DPC Audio/Video Digitization Standards & Equipment

The Digital Production Center (DPC) at Duke University Libraries digitizes and preserves analog audio and video formats as well as still image formats (photographic materials, books and paper and more). DPC audio and video standards are listed below. If you have questions or would like to propose a project, please see the general DPC webpage and contact information here.

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Audio Digitization Standards

Audio Preservation Master Specifications	Explanation of Terms and Acronyms
File Format: Broadcast wave (.wav or .bwf)	File format
Compression: Uncompressed	No data loss
Audio Bit Depth: 24-bit	number of bits recorded for each sample
Audio Sampling Rate: 96 kHz	Kilohertz, 1 kilohertz = 1000 samples per second
Audio Channels: Stereo	Distinct left and right channels

Audio Derivative Specifications	Explanation of Terms and Acronyms
File Format: MPEG-3 (.mp3)	File format
Compression: Lossy	Data loss, necessary for smaller file size
Audio Bit Rate: 128 Kbps	Kilobits per second. 1 kilobit = 1000 bits
Audio Channels: Mono	Identical left and right channels

Note: The above specifications are for digitizing analog media.

When preserving content from a digital source, our goal is to maintain the specifications of the digital content, whether they are high or low, so there is no generation loss, up-converting, or any alteration of the original digital content. This necessitates a signal path which is digital > digital, as opposed to digital > analog > digital.

Audio Equipment

Audio CPU:

- Dell Precision T-1650

- Processor: 3.5 Ghz Intel Xeon E3-1270 v2

- Memory: 16 GB

- Graphics: Nividia Quadro 2000

- Storage: 3 TB

Audio Software:

- Adobe Audition CS5.5

- Steinberg Wavelab

Audio Interface:

- MOTU 828mk3

- 24-bit/96kHz

- 10 inputs (2 digital)

- 10 outputs (includes monitor outs)

Audio Signal Balancing and Routing:

- Henry Engineering Matchbox HD Stereo Interface Amplifier (2)

- Coleman Audio MS6 Audio Switcher

Audio Monitoring

- M-Audio BX5 Powered Monitor Speakers

- AKG K100 Headphones

Audio Input Decks

Otari MX-5050 Open Reel Deck	Supported Formats: - ¼" tape - Runs at 3 ¾ or 7 ½ ips - Quarter-track (2 stereo "sides" or 4 mono tracks) - Can play 5" or 7" reels (Can play 10.5" reels with NAB Hub Adaptors)
Pioneer PL-990 Turntable	Supported Formats: 33/45 rpm
Nakamichi "Dragon" Cassette Deck	Supported Formats: Compact Cassette
Tascam 122mkiii (3)	Supported Formats: Compact Cassette
Marantz PMD430 Portable Cassette Deck	Supported Formats: Compact Cassette
Tascam DA-P1 DAT Machine	Supported Formats: Digital Audio Tape
Sony M-650V Microcassette Recorder	Supported Formats: Microcassette Tape

Video Digitization Standards

Video Preservation Specifications	Explanation of Terms and Acronyms
File Format: QuickTime (.mov)	File format
Compression: Uncompressed**	No data loss
Video Bit Depth: 10-bit	Number of bits used to display color of a single pixel

Video Bit Rate: 225 Mbps	Megabits per second, 1 megabit = 1,000,000 bits
Video Width: 720 pixels	Number of horizontal pixels
Video Height: 486 pixels	Number of vertical pixels
Video Frame Rate: 29.97 fps	Frames per second
Video Chroma Subsampling: 4:2:2 YUV	Y-luminence / U-blue chroma / V-red chroma
Video Standard: NTSC	National Television System Committee
Audio Format: PCM	Pulse-code modulation
Audio Channels: Stereo	Distinct left and right channels
Audio Sampling Rate: 48 kHz	Kilohertz, 1 kilohertz = 1000 hertz of frequency
Audio Bit Depth: 16-bit	Number of bits recorded for each audio sample

**In the case of Mini-DV, files are transferred in their native dv format instead of 10-bit uncompressed, as dv will be the highest resolution, most uncompressed version possible given the format.

Video Access Derivatives Specifications	Explanation of Terms and Acronyms
File Format: MPEG-4 (.mp4)	File format
Compression: Lossy	Data loss, necessary for smaller file size
Video Bit Depth: 8-bit	Number of bits used to display color of a single pixel
Video Bit Rate: 2300 kbps	Kilobits per second, 1 kilobit = 1000 bits
Video Width: 640 pixels	Number of horizontal pixels
Video Height: 480 pixels	Number of vertical pixels
Video Frame Rate: 29.97 fps	Frames per second
Video Chroma Subsampling: 4:2:0 YUV	Y-luma/U-blue chroma/V-red chroma
Video Standard: NTSC	National Television System Committee
Audio Format: AAC	Advanced Audio Codec
Audio Channels: Mono	Identical left and right channels
Audio Sampling Rate: 48 kHz	Kilohertz, 1 kilohertz = 1000 hertz of frequency
Audio Bit Rate: 160 Kbps	Kilobits per second. 1 kilobit = 1000 bits

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Video Equipment

Video CPU

- 27-inch iMacs (2)
- Processor: 3.5 Ghz Intel Core i7
- Memory: 32 GB 1600 MHz DDR3
- Graphics: NVIDIA GeForce GTX 780M 4096 MB
- Storage: 1 TB SSD (Internal), 4TB G-Drive Pro via Thunderbolt (External)

Video Software

- BlackMagic Media Express
- Compressor
- Final Cut Pro
- HandBrake
- Live Capture Plus

Video Interface

- BlackMagic Mini Converters (Analog > SDI) (8)
- BlackMagic UltraStudio Express (SDI > Thunderbolt > CPU) (2)

Video Monitoring and Routing

- Behringer Ultralink Pro (Audio Balancing) (2)
- BlackMagic SmartScope Duo (Audio & Video Monitoring) (2)
- BlackMagic Smart VideoHub (Routing)

Video Input Decks

Sanyo GVR-S955	Supported Tapes: NTSC VHS, SVHS
Panasonic AG-W1 / Samsung SV5000W	Supported Tapes: PAL, SECAM, MESECAM, PAL-M, PAL-N
Sony UVW-1800	Supported Tapes: Betacam, Betacam SP
Sony BVU-950	Supported Tapes: 3/4" U-Matic
Sony EV-S3000 NTSC	Supported Tapes: Hi8
Sony DCR-VX2000 NTSC HandyCam	Supported Tapes: MiniDV

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Contact Us

Services for...