

Digitizing and Preserving Law School Recordings: A Duke Law Case Study
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I. Introduction and Literature Review

In 2014, the reality of digital audiovisual asset management is that there are no universal agreed upon best practices. For the past decade, a number of points, some of which are contradictory, have been presented on the topic of audiovisual digitization and preservation. One such debate is whether or not digitization is preservation. Some researchers argue that digitization is a form of preservation (McDonough & Jimenez 2007; Stauder 2013; Walters & Skinner 2011), while others have argued that it is more complicated than it appears (Adams et al 2004; Conway 2010). Ultimately though institutions are facing a problem and, that “problem [...] is that all holders of audio visual material are in a race against time for preservation of their holdings” (Wright 2004). Admittedly, standards produced by the Library of Congress (n.d) and other such groups are helpful to institutions engaged in medium to large-scale digitization efforts. These recommendations though are often insufficient or do not take into account the increasing number of smaller institutions that hold audiovisual materials that need to be digitized and preserved. Smaller libraries, industry archives, and other information institutions are placed in the position of either making no decision in terms of digitization, preservation, and access to audiovisual materials or making a plan based on the “best of the situation” presented. In 2012, Duke Law School began to address the issue of audiovisual material access, digitization, and preservation in a more systematic manner. The fundamental challenge was and remains – how best to handle the future use of the digital content and the delivery in a format that is ubiquitous. The project team was left to decide what was desirable, and what was possible within the confines of the environment.

II. Case Study Environment

Duke Law School has been creating in-house recorded media since the 1990s with a small number of recordings preceding that time period. Recordings document the life of the law school with an emphasis on events and lectures with an increasing number of produced videos that support scholarship, learning, and teaching. Because of their importance, preservation and access were set as institutional priorities. Types of recordings include promotional videos; oral histories; program and course informational spots; and faculty scholarship highlights. As recording technologies, formats, and media have evolved so have the ways in which events were captured. This resulted in over 1500 recordings in various video formats, including VHS, MiniDV, DVCAM, DVD, RealMedia, Flash, and MP4. The collection continues to grow on a daily basis. With the expected deterioration of physical media formats, the team decided to design a process in line with our new all digital production workflow.

In 2011 Duke Law School Information Services (DLSIS), Duke Law's combined law library and academic technologies departments, began to investigate the feasibility of including video in its institutional repository (<http://scholarship.law.duke.edu/>). This simple request resulted in an unexpected creation of a media digitization and preservation plan that impacted the way Duke Law recorded materials were processed in-house and later accessed online. An important point to mention is that many of the challenges associated with starting a project like this were already in place at Duke Law including:

- Well-trained and established Media Services department
- Strong relationships between law school departments, such as the Law Library, Communications, and Events
- Event request and scheduling system
- Rights management and video release policies
- Duke Law YouTube channel was already established and used
- In-house recording and viewing equipment were available and staff were already expert users

- Student assistant funding was available

With these important affordances to the creation and dissemination of recordings already in place, the key to beginning this initiative was to use the strengths of the media program while making sure that each component works smoothly with the others.

III. Evaluations and Resulting Plans

The project began with an environmental scan. This involved three components: (1) Reviewing in-house processes and procedures related to video; (2) Consulting academic literature on media workflows and processes in relation to libraries and industry film archive; (3) Interviewing law library, university library digitization specialists, and industry media colleagues on current and best practices. Results from the environmental scan pointed to improvements in the way that materials were moved from one part of the process to another. Interview and literature review results determined, that the state of audiovisual asset management practices was without solid guidelines for smaller institutions.

One achievement from this initial investigation was a Preservation Tiers document. A document of Duke Law's own creation, this new piece of policy set priorities about which type of recordings were more important to keep than others. Using information gathered from the interviews and literature reviews it established guidelines about how many copies of certain items from specific tier levels would be kept. This document became central to many aspects of the resulting workflows.

Video Preservation Guide

This document outlines Duke Law School Information Services' (DLSIS) preservation approaches for the video content created at the Duke Law School. Using a four tier system, videos created at Duke Law School are given different priorities based on content and sponsorship. Priority is determined by the Communication Department and long-term preservation of the material is the responsibility of DLSIS staff in both Academic Technologies and the Library.

Preservation Tiers

The preservation tiers divide video recordings into four categories. Tier 1 is the most important preservation category. Tier 4 is the least important preservation category.

Each category has three parts: **content**, **recording**, and **storage**.

Content shows example of video recordings that would be found within that tier.

Recording gives the recommended recording specification for that tier.

Storage sets the long term storage guidelines for that specific tier.

It is possible for individual video recordings to change tiers based on further analysis by DLSIS staff.

Tier 1

Content

Recording type	Examples	Product preserved
High profile events	Events with notable speakers; strong faculty sponsorship	Final product only
Named lectures	Currie, Frey, & Bernstein series	Final product only
Oral histories	Alumni and Faculty	Final product and Raw footage
Faculty interviews	Demott discusses her amica brief	Final product and Raw footage
Produced materials	Sea turtles video	Final product only

Recording

Oct 2011 standard

- 5000kbps (kilobits per second) for upgraded rooms
- DVCAM for non-upgraded rooms
- Videos captured at 30 fps (frames per second) at 720p (1280x720 frame size at a progressive line scan) in upgraded rooms

Figure 1 shows the introduction statement from the document. Copies of the full document are available upon request.

After internal discussions about resources and storage, the H.264 format (MPEG-4 or MP4) was chosen for video encoding due to the accessibility of the format and the ability to use and reuse the files for further post-production and editing. The decision to move forward with MP4 allowed for the best case in preservation, re-mastering, and playback plus allowed for future bitrate and quality enhancements. The format was also in-line with the Preservation Tiers document's focus on a LOCKSS-inspired data redundancy policy.

Asset management systems were investigated in detail. Team members contacted and met with a variety of asset management software providers. After collecting data from multiple vendors, the team decided that any additional asset management software would be too costly, or too difficult to implement and maintain. An alternative plan for asset management was developed that focused on using metadata systems already in place. This system revolves around the library catalog, Google Sheets, and Python programming. Once these decisions were made the project, as described below, began in earnest.

IV. Preservation Reformatting and Metadata Assignment

Results from the previous investigation indicted a few things: (1) audiovisual workflows between departments needed streamlining and enhancement; (2) a preservation reformatting project was needed to provide access to Duke Law's ever growing collection of recorded materials.

In terms of workflow, preservation reformatting and metadata assignment occur on a piece-by-piece basis. Replicability was essential. DLSIS needed to provide access to the files and remain consistent in file naming and documentation in order to have a successful start and

process for the project. Rothenberg (1995) argues that emulation is best for preserving digital data. While this may be true for most forms of data preservation to maintain the “look and feel” of the original, in terms of digital video content, file migration as outlined by Beardman’s (1999) best suited the need for future proofing the content. The team determined that metadata and functional requirements of the file are of greater consequence for Duke Law’s needs. The conversion goal was to minimize work and maximize interaction with the editable and viewable files with the least amount of quality loss.

To begin the project, an intern already working in the law library performed a basic inventory of analog tap materials that was entered into a Google Sheet. This sheet became the basis of tracking digitization work and in-process file location. Other media formats were integrated into the sheet as the program progressed. The sheet tracked basic metadata, such as: title, tape number, date, and format.

Another student intern was hired to work on preservation reformatting. The new intern converted some formats (DVCAM and MiniDV) using equipment available in Duke Law’s video control room. Equipment was also used in the Digital Initiatives Lab for converting DVD video into MP4/H.264 formatting. Figure 2 includes photos of both the Digital Initiatives Lab and the Control Room.

Figure 2



Digital Initiatives Lab Workspace



Control Room Workspace

Conversion of video material for tape-based formats was real-time, so the student involved was given other projects to work on between the time the video started and stopped being converted. Once the item was converted, addition descriptive metadata about the recording was added to the sheet. The resulting digital file was saved into a holding area on a network file system, with the specific file location being added to the sheet as well. Any physical DVD created from the process was given a barcode and labeled appropriately. Professional staff in the library and media services worked on the continued description and access of the information after the student conversion process. This included, filing the digitized master file into either a dark (controlled) directory, or a public (production) directory. The original physical formats were retained and stored for archival and future use.

Using information from the inventory and conversion processes, catalog records were produced or updated for each converted video. Each event or video was cataloged using instructions and guidelines from Resource Description and Access (RDA), an internationally recognized standard for formulating bibliographic data. A profile was developed to utilize select instructions concentrating on attributes that supported usage for both existing broadcasting and

publishing efforts as well as to support preservation and asset management functions. One exigency was the use of format specific descriptive elements within a record even though each record was considered a single work (i.e. tape and disc formats were associated to the same record for inventory management). This workaround was put in place due to workload considerations and taking into account the current ability of the existing discovery interface to distinguish item level information. The ending result was easy selection and retrieval of digital assets by catalog users. To assist in discovery, Library of Congress Subject Headings, and Library of Congress Classification were assigned to each work. Access points were created for associated organizations and participants in an event, such as panelists or speakers. To support these controlled access points authority records were also created in the Library of Congress Name Authority File.

With additional programming, descriptive data from these cataloging records was synchronized into the inventory worksheets. As part of this process a MD5 checksum was calculated, and then used for periodic fixity checking. The cataloging component combined with other efforts on YouTube and the Duke Law website provides a multi-platform access to audiovisual materials.

V. Providing Access

Duke Law, similar to efforts explained by Garrison (2013), uses a mixed method approach to providing access to video content online. A YouTube channel (<https://www.youtube.com/user/dukelaw>) provides the primary portal to the Law School's content while also supporting live streaming for events. For newly recorded events and productions, video is live streamed or uploaded through YouTube, while staff update the descriptions, titles and keywords within YouTube. Furthermore, the school's website has a

video portal page that links to embedded video players provisioned by YouTube, along with individual video web pages. Google provides machine-based access to its services, like YouTube, through its Google Data Application Programming Interface (API). This interface is then used to retrieve data from newly posted videos on YouTube. Specialized collections in the Duke Law Scholarship Repository, such as the Herbert L. Bernstein Memorial Lecture in International and Comparative Law (<http://scholarship.law.duke.edu/bernstein/>), use embedded video players from YouTube in order to stream video.

Video from the preservation reformatting project is automatically uploaded into YouTube using the Google Data API. Metadata from catalog records is used to create a description in YouTube including: title, description, keywords, and recording date. Descriptions are generated using select metadata, such as: summaries, cast information, conference names, and series titles. Titles within YouTube are truncated to 100 characters, so additional programmatic considerations were made including the use of abbreviations and the dynamic inclusion of subtitles and names. Keywords using the controlled access points for names of people appearing and sponsoring organizations were also added. The tool also imports the content from YouTube into the Duke Law website and uses the already assigned keywords to collocate videos. To conclude the process, in-house content experts add specific videos to playlists for additional reuse within content pages on the website for sharing on social media.

VI. Best Practices and Reflection on Lessons Learned

Audiovisual materials collection maintenance is a unique and ever-changing area of work. Duke Law School Information Services (DLSIS) has created workflow and processes that best use the strengths and resources already available at the Law School. The main contributions of Duke Law's methods have been to create an institution-specific preservation tier document and to rely

heavily on programmatic processes for populating content in multiple locations. The main recommendations that can be taken from this process are that each institution needs to closely look at what types of resources are available within a given situation. There is no one solution that will work for every institution and getting hung up on unobtainable “best practice” can often stagnate a project. Getting all of our media in a single up-to-date format was essential. Future conversion efforts will be much simpler because we will do a one to one format conversion instead of converting from many outdated formats. From this process we have also learned that format conversion is a continual process. By starting the preservation reformatting process we have committed our institution to make sure these resources will be available forever in spite of technology changes. As the discussion on digital conversion continues it is important that the practical needs of smaller institutions are included for consideration.

VII. Bibliography

Adams, David, Heather Brown, Andy Fenton, Pat Griffiths, and Toni Munro. “Addressing a Risk Perspective When Considering Digitization as a Preservation Reformatting Method: A Response from ‘Down Under’.” *Microform & Imaging Review* 33.4 (2004): 188-189. Print.

Beardman, David. “Reality and Chimeras in the Preservation of Electronic Records.” *D-Lib Magazine*. 5.4 Apr. 1999. Web. 24 Nov. 2014. <<http://www.dlib.org/dlib/april99/bearman/04bearman.html>>.

Conway, Paul. “Preservation in the Age of Google: Digitization, Digital Preservation and the Dilemmas.” *The Library Quarterly*. 80.1 (2010): 61-79. Web. 24 Nov. 2014. <doi: 10.1086/648463>.

Garrison, Brian Wade. “Beyond the Repository: A Mixed Method Approach to Providing Access to Collections Online.” *New Review of Academic Librarianship* 19.3 (2013): 291-299. Web. 21 Nov. 2014. <doi:10.1080/13614533.2013.824905>.

Library of Congress. *Preservation Guidelines for Digitizing Library Materials*. n.d. Web. 20 Nov. 2014. <<http://www.loc.gov/preservation/care/scan.html>>.

McDonough, Jerome and Mona Jimenez. “Video Preservation and Digital Reformatting: Pain and Possibility.” *Journal of Archival Organization*. 4:1-2 (2007):167-191. Print.

Rothenberg, Jeff. "Ensuring the Longevity of Digital Documents". (1999): n.pag. Web. 18 Nov. 2014. <<http://www.clir.org/programs/otheractiv/ensuring.pdf/view>>.

Stauder, Andy. "2012 Survey of the Preservation, Management and Use of Audiovisual Media in European Higher Education Institutions". *OCLC Systems & Services: International Digital Library Perspectives*. 29:4 (2013): 218-234. Web. 14 Nov. 2014.

Walters, Tyler and Katherine Skinner. *New Roles for New Times: Digital Curation for Preservation*. ARL, 2011. Web. 14 Nov 2014.
<http://www.arl.org/storage/documents/publications/nrnt_digital_curation17mar11.pdf>

Wright, Richard . "Digital Preservation of Audio, Video and Film". *Vine* 34.2 (2004): 71-76. Web. 24 Nov 2014.