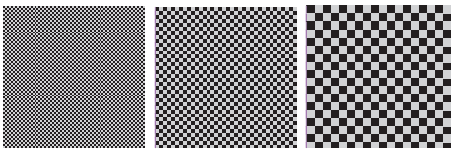
Photoshop + Raster Image Basics

RESOLUTION The image is made up of a grid of pixels



ppi: pixels per inch *(screen)*

dpi: dots per inch *(print)*

Higher resolution means the image contains denser pixel information, and can display or print at larger sizes without losing quality.

WHEN IT'S LOST, IT'S *GONE*

If you shrink an image to a smaller size or lower resolution & save, you can't enlarge it back again without losing quality. Keep a backup!

HOW MUCH RESOLUTION?

72	Minimum for screen/web
100–300	Some large-format printing, and many modern screens
300	**Minimum for standard print**
400, 600, 1200	400+ for colour and 600+ for black & white can look nicer on the highest-quality printers. It's also common to scan or work at a higher resolution than the final artwork needs.

COLOUR MODE

Image > Mode

RGB *(screens + monitors)*
Bigger and brighter range of colors than is possible in CMYK. Some adjustments and functions are only available in RGB.

CMYK *(print)*
Standard full-color print. All colors made from combinations of cyan, magenta, yellow, black.

GRAYSCALE
No color information, just value from white to black

DUOTONE
For converting a grayscale image to 1 – 4 colours

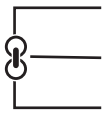
BITMAP
No grays, just black, with lighter values as patterns/textures

INDEXED COLOR
Limited colors make file size smaller. GIFs use this mode.

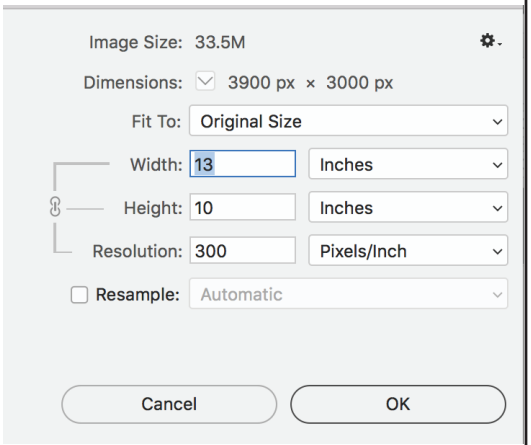
IMAGE SIZE Photoshop's **Image > Image Size** options show size & resolution

☐ Resample Off

Pixel dimensions don't change



Width, Height, + Resolution are all linked



This image would lose quality if it was printed any bigger than 10 inches high on most printers.

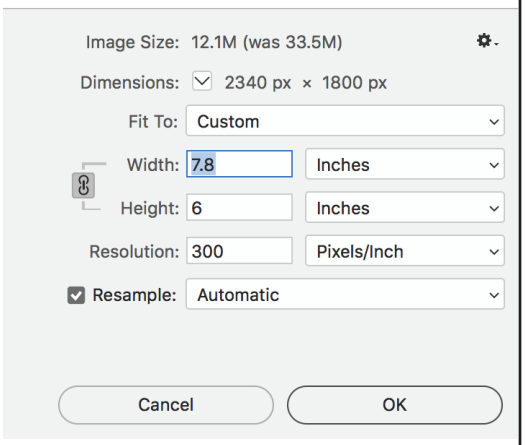
Increasing Resolution = Width/Height get smaller
Increasing Width/Height = Resolution gets lower
We're not really changing the image when resampling is off: we're just looking at the math in different ways.

☑ Resample On

Pixel dimensions change



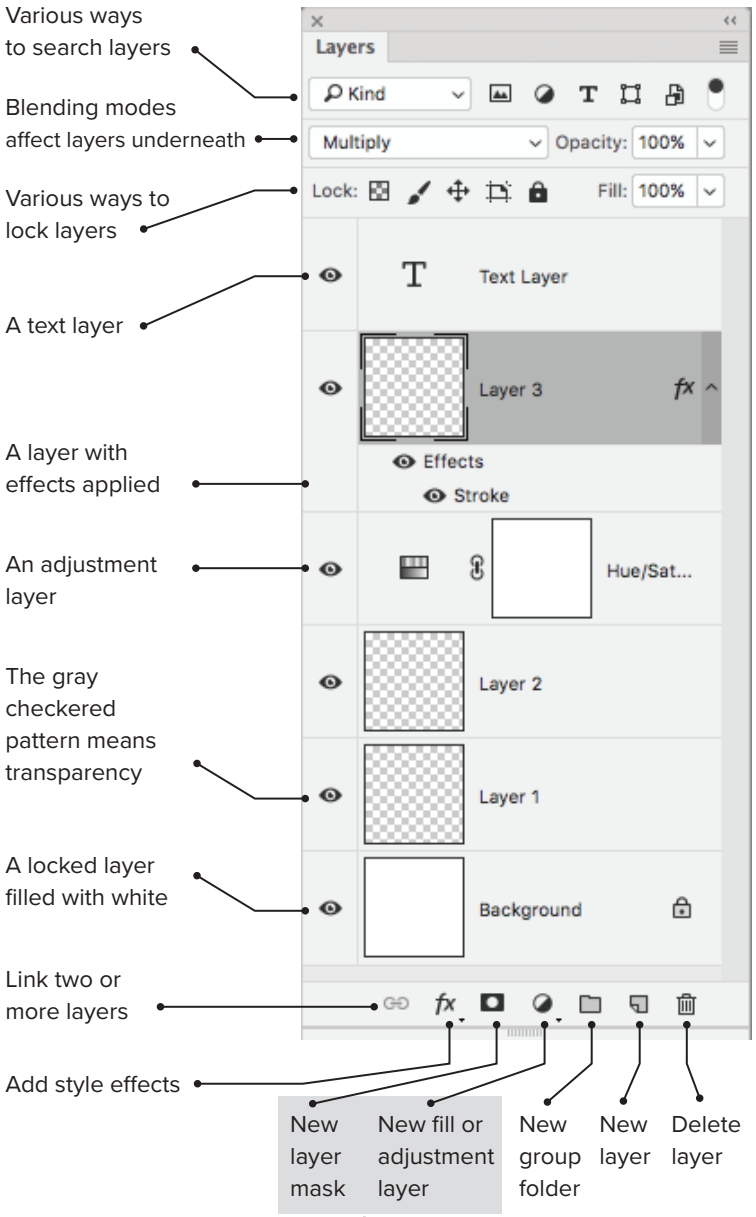
Only Width and Height are linked



Only resample to make the numbers smaller, not bigger.

Increasing Resolution while Width/Height stay the same (or increading size while Resolution stays the same) means that Photoshop has to make up new pixels that weren't in the original image data. The result won't look as high-quality or detailed as an image actually created at a higher resolution.

LAYERS + TOOLS





Non-Destructive Editing
Destructive editing means making changes that are permanent (except for using Undo or the History panel.)

Non-destructive methods are a more flexible way to work.

Adjustment Layers: Instead of using the Image menu for color and value adjustments, an Adjustment Layer can keep being re-adjusted while you're working, including changing visibility & opacity.

Layer Masks: Can be used instead of permanently deleting or erasing parts of an image. This button creates a mask from a selection. A black & white mask thumbnail will be added to the layer. The black parts are hidden, the white parts are visible, and shades of gray are levels of opacity. You can work on the mask in black/white/gray with most PS tools.

CANVAS SIZE

Image > Canvas Size doesn't change resolution or resize an image proportionately – it crops or extends it.

WIDTH 5in
HEIGHT 5in



WIDTH 5in
HEIGHT 7in



WIDTH 5in
HEIGHT 2in



FILES FOR PRINT

PSD *"Photoshop Document"*
- Photoshop working file
- Can keep layers intact

TIF, TIFF *"Tagged Image File"*
- Lossless
- Can keep layers intact
- Good all-purpose format for final flattened high-resolution print images.

PDF
"Portable Document Format"
- Save As "Photoshop PDF"
- Use [High Quality Print] preset
- Can keep layers intact

FILES FOR WEB/SCREEN

JPG, JPEG
"Joint Photographic Experts Group"
- Good for photos onscreen
- No transparency
- Lossy: compresses image data for asmaller file size, and some quality is lost each time you save it.

GIF
"Graphic Interchange Format"
- Maximum 256 colors,
- Can have animation
- Can have transparency
- Good for flat colors

PNG
"Portable Network Graphics"
- Can have transparency
- Supports lossless compression.
- **PNG-8:** limited colors, small file size
  PNG-24: lossless (no loss of image quality), but larger file sizes
- Created as an alternative to use instead of GIF files
- Good all-purpose format for screen graphics, except when keeping file sizes as small as possible is a top priority