SuperPNG

Advanced PNG plug-in for Photoshop

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by Brendan Bolles & Kornel Lesiński

Version 2.5
June 27, 2014

fnord software
671 Ashbury Street
San Francisco, CA 94117
www.fnordware.com

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About PNG

Let's get one thing straight: it's pronounced "ping."

PNG was created in response to lawsuits over patents in the omnipresent GIF format, specifically LZW compression. PNG uses zlib compression, which was designed from the start to be free of patent issues. Like GIF, PNG is now a fully supported image format in any modern web browser.

PNG supports the indexed color images GIF is known for, but can also make full-color 8 bits per channel images. PNG uses lossless compression, meaning that the file size is shrunk without actually changing any pixels. Compare with JPEG which can make smaller files than PNG, but loses some image fidelity in the process. Both formats have their place in designing a web page.

PNG also supports full alpha channel transparency, 16bpc data, and a groovy progressive interlace scheme. For more information, visit libpng.org.

About SuperPNG

SuperPNG was originally written in 2002 to add support for 16-bit PNGs, which Photoshop and After Effects were lacking at the time. They eventually caught up and SuperPNG went in semi-retirement.

I later realized there were a few things that Photoshop wasn't doing properly with PNGs, and so I revived SuperPNG in 2011. In 2014, I made the plug-in open source and enlisted the help of Kornel Lesiński to continue pushing SuperPNG forward.

System Requirements

SuperPNG has been tested to work on Photoshop CS3 and later, but it will probably work in earlier versions—possibly *much* earlier versions. Try it and find out! The Mac binary runs in 64-bit, 32-bit, and even 32-bit PowerPC. For Windows, there's separate 64- and 32-bit versions.

Installation

Copy the appropriate plug-in to the appropriate host's Plug-Ins folder and launch the application.

SuperPNG can work alongside Adobe's own PNG plug-in for Photoshop, and should receive preferential treatment when both are installed. You can force the issue by specifying the format in the Open dialog (Open As… on Windows).

Output Options

Compression

SuperPNG provides four options for compression level, ranging from no compression at all on the left to zlib's maximum on the right. The resulting pixels will be the same regardless of which option you pick, but more compression will create smaller files at the expense of longer processing time. SuperPNG defaults to the highest (slowest) compression setting.

Quantize

With Quantize unchecked, SuperPNG will save your file losslessly, meaning that the pixels in your Photoshop file will get stored in the PNG without any changes.

Turn Quantize on and SuperPNG will intelligently convert your 32-bit RGBA image into an 8-bit indexed color image. The resulting pixels will be altered slightly, but the file will be much smaller.

The quality slider determines how many colors will be used in the final result. Lowering the quality will result in fewer colors, and therefore a smaller file.

For a regular 24-bit RGB image, Quantize is similar to switching to indexed color mode in Photoshop. But if you have a 32-bit RGBA image (either via a layer with transparency or the channels palette), the Quantize option will create an indexed color palette that holds not only RGB values, but alpha as well. This is a unique feature of PNG, allowing you to make very small files that support full transparency.

Quantize uses the pngquant library by Kornel Lesiński.

Alpha Channel

Pick the source of your alpha channel, or have none at all. If your Photoshop project is flat, Transparency will be disabled. Likewise, you need an extra channel in the channels palette for the third option, which indicates the name of the channel that will be used—the top one. If you want to use a different one, drag it to the top of the channels list and try again.

Clean Transparent

Ever wondered what color those fully-transparent pixels in your Photoshop file were? Well, you probably haven't, but SuperPNG needs to know because it will save them into your file. You may be surprised to find there can be all kinds of noise in there, which can be difficult to compress and lead to bigger PNGs.

Semi-transparent layer

Hidden RGB pixels

After cleaning

The Clean Transparent option will turn the RGB of all fully-transparent pixels in your image to black. The resulting file will not appear any different, but will often shrink as the unneeded data is discarded.

PNG Interlacing

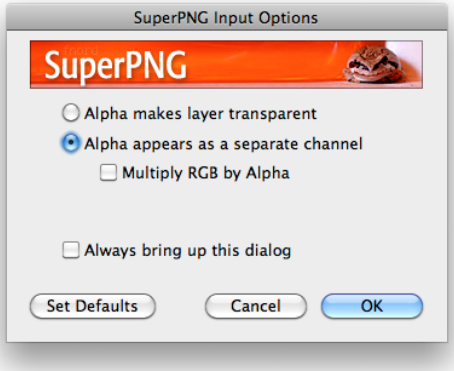
Back in the dark days of modem-based internet access, image files would load slowly. GIF and JPEG both had progressive interlacing methods where a rough version of the file could be shown as it downloaded, so PNG added the same. The PNG method is more sophisticated than GIF's, which only interpolates vertically.

The downside to using interlacing is that it tends to hurt compression performance and slow things down. In the broadband era where internet video is pervasive, even a beefy PNG downloads pretty quickly. When in doubt, leave this off.

Save Metadata

PNG supports some metadata, like text chunks, ICC profiles, gamma, colorimetry, and more. In general, this is good, unless you are trying to make the absolute smallest PNG you can, in which case you may want to switch metadata off.

Input Options



Unlike most Photoshop file format plug-ins, SuperPNG includes an input options dialog. But because it might get annoying to see it every time you open a PNG file, you have to force it open by holding down the **Shift** key as you open a PNG (alt and option keys work too). Once you have it open, you can choose to have it pop open every time by checking the appropriate box. You can also set SuperPNG's default reading behavior by clicking the Set Defaults button.

Alpha Options

There are two ways that Photoshop plug-ins might use an alpha channel: create a floating layer with transparency, or hide it away in the channels palette. Without much rhyme or reason, most Photoshop formats pick one and use it exclusively. SuperPNG lets you choose.

It's worth mentioning that the PNG specification does call for alpha to function as a transparency mask, so that's the default. The spec also says that PNG is to use "straight" RGBA pixels, which is convenient because Photoshop does too. The ProEXR manual has a lot more information about straight vs. premultiplied alpha channels if you're curious.

Multiply RGB

When you choose to send the alpha to the channels palette, the RGB pixels you see will be exactly what is stored in the PNG, i.e. straight. This will often be OK, but in some cases may shock and horrify you. Multiplying the RGB by the Alpha will make those translucent edges appear more natural. You can also use the alpha channel in Photoshop to do the same thing manually. Or more likely, you really intended to use that Alpha as transparency.

Color Information

Photoshop does all of its color management with ICC profiles. If you go to Photoshop's Assign Profile dialog and play with different settings, you can radically change the way your image appears. None of the pixels are being modified during this process, just the way they are interpreted and drawn on screen.

So if you have an image configured with an ICC profile but lose it when saving the file, the picture won't look the same when you open it back up. This is why saving the ICC profile is a good thing —just check that box in Adobe's Save As dialog.

While an ICC profile is a full file format that can say virtually anything about a color space, PNG also supports some more primitive color specifications like gamma and chromaticity values. It also supports a simple sRGB flag.

When SuperPNG opens a file that is missing an ICC profile but has these other color parameters, it will construct an ICC profile with that information and call it something like "gamma 1.8 (SuperPNG Fabricated Profile)". If it looks like SuperPNG is displaying an image differently from other programs, this could be the reason why. If you don't like it, simply disable the profile in the Assign Profile dialog.

On saving, SuperPNG will save the ICC profile and also attempt to create gamma and chromaticity tags for readers that prefer that. If you are using sRGB ("sRGB IEC61966-2.1" or "PNG sRGB"), SuperPNG will not embed a profile, but simply use PNG's sRGB flag.

Miscellaneous

The SuperPNG mascot is Mikey the frog. Mikey and I shared a bathroom at Walton's Grizzly Lodge Summer Camp during the Summer of 2001. He occasionally took off (presumably to eat) but always returned to perch on my sink. He eventually let me pet him and showed no fear when I brushed my teeth.

Acknowledgements

Uses libpng by Guy Eric Schalnat, Andreas Dilger, and Glenn Randers-Pehrson among others. Which in turn uses zlib by Jean-Loup Gailly and Mark Adler. Also uses Little CMS by Marti Maria and pngquant by Kornel Lesiński.

Thanks to Bruce Bullis and Thomas Ruark at Adobe who helped me figure out the Adobe SDKs.

Thanks to Greg Roelofs for writing the book on PNG (literally) and helped me figure out libpng. He also maintains the PNG web site.

Thanks to Dan Garcia and Brian Barsky at UC Berkeley for supporting my computer graphics habit early on.

Thanks to Jim Thill for getting me into the biz and for so much more.

And thanks to the global After Effects community, for whom I originally wrote this.

History

2.5	25 October 2014	Quantize, Clean Transparent options. Now open source!
2.0	10 October 2011	64-bit versions, Alpha channel options.
1.1	16 April 2007	Intel version for Mac. Also included a native AE 5.5 version.
1.0	25 June 2002	Support for Metadata and most other PNG things.
0.8b	4 March 2002	Reading added. Mac Carbon and Windows versions too.
0.5b	5 February 2002	Hello, World! First plug-in I ever wrote. Was very excited to share it with the world. Could only write, not read. Sent it to a few friends I knew could use it.

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