

Introduction to Audacity

By

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What is 'Audacity'?

- Audacity® is a free, open source (cross-platform) digital audio editor, recorder, and mixer. It is a sophisticated software application that comes with an extensive list of features such as:
 - Recording (from a microphone or mixer)
 - Import/export of WAV, AIFF, AU, FLAC, MP3* and other formats
 - Advanced editing (cut, copy, paste, delete commands with unlimited "Undo" and "Redo," multitrack mixing)
 - Digital effects (change the pitch, remove background noises, alter frequencies, remove vocals, create voice-overs for podcasts, etc.)
 - Plug-ins (support for LADSPA, Nyquist, VST Audio Unit, including VAMP analysis plug-ins)

The full list of Audacity® features can be found on its official [homepage](#)

* (via LAME encoder)

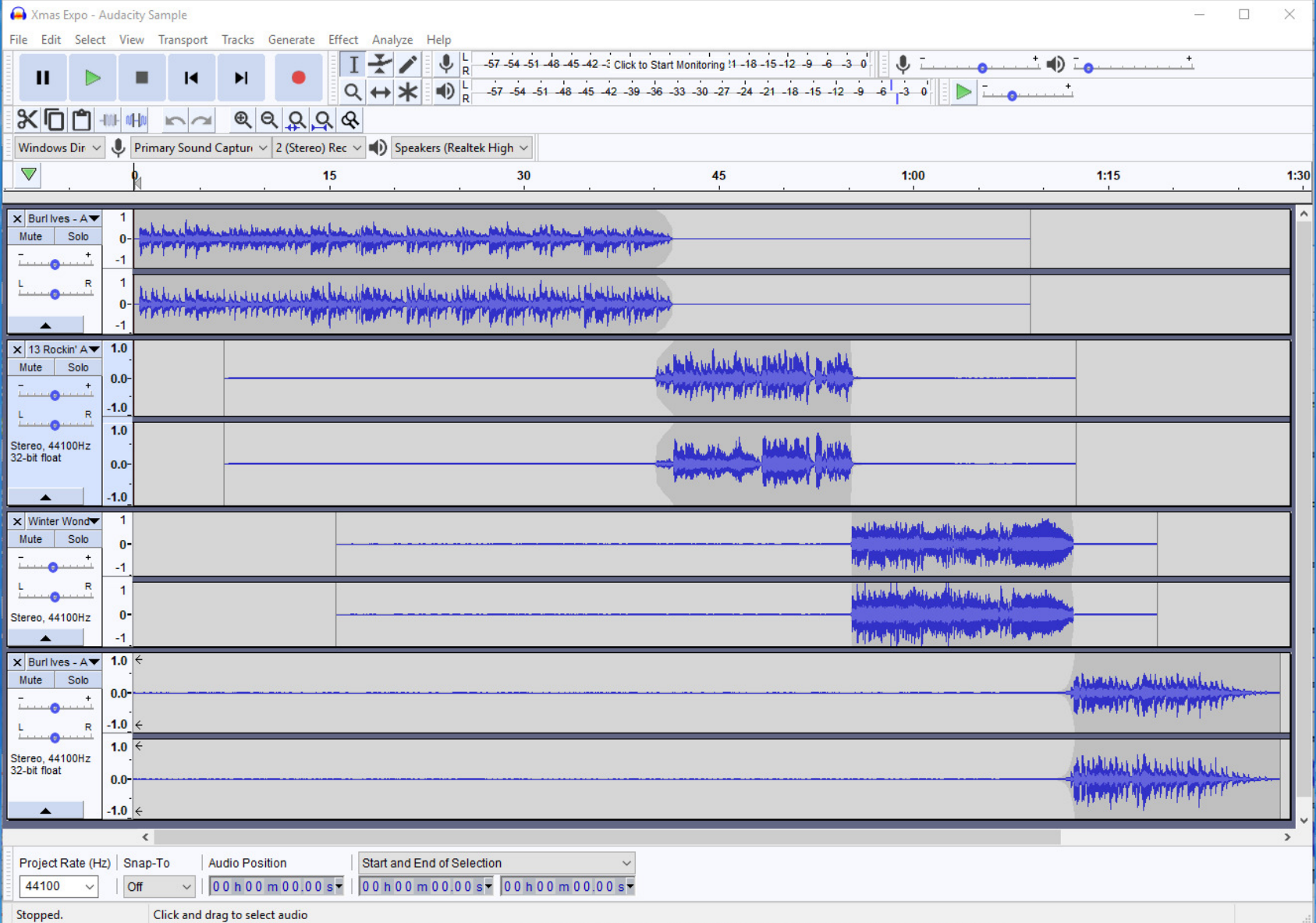


What Can You Do With Audacity?

- Audacity® is a very sophisticated tool which can be used to accomplish a lot of special things
 - Unless you're an audio engineer, a passionate or advanced user, expect to spend some time with the help files to learn about these advanced features
- Most (novice) users will only scratch the surface, using this software to perform only a few functions
 - This class will focus on those few basic functions and skills used most often for making our soundtracks
 - There are often multiple ways to accomplish the same or similar results, but I'm going to show you what works for me
 - For those interested in more advanced features, I highly recommend reading the help files and tutorials

What Can You Do With Audacity?





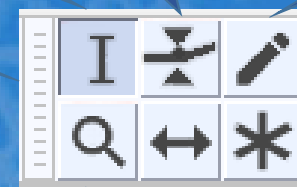
Audacity Toolbars

“Tools Toolbar”
Selects tools for
making edits

Selection
Tool
(F1)

Envelope
Tool
(F2)

Draw
Tool
(F3)



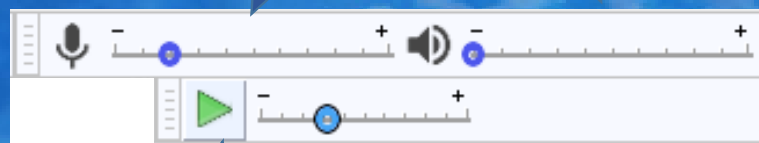
Zoom
Tool
(F4)

Time Shift
Tool
(F5)

Multi
Tool
(F6)

Recording
Volume

Playback
Volume

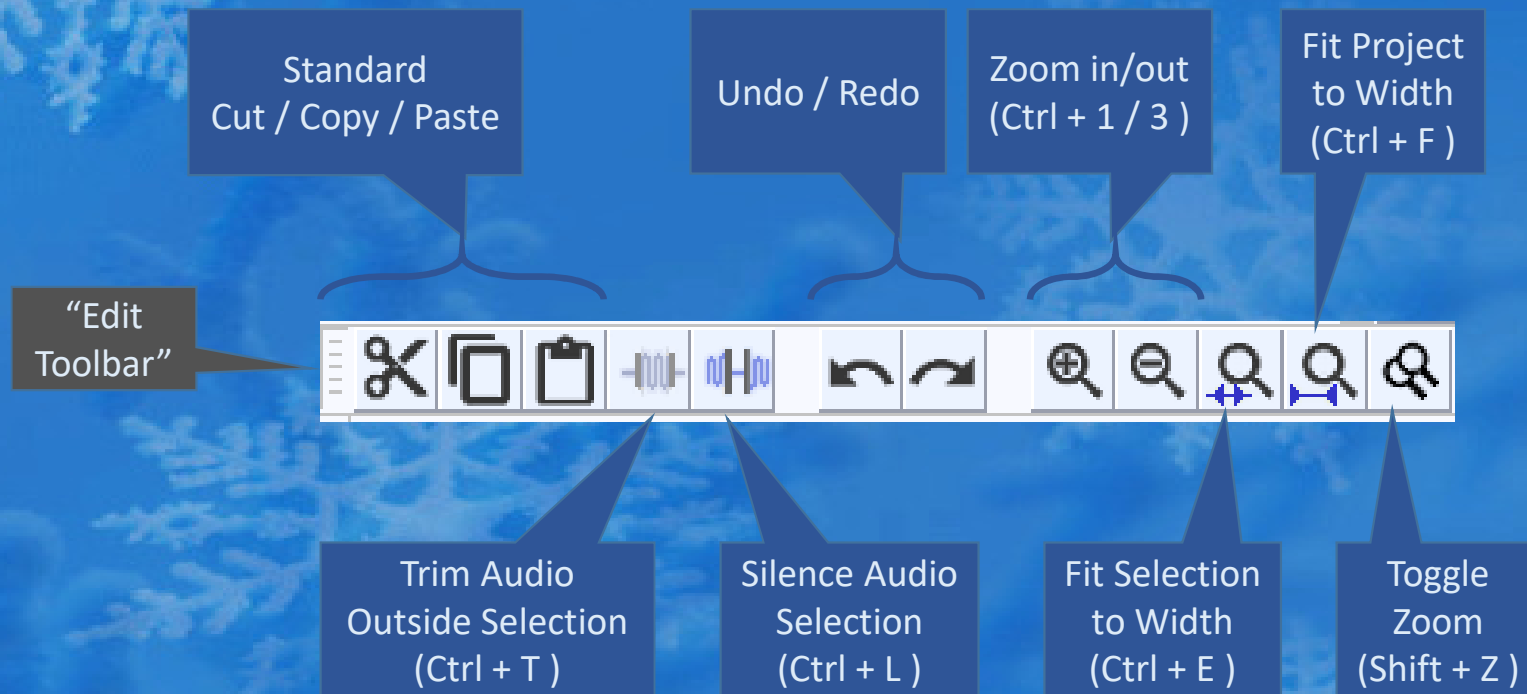


“Play at
Speed”

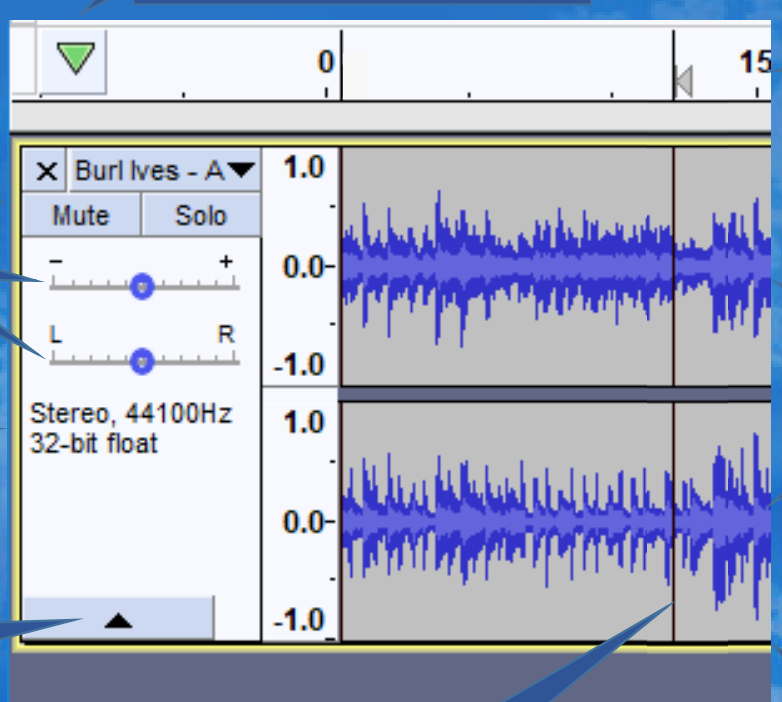
“Playback
Speed”

“Mixer Toolbar”

Audacity Toolbars



Audacity Tracks (1 Row per Track)



The screenshot shows the Audacity interface with a single track named "Burl Ives - A". The track is highlighted with a yellow border. The interface includes a timeline at the top, track controls on the left, and a waveform display on the right. Callouts point to various elements:

- Audio On/Off for the track:** Points to the green triangle icon in the top left of the track.
- Click to Pin / Unpin cursor scrolling during Playback:** Points to the pin icon in the top left of the track.
- Track Gain & Pan Controls:** Points to the volume and pan sliders.
- Track Technical Information:** Points to the text "Stereo, 44100Hz 32-bit float".
- Expand / Reduce Track Display:** Points to the expand/reduce icon at the bottom left of the track.
- Timeline:** Points to the top timeline bar.
- Track Audio Signal Level (Left & Right):** Points to the waveform display.
- Yellow Border shows currently selected row:** Points to the yellow border around the track.
- Cursor position:** Points to the cursor icon at the bottom of the track.

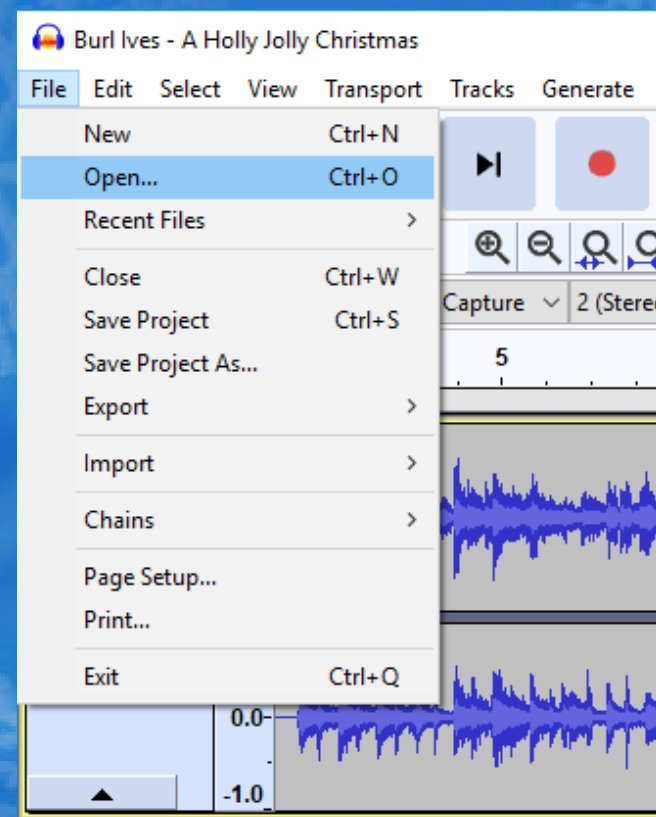
How to Open an Existing File

Method 1

- From the Menu, select “FILE”
- Then ‘Open’
 - This opens the standard dialog box where you can navigate and select the desired file.

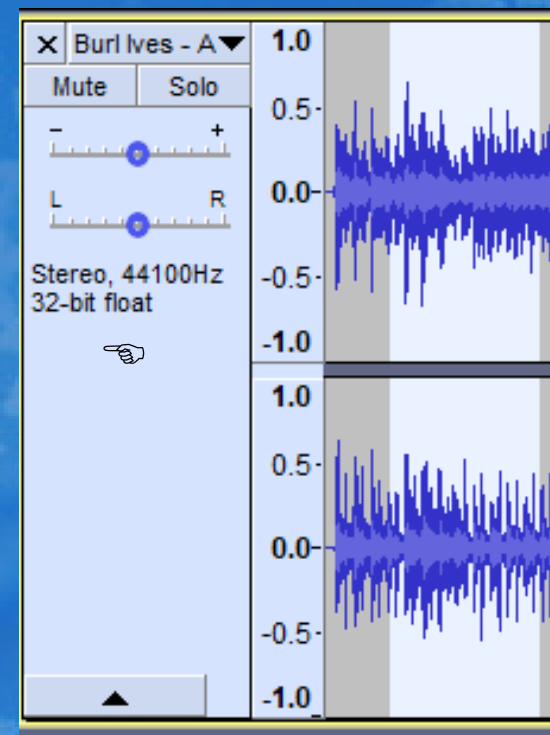
Method 2

- Open Audacity
- Open the folder containing the audio file
- Drag & Drop the file into the Track section of the window
 - (It will indicate “Move” but it will open the file, not move it)



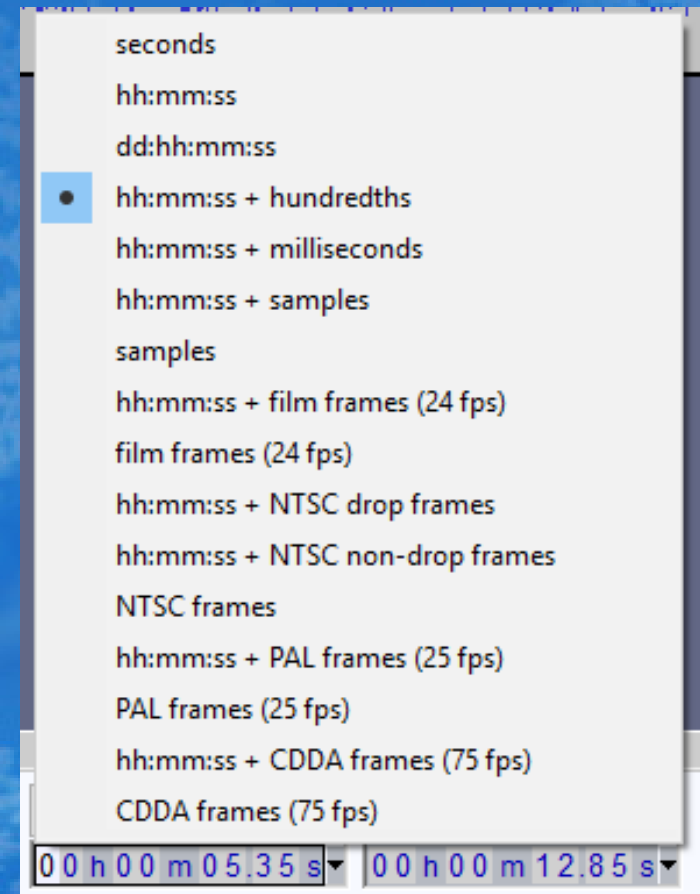
How to Mark a Selected Area (#1)

- Place the cursor at the desired starting point
- Left-Click and move mouse to the desired end point
 - Once selected, the end points can be adjusted using the pointer tool
 - Zoom in on waveform for finer resolution and accuracy
- Selection will include both the left & right channels for stereo tracks



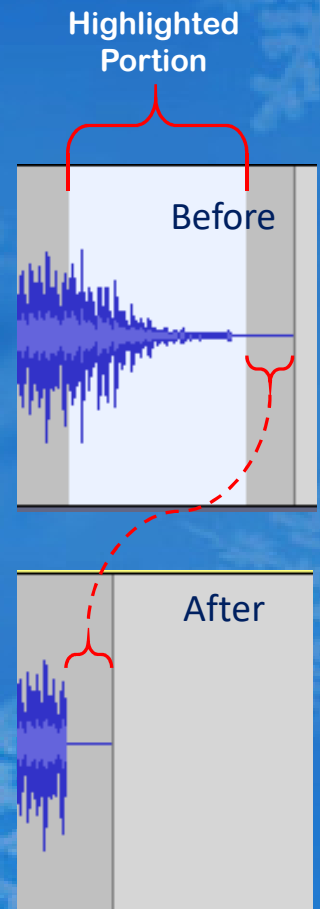
How to Mark a Selected Area (#2)

- If you know the precise times, you can use the 'Selection Toolbar'
- Use the ▼ to change the format for the current selection block
- Enter the desired starting and ending time



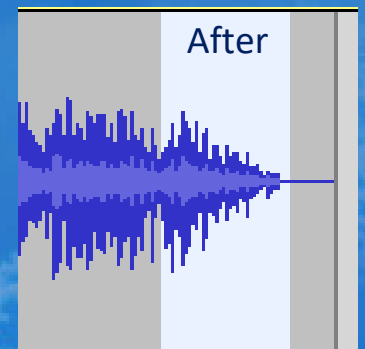
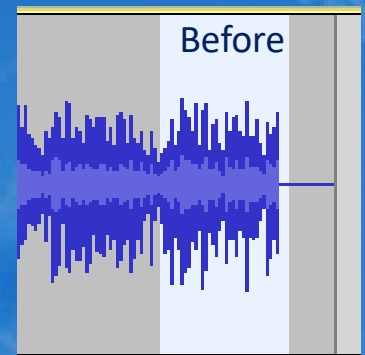
How to Delete a Section or Trim a File

- Select the area no longer wanted
 - Either a section of the file, or from a point to the end of the file
 - After initial selection, zoom in to adjust and fine-tune the selection points
- Press 'DEL'
 - The selected portion will be removed
 - Anything to the right will be moved up against the starting point
- Trimming will create a hard 'cut'
 - Can be effective in some situations, but it is rarely pleasing
- For a better option, add a fade-out ...



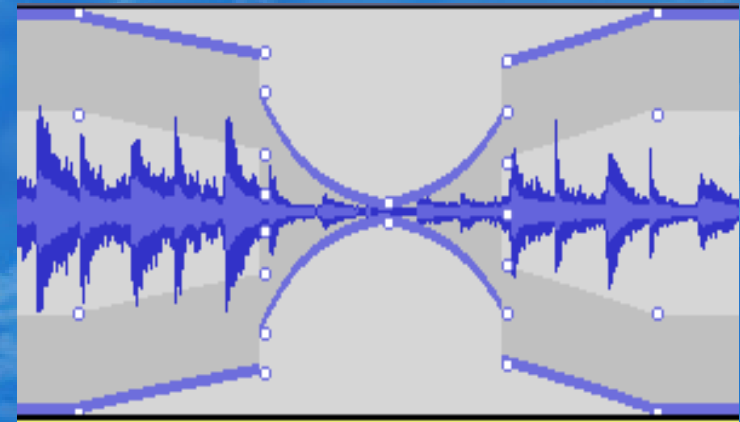
How to Fade Audio (Option #1)

- Select the area to fade
 - The selected area will define the fade time
- From the Menu bar, select “Effects”
 - From the detailed menu, select the effect you want to apply
 - In this case, select “Fade Out”
 - Selecting “Fade Out” again will further fade the audio track
 - Adjusting the fade will require you to undo the effect and repeat with a new selected region
- For more control, use option #2 ...



How to Fade Audio (Option #2)

- From the “Tools Toolbar,” select the Envelope Tool (or press F2)
- Click in the track to create an envelope ‘point’
 - The selection will change the envelope size from that point to the adjacent point or to either end of the track
 - To keep the original envelope size up to that point, set the point at the track edge
- Add additional points and click & drag points to create the desired envelope shape
 - To erase a point, click & drag it outside the track envelope





How to Crossfade Audio

- “Cross fading” is the term we use for making a smooth transition between different sound tracks
 - This can also be transitioning between portions of the same audio file, smoothly cutting out the middle segment
- The basic steps involved in a smooth crossfade are:
 1. Determining where to transition
 2. Overlapping the audio tracks
 3. Aligning the two audio tracks
 4. Making the transition
 5. Test & Repeat as necessary until happy



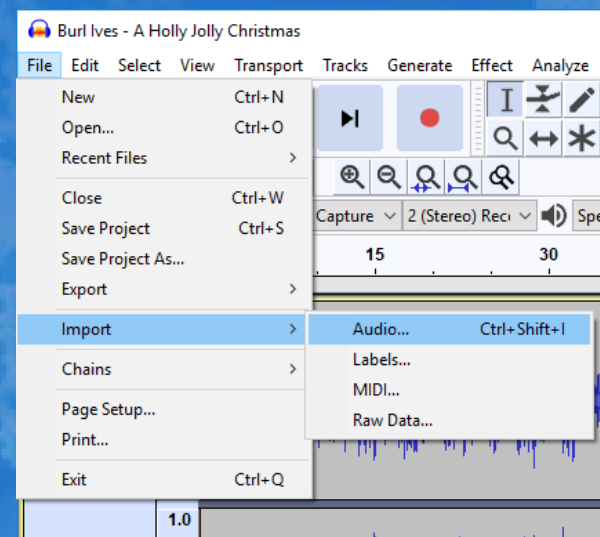
How to Crossfade Audio

Determining Where to Transition

- This can be as much an art as it is a science
 - It may take more than one attempt to make a satisfactory mix
 - After a few projects, you'll start to find the approach that works best for you
- Music with similar rhythms transition best
 - Transitioning between radically different beats can be jarring
 - But it can be effective if that is the effect you are trying to achieve
- Try to pick a 'natural' crossover between the tracks
 - Listen for verse/chorus changes
 - Listen for complete measures
- These points make for smoother transitions

How to Crossfade Audio Overlapping the Audio Tracks

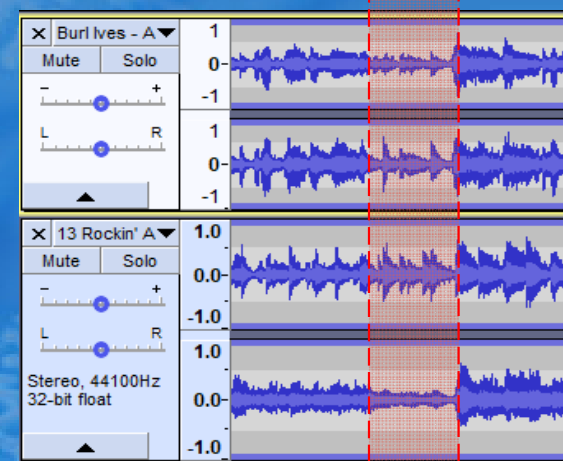
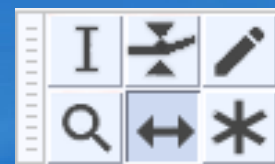
- From the Menu, select “FILE”
- Select ‘**Import**’, then ‘Audio’
 - This opens the standard dialog box where you can navigate and select the desired file.
 - *Do not select the ‘Open’ option*
- Drag & Drop works as well
 - Drop the file below the existing track and it will be added as a second (or third, etc.) track
- This adds the selection into a new track in the display area
 - This can be the same or a different file than the first track
 - Each track is treated independently, even if from the same file
 - During playback you will hear ALL enabled tracks



How to Crossfade Audio

Aligning the Two Audio Tracks

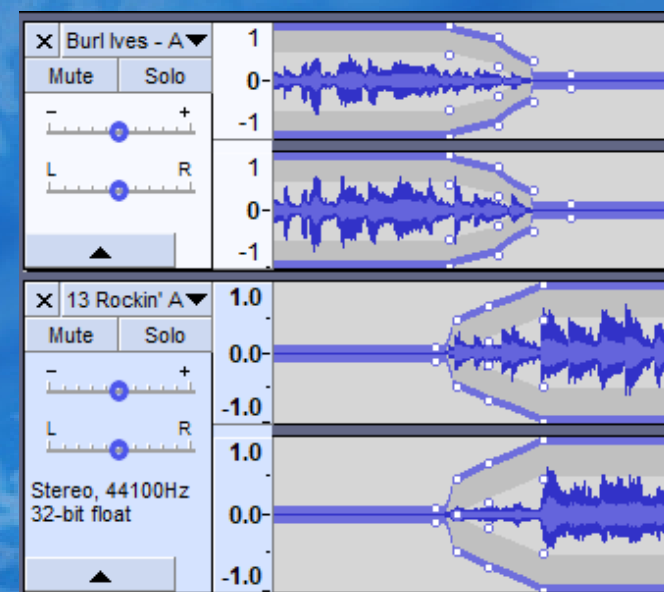
- If desired, trim the excess from the new audio track
 - Keep the desired portion plus enough lead/tail to make a smooth transition
- From the “Tools Toolbar”, select the Time Shift Tool (or press F3)
- Use the cursor to drag and align the second track to the first
 - Use the track mute/solo buttons to listen to a single track
 - When listening to/viewing both tracks try to align the beats, especially in the intended area of transition
- If the Beats per Minute are different you will not be able to align the entire track, but you want to keep it close in the area of the transition
 - When picking a transition point, try to pay attention to measures along with the beats
 - Full measures make smoother transitions



Desired transition area

How to Crossfade Audio Making the Transition

- Automatic
 - Use the cursor to select the transition 'zone'
 - Be sure to select both tracks with your cursor
 - From the menu, select 'Effects', then 'Crossfade Tracks'
 - Select 'OK'
 - Note that this will not alter any audio outside of the selected area, you must still do that
- Manual
 - For each track, use the Fade In and Fade Out Effects or use the Envelope Tool as before to control when and how much to fade





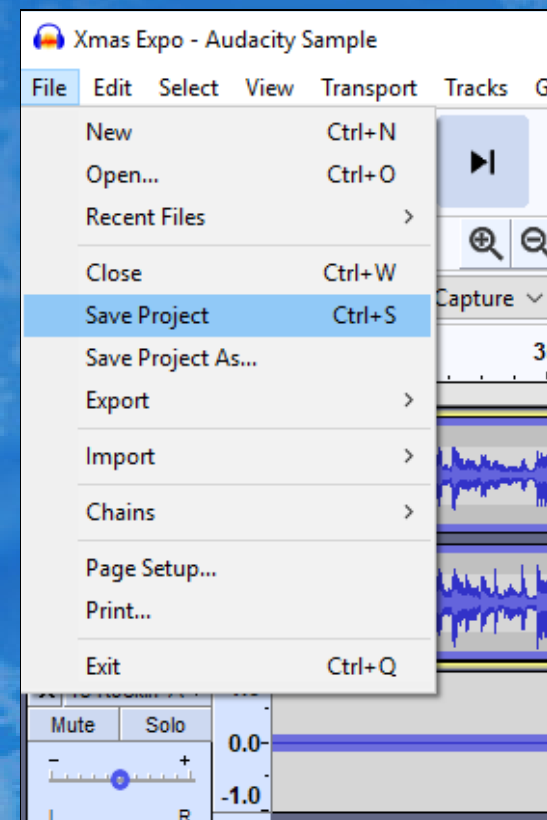
How to Crossfade Audio

Test & Repeat as Necessary Until Happy

- Playback and listen to the transition you created
- Make small adjustments/tweaks/changes as necessary
- Repeat until you are happy
- Not every attempt will work out on the first try
 - Don't be afraid to undo and start over
 - Sometimes making a slight variation in the approach can make a big difference in how it sounds

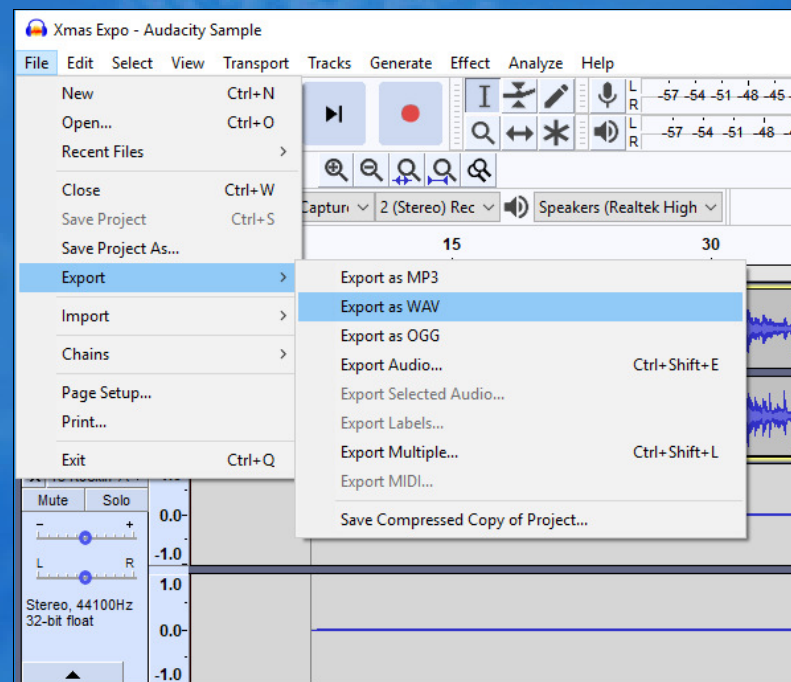
How to Save a Project

- From the Menu, select “FILE”
- Then ‘Save Project’
 - This opens the standard dialog box where you can navigate folders and define the desired filename
- This will save the project, including all tracks, timings, and adjustments made
 - This is necessary if you ever want to make changes to the finished product without starting over



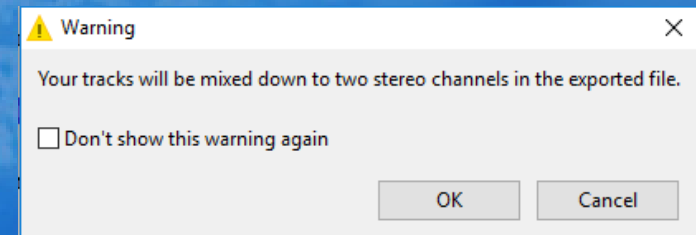
How to Create an Audio File

- From the Menu, select “FILE”
- Then select ‘Export’ and ‘Export as WAV’
 - This will open a new dialog box where you can specify the directory and file name



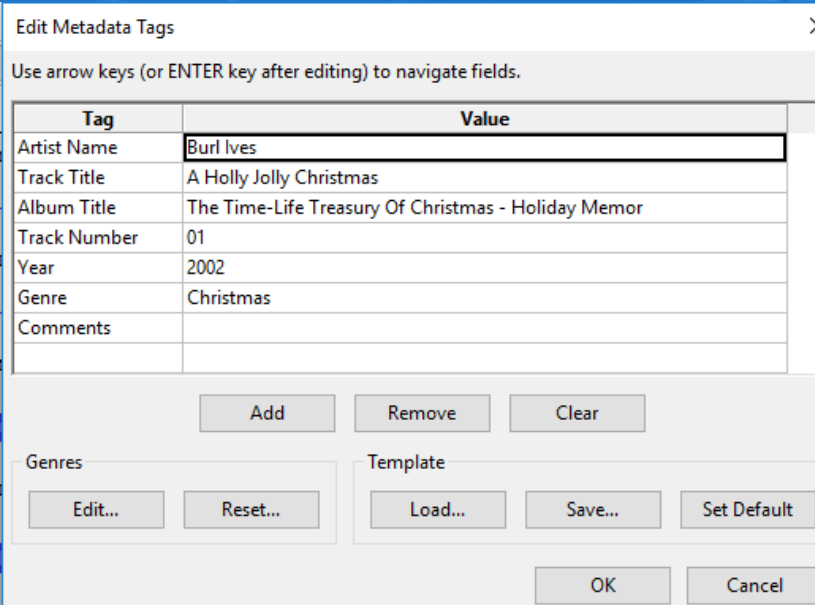
How to Create an Audio File (page 2)

- After selecting the file name, an initial warning may appear that the tracks will be mixed into two stereo channels in the exported file
 - You can acknowledge, as this is the desired result
 - You can also choose to prevent this warning in the future



How to Create an Audio File (page 3)

- This will be followed by a dialog box which allows you to edit/change the Metadata for the resulting file
 - Once updated, select 'OK'
- Audacity will now generate the selected audio file



Edit Metadata Tags

Use arrow keys (or ENTER key after editing) to navigate fields.

Tag	Value
Artist Name	Burl Ives
Track Title	A Holly Jolly Christmas
Album Title	The Time-Life Treasury Of Christmas - Holiday Memor
Track Number	01
Year	2002
Genre	Christmas
Comments	

Add Remove Clear

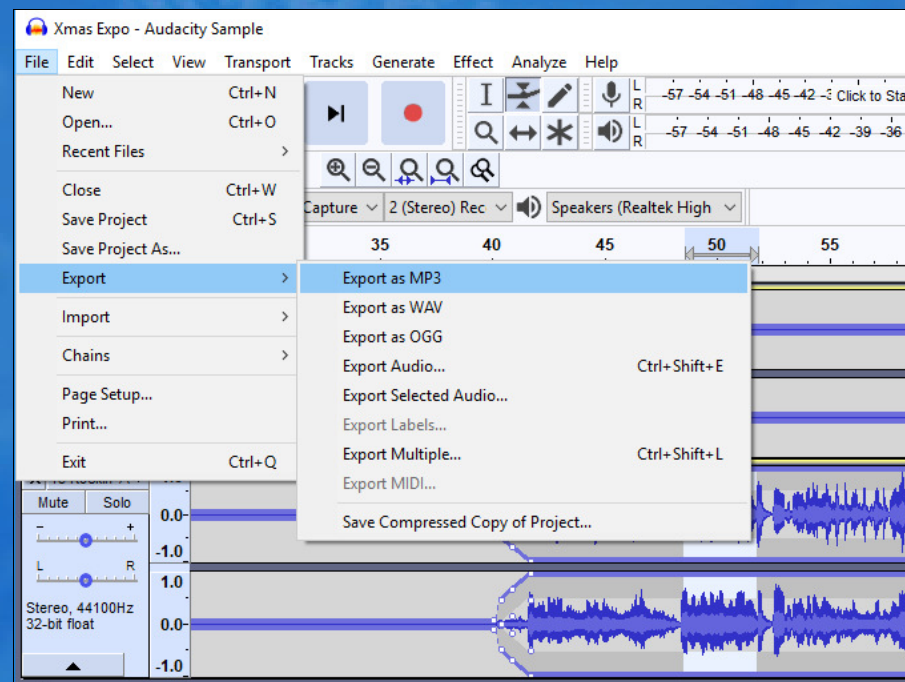
Genres Edit... Reset...

Template Load... Save... Set Default

OK Cancel

How to Create an MP3 Audio File

- This is very similar, but with a few extra steps
- From the Menu, select “FILE”
- Then select ‘Export’ and ‘Export as MP3’
 - This will open a new dialog box where you can specify the MP3 properties and file name



How to Create an MP3 Audio File (page 2)

- The top half of the dialog box will be the same file menu structure and naming options we saw from the WAV example
- The lower portion of the dialog box will allow you to select different options and quality levels for your compressed file
 - Strongly recommend that you use the following settings:
 - 'Constant Bit Rate' & '128 kbps'

Format Options

Bit Rate Mode: ☐ Preset ☐ Variable ☐ Average ☒ Constant

Quality:

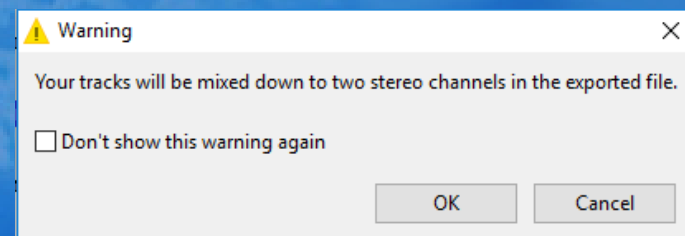
Variable Speed:

Channel Mode: ☐ Joint Stereo ☒ Stereo ☐ Force export to mono



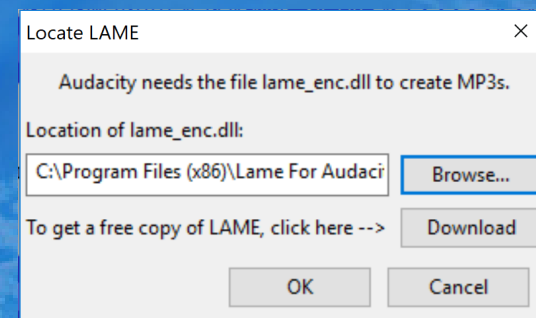
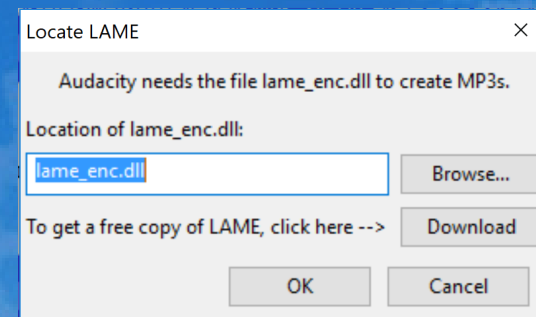
How to Create an MP3 Audio File (page 3)

- After selecting the file name, the same warning may appear that the tracks will be mixed into two stereo channels in the exported file
 - You can acknowledge, as this is the desired result
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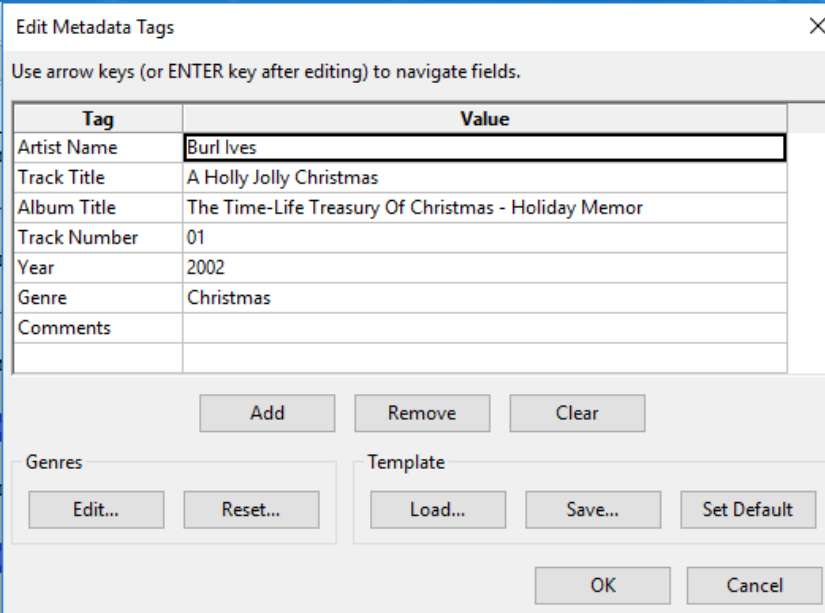
How to Create an MP3 Audio File (page 4)

- If this is the first time exporting an MP3 file, you will need to tell Audacity where to find a copy of the LAME MP3 encoder
 - Because of software patents, Audacity cannot include MP3 encoding software or distribute such software from its own websites
 - Instead, they provide detailed instructions on how to download and install a free and recommended LAME third-party encoder
- If not already downloaded, select the 'Download' button and follow the Audacity instructions
 - Make note of, but do not change, the folder name where the software will be installed
- Once downloaded, select 'Browse...' and choose the newly installed folder



How to Create an MP3 Audio File (page 5)

- This will be followed by the dialog box allowing you to edit/change the Metadata for the resulting file
 - Once updated, select 'OK'
- Audacity will now generate the selected audio file



Edit Metadata Tags

Use arrow keys (or ENTER key after editing) to navigate fields.

Tag	Value
Artist Name	Burl Ives
Track Title	A Holly Jolly Christmas
Album Title	The Time-Life Treasury Of Christmas - Holiday Memor
Track Number	01
Year	2002
Genre	Christmas
Comments	

Add Remove Clear

Genres Edit... Reset...

Template Load... Save... Set Default

OK Cancel

FINAL EXAM !!!!

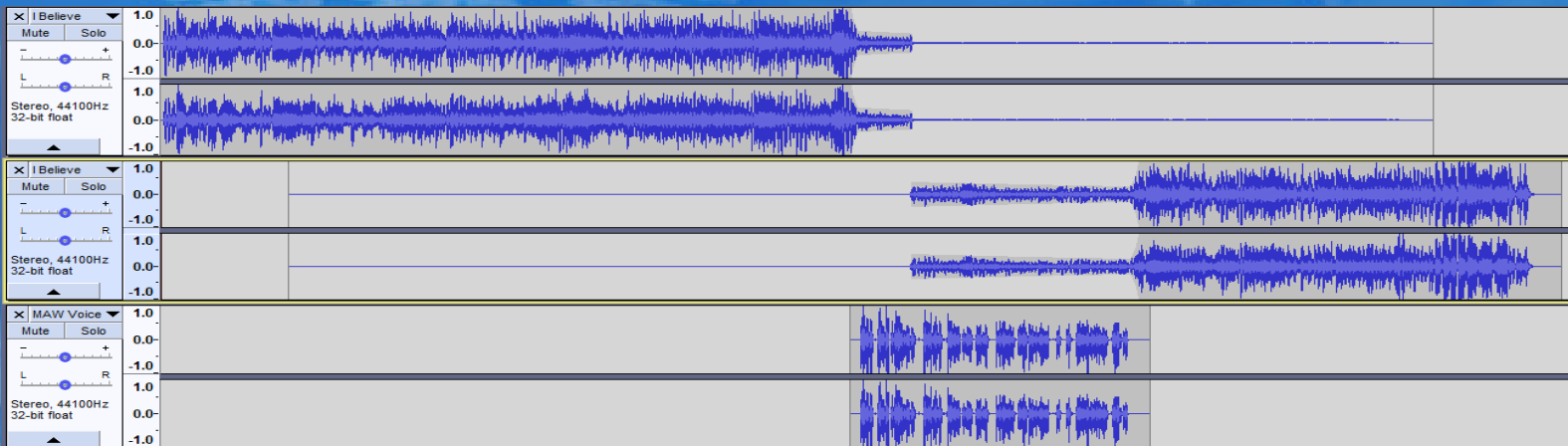


- You are working with a song that has a repetitive instrumental break lasting 28 seconds ...
- You want to record and insert a charity promotion over the instrumental section, but practice with the script indicates it's definitely going to be longer than 35 seconds ...
- Using what you've learned here, how would you accomplish this using Audacity?

FINAL EXAM answer



1. Use audacity with your computer or other microphone to record & save your announcement, noting final duration
2. Edit the song, repeating the instrumental portion with sufficient duration for the announcement
3. Import the announcement audio file and position it at the appropriate portion of the project
4. Use the envelope controls to reduce the instrumental volume during the announcement





Finding Help

- When you open the application for the first time, there's a dialog window named "*How to Get Help*"
 - The first two links "Quick Help" and "Manual" point respectively to the "Getting Started" section and the front page of the Manual
- You can access the online version of the Manual
<http://manual.audacityteam.org/>
- The Manual is installed if you get the Windows Installer or Mac DMG file, so no internet connection is needed
 - If you download the ZIP or the source code, you can still download and install the Manual
http://manual.audacityteam.org/man/unzipping_the_manual.html

The manual also includes
tutorials on many specific subjects

Thank you for participating



- You can download this presentation from the 'Expo 2018' link on the 'How To' page of my website:

www.obewanproductions.com