From Preservation Guide

Main: Roadmap

This is a DRAFT of a proposed recommendation for where to go with whatever video format is currently on your shelves

Migration Paths for Video Media (discussion below)

Ingest Format	Migration Format	Notes
Low quality media		
VHS tape	DVD	**Access** Perfectly adequate for VHS playback
VHS tape	MPEG-4 files	**Access** Adequate for quality. Minimum data rates (MPEG-4): 500k b/s. There are MANY potential access formats, and they come and go.
VHS tape	DV files	**Archive** (temporary) 25 M b/s, 12 GB/hr. Migrate to lossless for preservation.
'low end' digital files	Save as is, AND save as DV or lossless	**Archive** (temporary) Before format or DV format becomes obsolete, migrate to lossless for preservation.
DVD	clone	**Archive** migrate to lossless when encoding becoming obsolete
Medium quality		
U-Matic	DVD	**Access** Reduces quality; suitable only for viewing
U-Matic	DV files	**Archive** (temporary) 25 M b/s, 12 GB/hr. Migrate to lossless for preservation.
DV, DVCAM	DV files (meaning .avi files with native coding)	**Archive** (temporary) transfers to computer at 25 M b/s, resulting in an .avi file 'clone' of the original DV tape. Migrate to lossless for preservation.
High Quality		
BetaSP, Digibeta, other pro formats	Uncompressed	**Archive** Uncompressed standard definition video: 200 Mb/s. About 100 GB for one hour, meaning 25 DVD-ROMs (or part of one data tape or hard drive).
BetaSP, Digibeta, other pro formats	Motion JPEG 2000 (lossless version)	**Archive** lossless compression, with a resultant data rate of around 90M b/s. About 40 GB for one hour.
DVCPRO50	.avi files, DV coding	**Archive** (temporary) As for DV, but at twice the data rate. Less susceptible to loss on future migrations. Migrate to lossless for preservation.
'High end' digital files	Save as is	**Archive** (temporary) Before format becomes obsolete, migrate to lossless for preservation.

Rationale:

Temporary Archiving We propose a cost-effective two-stage solution for archiving low-quality formats such as DVD and VHS, if the direct transfer to lossless video is currently too expensive.

If funds are short, consider migrating VHS and DVD to DV[1] (Digital Video) format, using a PC or MAC with a professional video capture card[2], turning the information into files stored on the computer. The card takes the analogue signal from the VHS and converts into a digital signal. The standard DV bitrate is 25 megabits/sec[3]. The new digital files can then be stored until the DV format starts to become obsolete. At that time (after 2015? 2020?) it will almost certainly be necessary to go from DV to uncompressed video, in order to "re-encode" into whatever production and access formats are required to meet new user requirements[4]. When the DV is uncompressed, the result should be saved as the new uncompressed master. It won't be any better quality than the DV it came from, but it will allow all future encodings, forever, to originate from an unencoded master.

There will still be a preservation problem of obsolescence of the file format that holds the uncompressed video (AVI or whatever will become superceded), but that problem should be solved by straightforward 'wrapper to wrapper' migration.

Pros

- DV is easy to acquire and is currently a widely-supported format.
- The process is straightforward, with a single operational point.
- Engaging with the transformation of physical objects into files promotes archival awareness of the need for constant migration; moving from the analogue to the digital age.
- Buys time for information held on low quality formats that are becoming obsolete/unstable, especially if the collection is sizeable.

Cons (Risks)

- Organisational funding must allow for a phased, two-stage approach. Otherwise there is a risk of not being able to proceed past stage one.

Sarah Davy -- Independent Film Archivist Richard Wright -- BBC Archive Technologist

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[1] Broadcasters with the required technology may prefer 25 Mb/s MPEG-II 'long-GOP', or 50 Mb/s 'I-frame only' MPEG-II (also called 50i) or 50 Mb/s DVC-PRO. All four options are sufficiently higher in quality than VHS or domestic DVD, to capture those low quality signals without visible artefacts.\\ [2] A list of professional capture cards is here: **http://wiki.prestospace.org/pmwiki.php?n=Main.TechRef#Equipment**\\ [3] 25 megabits/sec is roughly 12 gigabytes/hour\\ [4] There may be software to move directly from DV to a new compressed format, but experience has shown such direct migrations between encoded formats to be, in general, sub-optimal – though it all depends on the mathematical relationship between DV encoding and 'whatever comes next'..\\