Title

Compression Methods

There are two types of compression methods: Lossy and Lossess. Lossy creates smaller files by losing some of the information about the image. It removes details and colors changes it might be too small for the human eye to notice. Lossless then never discards any information about the original files.

**Lossy compression** is when the compression algorithm being used results in some loss in data. This means that you will not get the exact same image as the original if you try to decompress it. The data loss, in most instances, is done in such a way that you don’t lose too much quality; at least not enough that people will notice.

On the other hand, **lossless compression** is the opposite of lossy. Lossless compression involves compression algorithms that when decompressed, will get you exactly the same image as the original. An example of lossless compression is when you are zipping up a document using the ZIP format. When you unzip your document, it will be the same as the original.

# Machine Specs

Operating System Microsoft Windows 8 64-bit

CPU Intel Core i5 @ 2.40GHz 45 °C

RAM 6.00 GB Dual-Channel DDR3 @ 798MHz (11-11-11-28)

Motherboard 49 °C

Graphics Generic PnP Monitor (1366x768@60Hz), Intel HD Graphics 4000

Hard Drives 466GB Hitachi HTS547550A9E384 (SATA) 34 °C

Audio Realtek High Definition Audio

Photoshop: Version c6.

# PNG

The *Portable Network Graphic* (PNG), format was designed to be a better, legally patent-free replacement for GIF.  PNG is a lossless compression format for transmitting a single bitmap image over computer networks.

PNG uses a lossless compression algorithm. On the other hand, JPEG uses a lossy compression algorithm. What this essentially means is that, by saving your original images using JPEG, you might witness some quality loss (the same goes for PNG in certain situations, as you’ll see later on).

Gamma is a measure display device brightness.  The problem facing web designers is that gamma values for different platforms and different monitors vary.  Macs have a gamma of about 1.8, and PCs a gamma of 2.2.  Since there is no "gamma standard" on the Web, graphics that look great on a Macintosh may look dark on a PC. GIFs and JPEGs have no built-in gamma storage, so averaging these two gammas (setting gamma to 2.0) in Photoshop is one way of dealing with the problem.  PNG avoids the problem by allowing designers to store the gamma of the creation device. When displayed, PNGs automatically adjust to the host monitor's gamma.

# When to Use PNGs

When you need to preserve transparency and large amounts of color, as well as achieve full or partial transparency, the PNG image format is the best.

Since it’s a lossless format, images saved using the PNG format aren’t going to be small all the time, but because PNG stores a lot of additional data, you can easily optimize images for web usage to reduce file sizes.

# Photos

A few examples. In the first row are originals, second row reduced to 256 colors, third row 128, and fourth row 64:

# Identify the best value quality setting

# Identify the lowest acceptable quality setting

**Summary**

For web designers, the importance of reducing images sizes is a way to increase the overall speed of a web page. Optimized, smaller images in a web design means:

* Faster web pages that load more quickly
* Less bandwidth consumption
* Less data required to transfer to site visitors, which means lower data activity

You may be wondering if PNG is the best image format — this is an inevitable question. The answer is: *it depends*. As shown in this guide, there are many variables that will affect what image format you will choose. Certain situations will find PNG-8 favourable over PNG-24, while others will produce better results when using JPEG.

PNG has certain advantages over GIF, such as lower file sizes and being an open format. However, PNG transparency in [IE6](http://sixrevisions.com/web-development/definitive-guide-to-taming-the-ie6-beast/) isn’t supported so you might have to use GIFs (or a JavaScript library that emulates PNG alpha transparency in IE6, such as [IE PNG Fix](http://www.twinhelix.com/css/iepngfix/)). The same can be said for when you’re dealing with animated images, which GIFs can do.

Regarding PNG versus JPEG: the choice depends a lot on what type of image you’re optimizing. Specifically, PNG does extremely well with limited color schemes, solid colors and supporting transparency (which JPEG does not support). For complex, photographic images, JPEG is the way to go.

The main thing to take away here is that you should use a combination of image formats. You shouldn’t strictly use PNG, or JPEG, or GIF. Furthermore, you shouldn’t be afraid to optimize each image manually so that you can achieve better results and smaller file sizes. You should always use an image optimizer, which will squeeze out every last excess byte.

There are two things that will help you pick the right format: experimenting and experience. The more you save images for the web, the quicker you will be in recognizing situations in which PNG, JPEG, or even GIF should be used.

# Graph the ﬁle size against the quality for a different numbers of color

Students should

• Graph the ﬁle size against the quality for a variety of quality settings.

• Identify the best value quality setting

• Identify the lowest acceptable quality setting

Using the chosen images explore the relationship between the size and number of colours

in GIF images, both with and without dithering.

• Graph the ﬁle size against the quality for a different numbers of colours.

• Identify number of colours that provides the best value

• Identify the lowest acceptable number of colours

The report should include details of the version of Photoshop (or alternative) used so that

the results can be reproduced. Some of the images generated, should be included in the

report.

Marks

Students who meet all the minimum requirements will receive a mark of at least 50%

For additional marks students should

• consider the relationship between ﬁles size and subjectively perceived quality

• consider the impact of different color palette selection schemes

• draw conclusions from the data

• write guidelines for web developers