RT2028 - Audacity and the Power of Audio Editing

RootsTech 2016 Instructor: Andrew Lee

Instructor Information

Andrew Lee has been involved in family history since he was 8 years old when his mother took him to the Family History Library in Salt Lake City. Andrew graduated from Texas A&M University with a degree in Mechanical Engineering. He has worked as an engineer in both the nuclear industry and the oil & gas industry. He is the author of the ebook *How to Fail English with Style* which can be found on Amazon. As a member of Toastmasters International, he has achieved the level of Competent Communicator. Andrew likes to do interviews, write and tell stories, and explore connections through DNA. He is married to the author, blogger, and family historian Devon Noel Lee (her books can also be found on Amazon). His family currently lives in Humble, TX.

If you have questions or comments, feel free to email him at andrewplee@yahoo.com.

Class Objectives

1. Introduction to Audacity software - open source freeware that can be used for audio editing can be downloaded at http://audacityteam.org/download/ for Windows, Mac, and Linux computer systems. There is a online manual http://manual.audacityteam.org/o/ that describes the various functions and numerous tutorials http://wiki.audacityteam.org/wiki/Category:Tutorial to help learn how to use the software.

2. Describe how to transfer files from Analog to Digital (i.e. from cassette tape to computer)

3. Describe how to create a simple sound room to get the best sound quality

4. State the reasons why we would want to edit family history audio files including time constraints, storage or transfer limits, and speech distractors (https://en.wikipedia.org/wiki/Speech_disfluency)

5. Goal is not to change what is being said, but improve storytelling letting the listener focus on the story

6. Describe and show a process for simple editing including breaking large files up into smaller stories, removing speech distractors, merging relevant fragments, and changing the speed and volume of the recording.

7. Understand how being familiar with audio editing process can improve your interviewing skills.

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Additional Information (this information will not be covered in the class)

Audio Formats (https://en.wikipedia.org/wiki/Audio_file_format)

Digital audio files come in three major types:

- Uncompressed: stores all of the audio information. File can be very large, approximately 10 MB/minute but provides CD quality sound. Most common file types are WAV (Microsoft) and AIFF (Apple)
- Lossless Compression: stores all of the audio information but in a smaller file size, about half the size of Uncompressed. Common types are FLAC and ALAC
- Lossy Compression: removes some of the audio data to allow for much smaller file size. Quality of the sound will depend on how much compression or bit rate is used. Most common type is MP3, WMA (Microsoft), and AAC (Apple)

As a general rule, you want your original recordings to be in an Uncompressed format, your audio file that you upload or share should be in a Lossy Compression format balancing the quality with the file size.

Converting between formats should always go from Most Compression to Least Compression. Converting from an MP3 to a WAV file will not make the quality any better, it will only make the file bigger. However, some devices will only record in a certain file type (i.e. Windows Sound Recorder only saves as WMA file) so converting to WAV may be necessary to work with some audio editing programs. There are paid software, free software, and online options for converting your files. Search google for "audio file converter". The one that I use most often is Free mp3 wma Converter

Uploading Files

Audio files can be uploaded and attached to people on FamilySearch Family Tree. Use the Memories section and be sure to tag the person who the audio file is associated with. There is a 15MB size limit and files need to be in .mp3 or .m4a format. Ancestry.com's old website had an option to attach audio files to an event, but I have not figured out how to do it on the new website, the option for it is not there anymore. MyHeritage allows for video to be attached to people, using a video editing program you could use pictures of the individual and add the audio file as a soundtrack to create a video for upload.

Creating CDs

Another way to share audio files is by creating CDs to give to relatives and friends. This can be done in two ways.

1) "Burning an Audio CD" that can play in any CD player. This can be done using any type of audio file (although it will be converted to the CD audio format). There is a limit of approximately 70 minutes for a CD. Use the CD burner software (if your computer has a CD burner it came with software or you can buy or download free CD burning software) and select (or drag and drop) the files you want for the CD. Be sure to organize them in the order that you want them to play. Click on the Burn CD button.

2) "Burning a Data CD or DVD" that can be read by most computer based CD or DVD players (including gaming systems). Some car or stereo CD players have the ability to read data CDs for .mp3 files, but this is the exception not the rule. Files can be any type of format and all files don't have to be the same type. You can also add in photos or video files. Files can be organized into folders. To do this, organize all of the files you want on your computer under one folder. In your CD burning software, copy this folder structure to be burned. Click the Burn CD button. With MP3 files, you could get several hours of audio onto a single CD. DVDs have about 5-10 times the capacity of a CD.

Advanced Editing

Audacity (and other audio editing programs) have the capability of improving the sound quality of a recording by removing feedback noise, clicks, and other extraneous artifacts. These may have been introduced to the recording due to the equipment used or the age of the magnetic tape. Removal of these sound artifacts is not an easy task. It involves a lot of trial and error. You will take a sample profile of the noise or other artifact and then subtract that noise from the entire recording. If you want to try this, read the how to from the Audacity Help website and then do it in steps (i.e. don't try to remove all of the noise at once - or in other words don't set the noise removal bar to maximum) to avoid distorting the sound of the rest of the recording.

Resources

FamilySearch Wiki articles on Sound Files
https://familysearch.org/learn/wiki/en/DIGITAL_SOUND
https://familysearch.org/learn/wiki/en/Transferring_Analog_to_Digital

YouTube Channel with tutorials for Audacity
https://www.youtube.com/playlist?list=PL2B8A3178C78BA9CB

Tips for making recordings at home http://bluemic.com/blog/2013/10/15-tips-for-recording-at-home/

Toastmasters International - public speaking and leadership organization
https://www.toastmasters.org/

Academic paper on speech disfluency http://www.psychology.sunysb.edu/sbrennan-/papers/bortetal.pdf

Interviewing skills and techniques
https://www.youtube.com/watch?v=jTCzxWt1RQk
http://www.therenegadewriter.com/2014/01/15/the-ultimate-freelance-writers-guide-to-recording-interviews/

Other audio editing programs
http://www.ocenaudio.com.br/changelog
http://www.wavosaur.com/
http://mpesch3.de1.cc/mp3dc.html