

## Formats & Resolutions for the Web

Many people have lots of questions about what image formats to use on the Web, and what the resolutions for an application should be. This document addresses many common issues.

### Image Types

There are three image formats that are supported by Web browsers thus making them suitable for Web use. They are:

**GIF – Graphics Interchange Format.** This format is designed for images that are not photographs. You control the amount of compression. It is an excellent choice for most drawings and logos or nearly any time of image with blocks of solid color.

**JPEG – Joint Photographic Expert Group.** This format is intended for photographs. It is a "lossey" format, meaning that each time the image is saved some data is lost. Editing a JPEG image directly is not advised because each save will result in degradation of the image. A JPEG should be converted to the native format of an editor (PSD for Photoshop, for instance), edited, and then converted back to JPEG. JPEG is a very good choice for photographs or non-photographic illustrations where there are photographic-like effects of color fades or shifts.

**PNG – Portable Network Graphics.** The PNG format was intended to be an alternative to the GIF format. It handles color better than GIF and can make files of smaller size. It can be a very good choice for photographs. PNG images can also have transparency.

### Resolutions for the Web

Computer monitors use small dots to create whatever it is that they display. This includes both images and text. These dots are called pixels. PC monitors have 96 pixels per inch, Macintosh monitors have similar pixels per inch. The physical size of the pixels will vary depending on the quality of the monitor, the technology used within the monitor, and the size of the monitor.

The user may adjust the "screen resolution" of a monitor. The screen resolution is refers the number of dots per inch that are used to display text and images on a screen. This dpi is indirectly related to the pixels per inch described in the previous paragraph.

Images, both drawings and photographs, that are used on the Web may be prepared (either by scanning or building from scratch) in any resolution. However, any resolution greater than 100 dpi is wasted because monitors will not display the higher resolutions.

Most Web images are created at a resolution that ranges from 72 dpi to 100 dpi. Very early color monitors and video cards had resolutions of 72 dpi for Windows machines and 76 dpi for Macintosh. Some graphics artists continue to use the older 72 dpi resolution for graphics, however, with modern technology and broadband Internet access the issues of download times have been largely mitigated. Usually the resolution is a compromise between file size and appearance quality. The larger the file sizes the longer the download time!

## Image Size, Resolution, and Screen Size

Print images are specified by their physical dimensions. Typical prints are 4" high by 6" wide and 8" high by 10" wide. But images displayed on a monitor are specified in pixels. 150 pixels by 100 pixels, for instance.

The image on the right illustrates a 4" x 6" photograph scanned at 72 dpi and is 150 pixels wide. It is displayed on a 13" monitor. The user has set the screen resolution to 800 pixels wide by 600 pixels high.

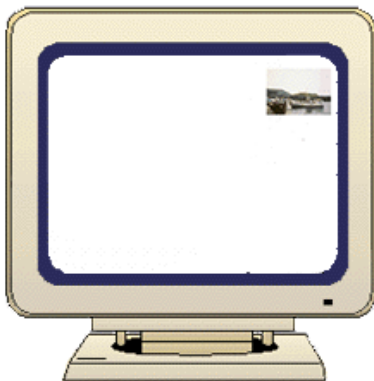


13" monitor set at  
800 x 600 pixels

The larger monitor on the right illustrates the same 4" x 6" photograph scanned at 72 dpi. It is 150 pixels wide and displayed on a 19" monitor. Note that the relative size of the photograph as compared to the screen size is about the same as on the small monitor. Both photos take up about 1/3 the width of the screen.



19" monitor set at  
800 x 600 pixels



19" monitor set at  
1024 x 768 pixels

The image on the left shows the 4" x 6" photograph at 72 dpi on the same 19" monitor that is now set at 1024 x 768 pixels. The photo remains 150 pixels wide

The photograph takes up a much smaller area than before.

**NOTE: It is not possible to control the screen settings of the visitors to a Web site. In years gone by Web designers sometimes placed a "This site best viewed at...." statement on a Web page. However, this was an insult to the viewer. It suggested that the viewer's default choices are incorrect. We continue to advise that such statements, including those that specify a particular browser, never be used.**

On the right is one more example. The same photo has been prepared at 300 dpi. It is being displayed on a 19" monitor set at 1024 x 768 pixel resolution. Because the physical resolution of the monitor is only 96 pixels per inch, the monitor can only show 96 of the pictures 300 dots in every 1" of "real" space. Thus, the image is displayed extremely large.



Finally, the last example is on the right. This time the photograph is prepared at 300 dpi, but the 19" monitor is set at 800 x 640 pixel resolution. The picture is so large that it will not all appear on the screen at one time.



## Conclusion

Here are some tips to make sure that images are suitable for use on a Web page.

1 – Photographs should almost always be in the JPEG format to look good. Alternatively, they can be in the PNG format. You may want to compare the photograph by having it prepared in both formats to see which is the best.

2 – Drawings and logos can be done in the GIF format if they have blocks of solid color or lines.

3 – The PNG format is also fine for drawings and logos, and often is a good choice for photographs.

4 – Do not keep saving and resaving JPEG images because they will lose quality with each save. JPEG is a lossy format and compresses a file with each save.

5 – Do not use image with resolutions higher than 100 ppi, the monitor cannot display the difference.

6 – Plan your Web page so that you know exactly how big each image should be. This will help you understand how the page will look on different monitors set at various screen resolutions.