Promos / Banners & Production

Updated 8/12/2016 12:24 AM by Bradley Grey

This page mainly focuses on the optimization of static images. This can include promo banners, content images and third party placements.

Visual Quality VS Compression & File Size

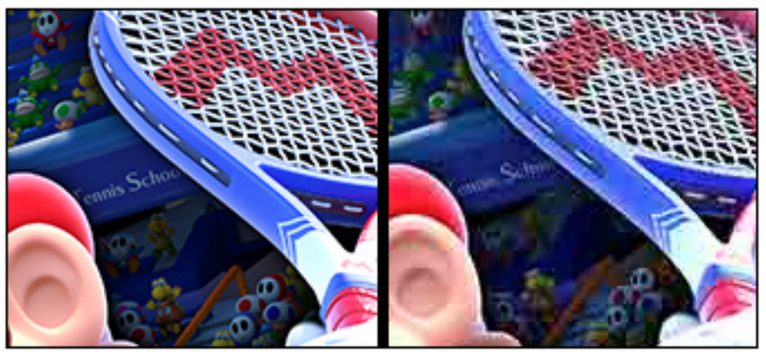
For the best results and to ensure visual quality, each banner should be optimized manually and individually while maintaining a fine balance between how small the file size can be and how crisp the image remains. A great place to start with any image is to drop the quality down to 50% and see how it affects the image. If there is too much visual grain, pixelization or degradation then you want to increase the percentage of the quality until the image regains enough clarity. If there is no visual change to the image at 50% quality, then you can reduce the quality even more until you cross the point where the image becomes degraded.

Here are two images to demonstrate the concept above.

Image A has no optimization and **Image B** has been optimized too far.

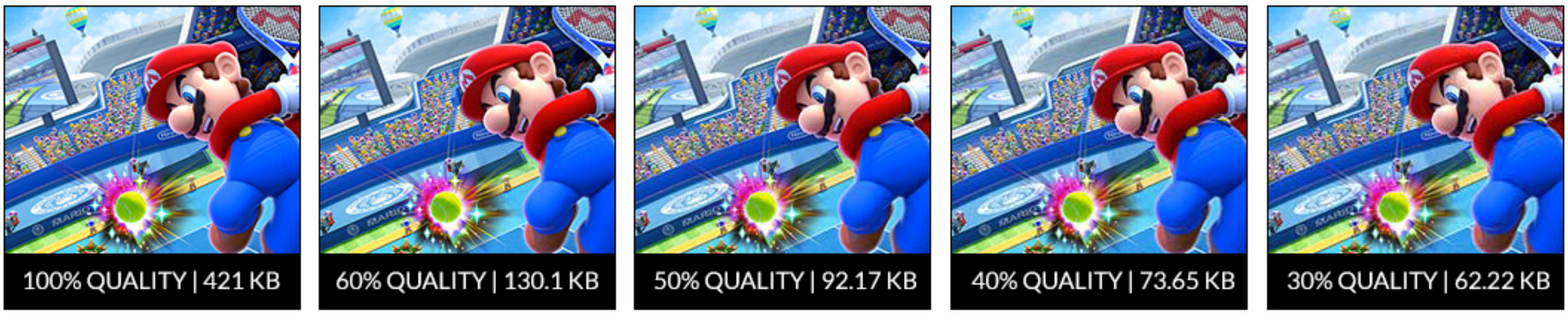
If we take a look at specific sections of both images side by side, the degradation of Image B becomes more clear.

Parts of the image that are visually busier, hide the degradation of the image better.



There are key elements in every image that need to retain their quality to the best of our ability and we can generally figure out what those are by examining the image. In this case we can assume that the key elements are Mario and the tennis ball. Since they are the focal point of the image as long as they retain great visual quality, we could probably get away with more compression in the background. These are good elements to keep an eye on while balancing the percentage of compression, the visual quality and the projected file size.

Actual Image Size: 606x509



If these images had been displayed at full size, we would be able to see the decrease in quality in a lot more clear detail. Since we can not see the details clearly, let's isolate part of the key elements of the image at each compression level and take a closer look.

At 100% the right large star is crisp. When we drop down to 50% we can see that the star begins to appear a bit hazy. By the time we hit 30% quality, there is a lot of visual graininess around the tennis ball and stars.

Take a look at Mario's sleeve and yellow button. At 50% we can already see some visual degradation in the shadows of the red sleeve and around the base of the button. At 40% and 30% the visual decrease of quality creeps into Mario's face. In this example, the best we may be able to do is 60% compression, bringing the file size down to 130.1 KB, more than half the size that it had been at 100% quality and 421 KB. (This is before running it through additional compression programs or applications)

Since compressing an image is a balancing act with many different factors, there is no precise combination of numbers that will give you the best result.

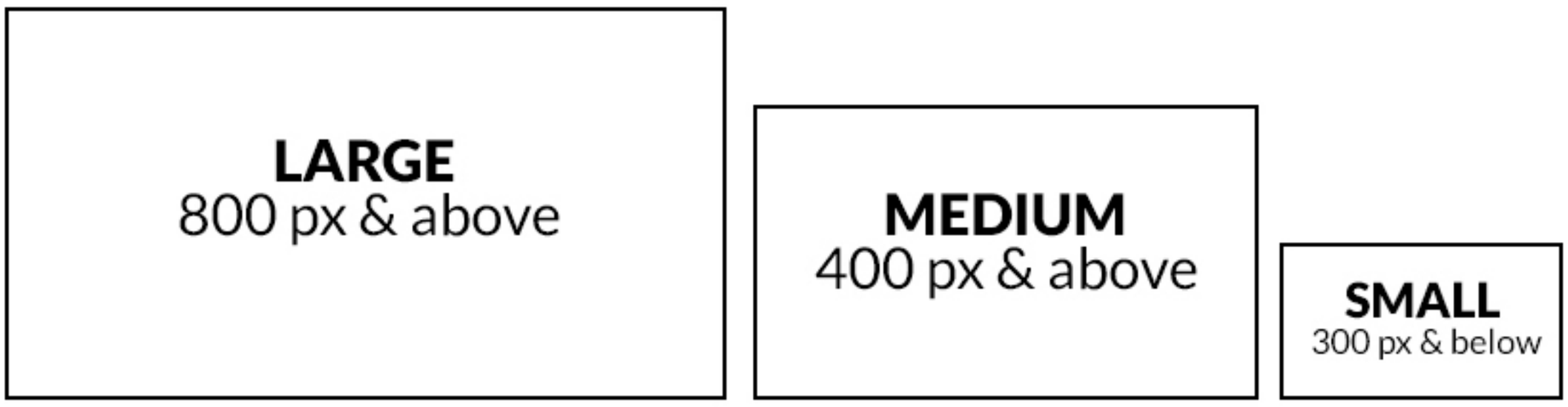
The best result occurs when a balance is struck between three goals:

1. Maintain good visual quality
2. Apply as much compression as possible
3. Reduce the file size as much as possible

Promos / Banners

The vast majority of static images that we produce are promos or banners that have predetermined dimensions and a fairly consistent range of content that goes into them. It's because of this consistency that we can work towards a range of file sizes to shoot for when compressing these assets.

Currently we can break down our promos and banners into three categories of sizes (approximate and loose guidelines), and three types of visual content.

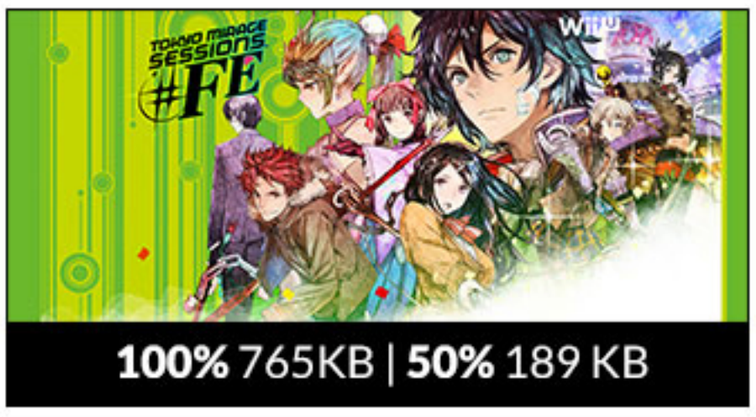


Large Banners (800 px & above)

Our largest banners are generally reserved for placements that are considered "Hero" images or "Center Stages", all of which imply some degree of importance and focal hierarchy on a page.

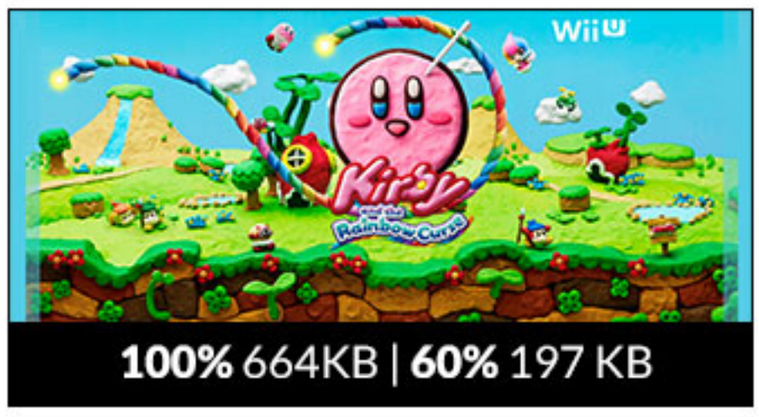
<u>Large + Graphic Heavy</u>
Actual Image Size: 1200 x 510
Uncompressed File Size Range: 800 KB - 500 KB
Compressed File Size Range: 200 KB - 100 KB

On the heaviest end of the spectrum, these large images are graphic heavy, can sport many logos and consist of many colors.



100% 765KB | **50%** 189 KB

100% 602KB | **60%** 199 KB



100% 664KB | **60%** 197 KB

Large + White Space Dominant

Actual Image Size: 1200 x 510

Uncompressed File Size Range: 600 KB - 300 KB

Compressed File Size Range: 200 KB - 60 KB

The more white space there is, and the more similar the colors, the smaller the file size.

100% 473 KB | **50%** 80 KB

100% 217 KB | **50%** 66 KB

100% 521 KB | **60%** 158 KB

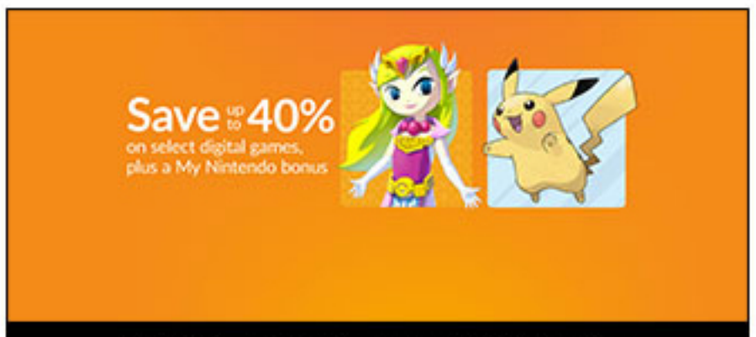
Large + Text Heavy

Actual Image Size: 1200 x 510

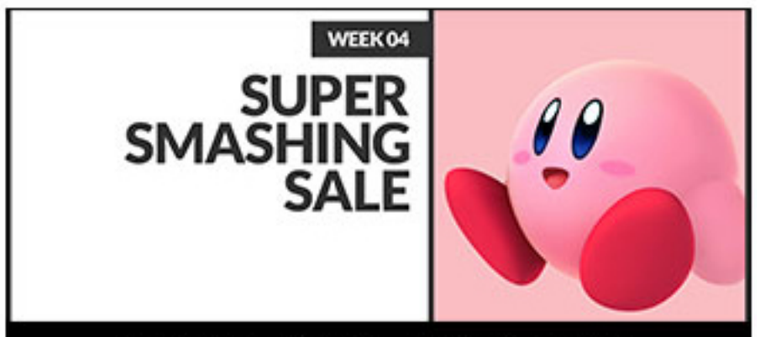
Uncompressed File Size Range: 200 KB - 100 KB

Compressed File Size Range: 100 KB - 30 KB

Although text heavy images tend to start off smaller in file size, they generally need to be saved at a higher quality with less compression, as the visual degradation of text is more obvious, especially if the font is thin.



100% 193 KB | **70%** 84 KB



100% 112 KB | **50%** 38 KB

100% 156 KB | **60%** 62 KB

Medium Banners (400 px & above)

Medium + Graphic Heavy

Actual Image Size: 740 x 420

Uncompressed File Size Range: 600 KB - 300 KB

Compressed File Size Range: 200 KB - 90 KB

100% 313 KB | **60%** 101 KB

100% 538 KB | **60%** 183 KB

100% 228 KB | **60%** 80 KB

Medium + White Space Dominant

Actual Image Size: 740 x 420

Uncompressed File Size Range: 200 KB - 100 KB

Compressed File Size Range: 100 KB - 50 KB

100% 176 KB | **60%** 66 KB

100% 151 KB | **60%** 54 KB

100% 151 KB | **60%** 53 KB

Medium + Text Heavy

Actual Image Size: 740 x 420

Uncompressed File Size Range: 100 KB - 70 KB

Compressed File Size Range: 90 KB - 30 KB

100% 90 KB | **70%** 46 KB

100% 79 KB | **70%** 47 KB

100% 87 KB | **70%** 48 KB

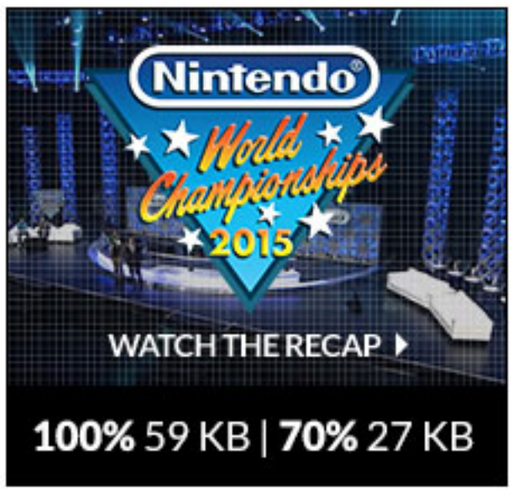
Small Banners (300 px & above)

Small + Graphic Heavy

Actual Image Size: 224 x 170

Uncompressed File Size Range: 100 KB - 50 KB

Compressed File Size Range: 50 KB - 20 KB



100% 59 KB | **70%** 27 KB

100% 55 KB | **70%** 24 KB

100% 51 KB | **60%** 16 KB

Small + White Space Dominant

Actual Image Size: 224 x 170

Uncompressed File Size Range: 40 KB - 30 KB

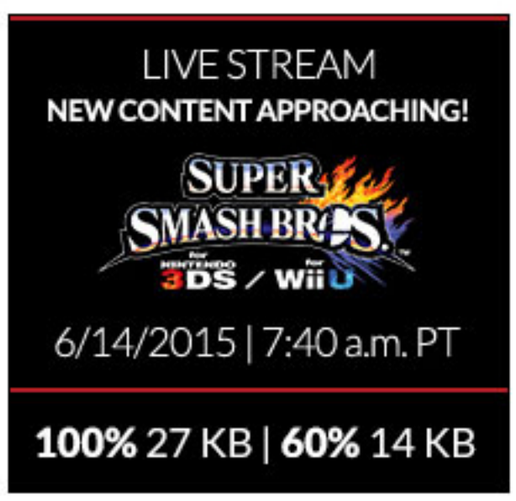
Compressed File Size Range: 20 KB - 10 KB

Small + Text Heavy

Actual Image Size: 224 x 170

Uncompressed File Size Range: 50 KB - 30 KB

Compressed File Size Range: 30 KB - 10 KB



Page Content / Production

Page content will generally break down into three groups:

- Images that should be SVGs
- Images that should be JPGs
- Images that have to be PNGs

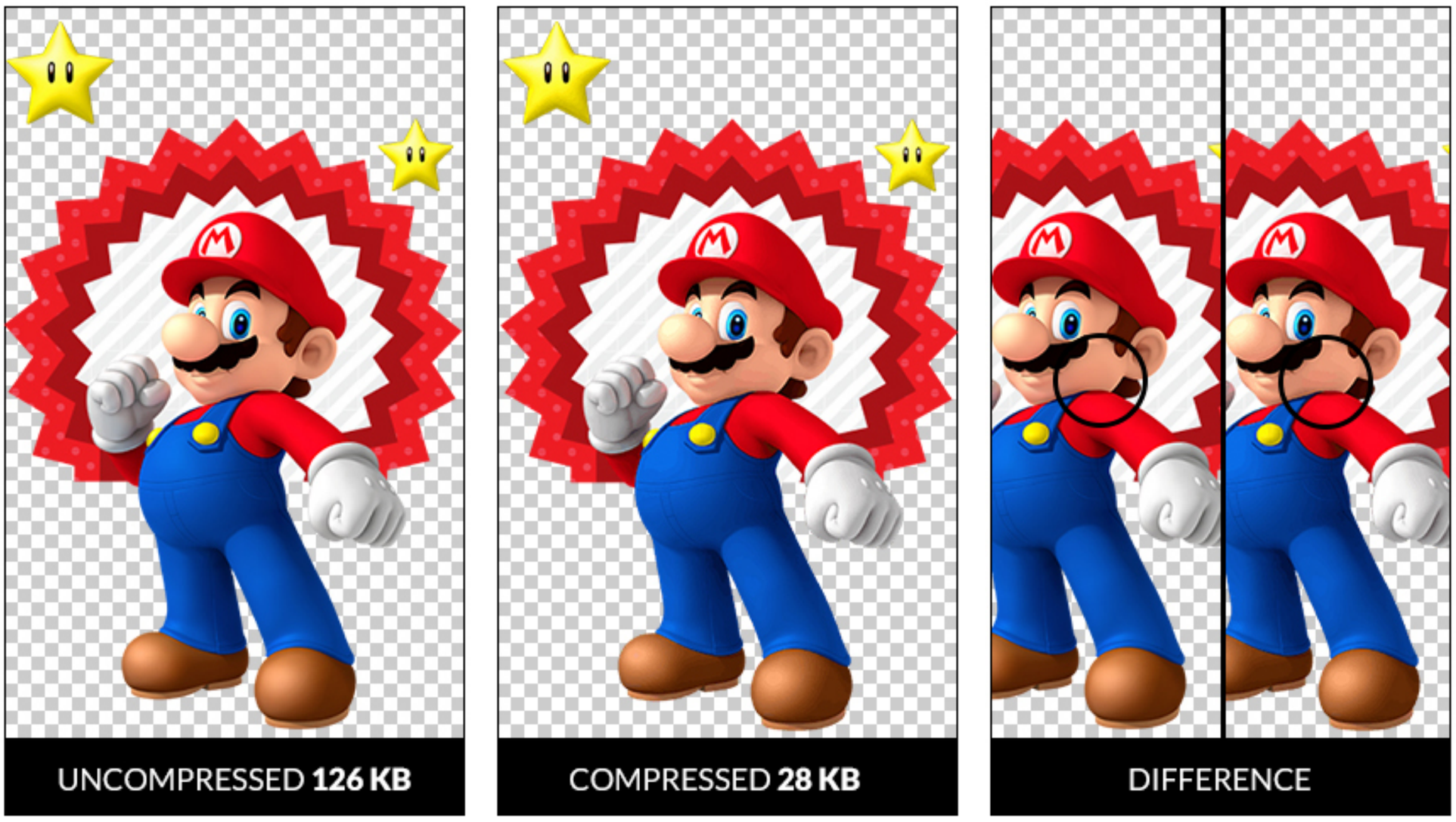
To determine which format is the best choice, please see the Image Formats, Tips & Suggestions article. The article goes into greater detail regarding the benefits and best use cases for each type of image format. This particular section is going to focus on the images that have to be PNGs.

Product images and character art wind up being some of the more common examples of image assets that have to be PNGs. This is because they appear in multiple places across multiple sections of the site, on top of a variety of backgrounds. Instead of making flat JPGs for each use scenario, it's easier to make one PNG that is shared across all scenarios. Another benefit to using one instance of an asset in multiple places is that the user will have cached the image, allowing for faster access to the asset when they encounter it again.

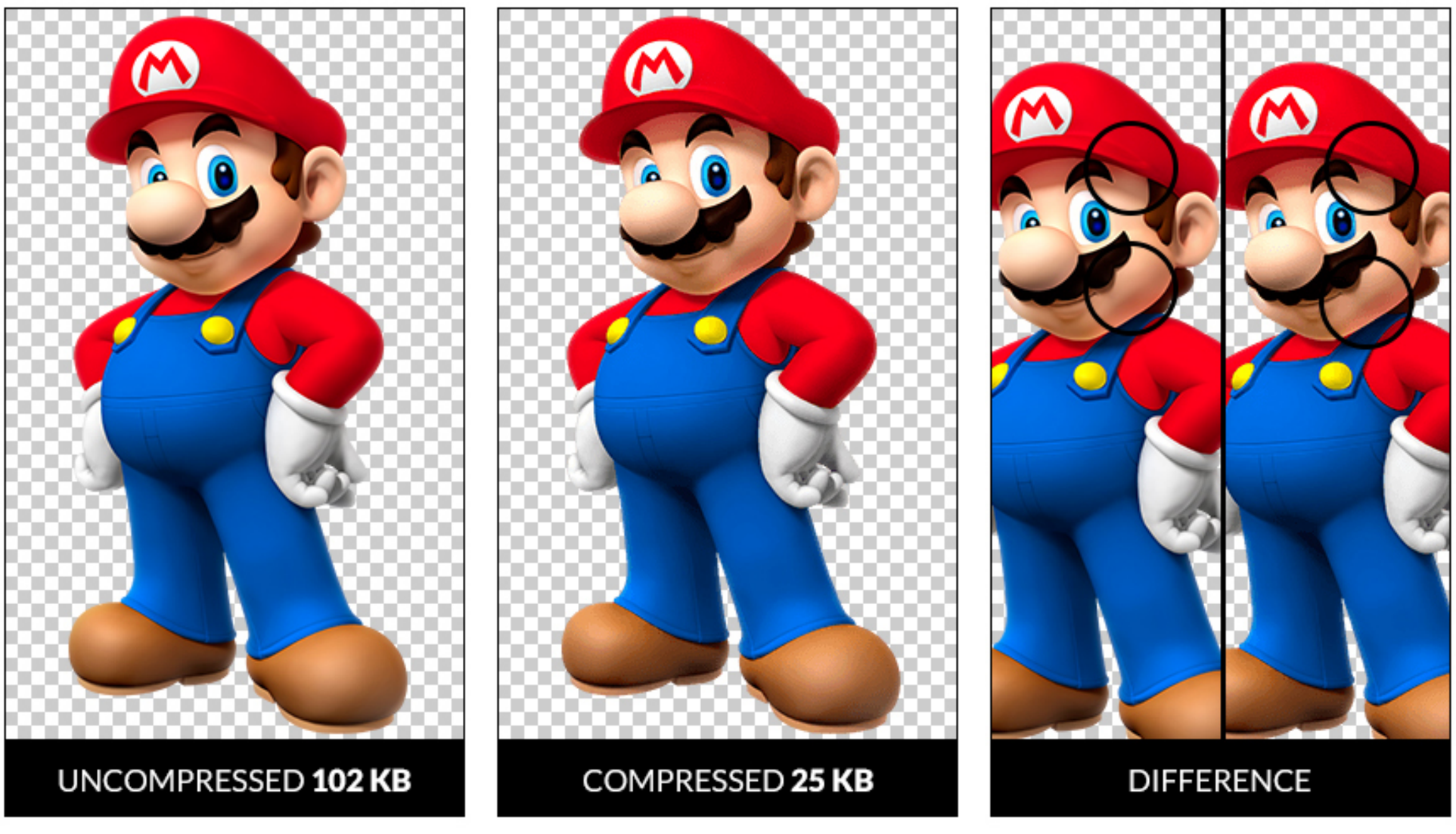
However, our design tools are not the best for compressing PNGs. Photoshop does not provide options to truly compress the PNG file. This is where production tools become necessary to reduce the file size of the PNG assets. (Image compression tools further down on the page)

Not All PNGs compress well

Actual Image Size: 334 x 517



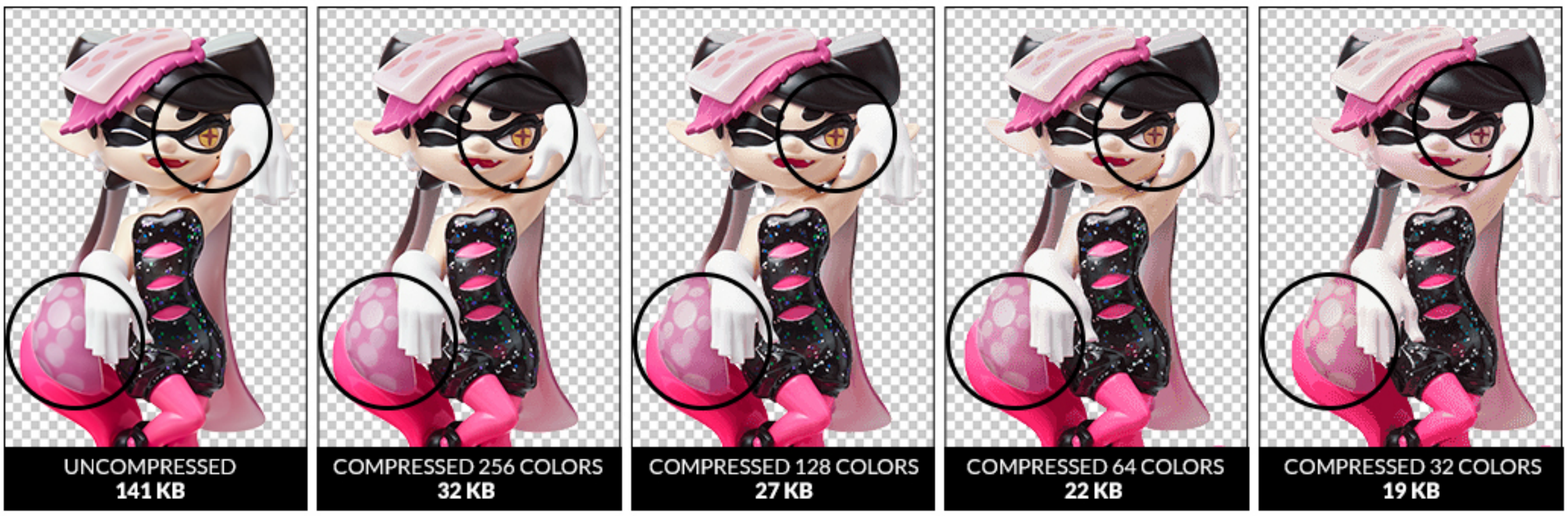
In the example above we can see that some visual degradation appeared on Mario's face when we compressed the PNG. This may not be an acceptable level of quality for character asset approvals and so in that instance we may need to use the higher quality uncompressed version. However, in the example below the differences between the uncompressed Mario and the compressed Mario are more subtle and so we could use the compressed asset. As with all things related to compression and visual quality, we have to look at each case individually and determine whether the final result is acceptable as an asset or not.



But when they do, try removing colors to compress further

Actual Image Size: 500 x 537

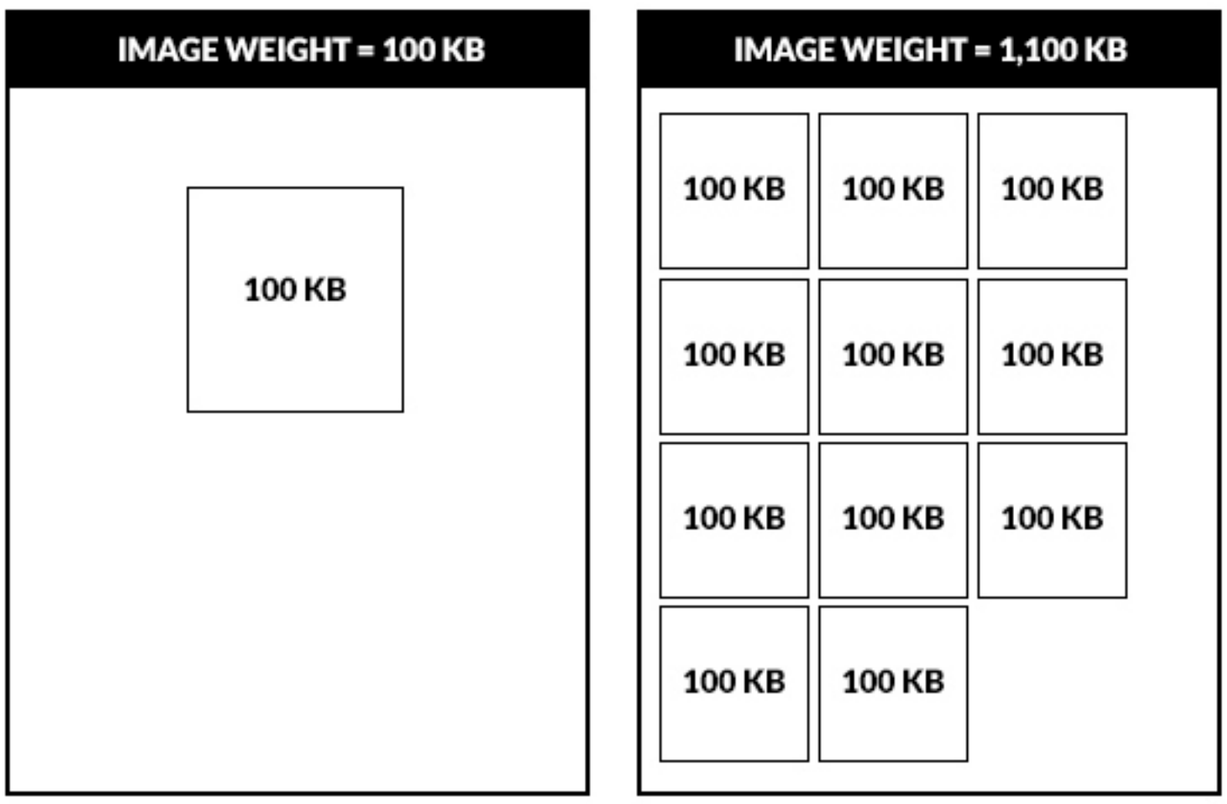
Some PNGs will compress better than others. In those instances we can try dropping colors to achieve smaller file sizes. Once again it's finding the balance between the visual degradation that occurs in the image, how many colors are dropped and how small the file size can get. The example above handles compression fairly well, but let's take a closer look at the more effected areas.



If you look at the bottom of Callie's hair on the left where the pink dots are, you can see that as the image is compressed, more and more noise / grain appear and degrade the visual quality. Another place where the change is more obvious is where we see Callie's one open eye. The color of her eye changes as more compression is applied. In this instance, at 32 colors we've crossed into the area where the image has become too compressed and the visual quality is poor. While the image at 64 colors is looking better, we can still see a lot of grain in her hair. The best choice then would be either the 256 color version at 32 KB, or the 128 color version at 27 KB. The final determination will be made based on how much visual degradation is acceptable for a 5 KB difference between the two. Either way, by compressing the PNG we cut down the file size by more than half its original size.

Why should we compress the images?

If a product image is 100 KB, that by itself is not a big deal if it's the only image on the page. However it's not a realistic situation where there would only be one image on any single page. Going to the New Releases page brings up 11 products (as of 08/11/2016). Not counting all the other images on the page that make up the layout housing the product images, there are now 11 product images. If each product image is 100 KB, there is now 1,100 KB (1.1MB) of image weight on the page.



If each product image could be compressed down to a 20 KB to 10 KB range, say at an average of 15 KB per image, we've reduced the image weight to 165 KB total which winds up a smaller image weight than having two of the original, uncompressed 100 KB images on a page. That's a 935 KB difference.

Since compressing images is a great way to reduce overall file size and page weight without sacrificing standards for visual quality, it's a necessary step towards optimization and streamlining performance of a site or application. The following examples are showing product images that have been compressed so that they are near or within the 20 KB to 10 KB file size range. Looking at them side by side we can see that there is minimal loss to the visual quality of each image.

Actual Image Size: 162 x 148

UNCOMPRESSED
64 KB

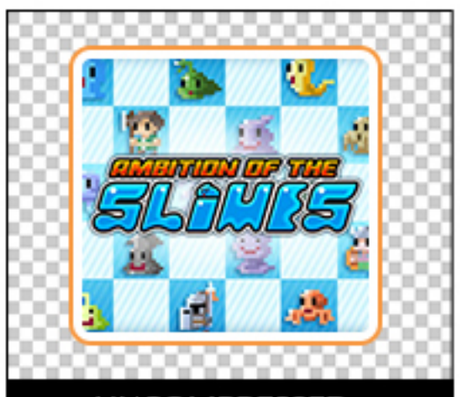
COMPRESSED 64 COLORS
13 KB

Actual Image Size: 157 x 225

UNCOMPRESSED
92 KB

COMPRESSED 128 COLORS
21 KB

Actual Image Size: 140 x 134



UNCOMPRESSED
45 KB

COMPRESSED 128 COLORS
10 KB

Production Tools

Here are the recommended production tools for image optimization as of 08/11/2016.

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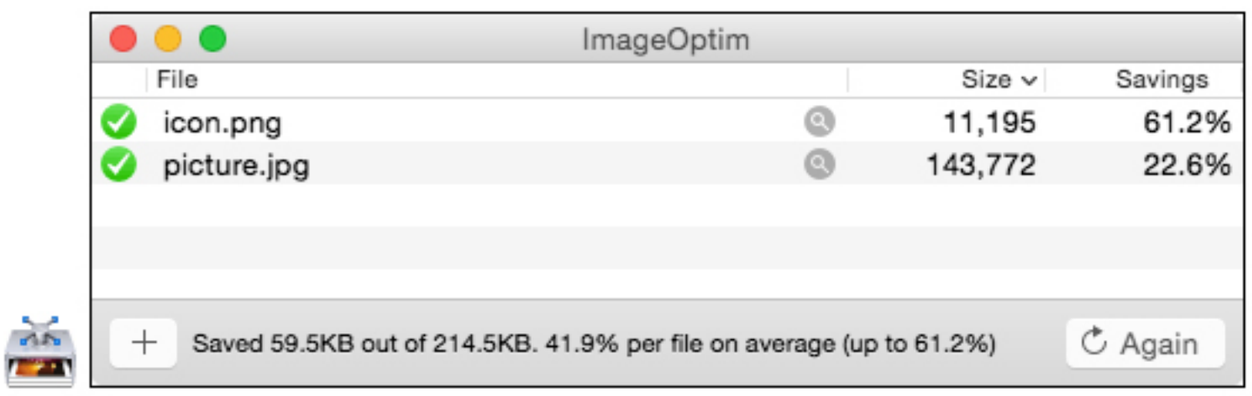
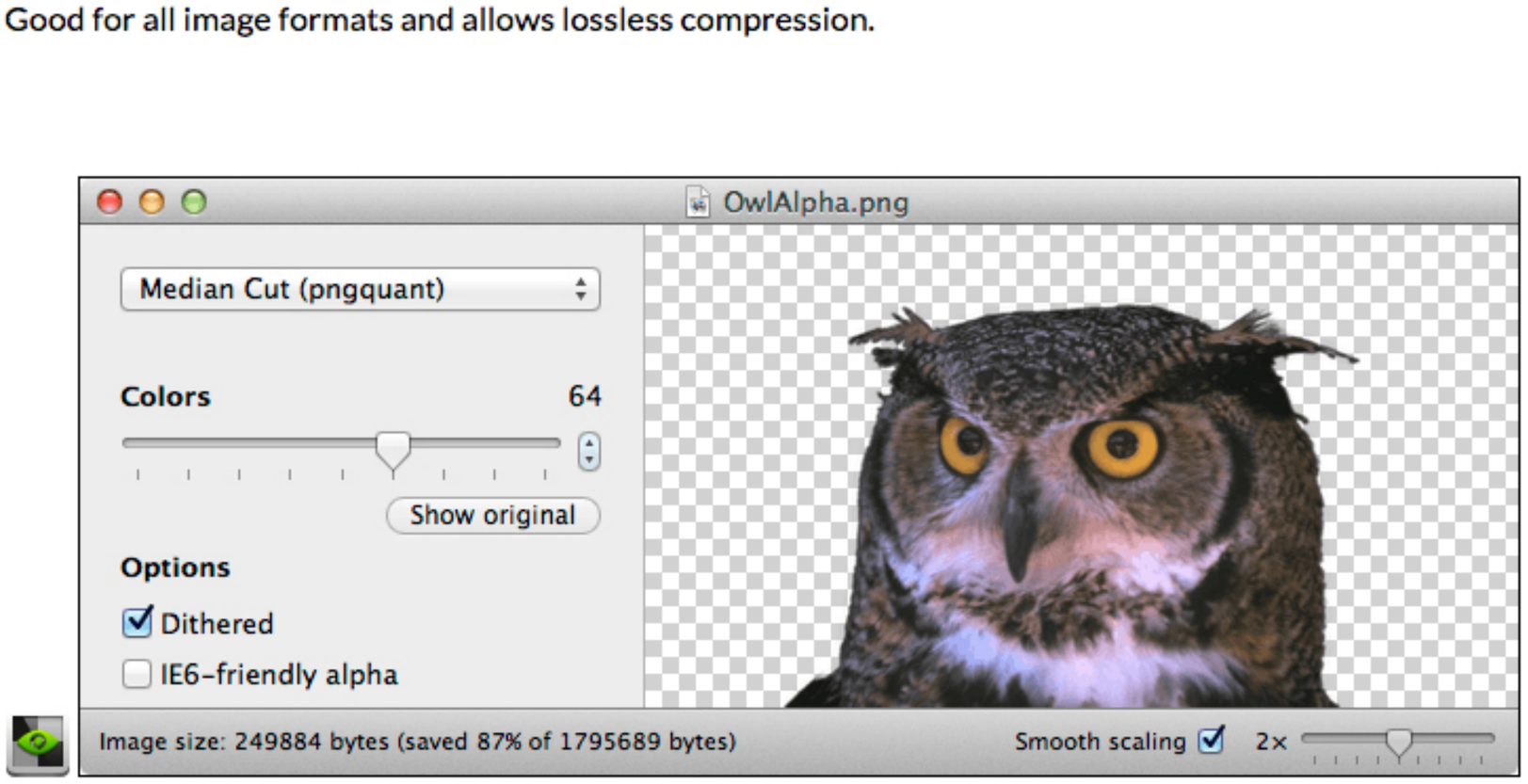


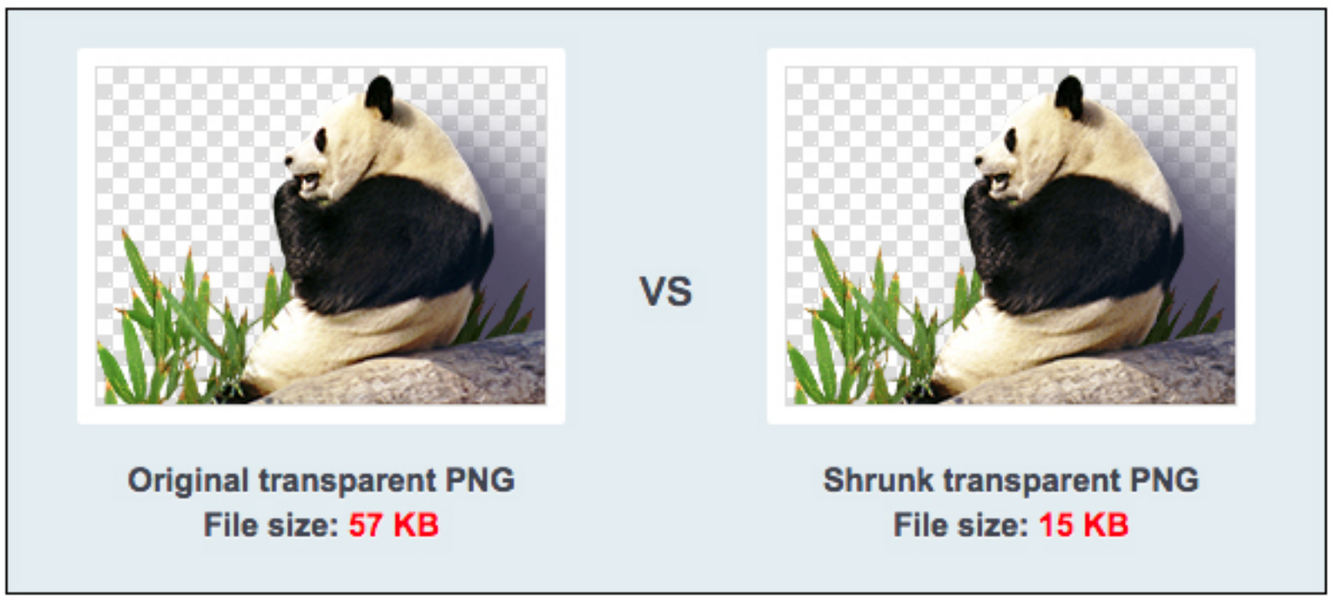
ImageOptim (MAC ONLY) : https://imageoptim.com/mac

Good for all image formats and allows lossless compression.



ImageAlpha (MAC ONLY): https://pngmini.com/

Great for PNG files.



TinyPNG (WEB BASED): https://tinypng.com/

Section Change Log

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