channel is a basic color of your color mode. For example, in RGB, you

have the red channel, the green channel and the blue channel So if you use 8 bits for the red channel, that means that you can have 256 (2 256) different shades of red. By combining different shades of each channel you can create many different colors. In 8 Bits/Channel you can have a total of 256 255 256-167 million different colors in your image. In 16 Bits/Channel you have 222281 trillion possible colors!

So what to choose?

Well if you plan to make a lot of changes and adjustments to your image, use 16 Bits/Channel. This will allow you to retain a lot more color information while editing your image. Beware though, as this color depth usually results in file sizes nearly double in size as those of 8 Bits/Channel

The best practice is to work on 16 Bits/Channel while making all the demanding adjustments and when finished, convert to 8 Bits/Channel and save. Also, keep in mind that the most popular image format, JPEG, only supports 8 Bits/Channel so if you want to save a file in another color depth you should use another format like TIFF

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Saving images for the web and for print

Typically, when you want to use an image on the web, for example attach it to an email, use it on your personal website, upload it to your online profile etc, you want the image to be as small in size as possible to be able to upload and download it quickly.

To save an image for the web:

- Click File.
- Click Save for Web
- Select the file type you want.
- When done, click Save and select a place to save your web-optimized image.

With Quality you can change the quality of your image and therefore its size. You can see a preview of the resulting image. after any change.

After any change you can see the estimated file size.

If your image is too big (as are pictures that come straight from your camera), reduce the Image Size

Usually, JPEG is a good choice for most types of images. Use PNG if your image uses transparency.

When saving an image intended for printing, make sure you are working with an image with a high enough resolution (typically 200-300 ppi for most desktop from the beginning Changing a low resolution image to a high ppl value generally produces poor results

When saving an Image for printing, it's best to use an LZW lossless compression and TIFF file format.

To save an image in Photoshop:

- Click File
- Click Save As.
- Type a name for your Image
- Select a file format for your image
- Click Save.

Making selections

When working on your photos, there will be times when you will want to make changes to just a portion of an image. Maybe you need to brighten a particularly dark area. Or you want to combine part of one image with another and make a collage. In these cases, you will need to make a selection on your image.

In Photoshop there are various tools that allow you to select parts of your images. Let's see some of them below.

To make a rectangular selection:

- Select the Rectangular Marquee Tool (M) from the Tools panel.
- Click and drag from one corner of the area that you want to select to the opposite corner. While you drag, a moving dotted outline called the selection border appears.
- Release your mouse button. Whatever is inside the selection border is your current selection.

When you are using marquee tools, you can modify your selections by choosing between the different selection modes.

With the Shift, Alt and Ctrl keys you can do or combine various tasks. For example, when you have selected an area with your Marquee Tool, press Shift and select another area to add it to the one already selected.

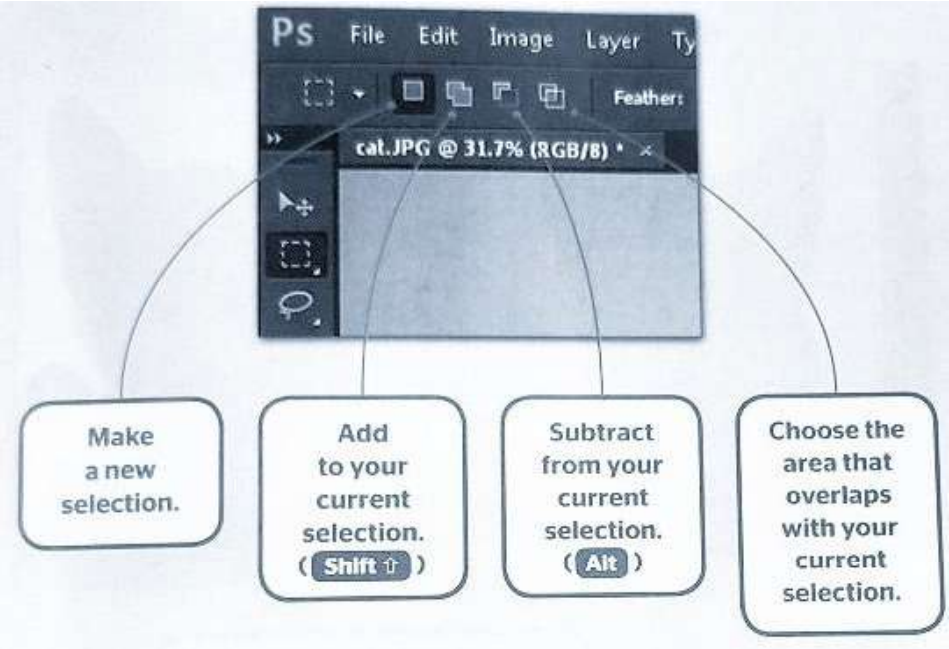
To select more complex areas from your pictures you will need the freeform selection tools like Lasso Tool or the Magnetic Lasso Tool

To make a freeform selection with the Lasso Tool:

- Click the Lasso Tool (L) from the Tools panel.
- Position the cursor anywhere along the edge of the element you want to select
- Hold down the mouse button and trace around the element, trying to include only what you want to select
- Continue tracing until you return to your starting point, then release the mouse button. You should see the selection border match your lasso line, surrounding the element you selected.

If you release the mouse before you reach the starting point, the program will automatically connect the start and end point with a straight line.

Instead of the Lasso Tool, you may want to use the Magnetic Lasso Tool It works much like the Lasso Tool but you don't have to be as precise when tracing around an element because the Magnetic Lasso Tool automatically detects the edges of the element and sticks to them. Because of that, it works well for elements that are well defined and stand out from their background.



With Magic Wand Tool you can select an area depending on its color For example, if you click an area in yellow Magic Want Tool will select all the area with yellow tones. Using Tolerance you can adjust the size of the selection depending on the intensity of the color

To use the Magic Wand Tool:

- Make a rectangular selection around the subject you want to select.
- Click the Magic Wand Tool Hold Alt to subtract from the selection.
- While holding Alt click the yellow background to remove it from the selection.
- In the end, you will have a perfect selection of your subject.

Cloning a selection

After selecting an element of your image, you may want to copy it to another image or clone it once or twice in the same image. To copy your selection to another image, make a selection and then click Edit>Copy, open an image in Photoshop and click Edit > Paste. Then use the Move Tool to place the element exactly where you want in the new picture. Let's see an example where you are going to clone an object from an image.

To clone a selection inside the same image:

- Click the Move Tool (V) from the Tools panel.
- Hold Alt and click drag your selection.
- Place it where you want and release the mouse button.

To fill a selection with color:

- After making a selection, click Edit.
- Click Fill.
- Choose Color, 3 under Contents.
- In the Color Picker (Fill Color) window, pick a color.
- Click OK.
- Click OK.
- The color you selected is applied to selection.

If you want, experiment with different Blending Modes and see what happens.

When selecting a color in a Color Picker window, an exclamation mark may appear. This warns you that the selected will not print as it appears on your monitor. Click the exclamation mark if you want to select the closest color that is safe for printing.

As with most programs, pressing Ctrl+2 in Photoshop lets you undo the previous action. But pressing the same key combination again will redo the same action instead of going even further back in time as one would expect. If you want to undo multiple times, try Ctrl+Alt+Z.

You can change the number of times you can undo actions by setting the value of History States in Edit>Preferences >Performance.

Painting

You can use the Brush Tool or the Pencil Tool to paint in Photoshop.

To paint:

- Select a color from the Set foreground color picker.
- Click OK.
- Select the Brush Tool (or the Pencil Tool).
- From the tool options bar, select your brush size.
- You can also set the hardness of your brush tip and your tip type.
- Click and drag your mouse to draw.

The Pencil Tool produces strokes with hard and crisp edges.

A Brush Tool stroke with hard but anti-aliased (smoother) edges.

A Brush Tool stroke with a soft tip.

Instead of Undo you can use the History panel. History is a panel that records the steps that you're doing. You can undo them up to any point you needed.

To use History:

- Go to the History panel.
- Click to the point you want to undo.

You can undo up to 1000 steps, but this is something that you have to change it from the program's preferences. The default is 20 steps.

Drag to paint, Shift+click to paint straight lines, and hold down Shift while dragging to constrain the Brush (or Pencil) tool to horizontal or vertical lines.

Eraser Tool

Another way to isolate elements in your images is to use the Eraser Tool. Here, instead of making a selection around an element, you just erase its surroundings.

To use the Eraser Tool:

- Click the Eraser Tool button from the Tools panel.
- Erase the areas you don't want by clicking and dragging over them.
- As you get closer to the outline of your object, choose smaller brush sizes from the toolbar and zoom in to be more precise.

Magic eraser is similar to the Magic Wand Tool but erases the color that you click and all the similar tones.