

# Digital Image Management and Archiving.

Other references can be found online, searching for 'Digital Asset Management' (though that includes data of all kinds). The majority of the following is a precis of some of the more academic studies of the problem.

The majority of images being created today by photographers are digital. This ever-expanding body of work needs to be protected from becoming digital technology “orphans.” Until industry standards evolve, it is increasingly important for photographers to take precautions when archiving digital image files. Even though there is no singular method of file preparation for digital image archiving, the practices outlined by the participants of this study are a good place to start. Unlike images created with traditional film-based technology, those created in today’s digital environment run the risk of being lost to future generations because there are no universally practised standards for archiving them. Photographers must make decisions concerning this critical step with few sources of information to guide them.

## *Introduction*

Photographs have provided generations of grateful viewers with lasting memories by recording important images on film. Photographers have established profitable careers by creating images that can be sold not once but again and again. Neither of these scenarios would be possible without carefully archiving, or preserving, the materials that are needed to successfully reproduce an image.

Over time, archival methods have been established to guarantee the long-term survival of traditional film and printed materials. In comparison, today’s digital cameras create digital files instead of latent images on film. No such universally accepted practices exist as standards for either capturing or archiving these digital image files.

With film, the solution was fairly clear, if very time-consuming. With digital images we have some assistance with the methods but also a few technological risks.

As the demands and capabilities of digital cameras continue to escalate and evolve, photographers are faced with the problem of saving their images in a manner assuring viability in a digital environment far into the future - a technological future that has yet to be established.

**In short, we just don't know that whatever steps we take now to try to save our images for the future will actually be usable in the future.**

Digital photography pioneers first used floppy disks (the 'real' Floppy Disks, 5 ¼ inch diameter and actually floppy!), then the 3.5 inch disks that we still (occasionally) see around, then they became double-capacity (1.44Mb). Later, images were saved on Syquest and Zip disks because the new technology provided larger capacities and improved physical properties. As individual image files grew larger, photographers needed to store them on CD-R/RW and DVD-R/RW media, again because these technologies offered larger capacities and a better way to keep the media viable over the long term. A current trend is to store image files on separate large capacity hard drives and servers. Even these are not fault-free and if we really look into the future - power itself may be a totally different concept.

Strictly speaking, there's no such thing as an archival medium for digital storage - any of the even slightly convenient solutions available for recording ones and zeros will degrade over time. . . . Any archiving strategy must include periodic refreshing of the data onto new media, preferably taking advantage of improvements in technology.

One issue that is currently providing a roadblock to a universally accepted archival solution is the file format itself. All digital cameras initially put images into a Raw format and immediately convert them to (usually) JPEG images - later cameras, mostly DSLRs, can output images in either Raw or JPEG formats.

Since the early 1990s, most image files were converted to large, uncompressed or minimally (lossless) compressed files (TIFF and PSD are most common) used for the highest quality reproduction, or more greatly compressed files (JPEG) that are of lower image quality but take up less storage space and are easier to transmit over the Internet.

The larger files were saved and acted as archival files that could be reused as necessary, (like a negative) and the smaller files were either saved for convenience or deleted (like an old snap shot print). As the demand for higher quality image files increased, photographers increasingly relied on RAW format files that allowed them to access and manipulate the unprocessed digital image data separately from capture and processing data. The RAW format is widely viewed as a significant breakthrough in image formatting. It has led to problems, though. Each camera manufacturer has taken the RAW format concept and developed proprietary versions for its own specific camera models. As a result, the digital imaging industry had no universally accepted RAW format but Adobe tried to come to the rescue (and the camera industry didn't thank them for it) by coming up with a universal Raw format, called DNG (often referred to as meaning 'Digital Negative'). Some camera manufacturers, notably Pentax and Samsung, decided to provide the option of saving the image to either their own raw format (PEF) or as DNGs, as chosen by the user.

Archiving digital images is an immediate problem that directly affects all photographers, whether professional or amateur. Finding a universally acceptable archiving solution is key to the continued advancement of digital imaging technologies, and over the long term the ways in which these digital images will be accessed and utilised.

In short, digital image archiving has many far-reaching problems when you think into the future - at least 100 years would be good, further may be impossible:

Is the file format itself going to be 'readable'?

TIFF is the 'quality' format for now, Jpeg may be usable for many years but there have been efforts in the past to create new standards (Jpeg2000) and even now a new compressed-image format is being trialled by Google.

Is the media (that the images are stored on) going to be usable?

The CD-R and CD-RW look like they're obsolescent - the DVD may be next to fall. The quality of the disks themselves has improved but don't be too tempted to spend a lot of money on the most expensive (gold-plated) - they may be a complete waste of money in a few years.

Is the whole technology - computers with DVD drives, USB, external hard drives etc going to be of any use?

We could have different power supplies, totally different computer 'architecture' in the near future; in any case, I wouldn't put important images onto just one form of 'back-up' - apply the 'belt and braces', two forms of archive, at least.

The answer to all these questions could be a big "NO". So whatever we do now is only a stop-gap. Your pictures may have to be moved/copied several times onto whatever the technology demands as it develops. Any or all of the current technology, the file formats and the media used could become redundant in less than 30 years.

So what should we do in the meantime?

Use at least two methods: These should be your best images, saved in their 'best' format. At the moment that has to be as one of the following:

- a) Raw files - but these are problematic for being different for each camera models, even from the same manufacturer. If you've got an older version of Photoshop or Elements you can, even now, be stuck if you get a new camera - you soon realise that the Adobe Camera Raw that was fine for one camera is now useless - so you need to upgrade to a later ACR version - then run into the problem that certain ACR versions are no longer compatible with your version of Photoshop, etc etc etc. The answer would be DNG, if only camera manufacturers would ditch their own formats and go with a universal format. The bottom line - if you open up a DVD in ten years time to get that important Raw file, you are almost guaranteed to have a problem using it if you've upgraded your editing program or computer in the meantime.
- b) TIFFs - Perhaps the oldest digital image format of all - can be large but, like the PSD file below, can retain the 'layers' and 'selections' of editing.

- c) PSDs - Adobe's own format, which will be around as long as Adobe - but watch out for future 'upgrades' to the format.
- d) JPEGs - If it's the best file you have, it will have to do. But it's subject to major revision at some time in the future.

I'd recommend an external hard drive. They are cheap (but don't get the cheapest, buy a well-known brand, get advice from a knowledgeable sales representative - not the first spotty youth in the shop). The External HD has the advantage in two main areas: instantly accessible files once you plug it in to a USB 'slot', and portability - so you could actually unplug the device and move it somewhere physically safe.

The online storage websites - An area I'm not too knowledgeable about. Like a bank, really. But as safe as the building that their server is housed in.... and the commercial viability of the company!

DVD - Further details on the other PDF in this 'Learning' item. Fair to say, though, that if we see the rapid development from floppy disk, through CD-ROM, CD-R, to DVD and at some point you will find yourself with the task of transferring all your images from DVD to whatever the technology might be in the future.

So is there an 'ideal' setup for archiving? The very least has to be to use the most convenient system as your first step, but if archiving is important to you then it's essential that you have two storage locations. The convenient one would be the External HD (easy read/write access plus some portability), the one that can take more time would be the DVD - at least it's a physical entity that can be kept somewhere safe and away from the computer. It's also the one you may need to take to the geek shop in ten years to see if they can transfer all your images to the 2020 DVD equivalent.

An alternative to all the above hassle? I came to the conclusion, only a few days ago, that somebody could make a huge fortune if they were to invent a device that could put digital images onto film(!) - back to a physical entity that can be put in a sealed box!

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