

# **Graphics Optimization for the Web**

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## **What is graphics optimization?**

Graphics optimization is the process of reducing the file size of graphics to their smallest possible levels without compromising display size or quality in any way, thereby creating graphics which load as quickly as is possible while simultaneously reducing bandwidth consumption.

### **The process involves the following steps:**

1. Evaluating the need for using an image on a page.
2. Selecting the file format that will result in the smallest file size possible.
3. Applying available compression techniques to a file, after exporting the file into the desirable format.

# 1. Evaluating the need for using an image on a page.

The best way to reduce page load times and bandwidth consumption within a web page is to avoid the use of unnecessary images altogether.

- CSS effects can often replace the need for using graphics in navigational menus.
- Faster images can often minimize the benefits of splicing imagery, thereby reducing the overall number of image "calls" (speeding up the page load process).
- Using images as simply "window-dressing" when it serves no purpose other than to add a bit more visual interest to a page is a practice that should always be evaluated...particularly if one is simply using more-gaudy clipart that may actually serve as a detriment rather than an asset to your site/page.

## 2. Selecting the file format that will result in the smallest file size possible.

While there are exceptions to every rule, when considering optimal file formats to use with your graphics:

- **.jpg** is typically the optimal file format for any photographic imagery and/or any images that are being called as a part of a Flash-based presentation.

- **8-bit .png** is typically the optimal file format for use with any drawn imagery (logos, maps, diagrams, etc.)

\*\* - .gif, 24-bit .png, .svg and other formats also work well for specific types of files and applications.

### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### .jpg files

- Pre-size your imagery to fit the dimensions you wish to display on your web site.
- Adjust your image compression levels.
- Remove any extraneous information from your digital photos.
- Remove any excess colors.
- Avoid the use of progressive downloads.
- Apply unique zonal compression to different sections of your imagery.

Black text = solutions commonly employed by most web developers.

Red text = solutions employed far less frequently, which can dramatically lower final image file size.

### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### .gif files

- Pre-size your imagery to fit the dimensions you wish to display on your web site.
- Remove any excess colors.
- Avoid the use of interlacing.

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### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### .pdf files

- Try to use vector imagery as opposed to bitmap imagery whenever possible.
- Pre-size your imagery to fit the dimensions you wish to display on your web site.
- Remove any excess colors.
- Reduce the total number of fonts embedded within your .pdf document.
- Disable all thumbnails and other "editability" functionality.
- Experiment with different methods for generating .pdf output.

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### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### 8-bit .png files

- Pre-size your images to the dimensions you wish to display on your web site.
- Remove any excess colors.
- Avoid the use of interlacing.
- Experiment with various compression methods and strategies.

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### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### 24-bit .png files

- Pre-size your images to the dimensions you wish to display on your web site.
- Remove any excess colors.
- Avoid the use of interlacing.
- Experiment with various compression methods and strategies.

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### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### .svg files

- Use gzip compression to save your files into .svgz format.
- Attempt to keep your coordinates no larger than "999" (three digits).
- Consider the use of relative coordinates instead of absolute coordinates.
- Replace six-digit color references with three-digit references, when possible.
- Evaluate your use of ellipses in your files.
- Optimize your metafile data.

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### 3. Applying available compression techniques to a file, after exporting the file into the desirable format.

#### .ico files

- Appropriately size your images to the dimensions you wish to display on your web site.
- Remove any excess colors.

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# Tools of the Trade (after Save/Export for Web):

**AdvDef/AdvPNG** - <http://advancemame.sourceforge.net/comp-readme.html>

**FavIcon from Pics** - <http://www.html-kit.com/favicon/>

**Favicon Generator** - <http://www.favicon.co.uk/>

**gif2png** - <http://www.r1ch.net/stuff/gif2png/>

**ImageMagick** - <http://www.imagemagick.org/>

**JPGExtra** - <http://www.fieggem.com/software/jpgextra.htm>

**OptiPNG** - <http://optipng.sourceforge.net/>

**PDF995** - <http://www.pdf995.com/>

**Pngcrush** - <http://pmt.sourceforge.net/pngcrush/>

**PNGOUT** - <http://advsys.net/ken/utils.htm>

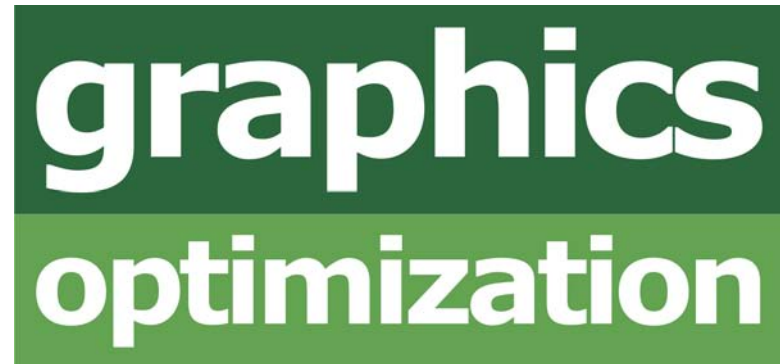
**PureJPEG** - [http://www.yafla.com/papers/purejpeg/filter\\_unnecessary\\_jpeg\\_info\\_such\\_as\\_exif.htm](http://www.yafla.com/papers/purejpeg/filter_unnecessary_jpeg_info_such_as_exif.htm)

**SVG Factory** - <http://www.svgfactory.com/index.html>

**xat.com Image Optimizer** - <http://www.xat.com/io/index.html>

**Red Text** = my own personal favorite tools.

**Put me to the test!**



For more information, please visit: [www.graphicsoptimization.com](http://www.graphicsoptimization.com)

For copies of this presentation in .pdf format, please visit:  
<http://www.graphicsoptimization.com/aboutus/news/highedweb2007.pdf>