



# Using Audacity With Audio Files

January 2020

Mapleton Family History Center

Classroom Issue

## Special points of interest:

- .WAV Files are large and require more hard drive or other media storage space.
- .MP3 and .M4A files are compressed and require less storage space, 1/4 to 1/20 of .WAV files.
- Audacity allows editing of .WAV files (others too) that can be saved in the compressed .MP3 or .M4A formats

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## Audacity Software is Available for Free Download/Installation on MAC and Windows

Audacity is a free, very sophisticated audio recording and editing software that can be used with MAC or Windows to record, edit and save audio files. To download Audacity, you will need an internet connection to access the Web.

Go to [www.audacityteam.org/downloads/windows](http://www.audacityteam.org/downloads/windows) and select the link to the newest Audacity installer then let the installation run.

Mac users will find the installation download link on the left sidebar of the page.

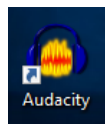
To save edited files in the .MP3 and .M4A formats, you will also need to download the "LAME MP3 Encoder" and the "ffmpeg import/export library". The links to these downloads are located further down the same webpage.

After downloading the two

files, it is necessary to install them. Check your computer to see where downloads are saved. In windows the files are typically saved in a folder named "Downloads".

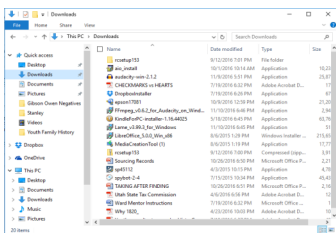
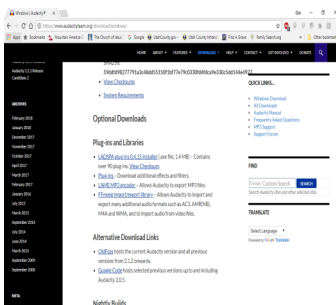
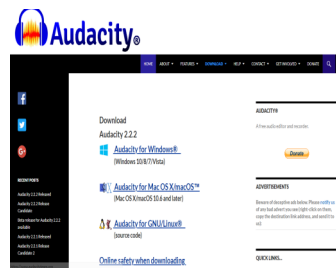
Double click the file to open and run the installation.

Audacity is now ready to run. Find the icon that looks like this:



You can do all sorts of editing in Audacity like adding effects or silent spaces, reverb and so on. Keep your editing simple at first...have fun!

Did you know that Audacity can Import audio from video files?



## Audacity Can Be Configured to Work With Your Playback Devices

The first thing that you will need to do is determine what type of media that you need to playback and save. Do you have old records, reel to reel or cassette tapes, or files on a cell phone? These can all be captured in Audacity using the correct connections and settings in the software.

The computers in the FHC are configured for Line-In recording from a portable cassette or other player. Uploaded files from your cell phone via a USB connection can easily be opened and edited using Au-

dacity.

Open Audacity and click on "Edit" from the menu in the top left corner of the screen., then select "Preferences" at the bottom of the list. A pop-up will open, select "Devices" from the list of available settings. If you will be using a 3.5mm jack input cable, set your default device to "Line-In". If you would like to hear what is being recorded while it is playing, select "Recording" and check the box next to "Software Playback".

The last setting you may want

to consider is under "Project Rate (Hz)". Audacity is set to record at CD quality or 44,100 KHZ per second (sample rate). That equates to 1 MB per minute of compressed audio file. Family Search has a maximum file size of 15 MB per file. By changing the default projectrate to 22,050 KHZ, 30 minutes of audio can be compressed into a 15MB file. Audacity can also be used to break down a large file into tracks that can be saved to Family Search individually. These default configuration settings should be enough to



**Sample Connection Cables Needed for Line-In Recording.**

**On Computers and laptops the input jack will be marked with a microphone icon or a red circle. Some newer laptops only have one jack for all purposes, headphone, speaker and microphone!**



**Connected and ready to Go!**

## Connecting Your Playback Device to the Computer

To connect your device to the computer, you will need to find the correct cable that will match your playback device that has a male 3.5mm stereo jack on one end.

Your device may have a female 3.5mm stereo headphone jack that you will be connecting to for playback to the computer. Cables with two male 3.5mm stereo jacks are available at local stores.

If your device uses RCA output jacks, you will need a stereo cable with a male 3.5mm jack on one end and two RCA jacks on the other.

Now to find the correct input jack on your computer or laptop.

On computers and laptops the input jack will be marked with a microphone icon like the one below or will have a red circle or box like those pictured here.



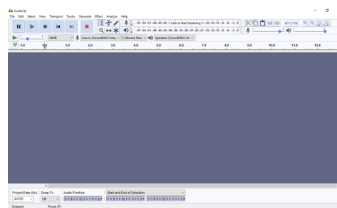
Connect the appropriate cable to the input jack of the computer (red or microphone) and the other end of the cable to the headphone or output jack of the device



## Setting The Record Level in Audacity

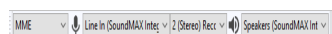
Now that you have successfully connected your device to the computer, you are ready to use Audacity to record your file or open an existing file.

Audacity main screen:



The layout of the screen above will vary based on the screen size of your computer display.

Be sure to select Line in as shown here:



You will need to set the record level before recording. Follow these steps:

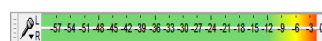
1. Start playing the recording.
2. Click on the Record Level Meters to observe the record volume of the audio file. See below:



You should see something like this:



If it looks like this:



You will need to reduce the

playback volume on the player that you are using or adjust the record volume or level in Audacity.

To adjust the record level in Audacity, look for this portion of the main screen:



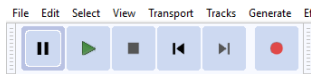
Click the slider button next to the microphone and move it to the left. Reduce the record volume until the meters are mostly green, a little yellow and occasional red are OK, but green levels are the best.

Now that the record volume has been adjusted, you are ready to record the audio.

## Making The Recording

Be sure to reset the cassette, record or other audio to the beginning, where you want to start the recording from.

To begin recording your audio file click the record button on the main screen, the red button on the right.



Now start your playback device. The waveform of the audio will appear on the screen during the recording process. The recording can be stopped at any time by clicking the square stop button.

To replay the recording that

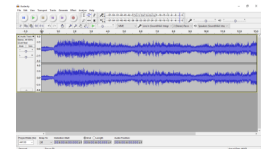
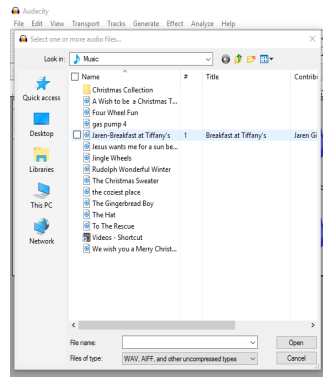
you have recorded, click the green play button to start playback. The wave that you see is actually a .WAV file, a digital copy of the one on your tape, record, etc.

If you are satisfied with the recording, you can move on to editing the file.

A .WAV file that was uploaded from a cell phone or other digital audio device can be opened in Audacity. To do this, Click on the word "File" in the upper left of the main screen and click "Open". A search window will open, allowing you to select the file you desire to open. Double click on the file name or left click once and then click

"Open" on the search window.

The file will be loaded onto the Audacity Screen for playback, etc.



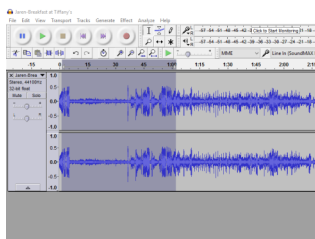
**The Audio Waveform Appears During Recording.**

## Editing Your Recording

Audacity offers so many editing features for the audio files. Here we will look at clipping, inserting silence, inserting track labels and inserting a Fade In or Out.

### CLIPPING

To Clip a portion of the audio, like a long silence, Left click on the wav file and drag to the left (or right) to highlight the portion to clip as shown below:

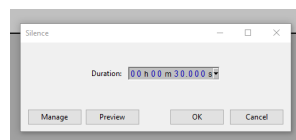


To Clip the portion, Click on the scissor icon:



### SILENCE

To add silence before or after a portion of the file, left click on the wave in the location you desire to add a silent space.

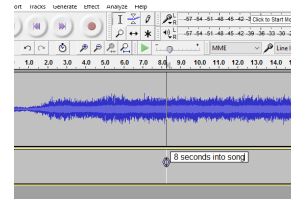


Now click on the menu option "Generate", then select "Silence" the following pop-up will appear:

In most cases, you will only need 3–5 seconds of silence between tracks.

### TRACK LABELS

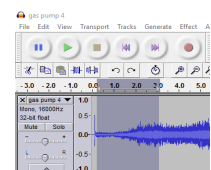
To insert track labels (long recordings), left click on the location of the wave where you desire to place a track label. Then click "Edit" on the menu options. Select "Labels", then "Add Label at Selection". The following marker will appear on the wave:



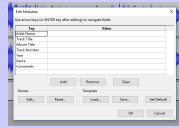
Type the label name in the box. Add as many labels as you need.

**FADE IN AND OUT** To add a fade in, left click on the segment at the beginning of the wave where you wish to add a fade-in. Hold the left mouse button and drag the mouse to the right to highlight the area (2 to 3 seconds) where the fade will be created. Click on "Effect", then click on "Fade In" to create the fade. To fade out, highlight the ending portion of the wave desired, click on "Effect", then select "Fade Out".

**Uploaded .WAV Files From Your Cell Phone Or Other Digital Audio Device Can Be Opened, Played, Edited and Saved As .MP3 and .M4A Files Using Audacity.**

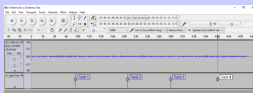


**Simply Highlight the Section of the wave to add a fade in or out**



The Artist, Track Title, Album Title, Year and other information can be saved with the track.

“After adding the track labels to your recording, the file is ready to save with multiple tracks”



Multiple Track files are easy to create and save.

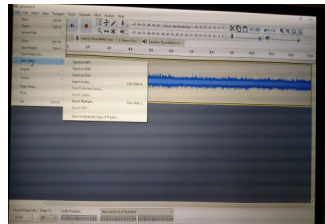
## Saving /Exporting Your Recording (Single Track without Multiple Track Labels)

Wow, what a work out!

Now that you have a file ready to save, let's take a look at the process involved. There are several ways to save a file or export your audio file in the compressed .MP3 or .M4A format that will save space on your hard drive and be usable on Family Search.

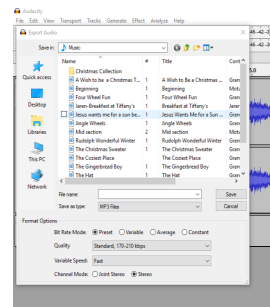
I will focus on exporting the file in .MP3 or .M4A formats

For audio files that you want to export as a single track, Click “File” on the upper left of the screen and select “Export” from the drop down menu shown below:

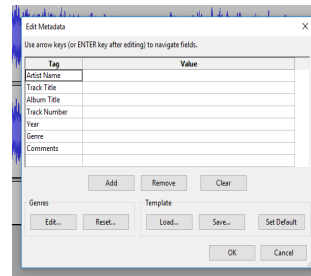


Then select “Export as MP3”

Next, a pop-up window will appear that asks for a file name. Be sure to select .MP3 or .M4A from the “Save as Type” drop down menu. Choose a folder to save the audio file to, Then click “Save”



A pop-up screen will appear that allows you to add Metadata about the file, like the name of the Artist, the track title, the year of the recording, etc. see below:

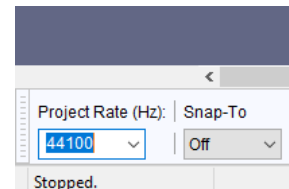


When finished editing the Metadata, click OK to save the file.

If you have a long audio file such as a recording of a missionary farewell or a funeral, refer back to adding track labels. The recording can be broken down into smaller tracks using the track labels. See the next section for saving files with multiple track labels.

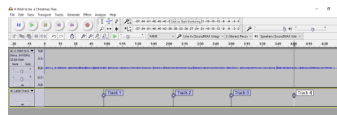
If you find that the file is too large for Family Search (>15MB), you can change the Project rate (Hz) within Audacity from 44100 (Default, CD Quality) to a lower rate to reduce file size, then save the file again as an MP3. This does not affect the original recording.

The project rate can be selected and changed on the lower left of the Audacity Main screen.

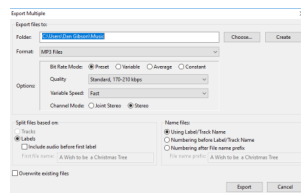


## Saving/Exporting Your Recording (With Multiple Track Labels)

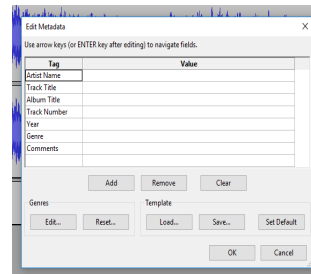
After adding track labels to your recording, the file is ready to save with multiple tracks.



To save the Multiple track audio file, Click on “File”, then “Export”, then select “Export Multiple”. The following pop-up will appear:



Select the folder where the file is to be saved, be sure to select “Labels” under “Split files based on”, and “Using Label/Track Name” under “Name Files”. Then click “Export”. A pop-up screen will appear that allows you to add Metadata about the Artist, the track title, etc. for each track.



When all of the tracks have been named, the audio tracks will be exported to the hard drive or flash drive. Remember the folder name that you saved them to for uploading later to Archive.org, Family Search, to burn to a disk and so on.

When closing the “Audacity” app, you will be asked if you would like to save the project. Select “No” to close the program. (Your file has already been saved).

## Understanding Some Terms Used

### What is an audio "Wave" file?

A wave file is an uncompressed, digital audio recording.

Wikipedia defines a wave file as follows:

"...the most common WAV audio format is uncompressed audio in the [linear pulse code modulation](#) (LPCM) format. LPCM is also the standard audio coding format for audio CDs, which store two-channel LPCM audio sampled 44,100 times per second with 16 bits per sample. Since LPCM is uncompressed and retains all of the samples of an audio track, professional users or audio experts may use the WAV format with LPCM audio for maximum audio quality.<sup>[10]</sup> WAV files can also be edited and manipulated with relative ease using software."

### What is an .MP3 file?

Wikipedia defines an MP3 file as follows:

"MPEG-1 and/or MPEG-2 Audio Layer III,<sup>[4]</sup> more commonly referred to as MP3 (or mp3), is an [audio coding format](#) for [digital audio](#) which uses a form of [lossy data compression](#), which are data encoding methods that use inexact approximations and partial data discarding to reduce file sizes significantly, typically by a factor of 10, in comparison with a CD, yet still sound like the original uncompressed audio to most listeners. Compared to CD quality digital audio, MP3 compression commonly achieves 75 to 95% reduction in size. MP3 files are thus 1/4 to 1/20 the size of the original digital audio stream. This is important for both transmission and storage concerns."

### What is an .M4A file?

"MPEG-4 Part 14 or MP4 is a [digital multimedia container format](#) most commonly used to store [video](#) and [audio](#), but can also be used to store other data such as [subtitles](#) and still images.<sup>[2]</sup> Like most modern [container formats](#), it allows [streaming](#) over the [Internet](#). The only official [filename extension](#) for MPEG-4 Part 14 files is **.mp4**. MPEG-4 Part 14 (formally [ISO/IEC 14496-14:2003](#)) is a standard specified as a part of [MPEG-4](#)." The article states that "Audio-only MPEG-4 files generally have a **.m4a** extension."

.M4A files are typically used on Apple products.

### What does sample rate mean?

Sample rate refers to how many times a sample of the original audio recording is taken. It is similar to selecting how many megapixels you desire when taking a picture with a camera. The higher the number of megapixels in a photo, the larger and more detailed the photo will be. Higher audio sample rates capture more of the natural audio that is being recorded creating a larger more detailed digital copy of the audio file. The standard sample rate for CD quality recordings is 44,100 KHZ per second. This is needed for recordings of music where the audible range falls within 20-20,000 HZ (normal hearing range).

If what you are recording using Audacity contains music and speech, use higher sample rates (larger more detailed copy).

If what you are recording consists of speaking only (85-255 HZ normal speaking range), you

can experiment with lower sample rates to reduce file size too. Phone quality audio is sampled at 8,000 KHZ per second. If you have a cassette recording of someone speaking, telling a story and so on without music, you can reduce the sample rate in Audacity to save file space.

If you use your cell phone as the recorder for stories you wish to capture from a relative, most apps will allow you to select the sample rate for recording. Look for "settings" or "preferences" in the app.



Capture your analog wave files digitally

"The standard sample rate for CD quality recordings is 44,100 KHZ per second."



The "Good ol' Days" can be brought back to life through digital recording



## Mapleton Family History Center

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Archive.org can be used to store audio files larger than 15 MB. A link to the file can be created as a source in Family Search. You must create a free user ID to upload files to Archive.org and all files uploaded to their website become public domain or in other words, anyone can access and use them.

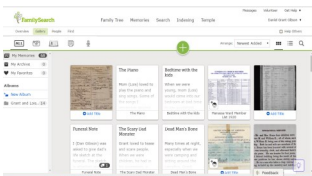
For any further questions or help with Audacity please contact the Mapleton Family History Center. This information is presented by Dan Gibson, Mapleton 2nd Ward, Mapleton North Stake.

### Attaching a WAV or Compressed Audio File In Family Search

It is true that .WAV files can also be attached as a memory in Family Search if they are small enough. How do I attach an audio file in Family Search, whether it is compressed or not?

If you have attached photos and documents as memories in Family Search, you will find that attaching audio files is just as easy.

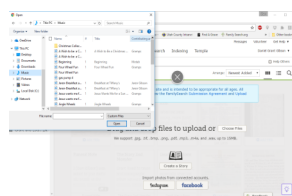
To attach an audio file, open Family Search and sign in. Click "Memories" on the Family Search main page to open the memories page as shown:



Then click on the plus sign:



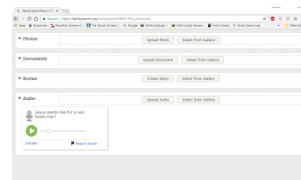
Drag and drop the file you wish to add to memories, or use the "Choose Files" button to open a file search window.



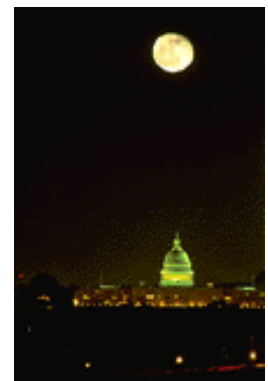
Find and select the file you wish to add to memories, then click "Open" to save the file in Family Search. You can then attach the audio file to the person or persons in Family Search that the memory belongs to by opening their person page, select-

ing "memories" and then under the section for audio files, click "Select From Gallery" and choose the file that you uploaded.

If the audio file applies to only one person, it is quicker to open their person page, click "Memories" and select "Upload Audio" from the audio section. A file search window will appear. Select the audio file and click "Open" to add the audio file to Family Search.



Deleting a memory requires help from Family Search.



**Remember to follow copyright laws when attaching files to Family Search**