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IMAGE ASSET PRODUCTION

OVERVIEW

- **Saving images in various formats**
- **Binary and alpha transparency**
- **Producing responsive images**
- **Image optimization**

Saving Web Images

There are dozens of image creation and edition tools available that you can use to save or export web images:

- Nearly all provide JPEG and PNG options (if there's only one PNG option, it's PNG-24).
- GIF is available in established programs like Photoshop and PaintShop Pro.
- WebP is beginning to show up as an option in newer tools.

A WORD FROM THE AUTHOR

“I show image production examples in Adobe Photoshop and GIMP in this chapter because they are cross-platform tools and you can use them for free (GIMP is always free and Photoshop offers a free trial). In other tools, the process and terminology should be very similar.”

—Jennifer Robbins

DOWNLOAD PHOTOSHOP:

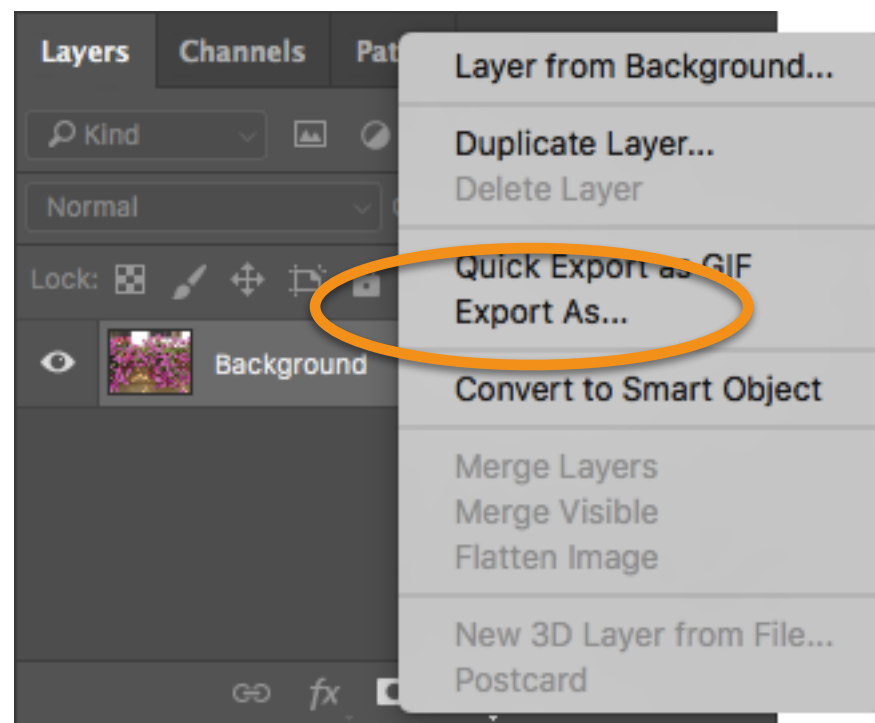
www.adobe.com/creativecloud/catalog/desktop.html

DOWNLOAD GIMP: *gimp.org*

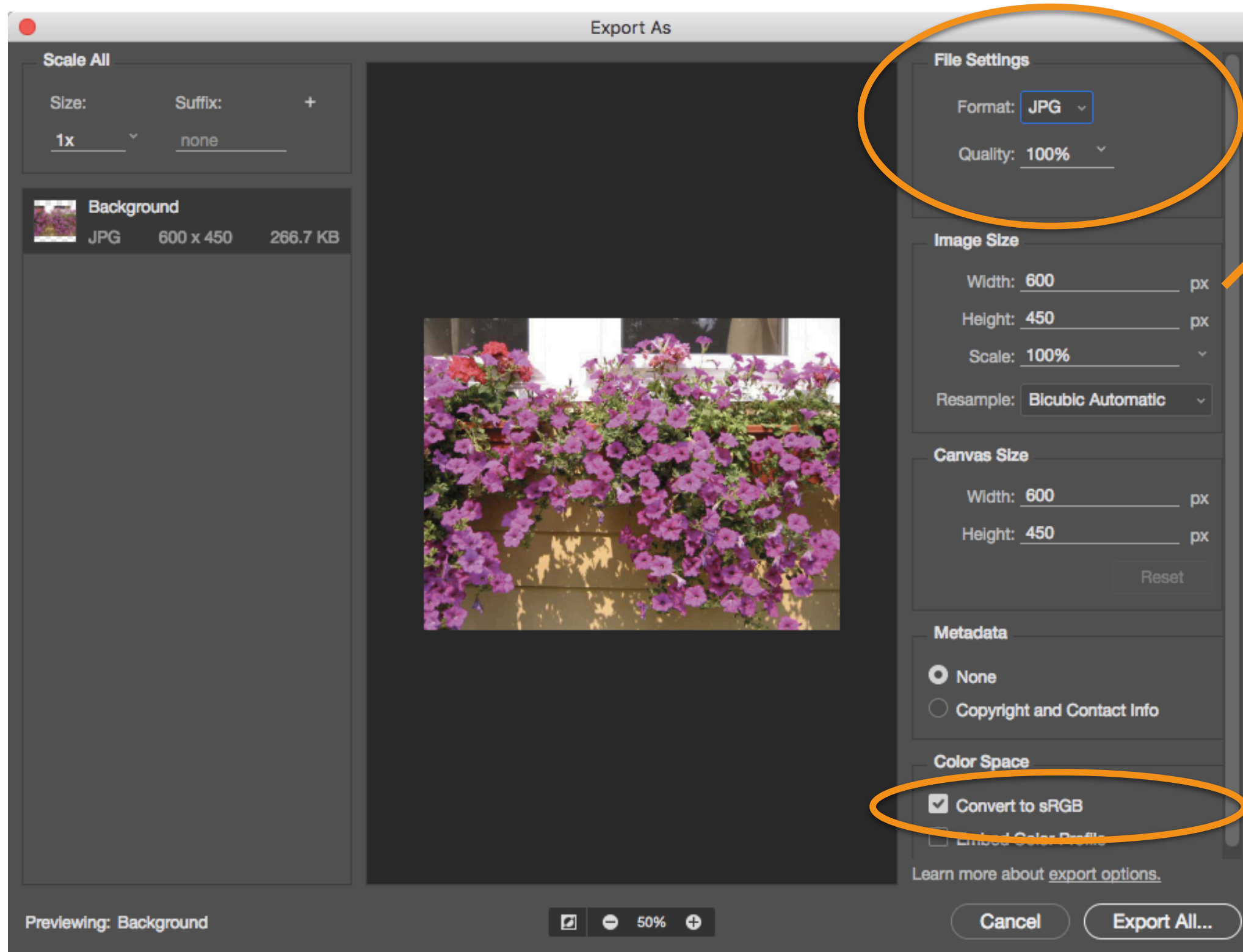
Web Images with Adobe Photoshop

The recommended method for saving web images is to use the **Export As** function (*File > Export > Export As*). Exported images have a smaller file size than those saved with **Save As**.

You can also right-click on a layer to export its contents:



Web Images with Adobe Photoshop (cont'd)

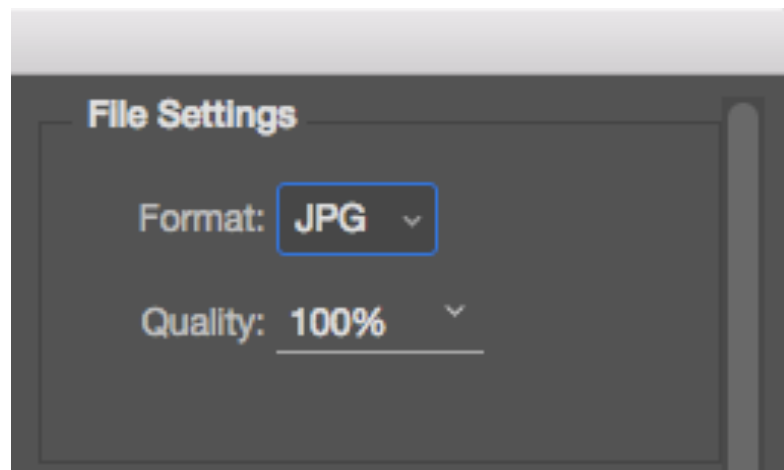


Select a format here.

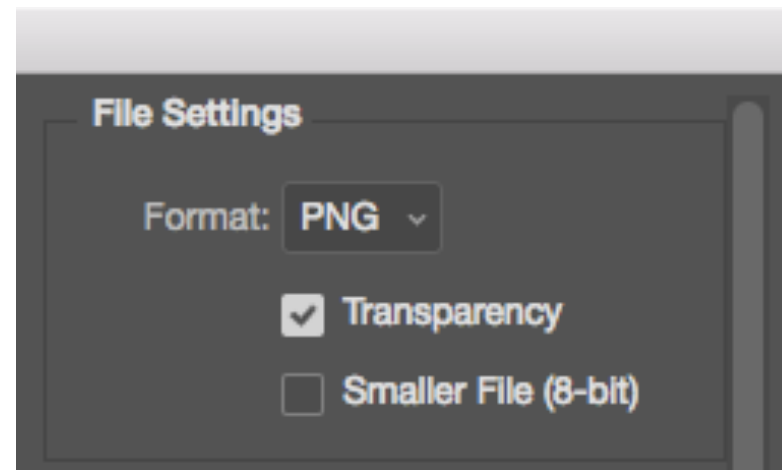
You can resize the exported image while keeping the original the same size.

Check "Convert to sRGB" for web images.

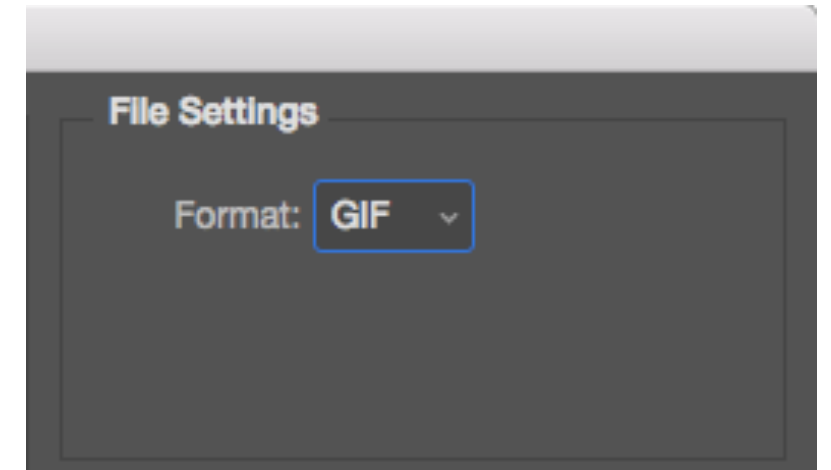
Web Images with Adobe Photoshop (cont'd)



When exporting to JPEG, you can set the Quality level (higher quality results in larger files).



When exporting to PNG, you can choose to preserve transparent areas in the image. By default, Photoshop exports to PNG-24. You can select “Smaller File (8-bit)” and preserve multiple levels of transparency (best option).

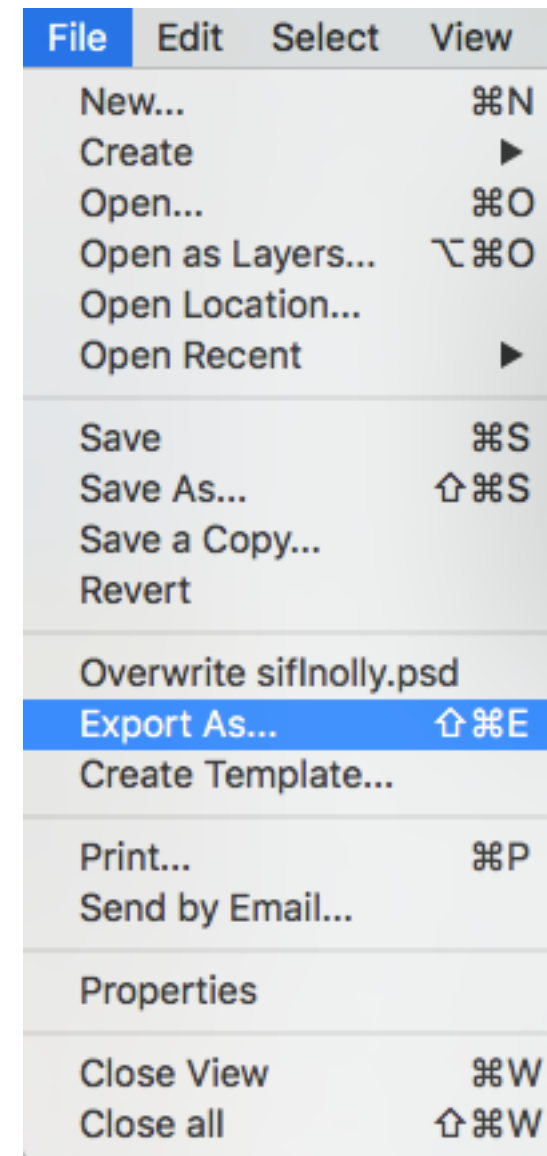


When exporting to GIF, you get no options, so you are better off with smaller PNG files instead of GIF (unless you are saving an animation).

Web Images with GIMP

In GIMP, working files are always saved in GIMP's native XCF format (.xcf).

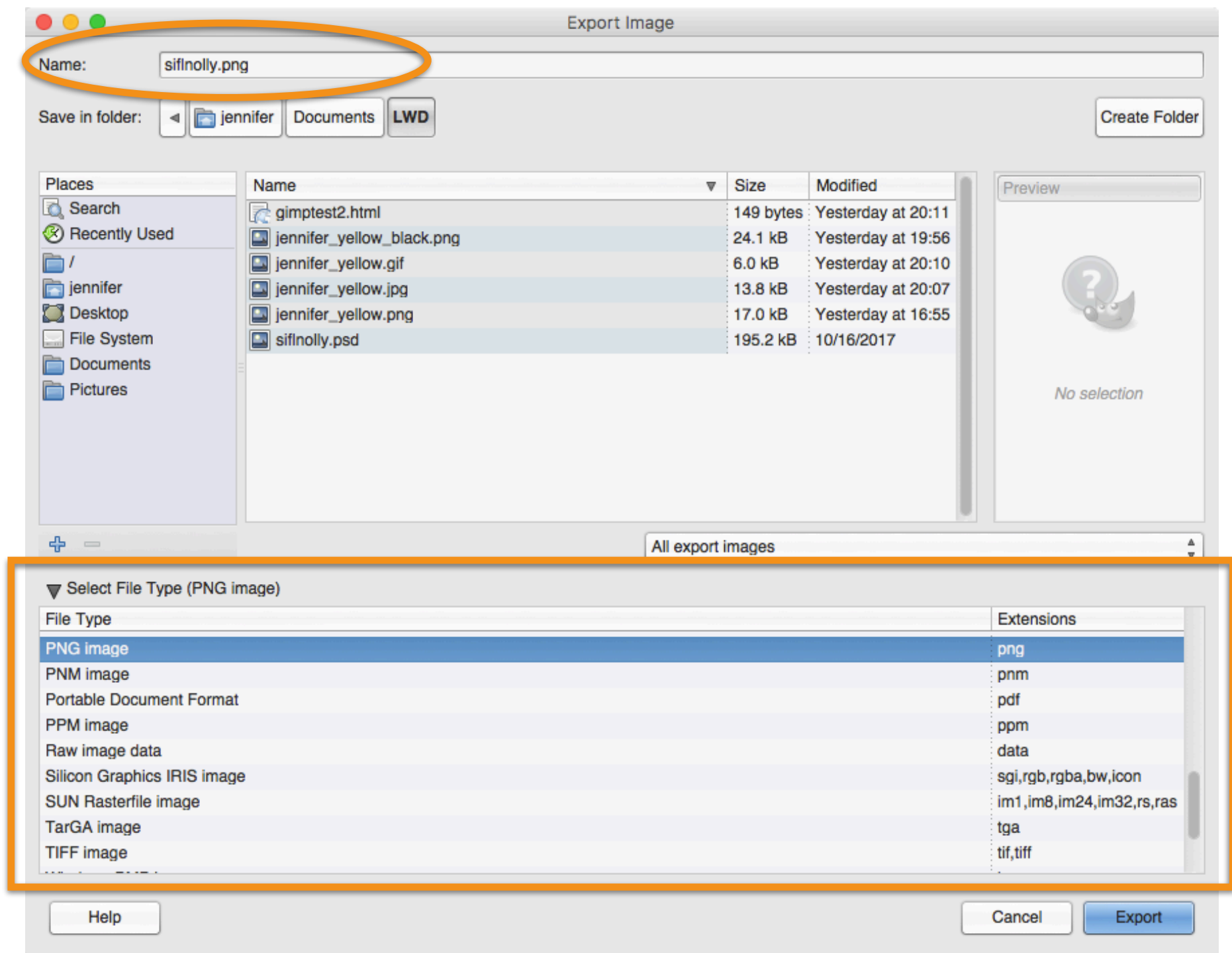
Choose *File > Export As* to select a web file format on export.



Web Images with GIMP (cont'd)

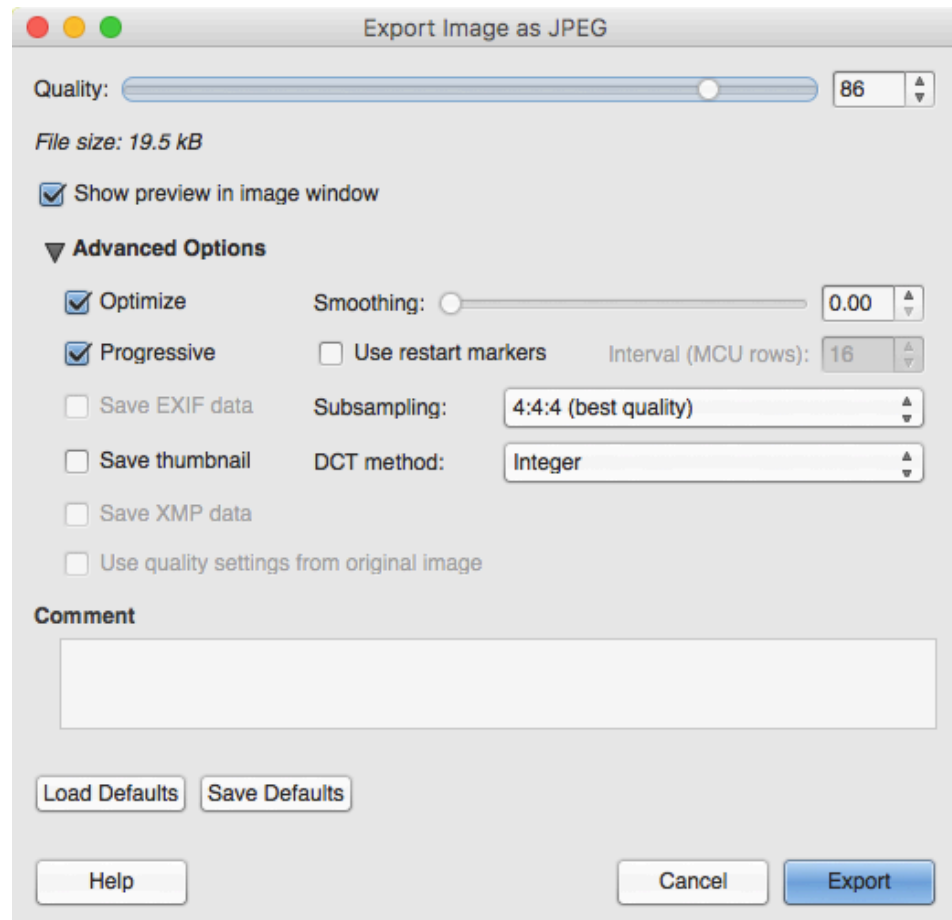
The quickest way to choose a file format is to type *.jpg*, *.png*, or *.gif* at the end of the filename in the Name field.

You can also select from a list of options in the Select File Type menu.

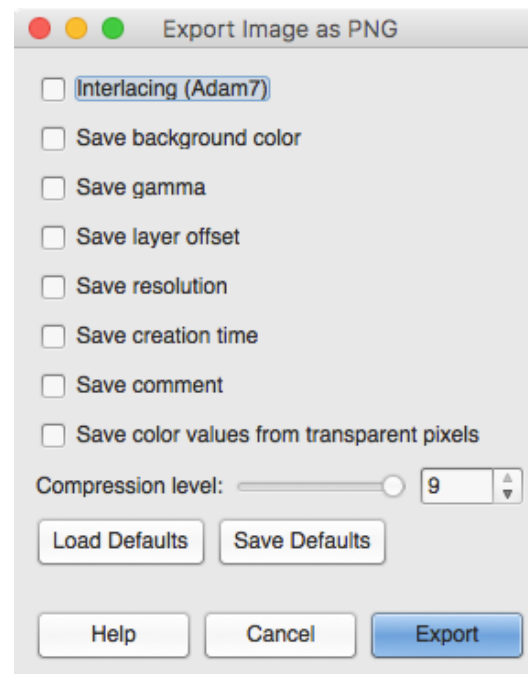


When you are ready, click Export.

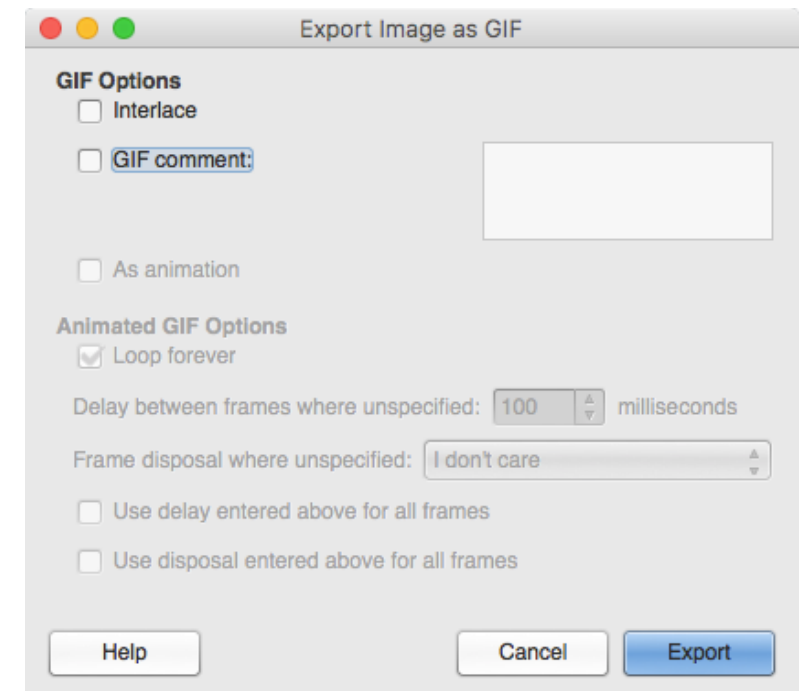
Web Images with GIMP (cont'd)



For JPEG, adjust the Quality setting (you can see the results in an image window). You can also optimize it, make it progressive, and apply a blur to reduce file size. Under Subsampling, 4:4:4 is a good choice.



For PNG, deselect all options. You may choose to make the image interlaced. To get an 8-bit PNG, convert the image to Indexed Color before exporting.



For GIF, you can make the image interlaced and save it as an animation if your layers have been created that way.

Format and File Size

The image format has a big effect on file size.

- JPEG, 10% quality: **8.75 KB**
Terrible image quality
- JPEG, 60% quality: **28.61 KB**
Best balance of quality and file size
- JPEG 100% quality: **79.37 KB**
- PNG-24: **200.5 KB**
Way too big!
- PNG-8, 256 colors: **64.69 KB**
- PNG-8, 32 colors: **26.32 KB**
Terrible image quality



640 x 360 pixels

Working with Transparency

- PNG, GIF, WebP, and JPEG 2000 formats allow parts of an image to be transparent. (PNG and GIF are best supported.)
- There are two types of transparency:

Binary transparency

Pixels are either entirely transparent or entirely opaque.

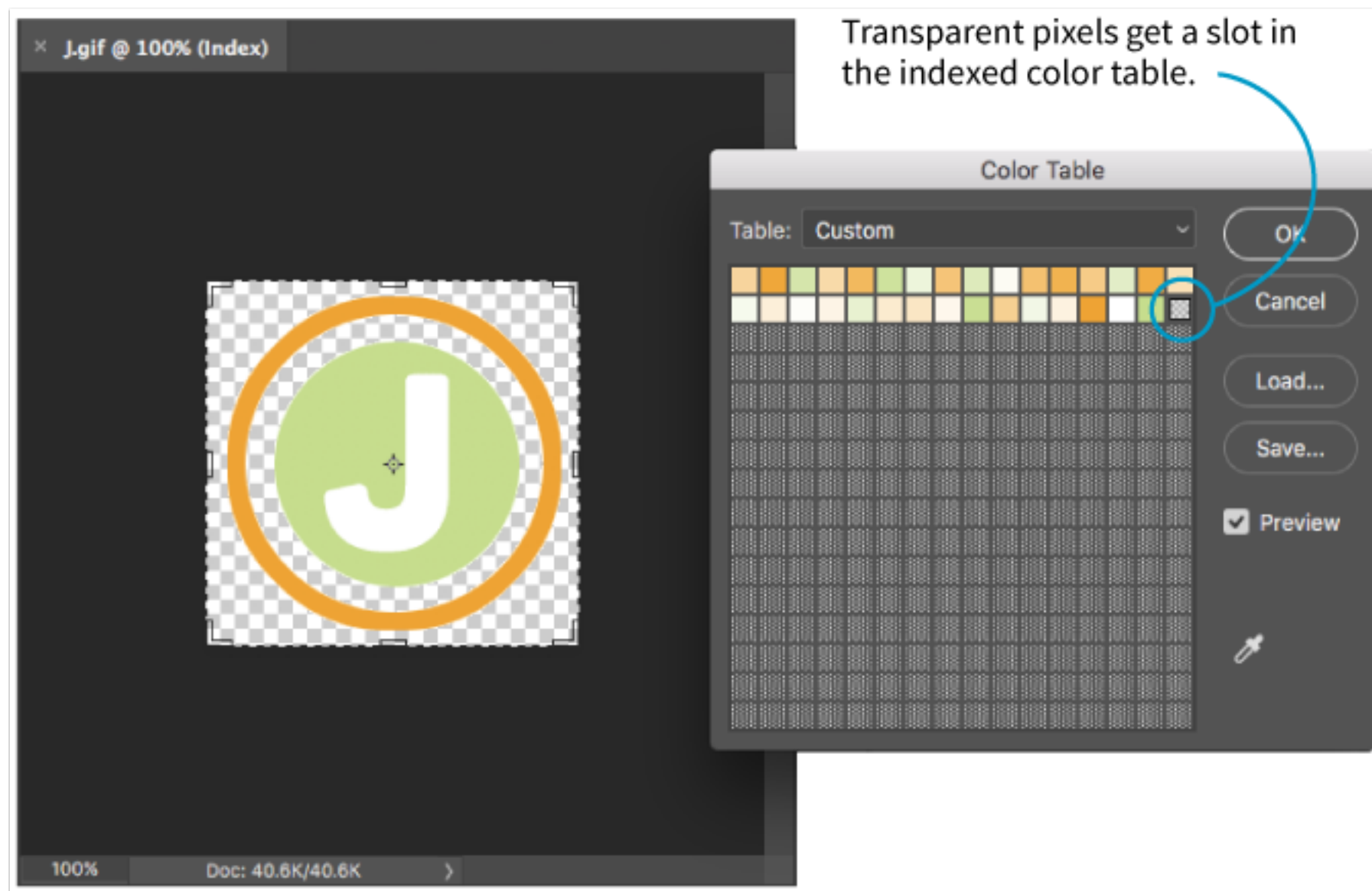
Alpha transparency

Pixels may have up to 256 levels of opacity.

TIP: The easiest way to make parts of an image transparent is to design them that way from the start and preserve transparent areas when you export. It is difficult to add good-quality transparency to already flattened images.

Binary Transparency

In 8-bit indexed color images (PNG-8 and GIF), transparency is treated like a separate color, occupying one position in the color table:



Binary Transparency (cont'd)

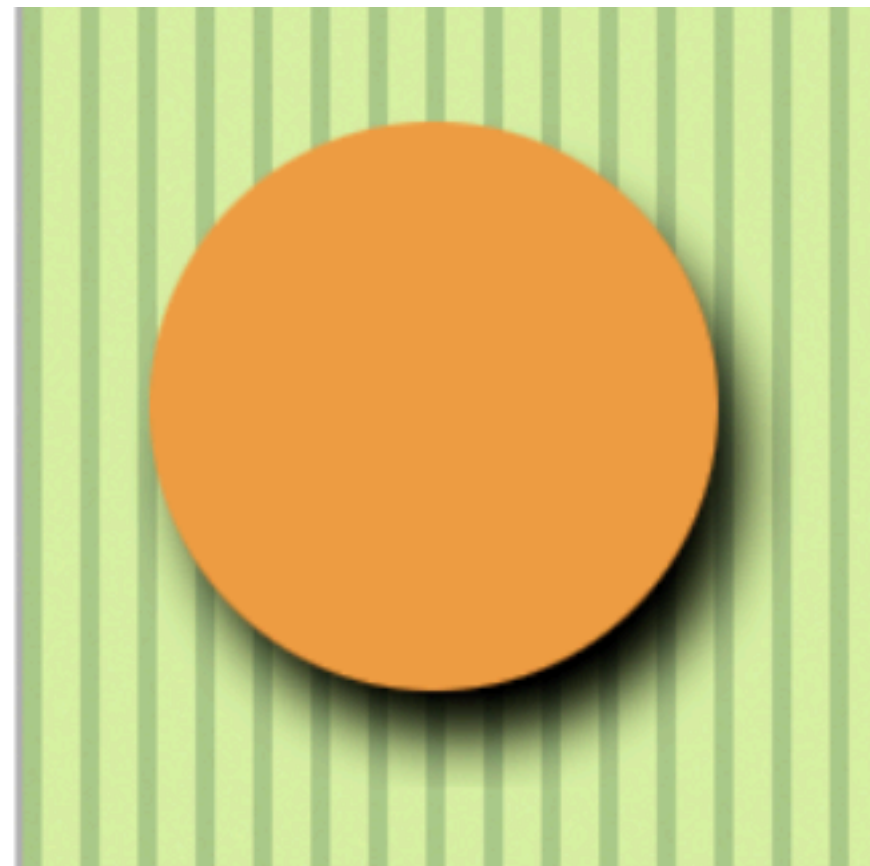
With binary transparency there is the risk of **halos**, a fringe of antialiased pixels around the edge that do not blend in with the background.

Prevent halos when you create the image by blending the colors on the edge of the image with a color that is close to the background. They are difficult to fix later.



Alpha Transparency

The advantage of alpha transparency is that the semi-opaque image areas blend with any background.



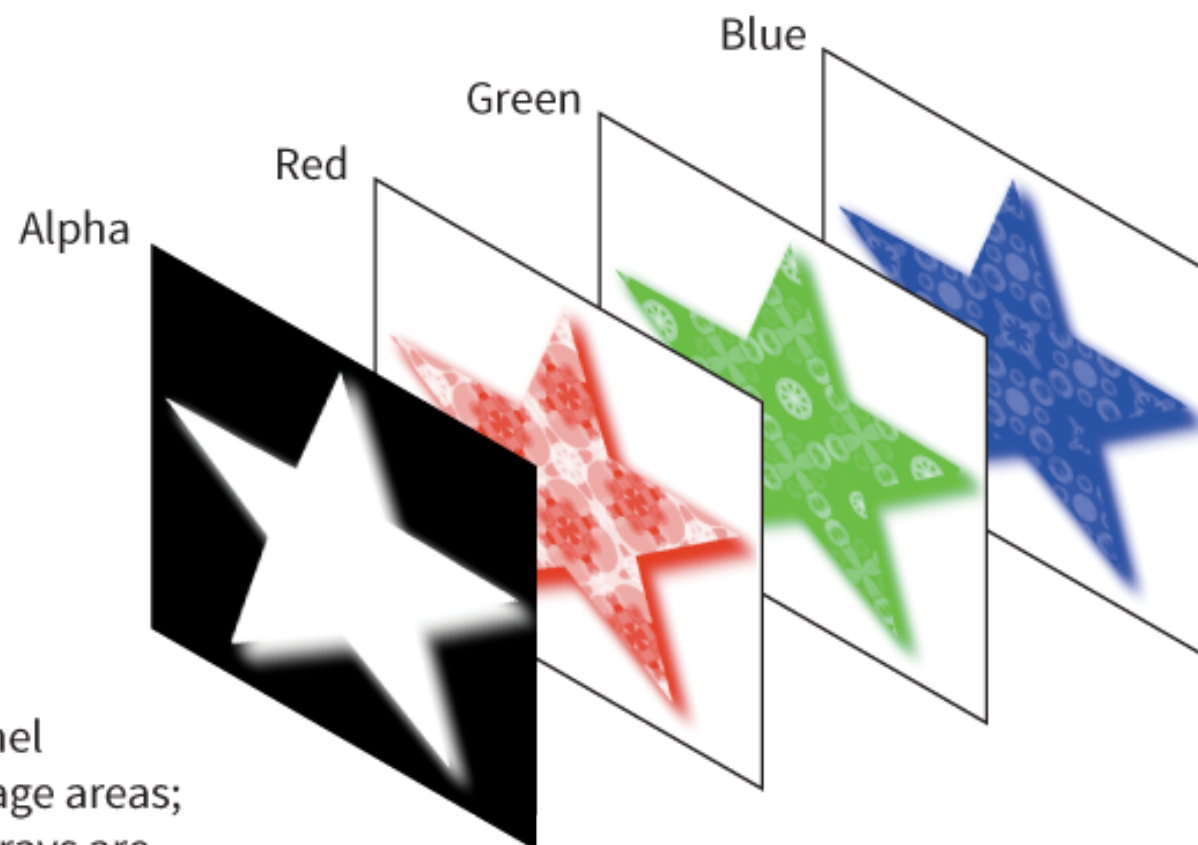
Alpha Transparency (cont'd)

- PNG-24, WebP, and JPEG2000 store alpha transparency in a separate **alpha channel**.
- Each pixel may display one of 256 gray values corresponding to opacity level.



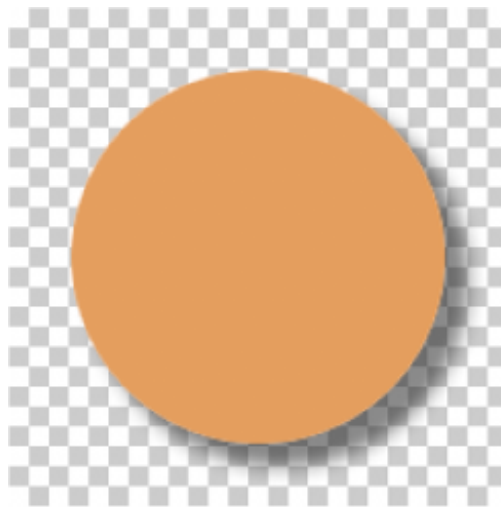
Original transparent image

Black areas in the alpha channel correspond to transparent image areas; white areas are opaque; and grays are variable levels of transparency in between.



Alpha Transparency (cont'd)

The PNG-8 format can store multiple layers of transparency in the color table (**alpha palette transparency**):



Original PNG-24 with alpha transparency (8.4 KB).



Saved as PNG-8 with 16 colors and multiple levels of transparency (1.6 KB).



When used over a pattern, you can't see the dithering.



Simulation of the color table for the PNG-8 with multiple transparency levels for the drop shadow.

NOTE: Only Adobe Photoshop can store PNG-8 with alpha transparency (but there are tools to convert transparent PNG-24 to PNG-8).

Producing Images for Responsive Layouts

- Providing multiple image sizes and using responsive image markup prevents devices from downloading more image data than they need.
- Start by determining the largest and smallest dimensions in which the image will appear.
- Decide how many interim sizes you need based on the range of sizes.

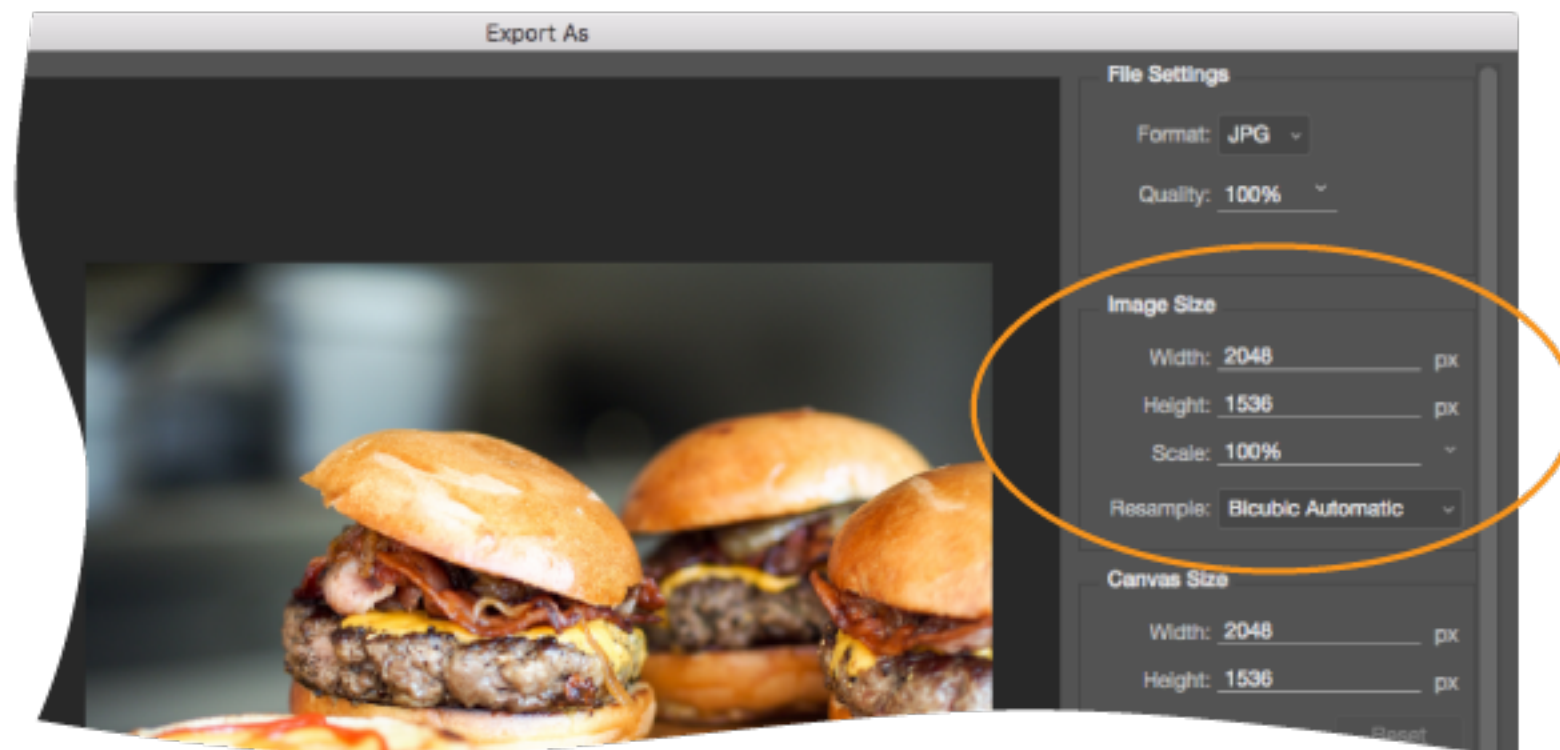
Producing Images (cont'd)

If you only need a few versions of a few images, resize them manually:

- Change image size, then export

or

- Use the Image Size settings in the Export dialog box:



Producing Images (cont'd)

If your image is used at a wide range of sizes, use **The Image Breakpoints Generator** from Cloudinary at

responsivebreakpoints.com

Image versions are generated automatically **based on file size** (not dimensions).

Upload an original image, and it creates multiple image versions and the markup for you.

The screenshot shows the 'Responsive Image Breakpoints Generator' web application. It has a blue header with the title and navigation links. The main area is titled 'Easily generate the optimal responsive image dimensions' and includes a brief explanation. There are two main sections: 'Breakpoints generation settings' and 'Or select one of the predefined images'. The settings section includes sliders for 'Resolution' (from 240 to 612) and 'Size step' (from 30 to 30), a 'Maximum images' dropdown (set to 10), and a 'Retina resolution' checkbox. There are also tabs for 'Art direction - Image aspect ratio and view port ratio' with options for 'Original', 'Small screen', 'Tablet', and 'Smartphone'. A 'GENERATE' button is at the bottom right.

The screenshot shows the 'Responsive Breakpoints Results' page. It displays the original image (2400x1350 JPG, 2.2 MB) and a table of generated breakpoints. The table has columns for 'No.', 'Width', 'Height', 'File size', and a 'View image' link. Below the table, there is an 'HTML5 img tag example' showing the generated markup for the breakpoints. The markup includes the original image and 10 generated versions with their respective widths and heights. A visual representation of the breakpoints is shown on the right, with the original image and the generated versions overlaid on a grid.

No.	Width	Height	File size	View image
1	240	135	25.7 KB	View image
2	320	180	44.7 KB	View image
3	416	234	66.9 KB	View image
4	484	272	85.7 KB	View image
5	545	307	107.6 KB	View image
6	605	340	127.6 KB	View image
7	661	366	158.9 KB	View image
8	692	387	163.6 KB	View image
9	672	376	163.3 KB	View image

HTML5 img tag example

```

```

* The 'src' attribute in the HTML code should be adjusted to fit the actual dimensions in your page

Art-Directed Images

If your image requires different cropping based on the layout size, your best bet is to make the separate images manually so you can make editorial decisions on what to include:



However, some automated image-resizing services can “smart crop” on the fly.

Images for High-Density Displays

For sharp images on high-density displays, work at 1x size but use features to export 2x, 3x, and 4x scaled versions.

Photoshop, Illustrator, Sketch, and Affinity Designer include options to export multiple scales at once.

Photoshop CC 2018

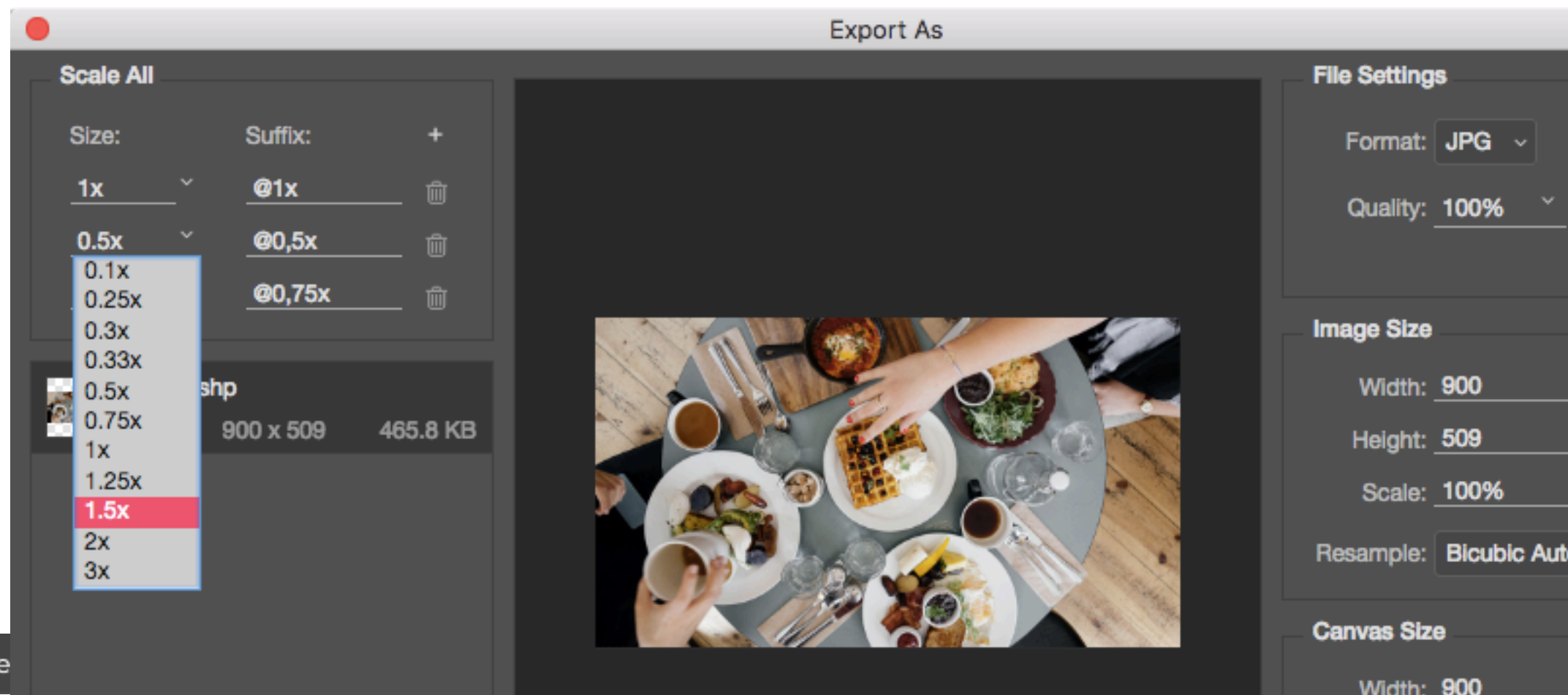


Image Optimization

- **Image optimization** refers to measures taken to make your image file sizes as small as possible.
- Optimization approaches fall into two categories:
 - Efforts made during the design and export process
 - Compression tools after the images have been exported

General Optimization Guidelines

- Keep a high-quality original and make copies of it at optimized sizes.
- Limit the dimensions of the image.
- Reuse images so they can be stored in the browser cache.
- Use image-editing tools with web-specific features.
- Run an image through an optimizer tool as a last step.

Optimizing JPEGs

General strategies for reducing the file size of JPEGs:

- **Be aggressive with compression (Quality)**
Optimal settings vary by image, but most images stand up to moderate (50-70) or even low (30-40) quality settings.
- **Choose Optimized, if available**
Optimized JPEGs are slightly smaller with better color fidelity.
- **Soften the image (Blur/Smoothing)**
Because JPEG compresses soft gradients well, applying a slight blur to an image or less-important parts of it reduces file size.
- **Avoid hard edges and sharp details**
Consider whether hard edges can be softened or if PNG is a better format.

Optimizing PNG-8 and GIF

PNG-8 and GIF use compression schemes that work most efficiently on flat areas of color. These tips maximize flat color areas:

- **Reduce the number of colors (bit depth)**

Choose a lower bit-depth (fewer colors) in the export tool or when converting to Indexed Color.

- **Avoid or reduce dithering**

Dithering (a speckle pattern) breaks up flat areas of color, which doesn't let the compression scheme work as efficiently.

- **Design with flat colors**

Choose flat colors instead of gradients or patterns when designing.

Optimizing PNG-24

Because PNG-24 uses a lossless compression scheme, you can't do much to optimize it.

- **Use JPEG instead**

Lossy JPEGs will result in smaller file sizes for photographic images.

- **Run them through an optimization utility**

An optimization tool may reduce the file size a little without losing image quality.

- **Convert them to PNG-8**

If you need multiple levels of transparency, use a utility such as **ImageAlpha** (pngmini.com) to convert to PNG-8 for a much smaller size.

Optimization Tools

Images generated by tools like Photoshop and GIMP can almost always be reduced further with optimization tools:

Online image optimizers

- Optimizilla (optimizilla.com)
- TinyPNG (tinypng.com)

Standalone optimization apps

- ImageOptim (imageoptim.com)
- PNG Gauntlet (pnggauntlet.com)

Grunt and Gulp plug-ins

Optimize all the images in a directory at once