Adobe Photoshop
# Saving in JPEG 2000 format

JPEG 2000 is a file format that provides more options and greater flexibility than the standard JPEG (JPG) format. Using JPEG 2000 you can produce images with better compression and quality for both Web and print publishing. (Currently, a plug-in is required for viewing JPEG 2000 files on the Web.)

Unlike traditional JPEG files, which are always lossy, the JPEG 2000 format supports optional lossless compression. The JPEG 2000 format also supports 16-bit color or grayscale files, 8-bit transparency, and it can retain alpha channels and spot channels. Grayscale, RGB, and CMYK are the only modes supported by the JPEG 2000 format.

The JPEG 2000 format also supports using a Region of Interest (ROI) to minimize file size and preserve quality in critical regions of an image. By using an alpha channel, you can specify the area (ROI) where the most detail should be preserved, allowing greater compression and less detail in other regions. See Photoshop Help for more information about using alpha channels.

Photoshop saves images in extended JPEG 2000 (JPF) format, which provides an expanded set of options compared to the standard JPEG 2000 (JP2) format. However, you can make files JP2 compatible by selecting the appropriate option in the JPEG 2000 dialog box.

*Note: You cannot save Indexed Color and Bitmap mode images in JPEG 2000 format. To save these files as JPEG 2000, first convert them to RGB color.*

**To save a file in JPEG 2000 format:**

**1** Choose File > Save As, and choose JPEG 2000 from the format list.

**2** Specify a filename and location, select saving options, and click Save, which opens the JPEG 2000 dialog box.

*Important: If you want to save a JP2-compatible file, you must select the ICC Profile option (Windows*) or the Embed Color Profile option (Mac OS) in the Save As dialog box. Otherwise, the JP2 Compatible option will be unavailable in the JPEG 2000 dialog box. The JP2-compatible option slightly increases the JPF file size by 1k. Keep in mind that JP2 viewers are not required to support ICC profiles and metadata present in JPF files, so color fidelity and other features may not work as expected.*

**3** (Optional) Enter a value in the File Size text box to set a target size for the saved file. The value in the Quality text box will adjust to the best quality for the file size you specified.

**4** Do one of the following to specify the image quality:

- Select Lossless to compress the image without losing image quality. Selecting this option creates a larger file.

- Deselect Lossless to create a smaller file. Then drag the Quality pop-up slider or enter a value in the Quality text box to specify the image quality. A higher quality value results in better image quality and a larger file size.

If you specify an image quality that conflicts with a target file size you specified in step 3, Photoshop automatically changes the value in the File Size text box.

**5** Select or deselect Include Metadata to include or exclude file information. If your image file contains paths and you wish to store the paths information in the JPEG 2000 file, the Metadata option must be selected.

💡 *Deselect the Include Metadata and Include Color Settings options to make the image file size smaller.*

**6** Select Include Transparency to preserve transparency that exists in the original image. The Include Transparency option is dimmed if the image does not contain transparency.

**7** Select JP2 Compatible to create a file that can be displayed in viewing software that supports standard JPEG 2000 (JP2) format but does not support extended JPEG 2000 (JPF) format.

**8** Click the Advanced Options button to set the following options:

**Compliance** This option chooses the types of devices with which the file is compliant. Currently only general devices (such as Web browsers) are supported.

**Wavelet Filter** This option specifies the type of numbers (coefficients) used to encode the file. Float is more accurate but cannot be used for Lossless compression. Selecting the Lossless compression option automatically sets the Wavelet Filter option to Integer.

*Choose Float or Integer depending on your image and the result you want. Integer is usually the best option for an overall consistent appearance in the image. Float may sharpen the image but could cause it to lose some quality around edges.*

**Tile Size** This option chooses the size of the tiles used in the image. When low quality values are used to optimize images smaller than 1024 x 1024 pixels, using the largest tile size will produce better results.

*A tile size of 1024 is best for most images. When creating files with small dimensions (for cell phones, and so forth), a lower tile size should be used.*

**Metadata Format** Select the metadata format(s) to include in the image file. JPEG2000 XML is JPEG 2000-specific XML data; this option is only available if the image file contains this data. XMP is Photoshop File Info data and EXIF is digital camera data.

**Color Settings Format** Select the Color Settings Format(s) to include in the image file. The Include ICC Profile format option includes the full ICC profile specified in the Save As dialog box. The Enumerated Profile and MAT/LUT profile format options are restricted profiles that are intended for use in portable devices such as cell phones and PDAs. Although there are (currently) no devices that support these profiles on the market, either an Enumerated or a MAT/LUT profile must be in a JP2 file.

**9** Choose an Optimization Order:

**Growing Thumbnail** This option presents a sequence of small thumbnail images increasing in size until they reach the image's full size.

**Progressive** This option presents an image that displays increasingly detailed versions of the entire image as data becomes available (for example, streaming over the Web to a browser). Progressive JPEG images have a slightly larger file size, require more RAM for viewing, and are not supported by all applications and JPEG 2000 viewing software.

**Color** This option makes the image appear first as a grayscale image, then as a color image.

**10** If your Photoshop document contains one or more alpha channels, you may choose an alpha channel to define a Region of Interest.

Once the alpha channel is loaded as a Region of Interest, choose an Enhance value to increase or decrease the quality of the Region of Interest relative to the rest of the image. Note that Enhance does not change the file size of the image, so enhancing the area inside the alpha channel will decrease the quality of the area outside the alpha channel (and vice versa).

**11** To preview how the image will appear in JPEG 2000 viewing software, choose the following options then click the Preview button:

• Choose a download rate from the pop-up menu to view the estimated download time of the image.

• In the Download Image pop-up menu, choose "main" to preview the JPF file or "JP2 Compatible" to preview the JPF file with an embedded JP2-compliant image. The JP2 Compatible option is only available if you selected JP2 Compatible in step 7.

**12** When you're done setting options, click OK to generate the JPEG 2000 image file.