



Still Image Filetypes

- Bitmap

iPad & iPhone

iPaddlers

Designed for iPad with iPad OS13 Relevant to other devices also.

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Out with JPEG, in with HEIC

With **IOS11** (2017) Apple replaced the JPEG image file format with **HEIC - High Efficiency Image Coding**. It is based on the global **HEIF** standard - **High Efficiency Image Format**, which allows for greater file compression and higher quality images (compared to the **JPEG** standard).



There's more to this. HEIC (or HEIF) is based on **HEVC (High Efficiency Video Compression)** or the **H.265 video** format. It is not a proprietary Apple invention, but rather a global standard developed by the MPEG group.

HEIC is really a container for images, and not strictly a format. It can work for still images, or video. It is particularly good for Live Photos (on newer mobile devices) and dual camera images taken with the latest iPhones (from iPhone X up).

The **Joint Photographic Experts Group** created the **JPEG** file type for lossy image compression in 1992. This file type reduces the amount of data required to store the image and improves the time required to display the image on the screen. It has been widely used for years and will not be replaced quickly.

PNG - Higher Quality

When you take a screen shot using your iPad, or iPhone, the image will be saved as a **PNG** file (**Portable Network Graphic**). This uses lossless compression, meaning image quality is preserved. However, it does result in larger file sizes compared to JPEG. The main advantage of using PNG, other than for preserving image quality, is the ability to retain background transparency (something you can't do with JPEG). The PNG format is also best for images that will require further editing in future.

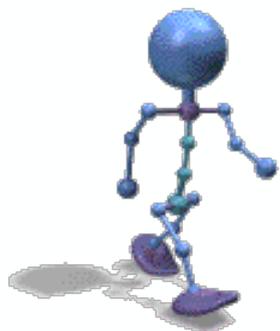


Common Bitmap Image File Types on iPad

- **HEIC** - Apple's implementation of the HEIF/HEVC standard - greater file size reduction
- **JPEG** - developed in 1992 by the **Joint Photographic Experts Group** for lossy image compression
- **PNG** - **Portable Network Graphic** for lossless compression and retention of image quality
- **GIF** - **Graphics Interchange Format** (from 1987) suitable for line art, logos and simple animations
- **TIFF** - **Tagged Images File Format** (from 1986) originally developed for desktop scanners (B&W lossless)

There are variations of these file types. Improvements are developed over time as different requirements arise with ever changing technology. Generally speaking, the JPEG, PNG and GIF filetypes are commonly used for sharing images over the Internet (*we may cover vector graphics at another time*).

- JPEG images on websites facilitate quicker page download times. There is a trade-off between image quality and download speed. It is also a widely adopted cross-platform standard
- PNG allows not only better quality images but is good for crisp looking logos, and where transparent backgrounds are required
- GIF images are good for simple images with a small colour palette (such as emoji) and simple animation (such as animoji and memoji)



Apps for Managing Images



Preview on **macOS** - opens the usual image file types and can export to different file types such as:

- HEIC
- JPEG
- PDF
- PNG

macOS

On Apple computers and mobile devices, there are various apps for managing image files. These apps usually also provide some basic editing capability. There is usually also the ability to convert files into other file types (via the 'Export' or 'Share' options). There are also non Apple apps, such as Google Photos. Dedicated image editing apps can also be employed to give more control. Digital artists can use any number of other graphics apps on their iPad, which will give a greater range of options for both creating, editing and saving in different formats.



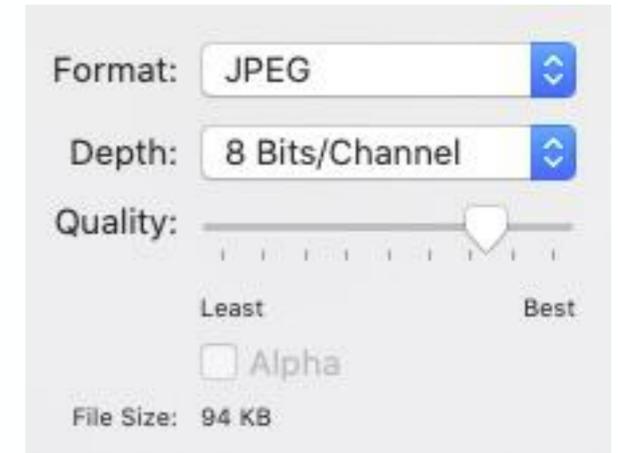
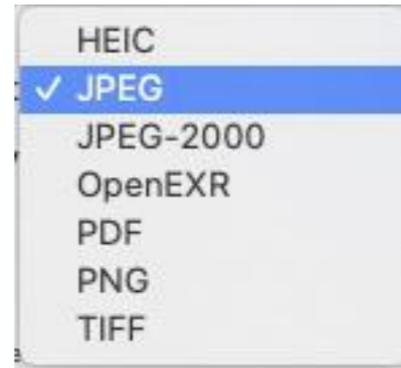
The **Photos** app on the **iPad** (and iPhone) opens the usual image file types and probably converts them to HEIC. There are editing options such as:

- Color and Light adjustments
- Preset Color and Light adjustments
- Crop, Rotate and Straighten

iPadOS



Export to JPEG on macOS

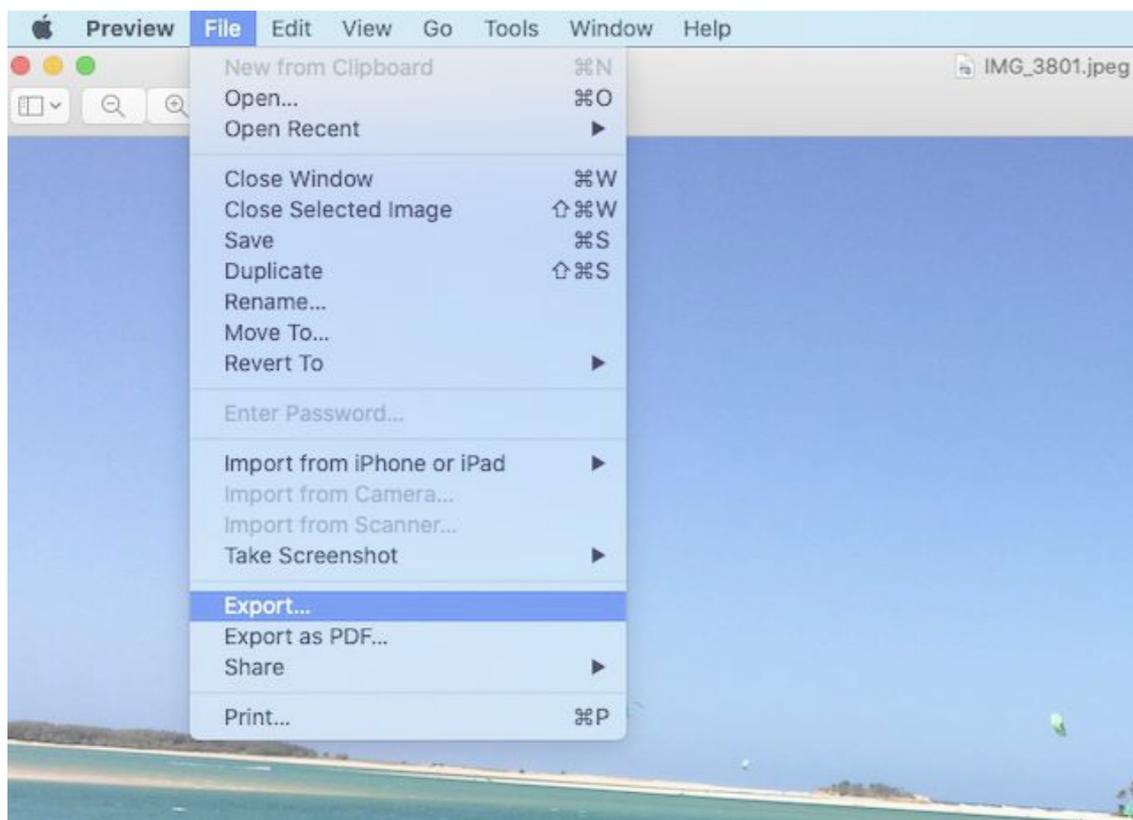


The **Preview** app on macOS allows fine control over export options for images. When you choose 'Export', you will get a dropdown list of file type options.

From macOS High Sierra you will normally see the above options in the dropdown list.

If you choose to export as JPEG, you will be presented with further options. The 'Quality' slider will give you finer control over image quality and file size.

macOS

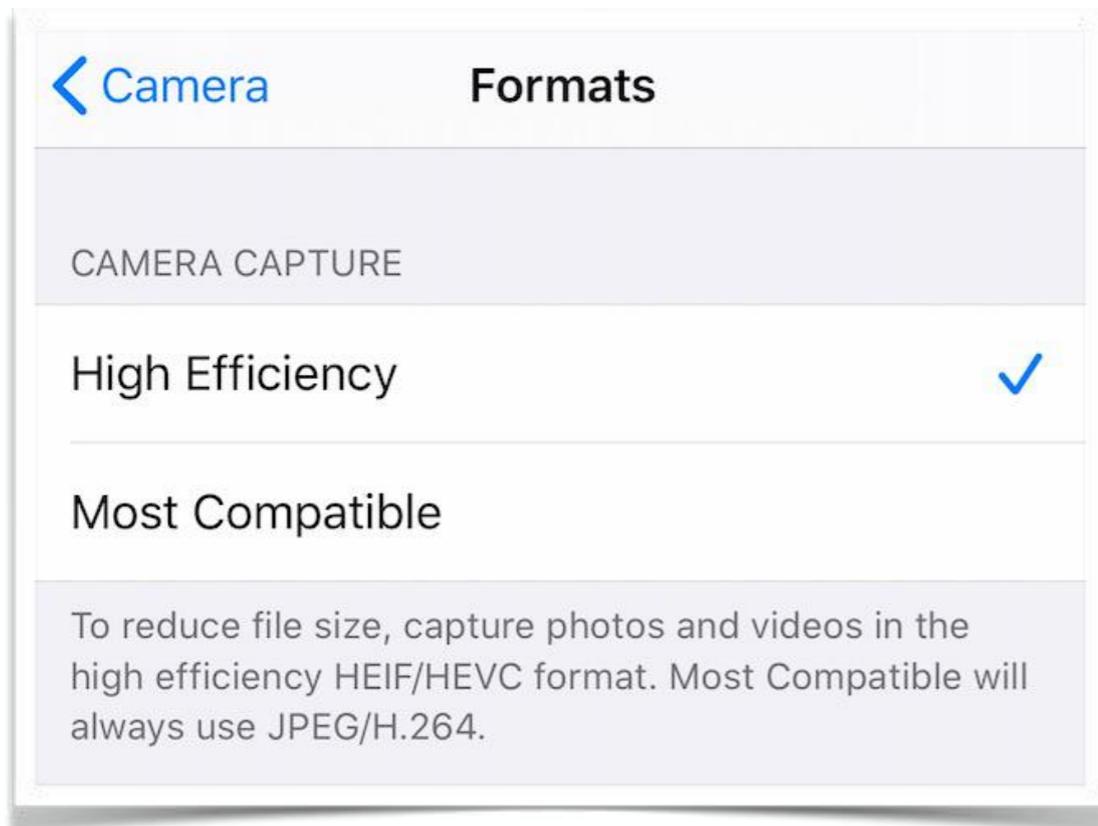


Choosing JPEG or HEIC

iPhone and iPad



On the **iPhone** (iOS11 and above) there is the option to revert to taking photos in JPEG format:



iPhone iOS13 - Settings > Camera > Formats

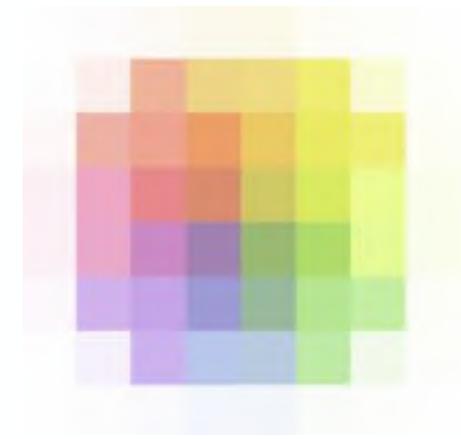
iOS 13

On an **iPad** running **iPadOS 13**, the **Camera** options in **Settings** are different to the iPhone. There appears to be no option to capture photos in JPEG format (as opposed to HEIC), therefore converting an image to JPEG would require an 'Export' process of some sort. This could be done by simply sending the image file to yourself by email (iOS will do the conversion) or AirDrop to your Mac and use Preview to do the conversion (from HEIC to JPEG etc) using the 'Export' function (as in the previous slide). This latter method may automatically convert the HEIC to JPEG during the process of 'Air Dropping' to macOS.

iPadOS

Summary - Images on iPad

iPad / iPhone



iPhone and iPad since iOS11

- **HEIC** - Apple's implementation of the HEIF/HEVC standard which allows for greater file size reduction with less loss of image quality
- **JPEG** - developed in 1992 by the Joint Photographic Experts Group for lossy image compression
- The iPhone and iPad saves screenshots as **PNG** images (allows for editing and retention of image quality)
- Since **iOS11**, the iPhone has two format options under the Camera Settings; High Efficiency (HEIC) and Most Compatible (JPEG)
- **'High Efficiency'** (HEIC) - will save photos as HEIF/HEVC format for reduced file size
- **'Most Compatible'** - photos saved in JPEG/H.264 format.
- When **Share** is used to send a HEIC image elsewhere, the image normally will be automatically converted to JPEG

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Apple Logo - Evolution

1977 - 2020



1976 - 1977
Depicts Isaac Newton
under an apple tree



1977- 1998
Originally designed to show
the new color capability of
Apple computer screens



1998 - present
Coinciding with the iMac release.
Simple and modern, with
grayscale variations.