

From Cassette to Cloud

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Libraries

Today's Presenters



Krista White, MLIS

Digital Humanities
Librarian

Research in digitization standards, oral histories and ethical issues related to digital dissemination of cultural heritage materials.

ALCTS Preservation Week



Partners



ARCHIVAL PRODUCTS

The MediaPreserveSM
An Audio Visual Laboratory



*George Blood Audio
George Blood Video*



GAYLORD[®]
ARCHIVAL
Preserve Today. Share Tomorrow.



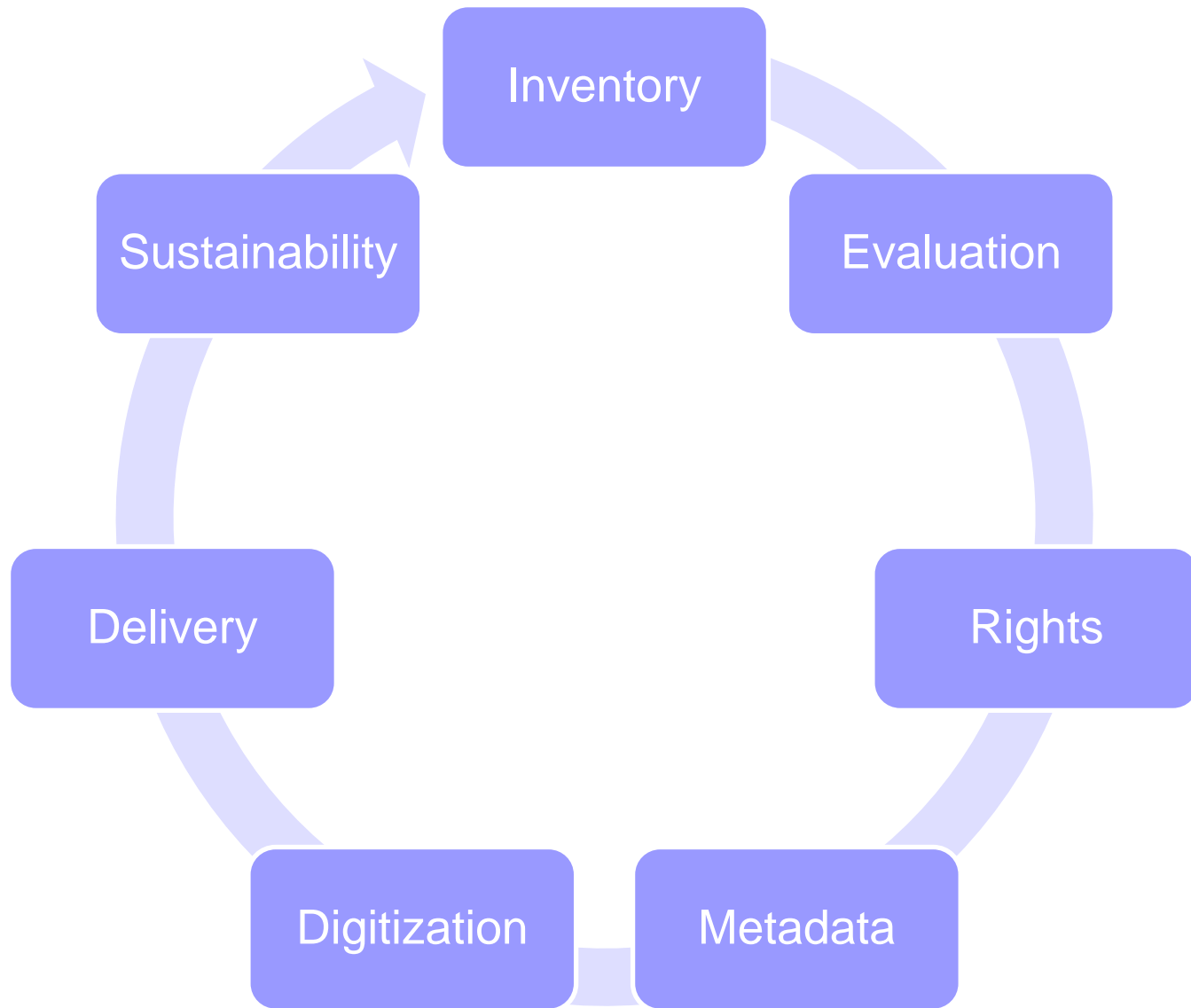
**HOLLINGER
METAL EDGE**
Archival Storage Materials

HFGROUP 
DIGITALSOLUTIONS

HFGROUP 
ECSCONSERVATION

Hosted by ALCTS
The Association for Library Collections and Technical Services

Digital Preservation Lifecycle



Webinar Scope Note



- Open Reel Tapes
- Audio Cassettes
- Digital Audio Tape
- Vinyl Discs
- Lacquer Discs
- Wire Recordings
- Others

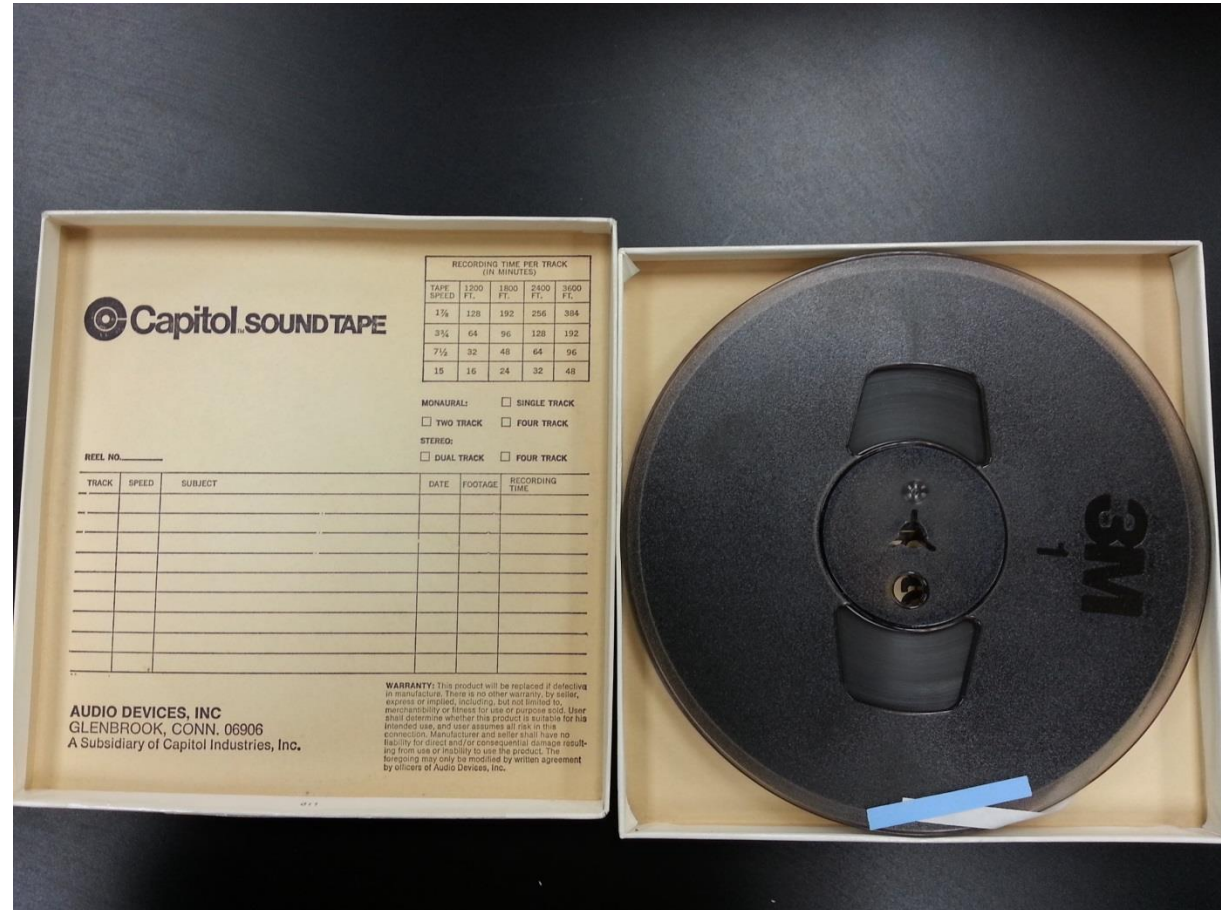
Inventory

- How Much?
- What Type?
 - Manufacturer
 - Make
 - Model
 - Recording Speed
- What Condition?



Evaluation: Condition Emergencies

- Tape Pack Problems
- Binding Issues
- Vinegar Syndrome
- Mold
- Other



Rights

- Deeds of Gift
- Release Forms
- Copyright

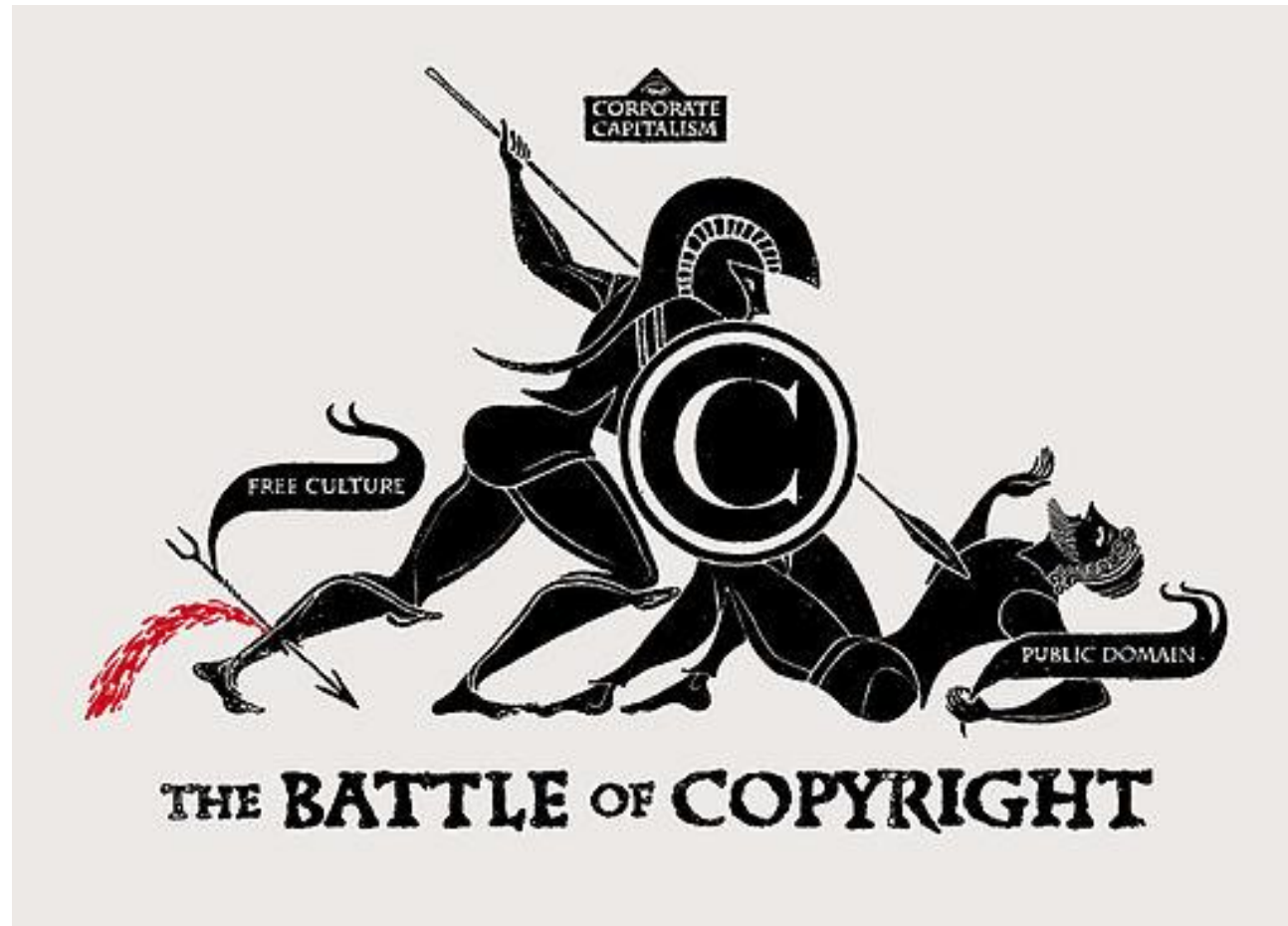
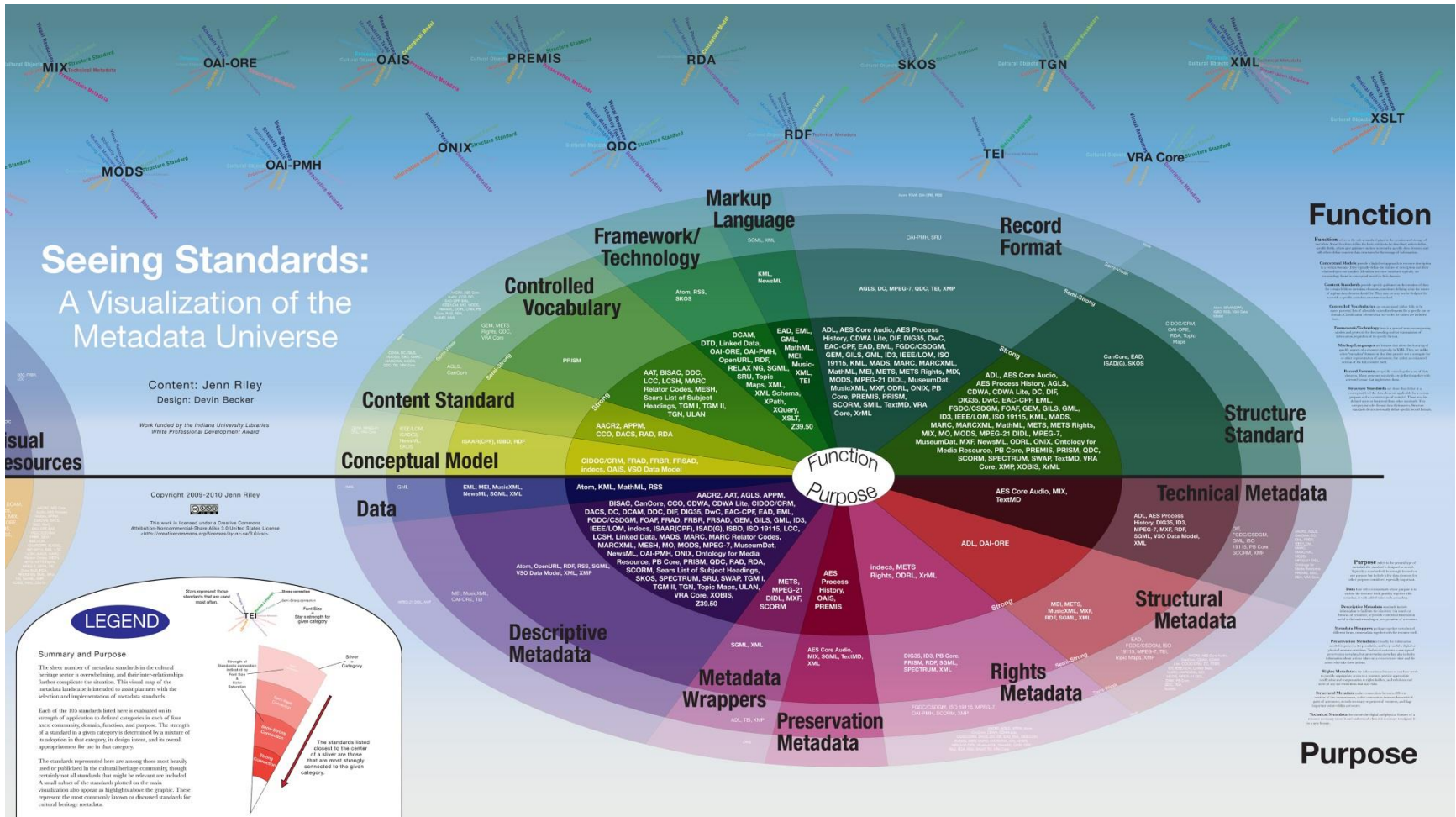


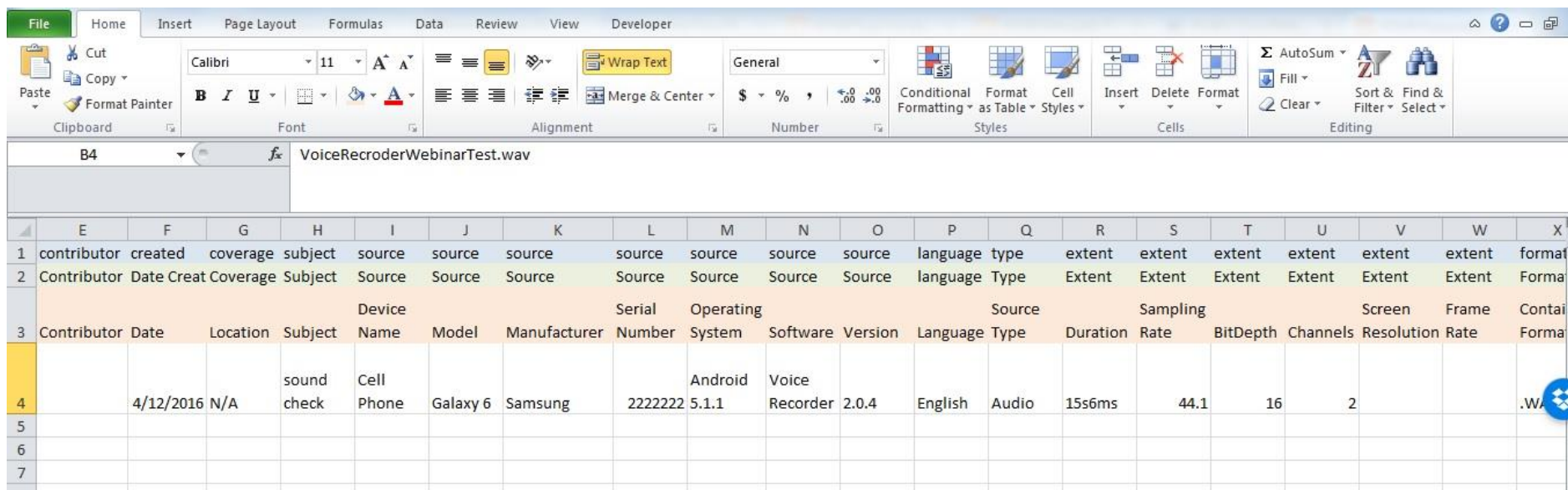
Image by Christopher Dombres used by permission through a CC 0 license

(Half of) The Metadata Universe



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Dublin Core Metadata Spreadsheet



	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	contributor	created	coverage	subject	source	source	source	source	source	source	source	language	type	extent	extent	extent	extent	extent	extent	format
2	Contributor	Date Creat	Coverage	Subject	Source	Source	Source	Source	Source	Source	Source	language	Type	Extent	Extent	Extent	Extent	Extent	Extent	Forma
3	Contributor	Date	Location	Subject	Name	Model	Manufacturer	Number	System	Software	Version	Language	Type	Duration	Rate	BitDepth	Channels	Resolution	Rate	Forma
4		4/12/2016	N/A	sound check	Cell Phone	Galaxy 6	Samsung	2222222	Android	Voice Recorder	2.0.4	English	Audio	15s6ms	44.1	16	2			.WA
5																				
6																				
7																				

Metadata standards/schema will be determined by local needs

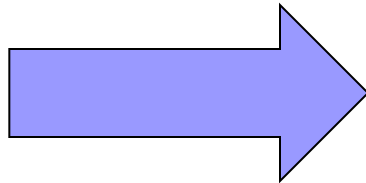
Storage Options

Local Storage

CDs/DVDs/Blue Ray

25 discs @ \$1/Disc

Software \$40-\$60



External Hard Drives @ \$1/GB – (\$100/TB)

Cloud Storage

Google Drive, Amazon Cloud Drive,
iCloud, Dropbox

FREE OR @ \$120/year or \$10/month for
1TB

The Formula & Its Relationship to Preservation Standards

$$\frac{L \times S \times B \times C}{8,388,608} = \text{Audio File Size in MB}$$

Length of recording in seconds

- Sampling Rate 44.1kHz, 96kHz
- Bit Depth 8 bit, 16 bit, 24 bit
- Channels 1 (mono), 2 (stereo)

(Cunningham and Johnson, Gault and Florence in White, 2016)

Audio Preservation Standards

Digitization Parameters

Digitization Standards

Minimum Standard: 44.1kHz Sampling Rate, 16 Bit, 2 Channels

Recommended Standard: 96kHz Sampling Rate, 24 Bit, 2 Channels

High Level (Maximum) Standard: 192kHz Sampling Rate, 24 Bit, 2 Channels

(Beard, et. al., 2010)

Audio Preservation Standards

Digital File Formats

Uncompressed, Unedited Archival Masters

.WAV or BWAV (Broadcast Wave)

Presentation Files

.MP3 or .AAC

(Beard et. al., 2010)

Converting the Sound: Hardware

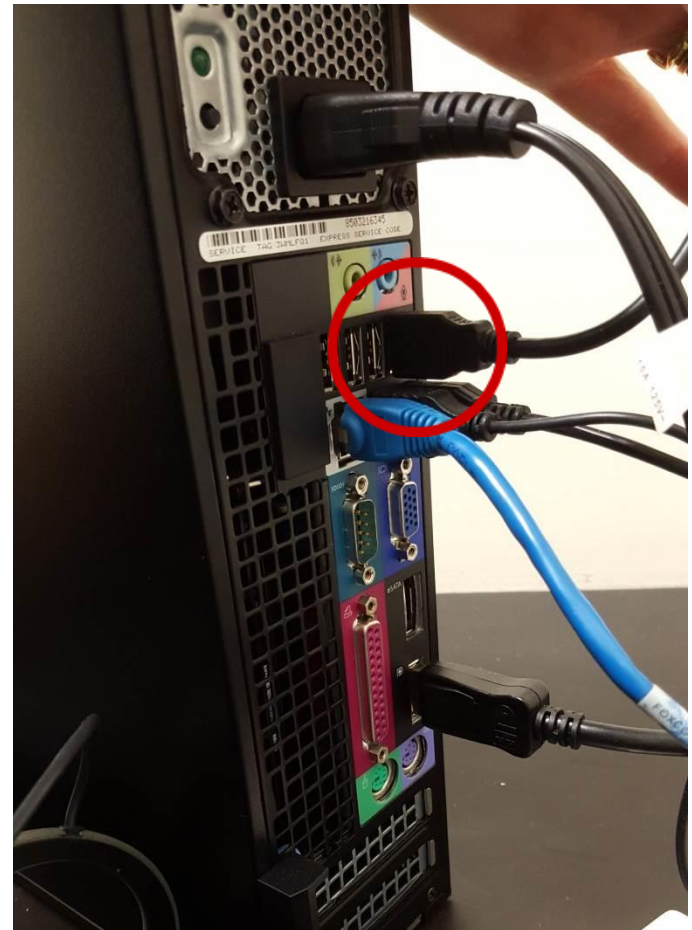
Computer	\$1,800
Original Format Player	\$?
Digital Analog Converter (DAC) or External Sound Card	\$60-75
Speakers	\$20-30
Analog RCA Cables	\$10
Staff Work Hours	\$?



Converting the Sound: Hardware



Converting the Sound: Hardware



Converting the Sound: Hardware

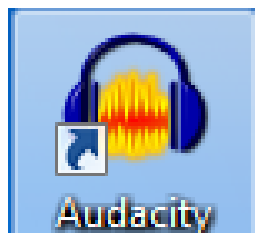


Open Reel Player



Dual Cassette Deck

Converting the Sound: Software



Audacity

Open Source/Free

<https://sourceforge.net/projects/audacity/>



Garage Band

\$5.00

<https://itunes.apple.com/us/app/garageband/id682658836?mt=12&ls=1>

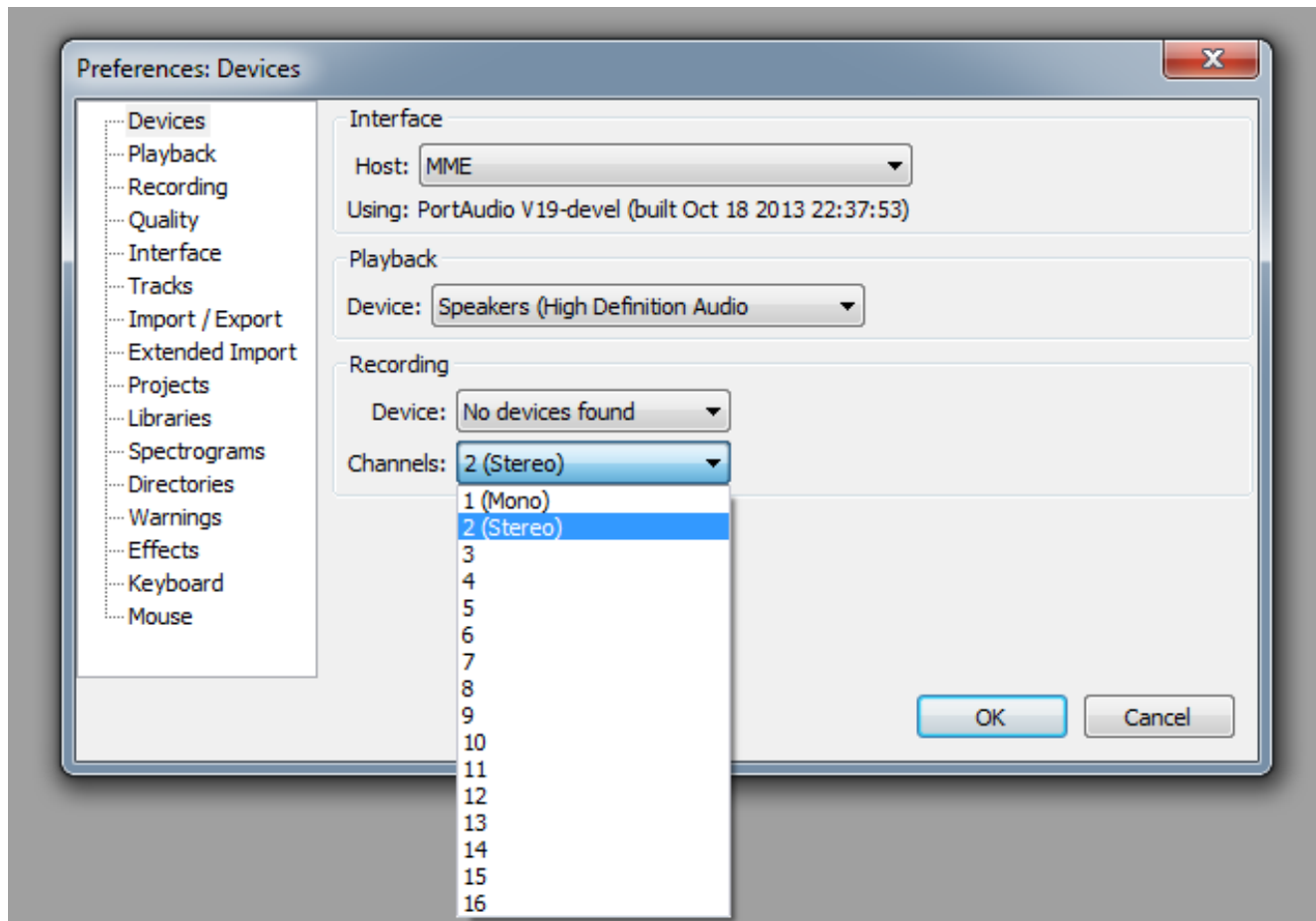


Adobe Audition

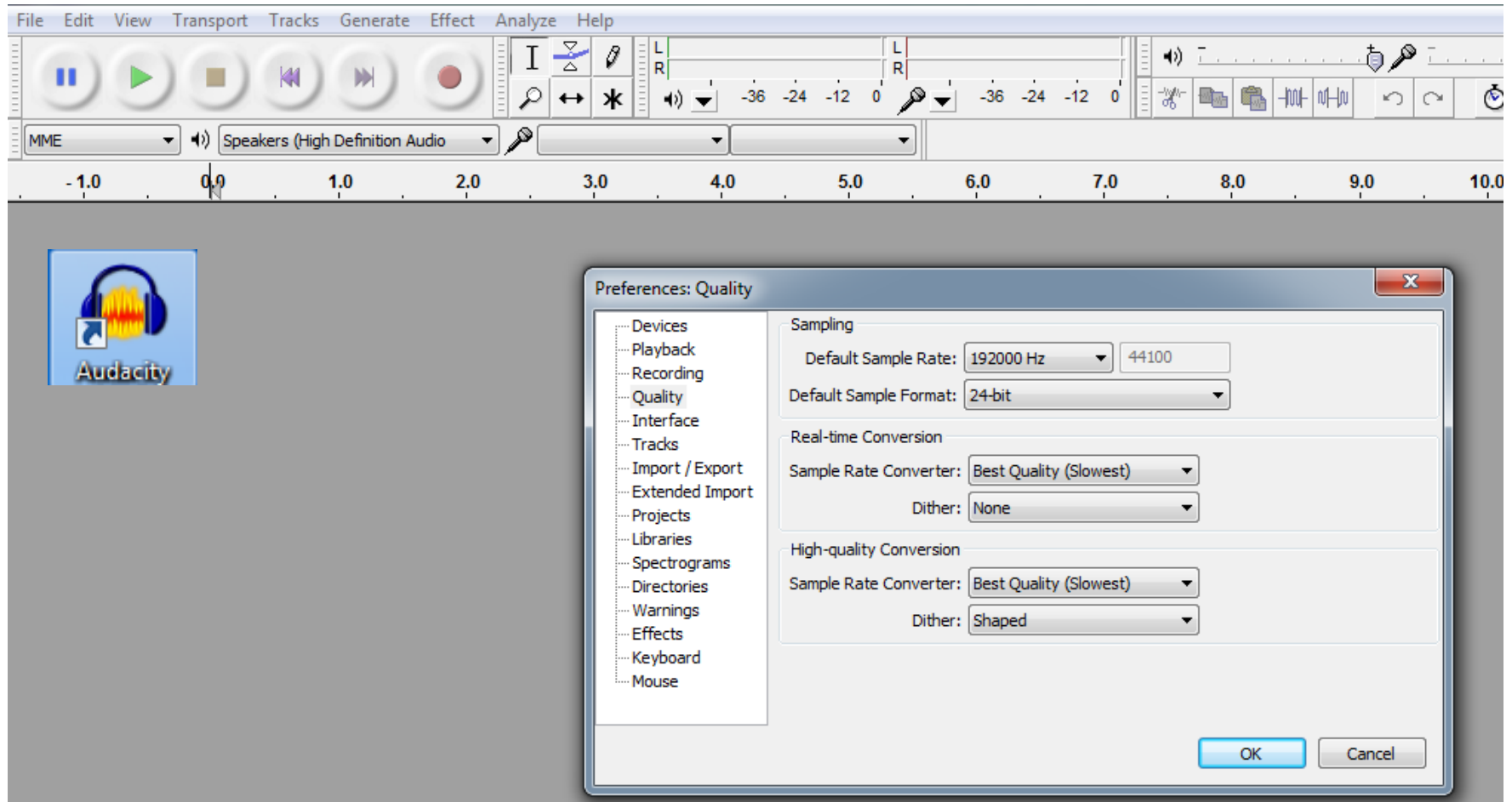
\$49.00/month

https://creative.adobe.com/plans?single_app=audition&promoid=KTKAY

Converting the Sound: Software



Converting the Sound: Software



Other Considerations: Delivery

- Create your own web site from scratch
 - HTML, Interface Design, Network Administration
- Use a web platform or content management system
 - OMEKA, WordPress, SoundCloud, CONTENTdm
- Keep local availability via storage only
 - Users use a single computer to access recordings

Other Considerations: Sustainability



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- Digital Storage Replacement/ Subscriptions
- File management and Checksums
- Website Maintenance and Hosting Fees
- Work Hours

Questions?

References



Isaiah Beard, et al., *Sound Objects: Recommended Minimum Requirements for Preservation Sampling of Audio* (New Brunswick, NJ: Rutgers University Libraries, 2010) accessed July 7, 2012, <http://odin.page2pixel.org/standards/latest/RUcoreStandards-Audio.pdf>.

John Van Bogart, *Magnetic Tape Storage and Handling: A Guide for Libraries and Archives*, (Washington, D.C.: Council on Library and Information Resources; Washington, D.C.: The Commission on Preservation and Access ; St. Paul, MN: The National Media Laboratory, 1995) accessed April 1, 2016, <http://www.clir.org/pubs/reports/pub54>.

Sam Brylawski, Maya Lerman, Robin Pike and Kathlin Smith, Eds., *ARSC Guide to Audio Preservation* (Eugene, OR: Association for Recorded Sound Collections; Washington, D.C.: Council on Library and Information Resources, 2015), accessed March 20, 2016, <http://www.clir.org/pubs/reports/pub164/pub164.pdf>.

Mike Casey, *The Field Audio Collection Evaluation Tool: Format Characteristics and Preservation Problems Version 1.0* (Bloomington, IN: Trustees of Indiana University, 2010) accessed April 20, 2016, http://www.dlib.indiana.edu/projects/sounddirections/facet/facet_formats.pdf.

Gail M. Hodge, *Best Practices for Digital Archiving: An Information Lifecycle Approach*, *D-Lib Magazine* 6, no.1 (2000), accessed March 10, 2016, www.dlib.org/dlib/january00/01hodge.html.

Jenn Riley and Devin Becker, *Seeing Standards: A Visualization of the Metadata Universe* (Bloomington, IN: Indiana University Libraries, 2009), accessed March 25, 2016, <http://www.dlib.indiana.edu/~jenlrile/metadatamap/>.

Krista White, *Calculating All that Jazz: Accurately Predicting Digital Storage Needs Utilizing Digitization Parameters for Analog Audio and Still Image Files*, *Library Resources and Technical Services* 60, no. 2 (2016), accessed April 20, 2016, <https://journals.ala.org/lrts/article/view/5961>.

Resources 1



Isaiah Beard, et al., *Sound Objects: Recommended Minimum Requirements for Preservation Sampling of Audio*
<http://odin.page2pixel.org/standards/latest/RUcoreStandards-Audio.pdf>.

John Van Bogart, *Magnetic Tape Storage and Handling: A Guide for Libraries and Archives*
<http://www.clir.org/pubs/reports/pub54>.

Sam Brylawski, Maya Lerman, Robin Pike and Kathlin Smith, Eds., *ARSC Guide to Audio Preservation*
<http://www.clir.org/pubs/reports/pub164/pub164.pdf>.

Mike Casey, *The Field Audio Collection Evaluation Tool: Format Characteristics and Preservation Problems*
http://www.dlib.indiana.edu/projects/sounddirections/facet/facet_formats.pdf.

For Help with Damaged Tapes, Vinyl and other objects:

ARSC Technical Committee Audio Preservation and Restoration Directory (Updated October 2015)

<http://www.arsc-audio.org/pdf/directory.pdf>

Newegg.com (Evaluating/Purchasing DACs)

<http://www.newegg.com>

WordPress .org for download

<https://wordpress.org/>

WordPress Pricing (site hosting)

<https://wordpress.com/pricing/>

Omeka Digital Exhibit Software for download

<https://omeka.org/>

Omeka hosting at Omeka.net

<https://www.omeka.net/signup>

SoundCloud

<https://soundcloud.com/>

Resources 2



PB Core Metadata Standard

<http://pbcore.org/>

Dublin Core Metadata Standard

<http://dublincore.org/documents/dces/>

Metadata Basics from the Dublin Core Metadata Initiative

<http://dublincore.org/metadata-basics/>

Audio Software Tutorials

Audacity This tutorial is specifically designed for learning to digitize analog audio recordings with Audacity:

http://manual.audacityteam.org/man/tutorial_copying_tapes_ips_or_minidisks_to_cd.html

<http://manual.audacityteam.org/man/tutorials.html>

<http://wiki.audacityteam.org/wiki/Category:Tutorial>

Garage Band

<https://blog.udemy.com/garageband-tutorial-a-beginners-guide-to-garageband/>

Adobe Audition

This tutorial from the University of Nebraska Libraries is quite old, so the menus and settings on Audition will have changed, but the basic information is sound. It also has options for bypassing the purchase of a DAC. You can experiment with this – I have not attempted to do replicate this process and have always used DACs in my digitization work.

http://libraries.unl.edu/images/Services/digital_media_services/Cassette_tape_to_%20mp3.pdf

<https://helpx.adobe.com/audition/tutorials.html>