Digitization and Oral History

Many oral history collections include audio recordings on open-reel or cassette tapes and typewritten transcripts which must be transferred to digital format to ensure their survival and usefulness.

There are many good online sources of information about digitization processes, standards, and equipment. Besides those listed below, find other sources in the bibliography in this section as well as in Tab 6, Projects, Centers, and Resources.

Vermont Folklife Center — http://www.vermontfolklifecenter.org/archive/preservation-resources.shtml

"Resources on the Preservation of Materials in Ethnographic and Oral History Collections," compiled by Andy Kolovos and Marcia Segal, covers all aspects of audio digitization for archival purposes. Kolovos is a frequent contributor to discussions on H-Oralhist (http://www.h-net.org/~oralhist/), the H-Net online discussion list for oral history practitioners.

Historical Voices — http://www.historicalvoices.org/index.php

"The purpose of Historical Voices is to create a significant, fully searchable online database of spoken word collections spanning the 20th century — the first large-scale repository of its kind. Historical Voices will both provide storage for these digital holdings and display public galleries that cover a variety of interests and topics.

"The primary goals of Historical Voices are to develop both a rich set of exhibits and educational curricula that fully incorporate sound files. To accomplish these goals, Historical Voices will:

- Determine Best Practices in Digital Sound Digitization;
- Develop a Digital Archive Structure for Multimedia Materials;
- Work with Key Institutions to develop a Robust Metadata Format;
- Research Aural Perception to Maximize Student Comprehension;
- Develop Tools to Create and Deliver Multimedia Presentations (linked sound and transcripts);
- Develop Alternative Delivery Web Interfaces to Facilitate Diverse Users and Needs;
- Build Federated Archives and Trans-Institutional Resources."

The Historical Voices Web site offers an excellent overview of the digitization process: "Digitizing Speech Recordings for Archival Purposes," by Bartek Plichta and Peter Kornbluh. It is available for download at http://www.historicalvoices.org/papers/audio_digitization.pdf.

Safe Sound Archive — http://www.safesoundarchive.com/index.cfm

Safe Sound Archive is a vendor of audio preservation services. Its proprietor, George Blood, is a well-known presenter and advisor on digitization of audio recordings. He presented a workshop on audio digitization at the 2008 Oral History Association, and has been a presenter at the meeting of the Society of American Archivists.

Blood, George. "Planning an Audio Preservation Transfer Project." Paper presented at the convention of the Society of American Archivists, Birmingham, Alabama, August 23, 2002. Revised January 12, 2005. Available for download at http://www.safesoundarchive.com/PDF/AudioPreservProjectPlanning.pdf.

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Prioritizing Digitization: Assessment Considerations and Tools

For many oral history programs, resources are insufficient to digitize everything at once. It is usually necessary to prioritize digitization projects, to ensure that scarce funds, personnel, and equipment are allocated to preserving those materials at greatest risk.

"Digitization Projects: Key Issues for Archivists, Curators and Librarians," available for download from the Historical Voices Web site at http://www.historicalvoices.org/papers/decide.pdf.

This paper presents a concise overview of the prioritization process for digitization projects.

FACET – http://www.dlib.indiana.edu/projects/sounddirections/facet/index.shtml

The Field Audio Collection Evaluation Tool (FACET) is a point-based, open-source software tool that ranks audio field collections based on preservation condition, including the level of deterioration they exhibit and the degree of risk they carry. It assesses the characteristics, preservation problems, and modes of deterioration associated with the following formats: open-reel tape (polyester, acetate, paper, and PVC bases), analog audio cassettes, DAT (Digital Audio Tape), lacquer discs, aluminum discs, and wire recordings. This tool helps collection managers construct a prioritized list of audio collections by condition and risk, enabling informed selection for preservation. Using FACET provides strong justification for preservation dollars.

Survey Instrument for Audio and Moving Image Collections. Columbia University Libraries Preservation and Digital Conservation Division –
http://www.columbia.edu/cu/lweb/services/preservation/index.html

"In 2005, the Andrew W. Mellon Foundation generously provided support to the Columbia University Libraries to develop and test a survey instrument to inventory and assess the physical condition and intellectual control of audio and moving image materials. The survey instrument and instruction manual are available here for free download.

"The survey instrument consists of a Microsoft Access relational database designed for use by librarians and archivists who are not experts in recording media. It is not necessary to be familiar with Access in order to use the instrument, nor is media playback equipment required.

"Applicable either to an item-by-item inventory or a random-sample survey, the instrument allows for but does not require collection of a great deal of detail about each item. Most fields provide drop-down menus to minimize keying and to assure consistent use of vocabulary. Technical terminology is based on that used by the Audio Engineering Society, Association of Moving Image Archivists, and other relevant organizations.

"The survey provides a mechanism for setting preservation priorities based on (1) quantities and types of audio and moving image materials, (2) the physical condition of the media and their housings based on visual inspection, (3) information about existing levels of intellectual control and intellectual property rights, and (4) the potential research value of each collection. A five-point scale is employed to rank items from high to low in each area.

"Survey-wide reports and collection-specific reports can be generated, as well as lists of collections ranked by research importance and degree of physical damage, and lists of the different media."

Standards and Guidelines for Audio Digitization and Preservation

Association of Recorded Sound Collections (ARSC) — http://www.arsc-audio.org/

"The Association for Recorded Sound Collections (ARSC) is a nonprofit organization dedicated to the preservation and study of sound recordings, in all genres of music and speech, in all formats, and from all periods."

The ARSC Web site includes a directory of audio preservation service providers:

"This directory includes Association for Recorded Sound Collections (ARSC) members who offer services for audio preservation and restoration, as well as ARSC members and non-members who offer equipment and supplies for audio preservation and restoration. Each entry includes headings from the following list to indicate the goods and services offered. All entries are indexed by location and type of goods and services."

The ARSC also publishes a newsletter which can be a valuable source of up-to-date information on audio preservation technology and practice. The newsletter is accessible online in PDF format at http://www.arsc-audio.org/newsletter/index.html.

Audio Engineering Society (AES) — http://www.aes.org/

The AES "is the only professional society devoted exclusively to audio technology." Its membership includes leading engineers, scientists and other authorities worldwide. Through its Standards Committee, AES develops and publishes technical standards pertinent to all aspects of audio technology. Many of these standards serve international standards organizations as the model for their own standards.

Council on Library and Information Resources. *CLIR pub 137–Capturing Analog Sound for Digital Preservation: Report of a Roundtable Discussion of Best Practices for Transferring Analog Discs and Tapes. National Recording Preservation Board, Library of Congress,* March, 2006. Available for online order at http://www.clir.org/pubs/abstract/pub137abst.html.

International Association of Sound and Video Archives. IASA-TC 03 *The Safeguarding of the Audio Heritage: Ethics, Principles and Preservation Strategy Version 3*. December 2005. http://www.iasa-web.org/downloads/publications/TC03_English.pdf.

_____. IASA-TC 04. *Guidelines on the Production and Preservation of Digital Audio Objects*. May be ordered from: http://www.iasa-web.org/tc04/index.htm.

Audio Digitization and Editing Systems

Adobe Audition — http://www.adobe.com/products/audition/index.html

Cost (approx.): $350
Operating Systems: Microsoft Windows only
Minimum System Requirements:

- Intel® Pentium® 4 (1.4GHz for DV, 3.4GHz for HDV); Intel Centrino®; Intel Xeon® (dual Xeon 2.8GHz processors for HD); or Intel Core™ Duo or compatible processor (SSE2-enabled processor required for AMD systems)

- Microsoft® Windows® XP Professional or Home Edition with Service Pack 2 or Windows Vista® Home Premium, Business, Ultimate, or Enterprise (certified support for 32-bit editions only)
- 512MB of RAM (1GB for DV playback; 2GB for HDV and HD playback)
- 10GB of available hard-disk space (when used with Loopology DVD)
- DVD drive required for installation
- 1,280x900 monitor resolution with 32-bit video card and 16MB of VRAM
- Microsoft DirectX or ASIO compatible sound card
- QuickTime 7.0 required to use QuickTime features
- Internet or phone connection required for product activation

Reviews: See Music-Software-Reviews.com at http://www.music-software-reviews.com/adobe_audition_2.html

Audacity — http://audacity.sourceforge.net/

Cost: Free under the GNU General Public License

Operating Systems: Windows XP, Vista; Mac OS X, Linux

Reviews: "Audacity's range of supported formats makes it a good choice for basic editing. Its price makes the choice even better. You can manage sound inputs and recording levels from the main screen, lean on a no-cost development and support community, and grow into a new hobby or profession at only the cost of your personal time.

"On the down side, the interface doesn't look or feel like a Mac, and many other reviews note its limitations for professionals. If you understand sound and how to play with it effectively, the tools won't move as easily as grander, more expensive applications. For the rest of us, free and capable probably fits the bill."

http://www.atpm.com/13.04/audacity.shtml

"People might try this open-source program because it's free (and available for Windows, Macintosh, and Linux), but they stick with it because it's a simple audio editor that offers ample extras, such as mixing tools and audio effects. Audacity isn't just for recording streaming audio; it can record anything coming into your computer, so get an audio cable and connect your audio-out and audio-in jacks, and you're all set. You won't find niceties like automatic track splitting, but you'll get the basic job done. The site is generous with help and links to a free MP3 encoder that works with Audacity."

http://www.pcmag.com/article2/0,2817,1785845,00.asp

For more user reviews, please consult http://www.snapfiles.com/opinions/Audacity/Audacity.html.

Cubase 4, Cubase Studio 4, Cubase Essential 4 —

http://www.steinberg.net/en/products/musicproduction/cubase4_product.html

Cost (approx.):

Cubase 4	*$600*
Cubase Studio 4	*$400*
Cubase Essential 4	*$150*

Operating Systems: Windows XP Home, XP Professional, or Vista 32-bit; Mac OS X versions 10.4 and 10.5

Minimum Computer Requirements:

Mac OS X

- Power Mac G4 1 GHz or Core Solo 1.5 GHz minimum
- 512 MB RAM

- Display resolution 1024x768 pixels
- DVD drive required for installation
- CoreAudio compatible audio hardware
- USB port required for Steinberg Key (copy protection device)*
- Internet connection required for license activation

Windows

- Pentium/Athlon 1.4 GHz minimum
- 512 MB RAM. Windows DirectX compatible audio hardware (ASIO compatible audio hardware recommended for low-latency performance)
- Display resolution 1024x768 pixels
- DVD-ROM drive required for installation
- USB port required for Steinberg Key (copy protection device)
- Internet connection required for license activation

Reviews: "Cubase has been a studio mainstay for close to 20 years now. Although it may not be the front-running application on either the Mac or the PC, Steinberg's pioneering work in developing VST and ASIO has ensured that its technology will be taken seriously. Meanwhile, Yamaha's purchase of Steinberg has added weight to the question of how Cubase will keep its edge."
http://mixonline.com/products/review/audio_steinberg_cubase_daw/index.html

Nuendo4 http://www.steinberg.net/en/products/audiopostproduction_product/nuendo4.html

Cost (approx.): $1,800

Operating Systems: Windows XP Home, Professional with Service Pack 2, Vista (32-bit); Mac OS X versions 10.4 and 10.5

Minimum System Requirements:

Mac OS X

- Power Mac G4 1 GHz or Core Solo 1.5 GHz minimum
- 1 GB RAM
- DVD drive required for installation
- CoreAudio compatible audio hardware is required
- USB port required for Steinberg Key (copy protection device)
- Internet connection required for license activation

Windows

- Intel/AMD processor 2 GHz minimum
- 1 GB RAM
- DVD drive required for installation
- Windows DirectX compatible audio hardware; ASIO compatible audio hardware recommended for low-latency performance
- USB port required for Steinberg Key (copy protection device)
- Internet connection required for license activation

Reviews: See review in *Sound on Sound Magazine*, December 2007.
http://www.soundonsound.com/sos/dec07/articles/nuendo4.htm

Pro Tools HD, ProTools LE, ProTools M-Powered http://www.digidesign.com

Cost: Variable, very expensive; requires purchase of professional audio equipment

Operating Systems:
Digidesign-qualified computers running Windows Vista (32-bit), Windows XP SP2, or Mac OS X 10.5.5 or higher (PowerPC- or Intel-based Mac)

Minimum System Requirements:
ProTools LE
- Mbox®, Mbox® 2, Mbox® 2 Pro, Mbox® 2 Mini, Mbox® 2 Micro, Digi 002®, Digi 002 Rack™, 003™ Factory, 003™ Rack, 003™ Rack Plus
- 1GB RAM minimum, 2GB or more recommended for best performance

ProTools HD
- Pro Tools|HD® or Digidesign® ICON system
- 1GB RAM minimum, 2GB or more recommended for best performance
- iLok USB Smart Key (plus, Internet access and a free iLok.com account for authorization)

ProTools M-Powered
- Supported M-Audio hardware peripheral, for example M-Audio Firewire 1814, M-Audio Firewire 410, M-Audio Delta 44, Delta 66, and many more Pro Tools M-Powered 8 compatible M-Audio devices and drivers. Please check specific product compatibility for Windows or Mac.
- 1GB RAM minimum, 2GB or more recommended for best performance
- iLok USB Smart Key (plus, Internet access and a free iLok.com account for authorization)

Reviews: "Pro Tools is available in 3 versions: HD (for owners of HD cards and interfaces), LE (with Digi003, 003-Rack, Digi002, 002-Rack and MBox et MBox2 series) and M-Powered (for users of M-Audio interfaces). The advantages of this hi-end sequencer rely on its total integration hard+soft, which has led to its success."
http://www.macmusic.org/news/view.php/lang/en/id/6160/
See also: http://emusician.com/daw/emusic_digidesign_pro_toolshd/

- **SoundForge**. http://www.sonymediasoftware.com/Products/ShowProduct.asp?PID=961

Cost (approx.): $300

Operating Systems: Microsoft Windows

Minimum System Requirements:
- Microsoft® Windows® 2000 SP4, XP, or Windows Vista™
- 900 MHz processor
- 150 MB hard-disk space for program installation
- 256 MB RAM
- Windows-compatible sound card
- DVD-ROM drive (for installation)
- Supported CD-Recordable drive (for CD burning)
- Microsoft DirectX® 9.0c or later (included on DVD-ROM)
- Microsoft .NET Framework 2.0 (included on DVD-ROM)
- Internet Explorer 5.1 or later (included on DVD-ROM)

Reviews: "Sound Forge 9 can convert and clean analog recordings (i.e. tape, vinyl) to digital audio. Noise reduction 2.0 includes noise reduction, click & crackle removal, clipped peak restoration, and audio restoration effects. All of the effects have plenty of presets."

http://www.geek.com/articles/labs/review-sony-sound-forge-9-2007105/
See also http://www.studiodaily.com/studiomonthly/tools/7955.html and http://www.eqmag.com/article/sony-creative-software/Jun-07/28968

WaveLab.

Cost (approx.): $700

Operating Systems: Microsoft Windows

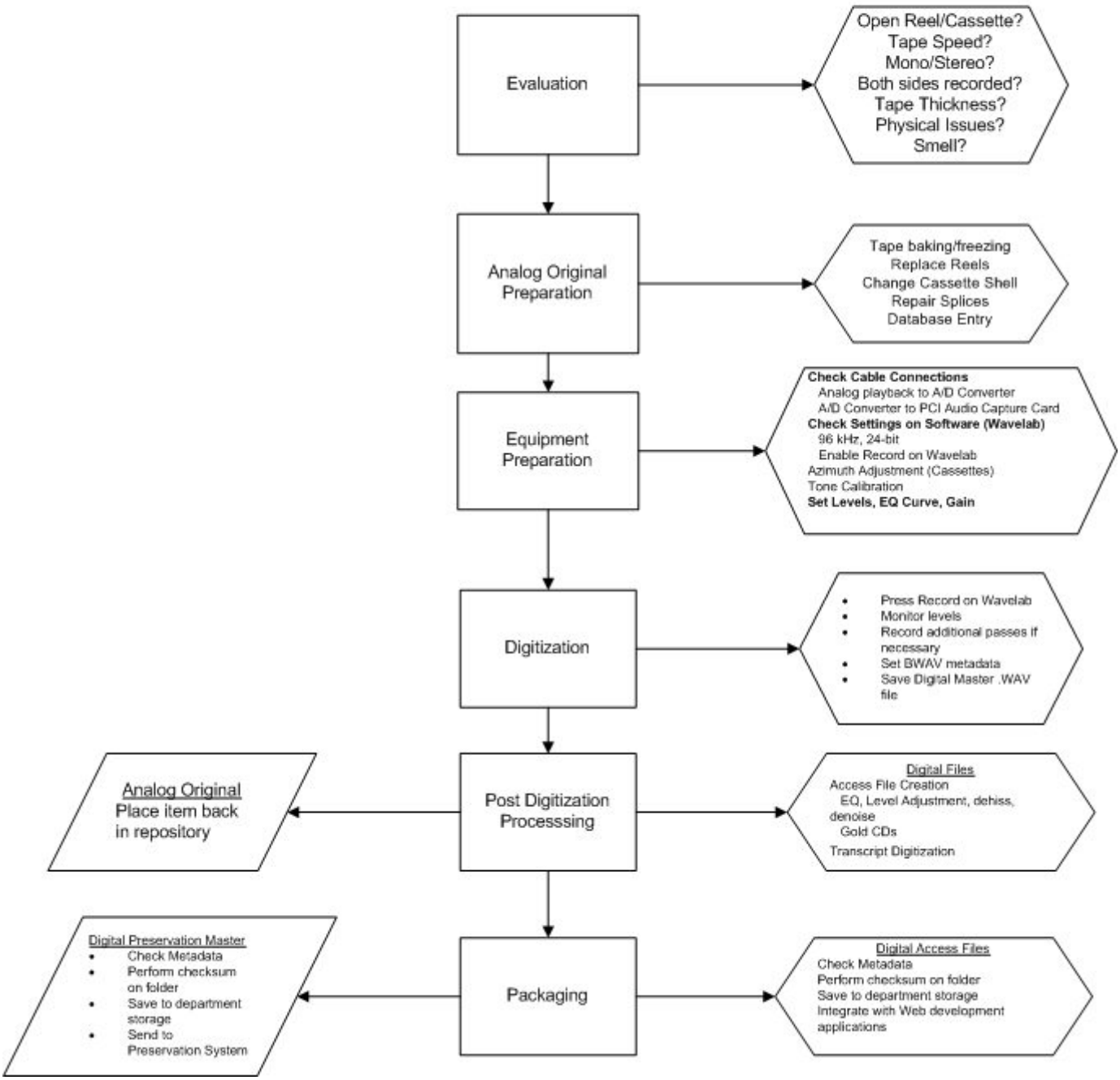
Minimum System Requirements:

- Windows XP or Windows Vista (32-bit only)
- Intel/AMD processor 1.4 GHz minimum
- 512 MB RAM
- DVD drive required for installation
- Windows MME compatible audio hardware is required (ASIO compatible audio hardware required for low-latency operation).
- USB port required for Steinberg Key (copy protection device)*
- Internet connection required for license activation

Reviews: "At $699.99 list, WaveLab is more than twice as expensive as its most significant competition, Sony Sound Forge. A point-by-point comparison would take pages. Briefly, Sound Forge has no equivalent of WaveLab's Montage multitrack setup, Sound Forge doesn't author DVDs, it won't load AES-31 sessions and it doesn't do surround. Conversely, WaveLab won't author Acidized WAV files, which are used by Sony's Acid Pro DAW.
"Many of the basic features of WaveLab 6 are included in most DAWs. The reasons to buy such an expensive program are for professional tools such as 384kHz support, 32-bit batch processing and the audio file database."
Mix Magazine; http://mixonline.com/products/review/audio_steinberg_wavelab_audio/
"WaveLab's user interface is familiar to those who have used it in the past making it an easy transition. Red Book CD and DVD-Audio disc creation is fully supported. The software is a must for the audio professional or die-hard musician who needs to not only edit but process audio tracks as well. WaveLab 5 is somewhat complicated at first, but like many powerful applications you'll soon appreciate all the capabilities of this product.
LA Audio File; http://www.laaudiofile.com/wavelab5.html

Digitization of Analog Tape Recordings

Baylor University Institute for Oral History Digitization Flow Chart



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Web site includes examples of TEI-encoded texts in many languages.
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XML Editors

See the *EAD Cookbook* cited above for other SGML and XML editors.

Altova, maker of XMLSpy, http://www.altova.com.

Corel, Maker of Word Perfect® 9, http://www.corel.com. Word Perfect® 9 offers seamless SGML and XML editing from within a word processor.

Fookes, maker of NoteTab, http://www.fookes.com.

Softquad, maker of XmetaL®, http://www.softquad.com. XMetal is an editor for both SGML and XML.

Digitization Vendors

For some projects and programs, outsourcing digitization of analog recordings is the best solution. Grants are available to help fund such projects; see Tab 7, Funding, in this notebook. The following list of vendors of digitization services does not constitute a recommendation by Baylor University or any of its faculty or staff and is offered as a sample of available services only. No warrant of performance or suitability is intended or implied by inclusion in this list.

Archival Sound Labs: The Cutting Corporation – http://www.cuttingarchives.com/

ARSC supplies a link of vendors of various services – http://www.arsc-audio.org/audiopreservation.html

The Audio Archive – http://www.theaudioarchive.com/
Richard L. Hess – http://www.richardhess.com/tape/
Safe Sound Archive – http://www.safesoundarchive.com/

Vidipax – http://www.vidipax.com/