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HEIF halfway there?

NOVEMBER 15, 2019

About two years ago we looked at the then-new **HEIF image file format** which Apple had just adopted in its latest iPhone operating system, iOS 11. Now Canon has also adopted HEIF as well, in its Canon EOS-1D X Mark III.



Click on the image for a better view of the quality differences between the file formats. (Source: Wikipedia)

HEIF, developed by the Moving Pictures Expert Group (MPEG), offers a range of advantages over JPEGs, with Apple finding it attractive because it consumes less storage space for the same image quality.

Canon's move to HEIF has been accompanied by speculation that the days of the JPEG as the default file format for storage, sharing and printing images are numbered. (Although Canon has since indicated that HEIF was an addition to, rather than a replacement for, JPEGs.)

But so far the HEIF format is simply being used – by two companies only – as a more efficient file format for image compression and storage. As far as we are aware no printing companies – including Canon itself – offer print drivers which print direct from a HEIF file. [Epson told Inside Imaging](#) back in September 2017, 'there is no timeline for support for HEIF at the moment but it is on the table for discussion.' Presumably they are still talking.

HEIF files consequently have to be rendered as JPEGs prior to printing or even sharing on screens.

Two years on, HEIFs remain a bit of a workaround for photo printers. 'We Airdrop files from iPhones to an iPad as our old kiosks from Kodak do not reliably connect together with iPhones,' explained Alan Logue, Hutt Street Photos in Adelaide. 'Hence, we do not seem to have had any issues with HEIF files recently. (The HEIF files automatically convert to JPEGs on the iPad.)

'We did have a couple of customers causing us grief but one of my iPhone-using staff turned the feature off [the HEIF format] and set them back to common old jpg's. Unfortunately, due to the minimal HEIF involvement, I really don't know of any issues – good or bad!'

But the HEIF file format has other advantages, not yet exploited by any camera, imaging software or printing companies. As well as better compression than a JPEG, HEIF files can be at 16-bit colour. Unfortunately, because there is no HEIF file support for printers, they can only be processed and printed as lower-quality JPEGs (8-bit colour).

Another advantage also relates to image quality. Instead of storing the same quality image in half the storage space, HEIF could be used to create higher quality images using the same storage space as a JPEG. It's not clear whether in the Canon EOS-1D X Mark III implementation, photographers can set their HEIF files to a high resolution setting, or what bit rate Canon has adopted.

Yet another plus for HEIF files is that they support animation, and compared to animated GIFs ubiquitous on websites, HEIF stores more information and produces higher-quality animated images at a small fraction of an equivalent GIF's size. And finally, HEIF files can be either stills images, or videos or a combination of the two – perfect for the iPhone Live Photos feature.

All these potential benefits will remain unexploited unless HEIF is taken up by more than two imaging companies, even if they do happen to be Apple and Canon.

We asked David Slade, technical support manager at iPhoto, a few questions about the HEIF file format and where it might be heading:

After two years, has the HEIF format been taken up by more companies than just Apple and now Canon?

David Slade, iPhoto: Apple devices support it, some as default. Android devices support it, some not as default. Windows 10 supports it. Photoshop on Windows still does not support it. However, I think Lightroom does. As noted, Dakis kiosks do read the format. But, I don't think browsers support it yet, so that is a big drawback. (iPhoto distributes Dakis retailing printing software in Australia and New Zealand.)

When we hear printing and kiosk businesses talk about 'supporting HEIF', is that simply a matter of automatically transcoding HEIF into JPEG for printing – or printing direct from the HEIF file?

When computers open image files they read the image into a rasterised format of individual pixels. They use Codecs to do the conversion; software that reads that particular file format. So, usually there is no conversion from HEIF to JPEG required. However, there are other conversions going on in the workflow to be able to print the file, (eg, a specific format for the printer.)

If, so far, we are simply converting HEIF to JPEG, is there any drop in image quality as the image file goes from 16-bit (or is it 10-bit 'in camera?') to 8 bit?

JPEG only supports 8-bit colour, HEIF can support up to 16-bit. I believe the iPhone uses 10-bit.

So converting a 10- or 16-bit HEIF file to JPEG format could result in reduced quality. In practice it would be hardly noticeable with phone images, as optic quality and software play a bigger role with phone images.

In minilab printing, there would be no discernible quality difference between printing a 16-bit and 8-bit image file. Wide format printers have better support for 16-bit images.

I understand HEIF files are both more compact and, potentially at least, of higher quality (although it all gets a bit woolly in the quality side). But without direct compatibility with printers, is that advantage (if it exists) not being exploited?

The main, or perhaps only, advantage [of HEIF files] being exploited is reduced file size. Because everyone's phone photos are getting uploaded (for free) to the cloud, reducing the file size is imperative to save Apple's and Google's cloud costs.

You explained earlier that 'Dakis kiosks do read the format. But, I don't think browsers support it yet, so that is a big drawback.' Can you explain briefly why is that a big drawback?

Dakis kiosks read the format but convert the images to JPEG format because this format is universally supported. I think (non-HEIF compatible) Apple devices still convert HEIC images to JPEG when they export them. (Apple actually tags its HEIF files as .heic)

And as far as display on web browsers is concerned, it is more likely that WEBP, another image format...will be adopted for web images before HEIF format. Chrome, Firefox, Opera and Edge already support [the WEBP format](#). So, no, not a big drawback that browsers are not supporting HEIC.

It probably won't be used by cameras, or as a printing format.

One Comment



Jorge Pedreira
NOVEMBER 16, 2019

In the images shown in this article I see less pixelation blocks in HEIF but also less details.

So far, there is no need to reinvent the wheel.

Best wishes,

Jorge

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