

# Introduction to Audacity

By

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Presented at  
Christmas Expo 2019



# 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 including:
  - 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)





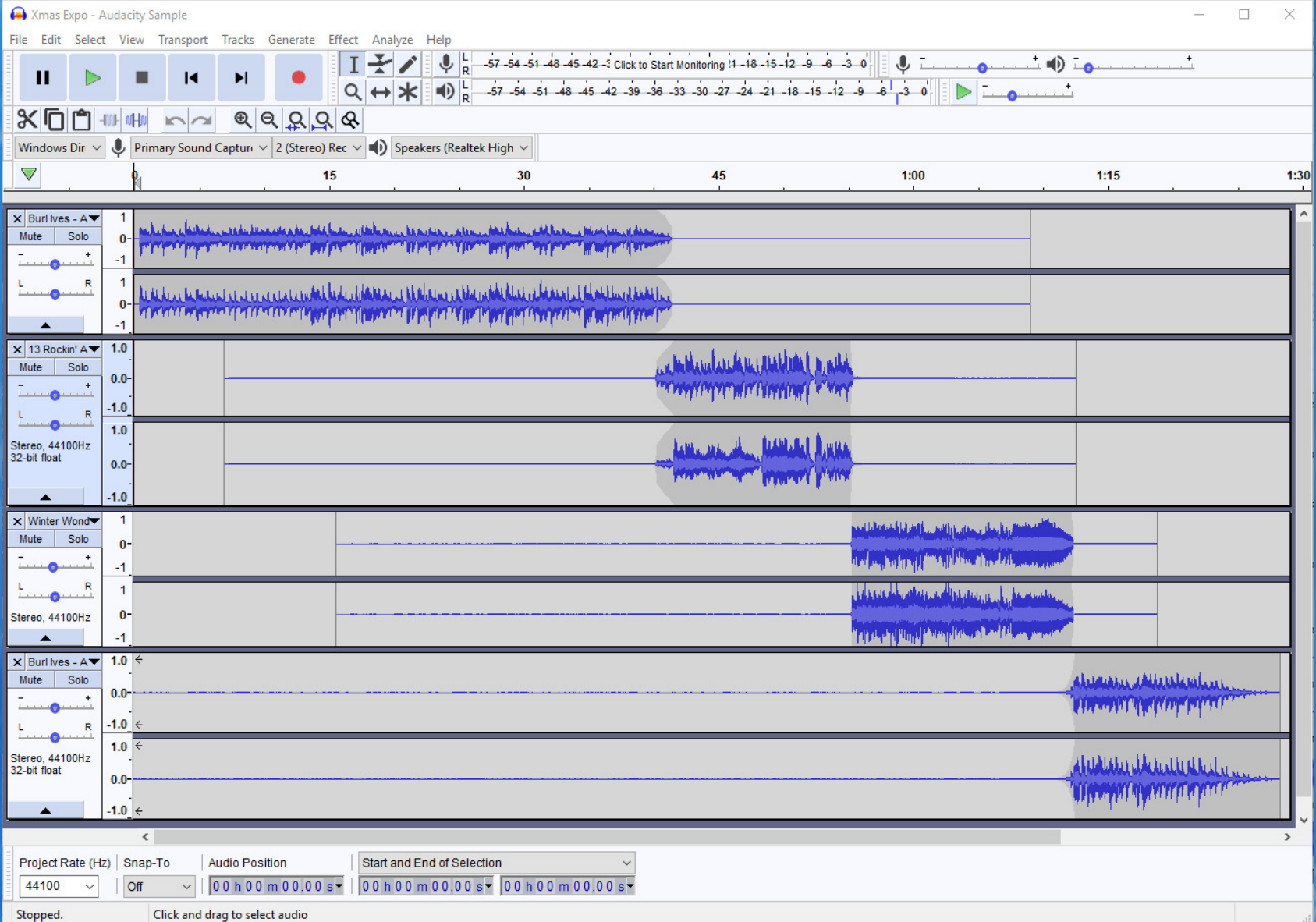
# What Can You Do With Audacity?

- 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 of the basic 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?







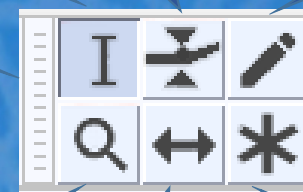
# Audacity Toolbars

“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

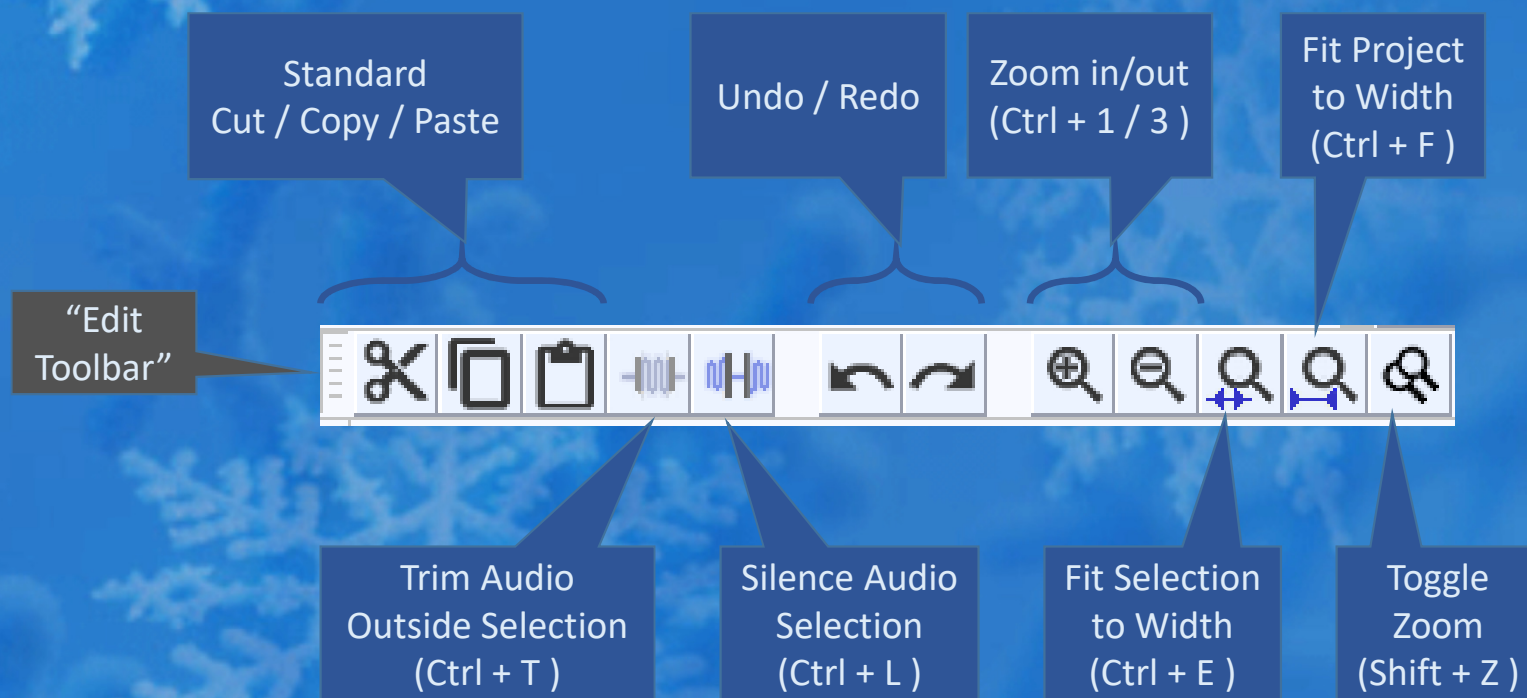


“Play at  
Speed”

“Playback  
Speed”

“Mixer Toolbar”

# Audacity Toolbars

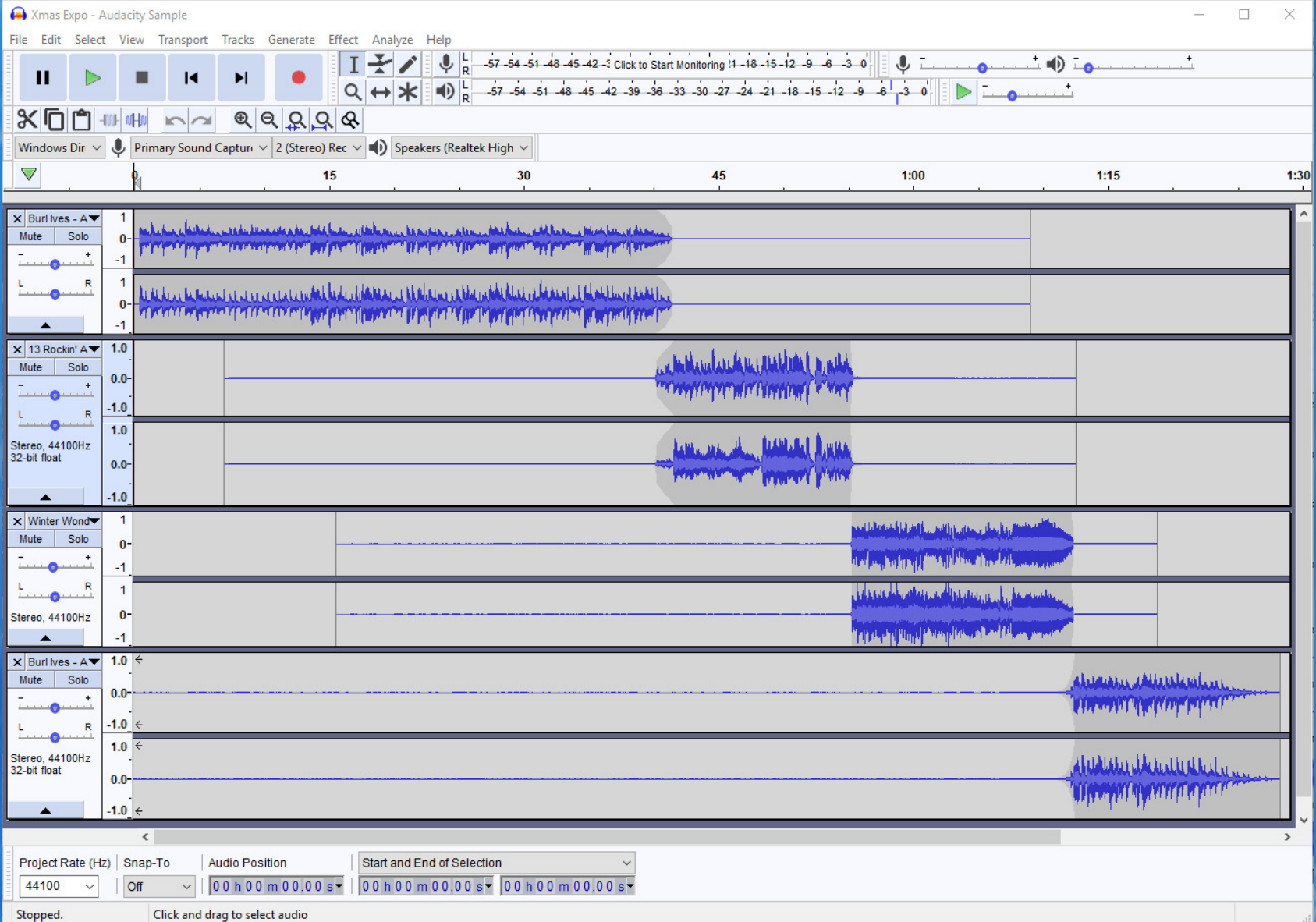




# Tracks and Clips

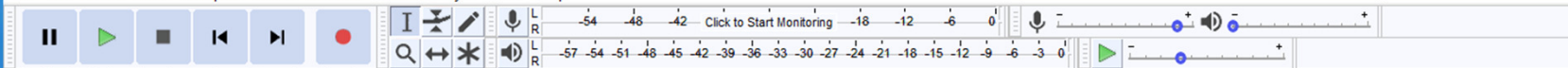
- A project can have multiple audio sources which will be mixed together to make final audio product
- Each source is generally imported into a “Track”, which can be individually manipulated
  - Tracks are most often one unbroken section of audio source material
  - The entire track can be moved in time, volume adjusted, etc., as a whole item
- A “Clip” is a separate section of material within a track which can be manipulated somewhat independently
  - Clips still share many of the master properties of the track, such as the sample rate, overall volume, etc.
  - However, clips cannot overlap other clips in the same track



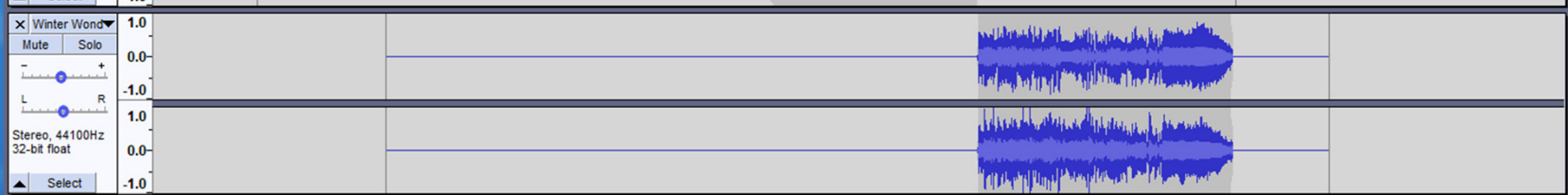
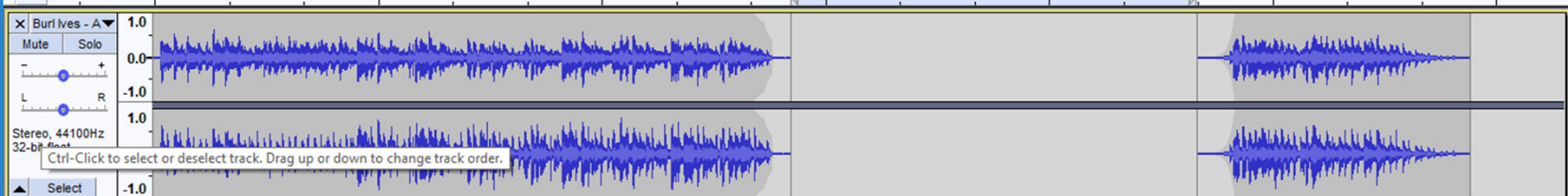
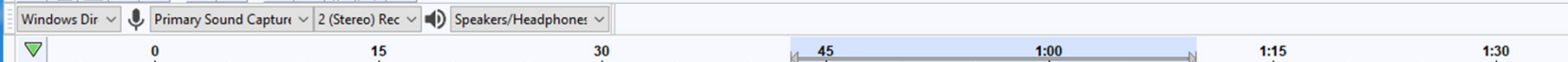


Xmas Expo - Audacity Sample

File Edit Select View Transport Tracks Generate Effect Analyze Tools Help



Windows Dir Primary Sound Capture 2 (Stereo) Rec Speakers/Headphones



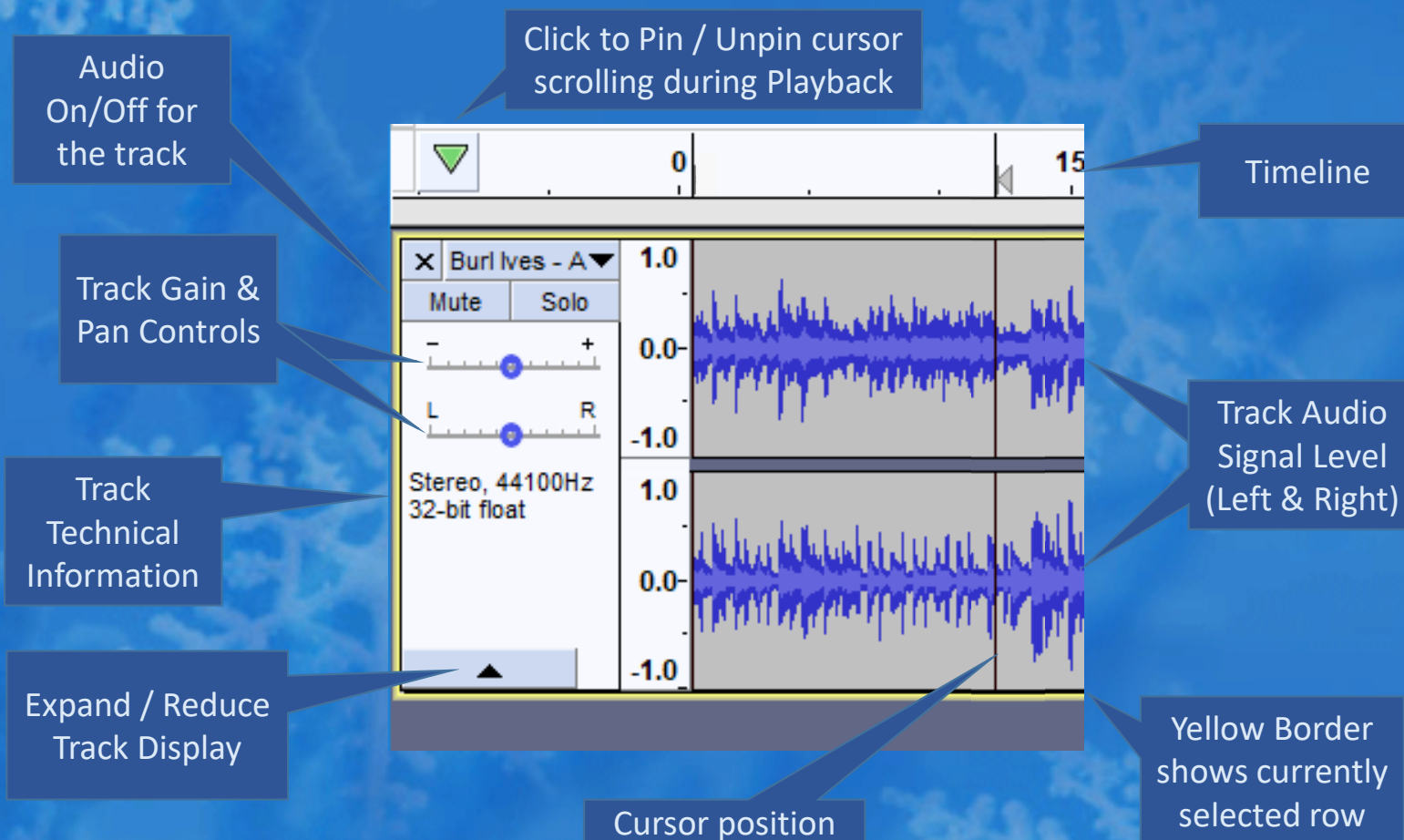
Project Rate (Hz) Snap-To Audio Position Start and End of Selection  
44100 Off 00h00m42.74s 00h00m42.74s 00h01m10.07s

Stopped. Ctrl-Click to select or deselect track. Drag up or down to change track order.





# Audacity Tracks (1 Row per Track)



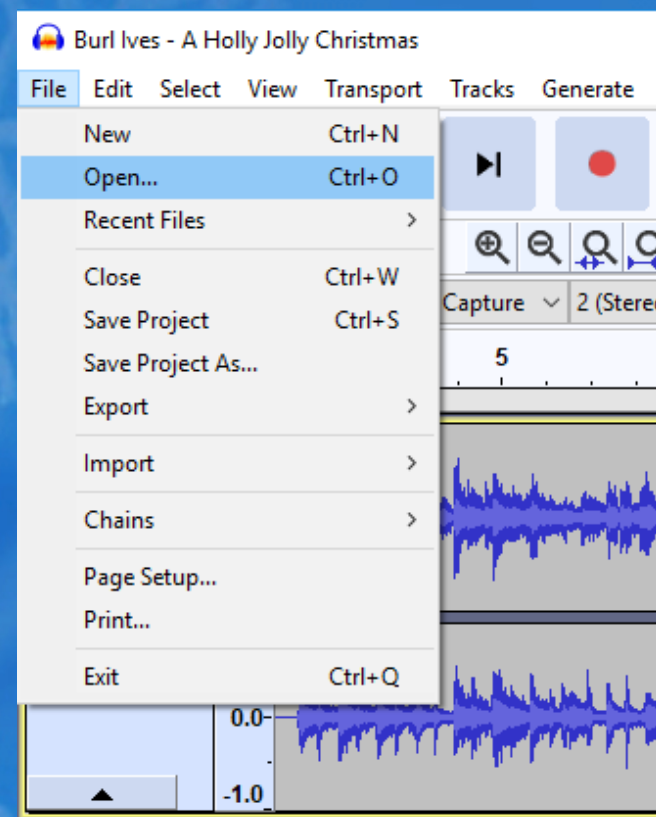
# How to Open an Existing File

## 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

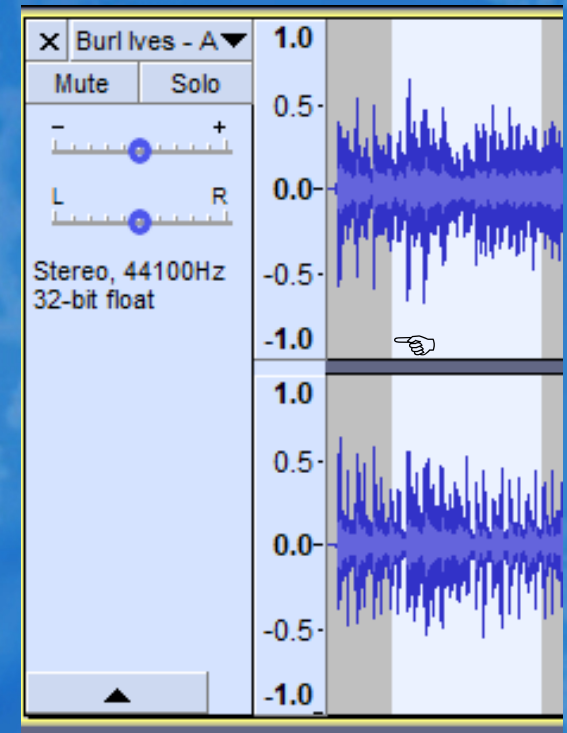
- Open Audacity
- Open the folder containing the audio file
- Drag & Drop the file into the Track section of the window
  - (It will indicate “Move” but it will open the file, not move it)





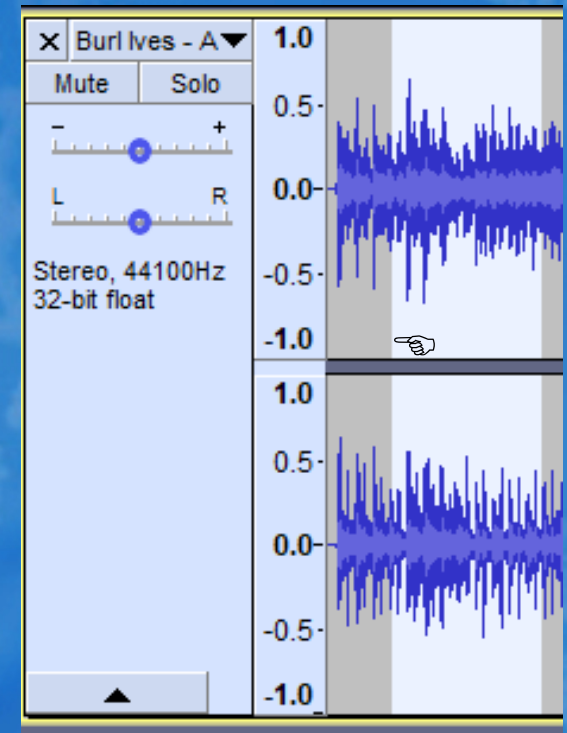
# How to Select an Area (#1)

- Choose the “Selection Tool” (F1)
- Place the cursor at the desired starting point
- Left-Click and move mouse to the desired end point & release the mouse button
  - 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
- Dragging the mouse down through multiple tracks will select the time span across all involved tracks



## How to Select an Area (#2)

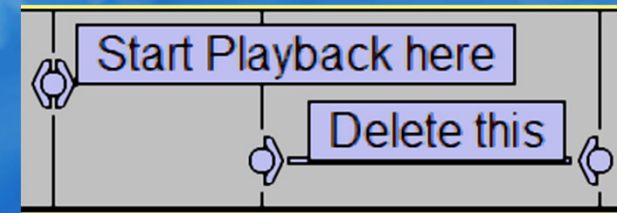
- Choose the “Selection Tool” (F1)
- Select the track(s) to be marked (or all)
- Begin Playback of the audio
  - Either select the Play button or press the Spacebar
- To start selecting an area, press the “[” key
  - A temporary marker will be shown
- To select the end of an area, press the “]” key
- The area between the “[” and “]” on the active track will now be selected





# Using Track Markers (Labels)

- ‘Labels’ are tools for placing text annotations and notes at specific locations on the timeline
  - These labels apply to the project, not to a specific track
- We can take advantage of these to mark temporary points where we want to come back and do work at a later time
  - When selecting regions in the future, selections will tend to ‘snap’ to these markers if they are in close proximity
- Markers can either be a single point or a region
  - A single point is a region with zero length
- Markers can be adjusted by:
  - Grabbing the endpoint circle moves the region in time
  - Grabbing either bracket moves just the endpoint in time



# How to Add a Track Marker

- Select an area as before
- Press 'Ctrl + B' to add a marker
  - A 'Label Track' will be added to the project
  - The selected area will have a label added with a blank name
  - You can change the label name as desired or leave blank

or

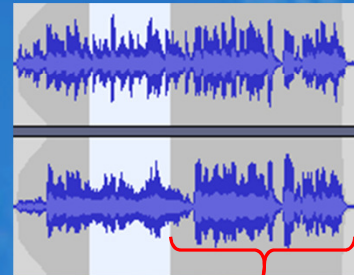
- During Playback, press 'Ctrl + M' to add a marker



# How to Delete a Section or Trim a File

- Select the area no longer wanted
  - Either a section of the track, or from a point to the end of the track
  - After initial selection, zoom in to adjust and fine-tune the selection points
- To 'delete' the selection, press 'DEL' or 'Ctrl + K'
  - The selected portion will be removed
  - Everything to the right will be moved to close the gap
- To 'split delete' the selection, press 'Ctrl + Alt + K'
  - The selected portion will be removed
  - Everything to the right will remain in place
- These will both create a hard 'cut'
- Can be effective in some situations, but it is rarely pleasing
- For a better option, add a fade-out ...

Before



After  
Delete



After  
Split  
Delete



# How to Fade Audio (Option #1)

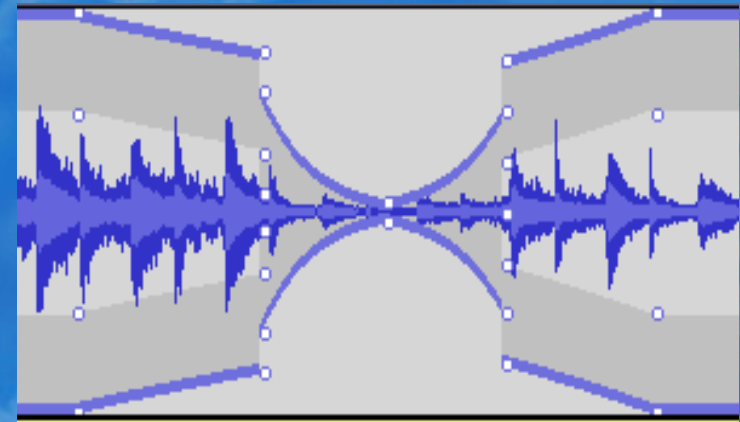
- Select the area to fade
  - The selected area will define the fade time
- From the Menu bar, select “Effects”
  - From the detailed menu, select the effect you want to apply
  - In this case, select “Fade Out”
  - Selecting “Fade Out” again will further fade the audio track
  - Adjusting the fade will 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





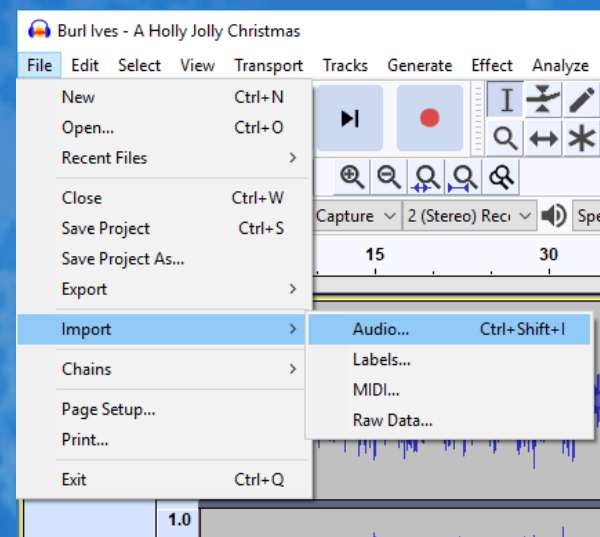
# How to Crossfade Audio

## 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

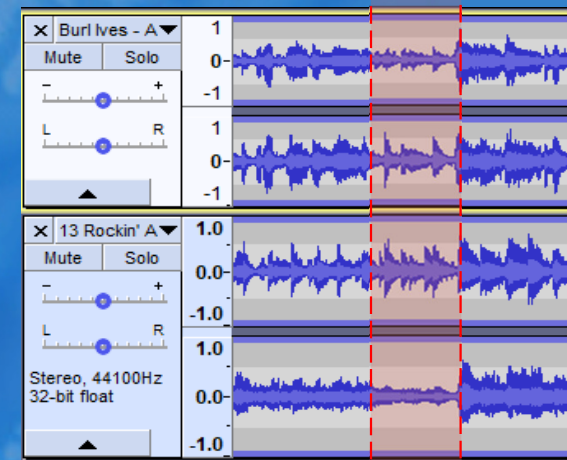
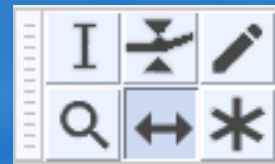




# How to Crossfade Audio

## Aligning the Two Audio Tracks

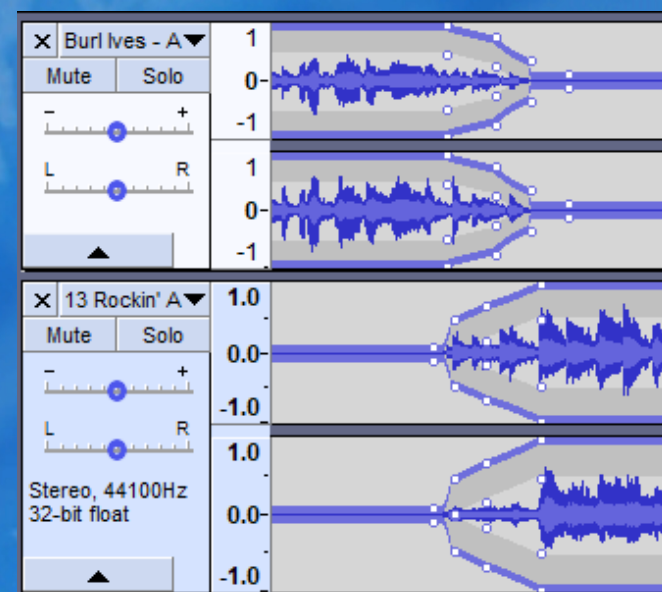
- If desired, trim the excess from the new audio track
  - Keep the desired portion plus enough lead/tail to make a smooth transition
- From the “Tools Toolbar”, select the Time Shift Tool (or press F3)
- Use the cursor to drag and align the second track to the first
  - Use the track mute/solo buttons 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







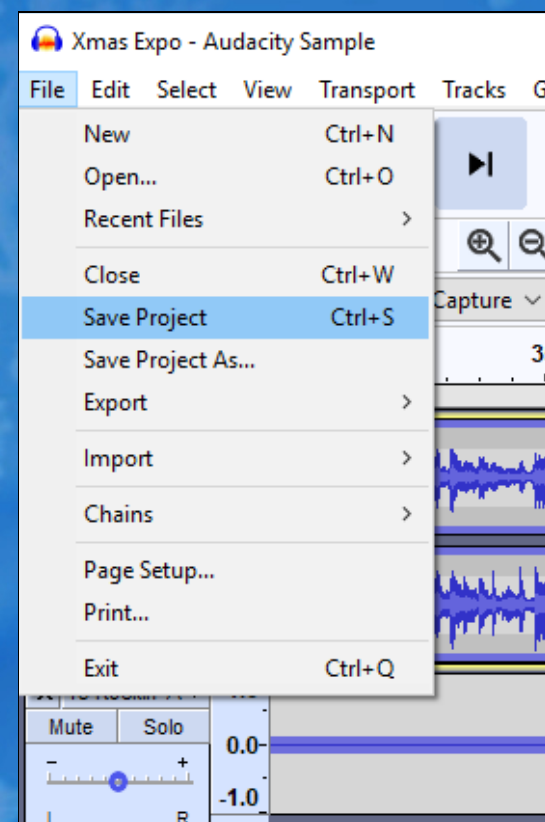
# How to Crossfade Audio

## 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

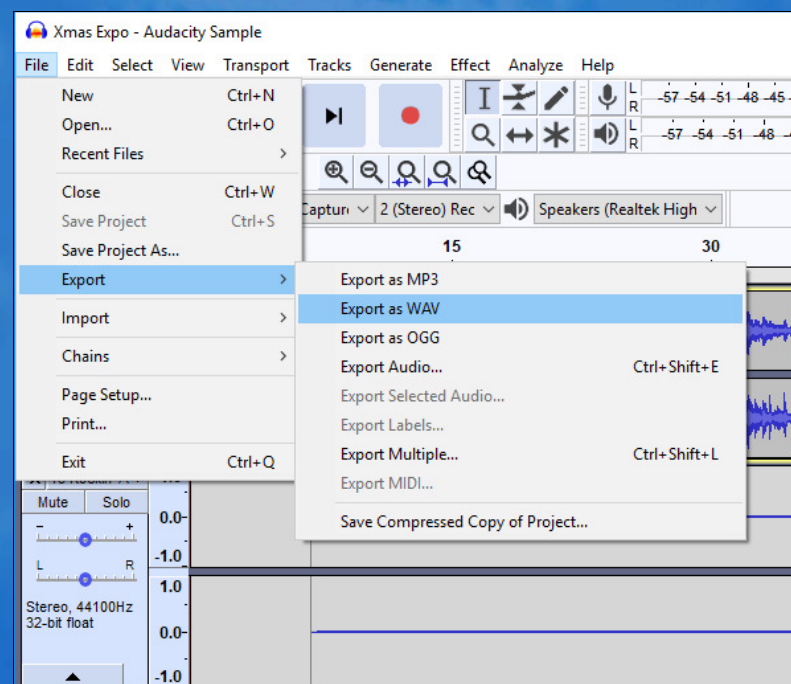
- From the Menu, select “FILE”
- Then ‘Save Project’
  - This opens the standard dialog box where you can navigate folders and define the desired filename
- This will save the project, including all tracks, timings, and adjustments made
  - This is necessary if you ever want to make changes to the finished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





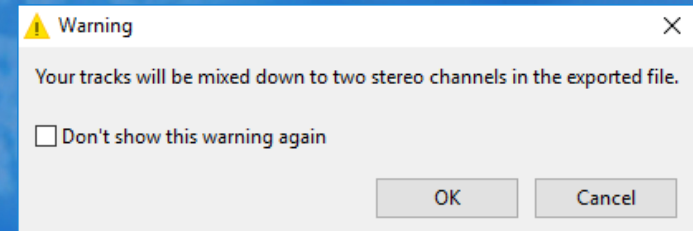
# How to Create an Audio File

- 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)

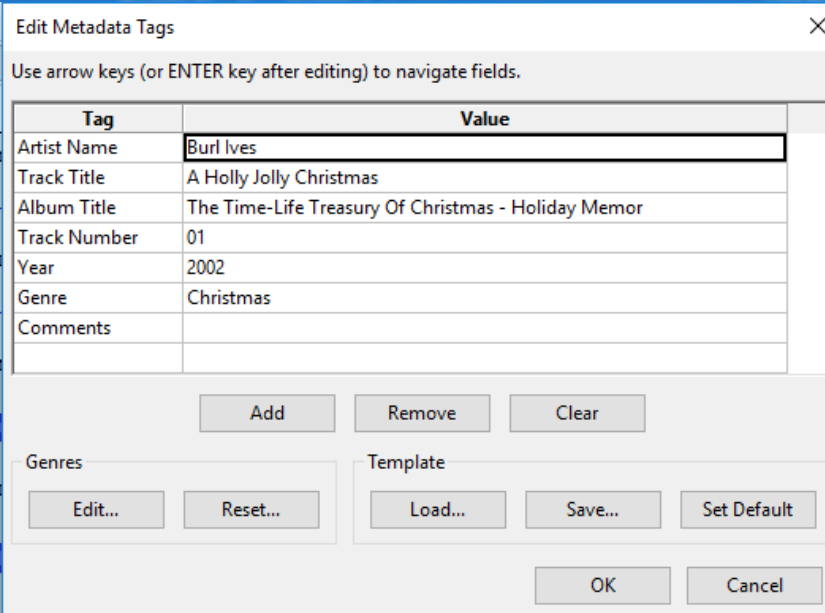
- After selecting the file name, an initial warning may appear that the tracks will be mixed into two stereo channels in the exported file
  - You can acknowledge, as this is the desired result
  - You can also choose to prevent this warning in the future





## 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

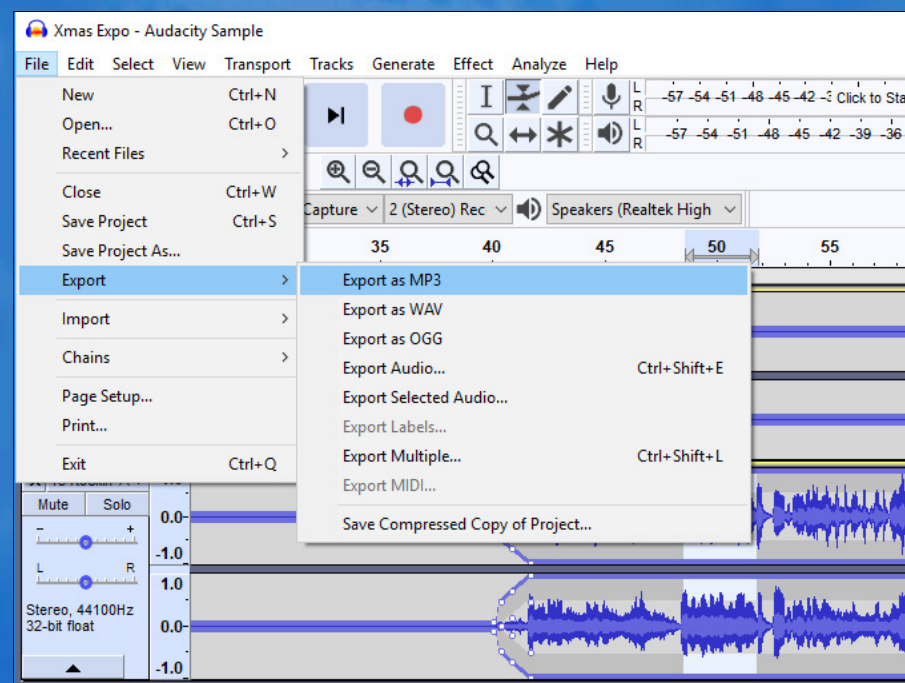
Genres: Edit... Reset...

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:

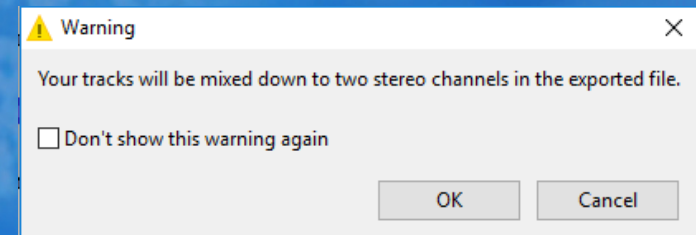
Variable Speed:

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



# How to Create an MP3 Audio File (page 3)

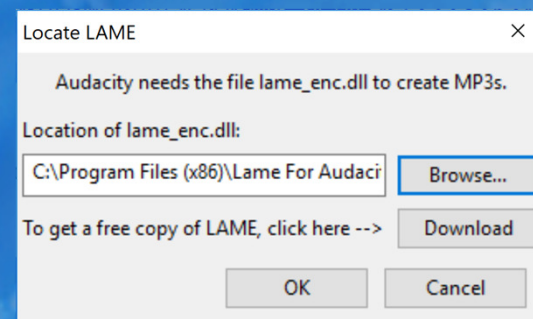
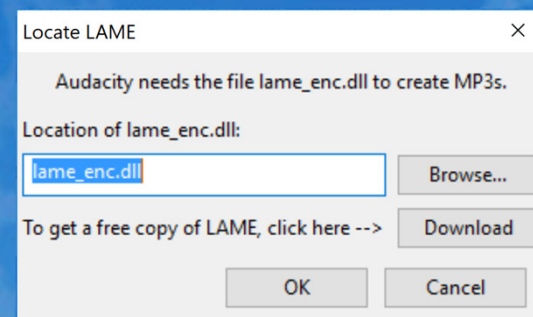
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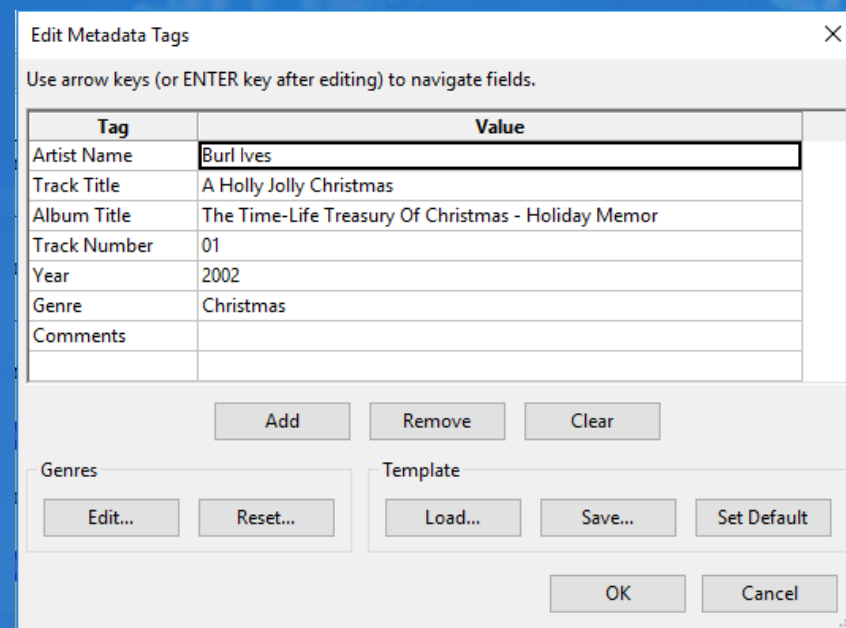
# How to Create an MP3 Audio File (page 4)

- 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
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Track Number	01
Year	2002
Genre	Christmas
Comments	

Add Remove Clear

Genres: Edit... Reset...

Template: Load... Save... Set Default

OK Cancel





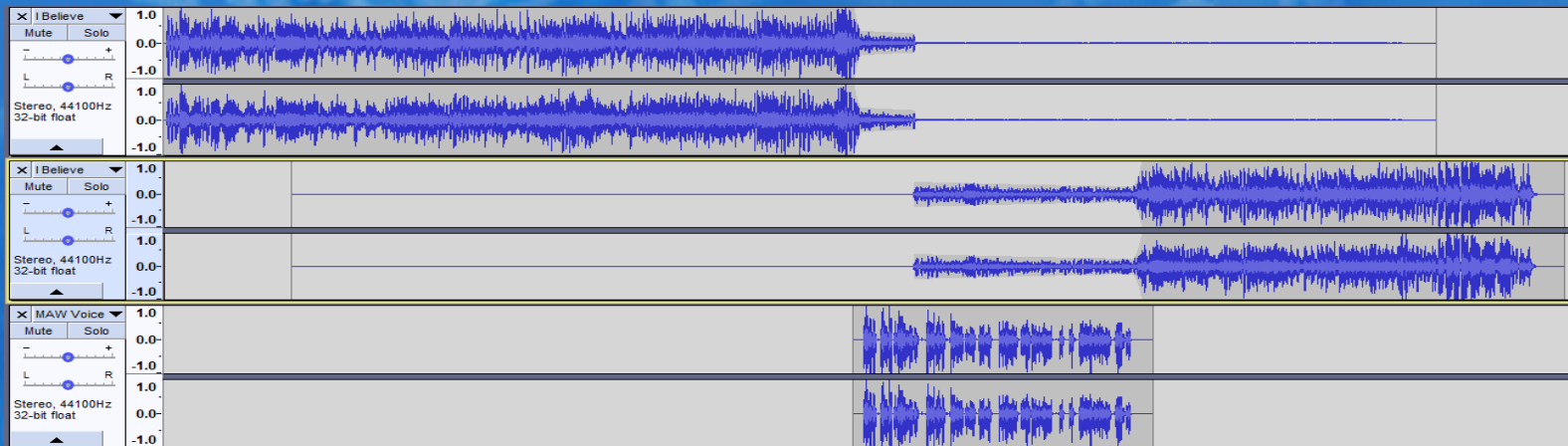
# FINAL EXAM !!!!

- 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
- 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/>

[http://manual.audacityteam.org/man/unzipping\\_the\\_manual.html](http://manual.audacityteam.org/man/unzipping_the_manual.html)

The manual also includes  
tutorials on many specific subjects

# Helpful Keyboard Shortcuts



## File:

New File	Ctrl + N
Open File	Ctrl + O
Close File	Ctrl + W
Save File	Ctrl + S
Exit Program	Ctrl + Q
Export Audio	Ctrl + Shift + E
Export Multiple	Ctrl + Shift + L
Import Audio	Ctrl + Shift + I

## Editing:

Duplicate	Ctrl + D
Split Cut	Ctrl + Alt + X
Delete	Ctrl + K
Split Delete	Ctrl + Alt + K
Silence Audio	Ctrl + L
Trim Audio	Ctrl + T
Undo	Ctrl + Z
Redo	Ctrl + Y

## Labels:

Add at Selection	Ctrl + B
Add at Playback	Ctrl + M
Copy	Alt + Shift + C
Split Cut	Alt + Shift + X
Split Delete	Alt + Shift + K
Detach at Silence	Alt + Shift + J

## Region Selection During Playback:

Left	[
Right	]

## Tool Selection:

Selection Tool	F1
Envelope Tool	F2
Draw Tool	F3
Zoom Tool	F4
Time Shift Tool	F5
Multi Tool	F6

## View:

Zoom In	Ctrl + 1
Zoom Normal	Ctrl + 2
Zoom Out	Ctrl + 3
Zoom Selection	Ctrl + E
Zoom Toggle	Shift + Z
Fit to Width	Ctrl + F
Fit to Height	Ctrl + Shift + F
Collapse Tracks	Ctrl + Shift + C
Expand Tracks	Ctrl + Shift + X

## Playback:

Play / Stop	Space
Loop Play	Shift + Space
Pause	P
Stop/Set Cursor	X
Mute All	Ctrl + U
Unmute All	Ctrl + Shift + U
Play 1 second	1
Play to Selection	B



# Thank you for participating



- You can download this presentation from the 'Expo 2019' link on the 'How To' page of my website:

[www.obewanproductions.com](http://www.obewanproductions.com)