

Digital Preservation at Oxford and Cambridge

A collaborative research project to evaluate and provide sustainable recommendations for our digital preservation programmes

Audiovisual creation and preservation

Posted on **23 November, 2016** by **somaya**

Following on from the well received [Filling the digital preservation gap\(s\)](#) post, Somaya has followed this up by reflecting on an in-house workshop she recently attended entitled, 'Video Production: Shoot, Edit and Upload', which has prompted these thoughts and some practical advice on analogue and digital audiovisual preservation.

My photographer colleague, Maciej, and I attended a video editing course at Cambridge University. I was there to learn about what video file formats staff at the University are creating and where these are being stored and made available, with a view to future preservation of this type of digital content. It is important we know what types of content the university is creating, so we know what we will have to preserve now and in the future.

While I have an audio background (having started out splicing reel-to-reel tapes), for the past 20 years I have predominantly worked in the digital domain. I am not an analogue audiovisual specialist, particularly not film and video. However, I have previously worked for an Australian national broadcaster (in the radio division) and the National Film and Sound Archive of Australia (developing a strategy for acquiring and preserving multi-platform content, such as Apps and interactive audiovisual works etc.)



— A range of analogue and digital carriers. Image credit: Somaya Langley

Since my arrival, both Cambridge University Library and Bodleian Libraries, Oxford have been very keen to discuss their audiovisual collections and I'm led to believe there may be some significant film collections held in Cambridge University Library (although, I've yet to see them in person). As many people have been asking about audiovisual, I thought I would briefly share some information (from an Australasian perspective).

A ten-year deadline for audiovisual digitisation

In 2015, the [National Film and Sound Archive of Australia](#) launched a strategy paper called [Deadline 2025: collections at risk](#) which outlines why there is a *ten-year deadline* to digitise analogue (or digital tape-based) audiovisual material. This is due to the fragility of the carriers (the reels, tapes etc.), playback equipment having been discontinued – a considerable proportion of equipment purchased is secondhand and bought via eBay or similar services – as well as the specialist skills also disappearing. The knowledge of analogue audiovisual held by engineers of this era is considerable. These engineers have started to retire, and while there is some succession planning, there is not nearly enough to retain the in-depth, wide-ranging and highly technical skill-sets and knowledge of engineers trained last century.

Obsolete physical carriers

Why is it that audio and video content requires extra attention? There is a considerable amount of specialist knowledge that is required to understand how carriers are best handled. In the same way that conservation staff know how to repair delicate hundreds of years old paper or paintings, similar knowledge is required to handle audiovisual carriers such as magnetic tape (cassettes, reel-to-reel tapes) or optical media (CDs, DVDs etc.) Not having the proper knowledge of how to wind tapes, when a tape requires 'baking' or holding a CD in a certain way can result in damage to the carrier. Further information on handling carriers can be found here: <http://www.iasa-web.org/tc05/handling-storage-audio-video-carriers>. If you're struggling to identify an audiovisual or digital carrier, then [Mediapedia](#) (a resource initiated by Douglas Elford at the National Library of Australia) is a great starting point.

Earlier this year, along with former State Library of New South Wales colleagues in Sydney, Scott Wajon and Damien Cassidy, we produced an [Obsolete Physical Carriers Report](#) based on a survey of audiovisual and digital carriers held in nine Australian libraries for the National and State Libraries Australasia (NSLA). This outlined the scope of the problem of 'at-risk' content held on analogue and digital carriers (and that this content needs to be transferred within the next decade). Of note is the short lifespan of 'burnt' (as opposed to professionally mastered) CDs and DVDs.

Audio preservation standards

In 2004, the [International Association of Sound and Audiovisual Archives](#) (IASA) first published the audio preservation standard: [Guidelines on the Production and Preservation of Digital Audio Objects](#). I have been lucky to have worked with the editor (Kevin Bradley from the National Library of Australia) and several of the main contributors (including Matthew Davies) in some of my previous roles. This sets a standard for the quality.

Other standards publications IASA has produced can be found here: <http://www.iasa-web.org/iasa-publications>

Video preservation standards

Since approximately 2010, IASA has been working towards publishing a similar standard for video preservation. While this has yet to be released, it is likely to be soon (hopefully 2017?).

In lieu of a world-wide standard for video

As audiovisual institutions around the world are digitising their film and video collections, they are developing their own internal guidelines and procedures regarding 'preservation quality' video, however best-practice has started to form with many choosing to use:

- Lossless Motion JPEG 2000, inside an MXF OP1a wrapper

There is also interest in another [CODEC](#) as a possible video preservation standard, which is being discussed by various audiovisual preservation specialists as a possible alternative:

- Lossless FFV1 (FF Video Codec 1)

For content that has been captured at a lower quality in the first place (e.g. video created with consumer rather than professional equipment), another format various collecting institutions may consider is:

- Uncompressed AVI

Why is video tricky?

For the most part, video is more complex than audio for several reasons including:

- A video file format may not be what it seems – there is both a container (aka wrapper) holding inside it the video file (e.g. Quicktime MOV file containing content encoded as H.264).
- Video codecs can also produce files that are lossy (compressed with a loss of information) or lossless (compressed, but where data is not lost as part of the encoding process).

The tool, [MedialInfo](#), can provide information about both the container and the encoded file for a wide range of file formats.

Of course, there are many things to consider and parameters to configure – hence needing film and video digitisation specialists and specialist equipment to produce preservation quality digitised video.

From the US, the [Federal Agencies Digitization Guide Initiative](#) (FADGI) are also a great resource for information about audiovisual digitisation.

Consumer-produced audiovisual content

While I would recommend that consumers capture and produce as high-quality audiovisual content as their equipment allows (minimum of 24bit, 48kHz WAV files for audio and uncompressed AVI for video), I'm aware those using mobile devices aren't necessarily going to do this. So, in addition to ensuring, where possible, preservation quality audiovisual content is created now and in the future, we will also have to take into account significant content being created on non-professional consumer-grade equipment and the potential proprietary file formats produced.

What can you do?

If you're creating audio and or video content:

- set your settings on your device to the highest quality it will allow (however you will need to take into account the amount of storage this will require)
- try to avoid proprietary and less common file formats and [CODECs](#)
- be aware that, especially for video content, your file is a little more complex than you might have expected: it's a 'file' inside a 'wrapper', so it's almost like two files, one inside the other...

How big?

Another consideration are the file sizes of digitised and born-digital film and video content which has implications for how to 'wrangle' files as well as considerable storage needed ... however this is best left for a future blog post.

We will discuss more about born-digital audiovisual content and considerations as the DPOC project progresses.

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