



Policy: 525

Subject: PRESERVATION AND REFORMATTING OF ARCHIVAL AUDIO AND VISUAL MATERIALS

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Revised:

Purpose:

This policy outlines the conditions and processes involved in the preservation and reformatting of archival audio and visual material to more stable media, and the proposed timelines and reasons for the migration of these materials.

Policy:

Audio and visual records are unstable media. Audio and visual records are recorded using equipment that becomes technologically obsolete. Playback equipment for such types of records also becomes outdated and consequently, difficult to locate and maintain. It becomes difficult and even impossible to use audio and visual records in their original format. In addition, these types of records, and the equipment required to successfully read them, are susceptible to greater deterioration than textual or photographic records. The more these types of records are replayed, the greater the risk to their long-term viability. Without the application of archival preservation techniques to these records, their lifespans are limited.

Archives & Special Collections is responsible for preserving and providing wide access to the materials in its holdings, no matter what format it is in. The Archives retains audio and visual records in a wide variety of formats including film, videocassette, audiocassette, audio reel, and many others. In order to ensure the long-term usability of these records, Archives has initiated a program of migrating audio and video records to more stable media for preservation purposes. It has also migrated audio and video materials to more commonly used and accessible media for access purposes.

The reasons for reformatting audio and visual materials are as follows:

1. Technological obsolescence: the equipment required to play the format is very rare and/or difficult to maintain, consequently putting the future use of the media in serious jeopardy and at risk of permanent loss
2. Physical deterioration: due to improper storage, environmental conditions, high usage, and a number of other factors, audio and visual records are at a high risk of physical deterioration, putting portions of the record, or its entirety, at risk of permanent loss
3. Archival value: the historical, cultural, informational, evidential, or administrative value of the records are too high to risk permanent loss
4. Accessibility: in order to improve accessibility to the record, the Archives digitizes the item and makes it available online
5. Researcher or donor request: in order to facilitate a research request or the wishes of a donor, material may be reformatted to ease access, to encourage less use of the original material, or to demonstrate the Archives' desire to permanently retain the records

Procedures:

Preliminary Preparations and Shipping

Prior to sending selected audio and visual material to a vendor to be reformatted, the archivist should check for winding problems, physical deterioration, stickiness or shedding. If any of these symptoms appear, the archivist should consult with a conservator prior to having the materials reformatted. The sound technician should clean all audio materials prior to reformatting them.

When shipping archival audio and visual material to a vendor to be reformatted, the archivist should take great care in preparing the records and packing the materials securely. Each item and its casing should be properly labeled with the item's accession, collection, box, folder (if one exists), and item number using a small adhesive label,

Vendors

The archivist should clearly explain to the vendor to what specifications the audio and visual material is to be reformatted.

Audio Preservation Master

The preservation file format standard for audio materials is **digital wave (.wav), or Waveform, files**. It is recommended that a **96 kHz sampling rate** and **24 bit depth** be used in the creation of preservation master audio files.

Audio Access Copies

Concurrently, two access copies are also created for each item. The first access file format used is a **digital mp3 (.mp3) file**. It is recommended that a **44.1 kHz sampling rate** and **16 bit depth**

be used in the creation of mp3 access files. If the audio of the original item is difficult to ascertain, the sound technician may minimally, and at his or her discretion, manipulate the sound quality of access copies to enhance the listening experience. The mp3 file is then burned to either a **CD-R meeting the ISO standard 9660** composed of **phthalocyanine dye** and **gold metal** or a **name brand DVD-R** (depending on the size of the file and the storage capacity of the disc).

In addition, a **CD access copy** is created according to these same specifications, burned to a **gold CD**. The discs containing the mp3 file and the CD access copy are **stored in separate locations**. The ideal storage conditions for discs are **72° F (or 22.2° C)** and **25-50% humidity**. The CD access copy is stored in a cabinet in the Archives reading room. Also, the mp3 files are copied from discs and saved on the university's secured and routinely backed-up server. Once they are moved over to the server, they are **renamed** according to the original item's collection, accession, box, folder (if one exists), item, and track, side, or part number.

Film/Video Preservation Master

The preservation file format standard for film and video is the **Digibeta** cassette. Just as in the creation of audio preservation masters, the quality of the film or video should not be altered in any way during the creation of their preservation master copies. A master and a sub-master preservation copy should be created for each item. The master and sub-master are stored in different geographical locations so that if disaster were to strike in one location, a master copy would still exist in another location. Both locations should ideally be climate controlled, with little to no fluctuations in temperature or humidity.

Film/Video Access Copies

Concurrently, two access copies are also created for each item. Firstly, a **DVD-R** is created for research use on the Archives' DVD player and television. Secondly, an **MPEG-2 (.mpeg)** file is created and burned to a DVD-R, which is then housed in a **polypropylene case**. This copy is then uploaded to the Archives' YouTube channel, UMA-TV, if deemed appropriate.

The MPEG-2 file is then subsequently copied from the disc and saved on the Archives' secured and regularly backed up RAID 5 server system. Once it is moved over to the server, the file is **renamed** according to the original item's collection, accession, box, folder (if one exists), and item number.

Quality Control

Upon receipt of the reformatted material, the archivist should perform quality control measures on each item.

Labeling Copies and Naming Digital Files

Upon receipt of the reformatted material and before storing the copies, each copy and its case should be properly labeled with the accession number, collection number, box number, folder number (if one exists), and item number of the original item, as well as an indication of the type of file found on the disc (ie. Wav = wave file, mp3 = mp3 file, etc.).

Digital files moved over to the server also need to be renamed according to the original item's accession, collection, box, folder (if applicable), item, and side, track or part number. The following convention should be used when naming files:

- UM – University of Manitoba
- Collection Number – tc for tape collection, pc for film or video, followed by the three digit collection number (ex. TC 24 = tc024)
- Accession Number – A followed by two digits for first portion of number, a hyphen, and three digits for the second portion of the number (ex. A.80-17 = A80-017)
- Box Number – three digit number (ex. Box 2 = 002)
- Folder Number – four digit number (ex. Folder 1 = 0001); most items will not have a folder number so 0001 is used as the default value
- Item Number – three digit number (ex. Item 10 = 010)
- Track, Side or Part Number – four digit number (ex. Side B = 0002)
- File format extension (ex. Mp3 = .mp3)

All portions of this naming convention should be separated by underscores (_).

Therefore, an mp3 of Side B of the 10th item in the 2nd box of TC 24 (A.80-17) would be renamed as the following:

UM_tc024_A80-017_002_0001_010_0002.mp3

Future Migration

The Canadian Conservation Institute recommends that digital media be migrated at a minimum of every five years. Archived & Special Collections will stay informed on current industry accepted reformatting standards and ensure that every five years, reformatted material matches those standards.