# Audacity

A Free, Open Source, Cross-Platform Audio Editor
Version 1.2.4

This is the online help for Audacity. It is meant to be a quick reference, not a complete manual. There is also a complete manual available online. For downloadable versions of the manual, see our documentation page.

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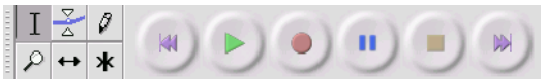
# Toolbars

### Control Toolbar



#### *Editing Tools*

*Selection tool* — for selecting the range of audio you want to edit or listen to.

*Envelope tool* — for changing the volume over time.

*Draw tool* — for modifying individual samples.

*Zoom tool* — for zooming in and out.

*Timeshift tool* — for sliding tracks left or right.

*Multi tool* — lets you access all of these tools at once depending on the location of the mouse and the keys you are holding down.

#### *Audio Control Buttons*

*Skip to Start* — moves the cursor to time 0. If you press Play at this point, your project will play from the beginning.

*Play* — starts playing audio at the cursor position. If some audio is selected, only the selection is played.

*Loop* — if you hold down the Shift key, the Play button changes to a Loop button, which lets you keep playing the selection over and over again.

*Record* — starts recording audio at the project sample rate (the sample rate in the lower-left corner of the window). The new track will begin at the current cursor position, so click the "Skip to Start" button first if you want the track to begin at time 0.

*Pause* — temporarily stops playback or recording until you press pause again.

*Stop* — stops recording or playing. You must do this before applying effects, saving or exporting.

*Skip to End* — moves the cursor to the end of the last track.

### Mixer Toolbar

The Mixer Toolbar has three controls, used to set the volume levels of your audio device and choose the input source. The leftmost slider controls the playback volume, the other slider controls the recording volume, and

the control on the right lets you choose the input source (such as "Microphone", "Line In", "Audio CD", etc.). Use the Record Level Meter to set the correct level.

Changing these controls has no effect on the audio data in your project — in other words it doesn't matter what the output volume level is when you Export or Save a project — the end result is the same.

### Edit Toolbar

All of the buttons on this toolbar perform actions — and with a couple of exceptions, they're all just shortcuts of existing menu items to save you time.

Holding the mouse over a tool will show a "tooltip" in case you forget which one is which.

*Cut*

*Copy*

*Paste*

*Trim away the audio outside the selection*

*Silence the selected audio*

*Undo*

*Redo* (repeat last command).

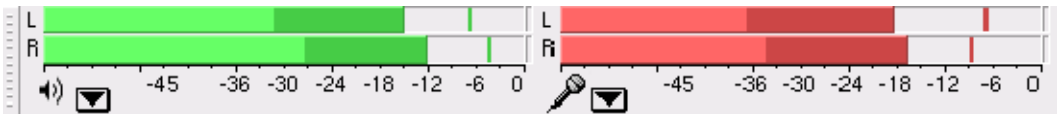
*Zoom In*

*Zoom Out*

*Fit selection in window* — zooms until the selection just fits inside the window.

*Fit project in window* — zooms until all of the audio just fits inside the window.

### Meter Toolbar




The Meter Toolbar is used for monitoring the input and output audio levels. Typically it is used to make sure that the loudest volume is as loud as possible (for maximum fidelity) without clipping or distorting it. The output (playback) meter is the green one, on the left in the picture above, and the input (recording) meter is in red, on the right.

The meters provide a visual indication of the current audio levels going in and out of audacity.

If you float the Meter Toolbar, either by dragging it out of the toolbar or by selecting "Float Meter Toolbar" from the View menu, you can resize it and even orient it vertically.

Normally the meters are only active when you are playing or recording audio. However, you can also monitor input when you're not recording — to do this, either select "Monitor Input" from the input meter's pop-up menu, or else just click on the input meter. If you have a microphone or other input source attached, you will be able to watch the level of the audio before you start recording.

Each meter shows several characteristics of the audio level at once:

- The right hand end of the meter corresponds to the point at which the audio will be clipped, and the left hand end is silence
- For stereo, the top bar shows the left channel, and the bottom bar shows the right channel.
- The brightest part of the bar shows the average audio level (related to the loudness) and the darker part of the bar shows the peak audio level.
- The peak-hold line to the right of this shows the maximum audio level achieved in the last 3 seconds.
- Finally, the clipping indicators on the far right of each meter will light up if clipping is detected (meaning that the audio was too loud and will sound distorted).

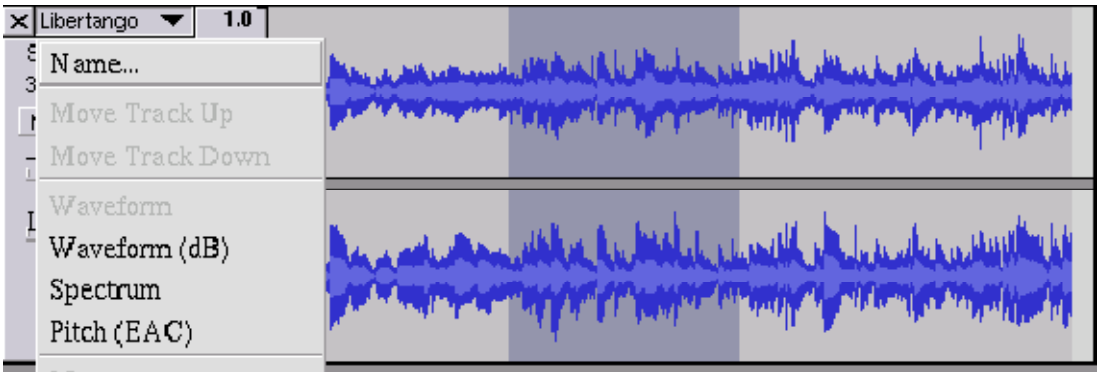
If clipping is detected when you are recording, you should stop, lower the volume of your input source, and start recording again from the start. If the output meter clips then you need to make some or all of your tracks quieter using the track gain control.

If the level of the input (recording) source is too high, you can try to lower the input level using the Mixer Toolbar, but if this doesn't work, you should try to lower the volume of the external input source (e.g., your microphone, cassette player, or record player).

It is possible, especially if you have an older, slower computer, that the Meter Toolbar may interfere with Audacity's ability to record or play audio with the highest quality, because your computer is so busy redrawing the meters that it doesn't have time to process enough audio. In this is the case for you, you can disable the Meter Toolbar in the Interface tab of the Preferences dialog.

# Menu Bar

### Track Pop-Down Menu




The Track Pop-Down Menu appears when you click in a track's title. This lets you access a few special commands that apply to individual tracks.

*Name…* — lets you change the name of the track.

*Move Track Up* — exchange places with the track above this one.

*Move Track Down* — exchange places with the track below this one.

*Waveform* — sets the display to Waveform — this is the default way of visualizing audio.

*Waveform (dB)* — similar to Waveform, but on a logarithmic scale, measured in decibels (dB).

*Spectrum* — display the track as a spectrogram, showing the amount of energy in different frequency bands.

*Pitch (EAC)* — highlights the contour of the fundamental frequency (musical pitch) of the audio, using the Enhanced Autocorrelation (EAC) algorithm.

*Mono* — makes this track a mono track, meaning it is played out of just one speaker, or played out of the left and right speakers equally.

*Left Channel* — makes this track come out of only the left speaker.

*Right Channel* — makes this track come out of only the right speaker.

*Make Stereo Track* — if there is another track below this one, joins them to make a single stereo track, with the top track representing the left speaker, and the bottom track representing the right speaker. When tracks are joined into a stereo pair, all edits automatically apply to both the left and right channel.

*Split Stereo Track* — if the selected track is a stereo track (a pair of left and right tracks joined together as a single track), this operation splits them into two separate tracks that you can modify and edit independently.

*Set Sample Format* — this determines the quality of the audio data and the amount of space it takes up. 16-bit is the quality used by audio CD's and is the minimum quality that Audacity uses internally (8-bit audio files are automatically converted when you open them). 24-bit is used in higher-end audio hardware. 32-bit *float* is the highest quality that Audacity supports, and it is recommended that you use 32-bit float unless you have a slow computer or are running out of disk space.

*Set Rate* — sets the number of samples per second of the track. 44100 Hz is used by audio CDs. Tracks can have different sample rates in Audacity; they are automatically resampled to the project sample rate (in the lower-left corner of the window).

**File Menu**

*New* — creates a new empty window

*Open…* — opens an audio file or an Audacity project in a new window (unless the current window is empty). To add audio files to an existing project window, use one of the Import commands in the Project menu.

*Close* — closes the current window, asking you if you want to save changes. On Windows and Unix, closing the last window will quit Audacity, unless you modify this behavior in the Interface Preferences.

*Save Project* — saves everything in the window into an Audacity-specific format so that you can save and quickly continue your work later. An Audacity project consists of a project file, ending in "`.aup`", and a project data folder, ending in "`_data`". For example, if you name your project "Composition", then Audacity will create a file called "`Composition.aup`" and a folder called `Composition_data`. Audacity project files are not

meant to be shared with other programs — use one of the Export commands (below) when you are finished editing a file.

*Save Project As…* **—** same as Save Project (above), but lets you save a project as a new name.

*Recent Files…* **—** brings up a list of files you have recently opened in audacity to be re-opened quickly.

*Export As WAV…* **—** exports all of the audio in your project as a WAV file, an industry-standard format for uncompressed audio. You can change the standard file format used for exporting from Audacity by opening the File Format Preferences . Note that exporting will automatically mix and resample if you have more than one track, or varying sample rates. See also File Formats.

*Export Selection As WAV…* **—** same as above, but only exports the current selection.

*Export as MP3…* **—** exports all of the audio as an MP3 file. MP3 files are compressed and therefore take up much less disk space, but they lose some audio quality. Another compressed alternative is Ogg Vorbis (below). You can set the quality of MP3 compression in the File Format Preferences. See alsoMP3 Exporting.

*Export Selection As MP3…* **—** same as above, but only exports the current selection.

*Export as Ogg Vorbis…* **—** exports all of the audio as an Ogg Vorbis file. Ogg Vorbis files are compressed and therefore take up much less disk space, but they lose some audio quality. Ogg Vorbis files tend to take up a little less disk space than MP3 for similar compression quality, and Ogg Vorbis is free from patents and licensing restrictions, but Ogg Vorbis files are not as widespread. You can set the quality of Ogg compression in the File Format Preferences.

*Export Selection As Ogg Vorbis…* **—** same as above, but only exports the current selection.

*Export Labels…* **—** if you have a Label Track in your project, this lets you export the labels as a text file. You can import labels in the same text format using the "Import Labels…" command in the Project Menu.

*Export Multiple…* **—** lets you split your project into multiple files all in one step. You can either split them vertically (one new file per track), or horizontally (using labels in a Label Track to indicate the breaks between exported files.

*Page Setup* **—** configure how Audacity will print out the track waveforms using the Print option, and what printer to use.

*Print* **—** Print out the main window view from audacity showing the tracks and waveforms.

*Exit (Quit)* **—** closes all windows and exits Audacity, prompting you to save any unsaved changes first.

**Edit Menu**

*Undo* **—** This will undo the last editing operation you performed to your project. Audacity supports full unlimited undo — meaning you can undo every editing operation back to when you opened the window.

*Redo* **—** This will redo any editing operations that were just undone. After you perform a new editing operation, you can no longer redo the operations that were undone.

*Cut* **—** Removes the selected audio data and places it on the clipboard. Only one "thing" can be on the clipboard at a time, but it may contain multiple tracks.

*Copy* — Copies the selected audio data to the clipboard without removing it from the project.

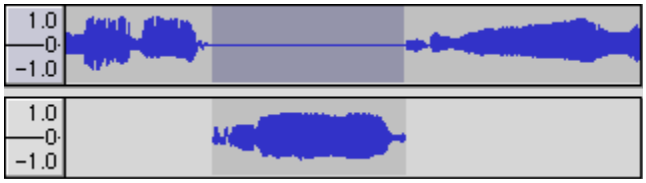
*Paste* — Inserts whatever is on the clipboard at the position of the selection or cursor in the project, replacing whatever audio data is currently selected, if any.

*Trim* — Removes everything to the left and right of the selection.

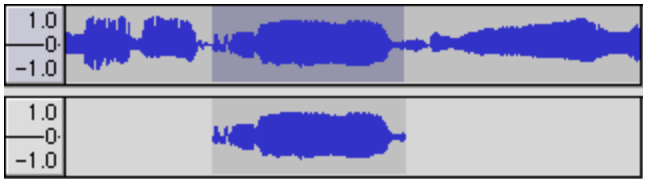
*Delete* — Removes the audio data that is currently selected without copying it to the clipboard.

*Silence* — Erases the audio data currently selected, replacing it with silence instead of removing it.

*Split* — Moves the selected region into its own track or tracks, replacing the affected portion of the original track with silence. See the figure below:




*Duplicate* — Makes a copy of all or part of a track or set of tracks into new tracks. See the figure below:




*Select … > All* — Selects all of the audio in all of the tracks in the project.

*Select … > Start to Cursor* — Selects from the beginning of the selected tracks to the cursor position.

*Select … > Cursor to End* — Selects from the cursor position to the end of the selected tracks.

*Find Zero Crossings* — Modifies the selection slightly so that both the left and right edge of the selection appear on a positive-slope zero crossing. This makes it easier to cut and paste audio without resulting in an audible clicking sound.

*Selection Save* — Remembers the current selection (or cursor position), allowing you to restore it later.

*Selection Restore* — Restores the cursor position to the last position saved by "Selection Save".

*Move Cursor … > to Track Start* — Moves the cursor to the start of the current track.

*Move Cursor … > to Track End* — Move the cursor to the end of the currently selected track.

*Move Cursor … > to Selection Start* — Moves the cursor to the start of the current selection.

*Move Cursor … > to Selection End* — Moves the cursor to the end of the current selection.

*Snap-To … > Snap On* — Enable Snap-To mode. When Snap-To mode is enabled, the selection will be constrained to the nearest interval on the time scale, by default the nearest second. So if you click and drag from 4.2 seconds to 9.8 seconds, it will result in a selection from 4 seconds to 10 seconds, exactly. You can change the units that are snapped to using the "Set Selection Format" option in the View Menu.

*Snap-To … > Snap Off* — Turns Snap-To mode off letting you select arbitrary ranges of time

*Preferences…* — opens the Preferences dialog.

**View Menu**

*Zoom In* — Zooms in on the horizontal axis of the audio, displaying more detail about less time. You can also use the zoom tool to zoom in on a particular part of the window.

*Zoom Normal* — Zooms to the default view, which displays about one inch per second.

*Zoom Out* — Zooms out, displaying less detail about more time.

*Fit in Window* — Zooms out until the entire project just fits in the window.

*Fit Vertically* — Resizes all of the tracks vertically so they all fit inside of the window (if possible).

*Zoom to Selection* — Zooms in or out so that the selection fills the window.

*Set Selection Format* — lets you choose the formatting that is displayed at the bottom of the window indicating the current selection time. Options include film, video, and audio CD frames, seconds + samples, or pure time. If you turn on Snap-To mode in the Edit Menu, the selection will snap to the frames or other quantization you have selected in this menu.

*History…* — Brings up the history window. It shows all the actions you have performed during the current session, including importing. The right-hand column shows the amount of hard disk space your operations used. You can jump back and forth between editing steps quite easily by simply clicking on the entries in the window, the same as selecting Undo or Redo many times in a row. You can also discard Undo history to save disk space. The history window can be kept open while you work.

*Float Control Toolbar* — moves the Control Toolbar out of the window and into its own floating window, so you can position it wherever you want. The menu item changes to *Dock Control Toolbar*, which you can use to put the toolbar back into the main window.

*Float Edit Toolbar* — moves the Edit Toolbar out of the window and into its own floating window, so you can position it wherever you want. The menu item changes to *Dock Edit Toolbar*, which you can use to put the toolbar back into the main window.

*Float Meter Toolbar* — does the same thing for audacity's VU meters which you use to set recording levels and adjust playback.

*Float Mixer Toolbar* — moves the Mixer Toolbar out of the window and into its own floating window as above.

**Project Menu**

*Import Audio…* — This command is used to import audio from a standard audio format into your project. Use this command if you already have a couple of tracks and you want to add another track to the same project, maybe to mix them together. You cannot use this option to import Audacity Projects. The only way to combine two Audacity Projects is to open them in separate windows, then copy and paste the tracks.

*Import Labels…* — This command takes a text file which contains time codes and labels, and turns them into a Label Track.

*Import MIDI…* — This menu command imports MIDI files and puts them into a MIDI Track. Audacity can display MIDI files, but *cannot play, edit, or save them yet.*

*Import Raw Data…* — This menu command allows you to open a file in virtually any uncompressed format. When you select the file, Audacity will analyze it and try to guess its format. It will guess correctly about 90% of the time, so you can try just pressing "OK" and listening to the result. If it is not correct, however, you can use the options in the dialog to try some other possible encodings.

At the beginning of your imported track(s), you may notice a little bit of noise. This is probably the file's header, which Audacity was not able to parse. Just zoom in and select the noise with the Selection Tool, and then choose Delete from the Edit Menu.

*Edit ID3 Tags…* — Opens a dialog allowing you to edit the ID3 tags associated with a project, for MP3 exporting.

*Quick Mix* — This command mixes all of the selected tracks together. If you are mixing stereo tracks, or mixing tracks that are marked as Left or Right channel, the result will be a stereo track (two channels), otherwise the result will be mono.

Your tracks are implicitly mixed whenever you hit the Play button and whenever you export. This command offers a way to do it permanently and save the results to disk, saving on playback resources. Note that if you try to mix two very loud tracks together, you may get clipping (it will sound like pops, clicks, and noise). To avoid this, drag the gain slider on the tracks down to reduce their volume before mixing.

*New Audio Track* — This creates a new empty Audio Track. This command is rarely needed,since importing, recording, and mixing automatically create new tracks as needed. But you can use this to cut or copy data from an existing track and paste it into a blank track. If that track was at a non-default rate then you may need to use Set Rate from the Track Pop-Down menu to set the correct sample rate.

*New Stereo Track* — same as above, but creates a stereo track. You can also create a stereo track by joining two tracks using the track pop-down menu.

*New Label Track* — This creates a new Label Track, which can be very useful for textual annotation.

*New Time Track* — This creates a new Time Track, which is used to vary the speed of playback over time.

*Remove Tracks* — This command removes the selected track or tracks from the project. Even if only part of a track is selected, the entire track is removed. You can also delete a track by clicking the X in its upper-left corner. To cut out only part of the audio in a track, use Delete or Silence.

*Align Tracks…* — All the Align functions work on whole tracks or groups of tracks, not on selections, even if they span across multiple tracks. They all operate by time-shifting tracks (moving them left or right), making it easier to synchronize tracks or get rid of silence at the beginning. The cursor or selection stays in the same place unless you use "Align and move cursor…", below:

*Align and move cursor…* — same as the functions above, except that the cursor or selection is moved along with the tracks. That allows you to shift the tracks without losing your relative place.

*Add Label at Selection* — This menu item lets you create a new label at the current selection. You can title the label by typing with the keyboard and then hitting "Enter" when you're done.

*Add Label at Playback Position* — This menu item lets you create a new label at the current location where you are playing or recording. Do this if you want to mark a certain passage while you're listening to it. You can title the label by typing with the keyboard and then hitting "Enter" or "Return" when you're done. Only available whilst audacity is playing.

**Generate Menu**

If you choose an item from the Generate menu when there are no tracks in a project, a new track is created. Otherwise, the current track is used.

If a track is selected and the cursor is placed in a single place in the track audio is inserted at the cursor position.

The default duration is 30 seconds.

The audio created will replace the any selection, otherwise it is inserted into the track, shifting up later parts of the track.

*Silence* — inserts silence

*Tone…* — you can create a Sine wave, Square wave, or Sawtooth wave.

*White Noise* — inserts random audio samples, which sounds like pure static.

Any items which appear after these three built-ins are VST, Ladspa, or Nyquist plug-ins. It is possible for a poorly written plug-in to crash Audacity, so always save your work before using a plug-in. Note that any effect that doesn't take any audio as input will automatically be placed in the Generate menu.

**Effect Menu**

The items in this menu only work when you have audio selected. Audacity does not have any real-time effects; you must select the audio, apply the effect, and then listen to the results.

Most effects have a Preview button. Clicking on this button plays up to three seconds of audio, allowing you to hear what it will sound like after the effect is applied. This is useful for fine-tuning the effect parameters.

*Repeat Last Effect* — selecting this command is a shortcut to applying the most recent effect with the same settings. This is a convenient way to quickly apply the same effect to many different parts of a file.

*Amplify* — changes the volume of the selected audio. If you click the "Allow clipping" checkbox, it will let you amplify so much that the audio ends up beyond the range of the waveform, and is clipped (distorted). The default value when you open the effect is to amplifiy so that the loudest part of the selection is as loud as possible without distortion.

*Bass Boost* — enhances the bass frequencies in the audio.

*Change Pitch* — changes the pitch/frequency of the selected audio without changing the tempo. When you open the dialog, the starting frequency is set to Audacity's best guess as to the frequency of the selection. This works well for recordings of singing or musical instruments without background noise. You can specify the pitch change in one of four different ways: musical note, semitones, frequency, or percent change.

*Change Speed* — changes the speed of the audio by resampling. Making the speed higher will also increase the pitch, and vice versa. This will change the length of the selection.

*Change Tempo* **—** changes the tempo (speed) of the audio without changing the pitch. This will change the length of the selection.

*Compressor* **—** compresses the dynamic range of the selection so that the loud parts are softer while keeping the volume of the soft parts the same. You can optionally normalise the recording afterwards, resulting in the entire piece having higher perceived volume.

*Echo* **—** very simple effect that repeats the selection with a decay, sounding like a series of echos. This effect does not change the length of the selection, so you may want to add silence to the end of the track before applying it (using the Generate Menu).

*Equalization* **—** Boost or reduce arbitrary frequencies. You can select one of a number of different curves designed to equalize the sound of some popular record manufacturers, or draw your own curve.

*Fade In* **—** fades the selection in linearly

*Fade Out* **—** fades the selection out linearly

*FFT Filter* **—** similar to Equalization, lets you enhance or reduce arbitrary frequencies. The curve here uses a linear scale for frequency.

*Invert* **—** Flips the waveform vertically, the same as a phase inversion in the analogue domain.

*Noise Removal* **—** This effect lets you clean up noise from a recording. First, select a small piece of audio that is silent except for the noise, select "Noise Removal", and click on the "Get Noise Profile" button. Then select all of the audio you want filtered select "Noise Removal" again, and click the "Remove Noise" button. You can experiment with the slider to try to remove more or less noise. It is normal for Noise Removal to result in some distortion. It works best when the audio signal is much louder than the noise.

*Normalize* **—** allows you to correct for DC offset (a vertical displacement of the track) and/or amplify such that the maximum amplitude is a fixed amount, -3 dB. It's useful to normalize all of your tracks before mixing. If you have a lot of tracks, you may then need to use the track gain sliders to turn some down.

*Nyquist Prompt* **—** for advanced users only. Allows you to express arbitrary transormations using a powerful functional programming language. See the Nyquist section of the Audacity website for more information.

*Phaser* **—** the name "Phaser" comes from "Phase Shifter", because it works by combining phase-shifted signals with the original signal. The movement of the phase-shifted signals is controlled using a Low Frequency Oscillator (LFO).

*Repeat* **—** repeats the selection a certain number of times. This operation is quite fast and space-efficient, so it is practical to use it to create nearly-infinite loops.

*Reverse* **—** This effect reverses the selected audio temporally; after the effect the end of the audio will be heard first and the beginning last.

*Wahwah* **—** uses a moving bandpass filter to create its sound. A low frequency oscillator (LFO) is used to control the movement of the filter throughout the frequency spectrum. Adjusts the phase of the left and right channels when given a stereo selection, so that the effect seems to travel across the speakers.

*Plugins 1 to 15* **…** etc. These submenus contain any VST, Ladspa, or Nyquist plug-ins loaded by audacity. It is possible for a poorly written plug-in to crash Audacity, so always save your work before using a plug-in effect.

### Analyze Menu

*Plot Spectrum* — To use this feature, first select a region of audio from a single track, then select "Plot Spectrum". It opens up a window that displays the Power Spectrum of the audio over that region, calculated using the Fast Fourier Transform. The graph represents how much energy is in each frequency. As you move the mouse over the display, it shows you the nearest peak frequency. This window can also display other common functions that are calculated using the Fast Fourier Transform, including three versions of the Autocorrelation function. The Enhanced Autocorrelation function is very good at identifying the pitch of a note.

The Analyze menu is intended for effects and plug-in effects that do not modify the audio, but simply open a dialog with some descriptive information. Audacity also supports Analyze commands that create annotations in a Label Track.

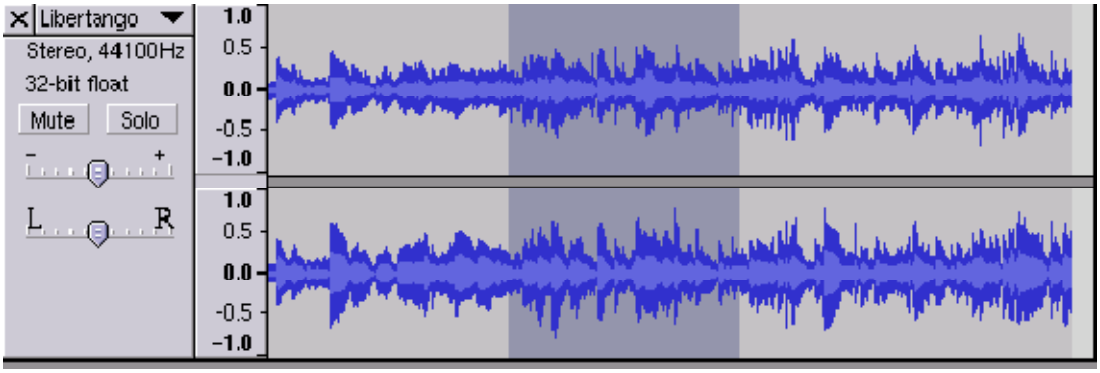
### Help Menu

*About Audacity* — displays the version number and credits. If you compiled Audacity yourself, check here to verify which optional modules were successfully compiled in.

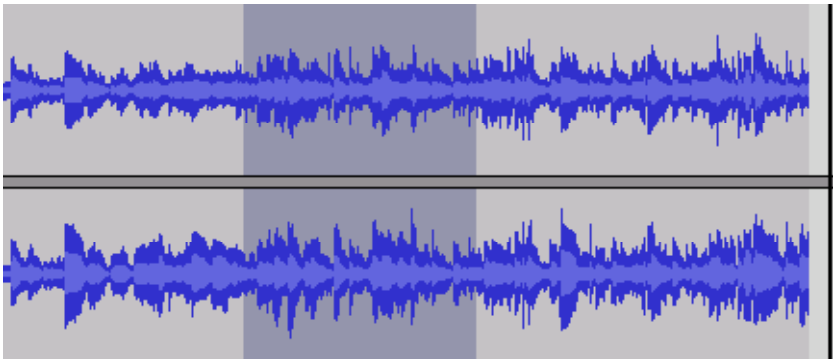
*Contents…* — opens this reference guide in a searchable form.

## Tracks

### Audio Track




*Waveform display*



This is the waveform display part of the track, although it is also possible to display a spectrogram instead of a waveform here.

This image shows a stereo track, which is a group of two tracks — the top one is for the left channel, and the bottom one is for the right channel. If you need to edit the two channels as separate tracks, you can split them using the Track Pop-Down Menu.

*Controls*

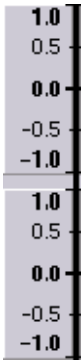
The track Control Panel appears directly to the left of every track. Clicking in the panel outside of one of its buttons or controls selects the entire track. Shift-clicking a track label adds or removes that track from the selection. Also, clicking and dragging a track label is one way to rearrange the order of tracks. At the top-left of the label is the close box. Click here to delete the track (though you can Undo this operation). To the right of the close box is the track's title. Clicking on the title brings up the Track Pop-Down Menu, allowing you to rearrange tracks and change various track options:

The next line in the label tells you the channel of the track (left, right, mono, or stereo) and the sample rate (e.g. 44100 Hz is the audio CD rate). Beneath that is the quality — 32-bit float is high quality but takes up more disk space, and 16-bit is the same quality as an audio CD.

The Mute button stops this track from playing. The Solo button plays only this track (or other solo tracks) and overrides the Mute button. Muting and soloing doesn't affect mixing or exporting, just playback within Audacity. The top slider is the gain control — it affects the relative volume of the track. By default it only lets you select multiples of 3 dB, but if you hold down shift you can choose any level. Be careful not to set it too high, or you can exceed the maximum volume of a track, which results in clipping.

The bottom slider is the pan control — it affects the balance between the left and right speakers.

*Vertical Ruler*




The Vertical Ruler is a guide to the levels you see in the waveforms. A level of 1.0 or -1.0 is the maximum supported by the audio file — anything beyond these levels will be clipped, which can sound like distortion.

When the mouse is over the vertical ruler, it changes to a magnifying glass. By clicking, you can zoom in vertically, and by shift-clicking (or right-clicking) you can zoom back out. You can zoom out as much as a factor of 2, which can be useful for editing envelopes.

When zooming vertically, Audacity will automatically "snap" to the normal range of -1…1 when you get close. If you are having trouble resetting the vertical ruler, shift-click a bunch of times until the range is -2…2, then click once to zoom back to -1…1.

If you change the display on the Track Pop-Down menu then the units of the vertical scale will change to reflect

this.

**Label Track**

Label Tracks can be used to annotate an audio file. They can be used for lyrics, markers, or notes, and they can even be used to save selections.

To create a Label Track, select New Label Track from the Project Menu. Alternatively, simply click or select where you would like to place a label, and choose Add Label at Selection from the Project Menu, and a Label Track will be created automatically if one doesn't already exist.

To add a new label, click or select where you want the new label to appear, then select Add Label at Selection from the Project Menu, then type the name of the label, and finally press Enter or click outside of the label.

In addition, you can use the Add Label at Playback Position command from the Project Menu if you want to add a label at a certain place while you are listening. By default, this command has a shortcut of Control+M.

To edit the name of a label, click anywhere in it. Zoom in first if there are too many labels crowded together and you are unable to click on the one you want. When a label is selected for editing, it looks like the first label below:

When editing the name of a label, you are limited to using just the backspace key for editing. There is currently no way to move the insertion point to append a letter to the beginning of a label.

Once a label is selected, you can move to the next label by pressing Tab, and move to the previous label by pressing Shift-Tab.

To delete a label or multiple labels, select the area containing the label flags you wish to delete, and choose Silence from the Edit Menu. Alternatively you can delete an individual label by clicking on it and pressing Backspace until you have deleted all of the characters in the label, then pressing Enter. To move labels, use the normal editing commands like Cut, Copy, Paste, Delete, and Silence.

You can save a selection in a label. When you create a new label, the left selection edge determines the position of the label's flag. However, the right selection edge is also stored in the label, and when you click on it, the full original selection will be restored. If you wish to apply this selection to only a subset of the tracks,

shift-click in the label area to the left of each track's waveform to change whether each track is part of the selection or not.

*Exporting and Importing label tracks*

Label Tracks are saved when you save an Audacity Project, so if you just want to continue using the labels along with the same file, just save a project. But you can also export the labels to a simple text file, and import them. This allows you to save information about the locations of events in an audio file for use in another program, and also provides a way to mass-edit the labels if necessary.

To export a Label Track, choose Export Labels… from the File Menu. The exported file will contain one line per label, starting with the time offset in seconds, then a tab, and then the name of the label, for example:

```
1.217995 Bass intro
3.921073 Guitar enters
7.584454 Drums enter
11.070002 Chorus
```

To import a Label Track, choose Import Labels… from the File Menu.

**Time Track**

The Time Track is a new feature that lets you change the rate of playback over time. Start by choosing New Time Track from the Project Menu. Then change the range of time warping by clicking on the Track Pop-Down Menu and choosing Set Range (an option which only appears for Time Tracks). Older computers may be incapable of playing audio in real-time that makes use of a Time Track, however you can always Export the file as a WAV and then playback the WAV file later.

To edit the time warping, choose the envelope tool from the Control Toolbar — the same tool you use to edit amplitude envelopes in Audio Tracks. Click to create and edit control points. Drag points off-screen to delete them.

The Time Track has a ruler. As you edit the warping, the ruler will warp to show you at what time playback will reach each place in the audio.

**MIDI Track (incomplete)**

Audacity currently supports displaying MIDI files if you import them using Import MIDI in the Project menu. Audacity does not support playing, recording, or editing MIDI files. It does not even support saving MIDI Tracks in a project file.

The current functionality is useful to only a small group of people who are studying algorithms that relate MIDI data to audio data and simply wish to see the visual representation of the MIDI data and how it lines up with the audio data.

# Other

## Preferences

### *Audio I/O*

*Playback Device* **—** Use this control to select the device that will be used for playback / audio output. This is usually only applicable if your computer has more than one sound card.

*Recording Device* **—** Select the devce that will be used for recording / audio input. Note that many devices have multiple *sources* such as Microphone and Line in — to select the input source you will need to use the Mixer Toolbar. For finer control over audio I/O, open your system's Sound control panel or the control panel software that came with your sound card.

*Recording Channels* **—** Use this to select the number of channels to record simultaneously. Select 1 for mono and 2 for stereo. Audacity will support recording more simultaneous channels, but note that most sound cards only support stereo, and even if your sound card supports more than 2 inputs, you need a fast computer and a large, fast hard disk to record many channels for a long time. Mono recording is not the same on all computers or sound cards. Sometimes recording mono only records the left channel, and sometimes it mixes the left and right channels.

*Play other tracks while recording new one* **—** When this box is checked, Audacity will play existing tracks when you press record — otherwise it simply records the new track without letting you hear what you've already recorded. You can use this option to record harmonies with yourself or add a voiceover. You may notice that when you play the two tracks you recorded together, they aren't synchronized. This is unavoidable to a certain extent, although Audacity tries to minimize it. To fix it, you will need to grab the Time Shift tool and slide one of the tracks around until it sounds right.

*Hardware Playthrough* (Mac Only) — plays the audio you are recording straight back out to your headphones or speakers so you can hear it. This option is done in harware, so it is fast and doesn't consume resources. However, it is only possibly if input and output are on the same sound device. PC users can do the same thing in their volume control settings, turning up the relevant audio input.

*Software Playthrough* **—** Does the same thing as hardware playthrough, but in software. This means that the audio you hear may be slightly delayed relative to the input, and activating this option will use some more system resources. However, it works on all systems, even if you are recording from one device and playing back through another.

### *Quality*

*Default Sample Rate* **—** This controls the sample rate of new projects. To change the sample rate of an existing project, use the control in the lower-left corner of the main project window.

*Default Sample Format* **—** This controls the default format used to store audio samples. 16-bit takes up the least space and is equivalent to audio CD quality. 32-bit float takes up twice as much space but is much more flexible. If you have a fast computer and enough disk space, you should always use 32-bit float samples while editing, and then export your final mix as a 16-bit WAV file (the default).

*Real-time sample rate converter* **—** Audacity has more than one sample rate converter that's used when you have a track that's not the same sample rate as the project. This option lets you set the converter used during real-time playback, which can be different than the one you use during Export or mixing.

*High-quality sample rate converter* **—** Audacity has more than one sample rate converter that's used when you have a track that's not the same sample rate as the project. This option lets you set the converter used during Export and mixing, which can be different than the one you use for real-time playback.

*Real-time dither* **—** Dithering is used when converting high-quality samples with a lot of dynamic range, to CD-quality samples, with less dynamic range. A small amount of dithering can make the audio sound a little bit better, but it can also slow down processing a little bit. This option lets you set the dithering used for real-time playback.

*High-quality dither* **—** Dithering is used when converting high-quality samples with a lot of dynamic range, to CD-quality samples, with less dynamic range. A small amount of dithering can make the audio sound a little bit better, but it can also slow down processing a little bit. This option lets you set the dithering used during Export and mixing.

***File Formats***

When importing uncompressed audio files into Audacity

*Make a copy of the file before editing (safer)* **—** Selecting this means that Audacity will take longer to import files, but it will always have its own copy of any audio you are using in a project. You can move, change, or throw away your files immediately after you open or import them into Audacity.

*Read directly from the original file (faster)* **—** Selecting this means that Audacity depends on your original audio files being there, and only stores changes you make to these files. If you move, change, or throw away one of the files you imported into Audacity, your project may become unusable. However, because Audacity doesn't need to make copies of everything first, it can import files in much less time.

*Uncompressed Export Format* **—** This lets you select the format that Audacity will use when you export uncompressed files. 11 common options are displayed in the list, but you can also select "Other" and choose a nonstandard file format for Audacity to export.

*Ogg Export Setup* **—** Use this control to set the quality of Ogg Vorbis exporting. Ogg Vorbis is a compressed audio format similar to MP3, but free of patents and licensing fees. A normal quality Ogg Vorbis file is encoded with a quality setting of "5". Note that unlike MP3 encoding, Ogg Vorbis does not let you set a bitrate, because some audio clips are easier to compress than others. Increasing the quality will always increase the file size, however.

*MP3 Export Setup* **—** Use these controls to locate your MP3 encoder and set the quality of MP3 encoding. Higher quality files take up more space, so you will need to find the level of quality you feel is the best compromise. For more information, see Exporting MP3 Files.

***Spectrograms***

You can view any audio track as a Spectrogram instead of a Waveform by selecting one of the Spectral views from the Track Pop-Down Menu. This dialog lets you adjust some of the settings for these spectrograms.

*FFT Size* **—** The size of the Fast Fourier Transform (FFT) affects how much vertical (frequency) detail you see. Larger FFT sizes give you more bass resolution and less temporal (timing) resolution, and they are slower.

*Grayscale* **—** Select this for gray spectrograms instead of colored ones.

*Maximum Frequency* **—** Set this value anywhere from a couple of hundred hertz to half the sample rate (i.e. 22050 Hz if the sample rate is 44100 Hz). For some applications, such as speech recognition or pitch extraction, very high frequencies are not important (visually), so this allows you to hide these and only focus on the ones you care about.

***Directories***

Use this panel to set the location of Audacity's temporary directory (folder). Audacity uses this directory whenever you work on a project that you haven't saved as an Audacity Project (AUP file) yet. You have to restart Audacity (close and open it again) for changes to the temporary directory to take effect.

***Interface***

*Autoscroll while playing* **—** Scrolls the window for you while playing, so that the playback cursor is always in the window. This can hurt playback performance on slower computers.

*Always allow pausing* **—** Normally the Pause button is only enabled while you are playing or recording. Checking this box allows you to set the pause button anytime, which allows you to press Record and not have the recording start until you unpause it. Sometimes starting a paused recording can be faster than starting to record in the first place.

*Update spectrogram while playing* **—** Because spectrograms are slower to draw, normally they are not drawn during playback, but this option lets you draw the spectrograms anyway.

*Enable Edit Toolbar* **—** Sets whether or not you want to display the Edit Toolbar, which has some common shortcuts for editing commands.

*Enable Mixer Toolbar* **—** Sets whether or not you want to display the Mixer Toolbar, which lets you set the volume levels and input source.

*Enable Meter Toolbar* **—** Sets whether or not you want to display the Meter Toolbar for setting audio recording and playback levels.

*Quit Audacity upon closing last window* **—** By default on Windows and X-Windows (but not Mac OS), Audacity quits when you close the last project window. If you uncheck this box, Audacity will open a new blank document instead of quitting. To quit Audacity in this case, you must specifically select Exit (or Quit) from the File menu.

*Enable dragging of left and right selection edges* **—** Normally, when you move the mouse over the left and right edge of a selection, the cursor changes to a left or right pointer, and you can adjust that edge of the selection independently. If you don't like this feature, uncheck this box, and then clicking will always create a new selection (unless you hold down Shift to extend an existing selection).

*Language* **—** sets the language used by Audacity. Language files are named "audacity.mo" and are found in the "Languages" folder on Windows and Mac OS X, or in /usr/share/locale or /usr/local/share/locale on most Unix systems. Audacity will detect new languages the next time you start it.

***Keyboard***

This panel lets you change keyboard shortcuts. All of the commands that appear in Audacity menus appear on the left, along with a few other buttons that can get keyboard shortcuts. To change a command, first click on the command you want to change. Then type the new keyboard shortcut on your keyboard. Verify that the

correct shortcut appears in the box below. If it's what you want, press the *Set* button. Or to get rid of a keyboard shortcut, press *Clear*.

To reset to Audacity's defaults, press the *Defaults* button. This will get rid of any changes you have made. If you have customized your keyboard layout and want to share it with someone else, you can press *Save…* and save your complete keyboard layout as an XML file that you can share. To load an existing layout, press the *Load…* button and locate the XML file.

#### *Mouse*

This panel doesn't let you change anything, but it lets you view all of the commands and actions that you can do using the mouse, many by holding down extra modifier keys.

### Sound File Formats

#### *Audacity Project format (AUP)*

Audacity projects are stored in an AUP file, which is a format that has been highly optimized for Audacity so that it can open and save projects quickly. In order to achieve this speed, Audacity breaks larger audio files into several smaller pieces and stores these pieces in a directory with a similar name as the project. For example, if you name a project "chanson", then Audacity will create a project file called `chanson.aup` to store the general information about your project, and it will store your audio in several files inside a directory called `chanson_data`. While the Audacity Project format is based on XML and is meant to be open, it is not currently compatible with any other audio programs, so when you are finished working on a project and you want to be able to edit the audio in another program, select Export from the File Menu.

#### *WAV (Windows Wave format)*

This is the default uncompressed audio format on Windows, and is supported on almost all computer systems. Audacity can read and write this format. People working with multichannel audio at very high quality settings, or with very long recordings, should note that the maximum size of a wav file is 2GB.

#### *AIFF (Audio Interchange File Format)*

This is the default uncompressed audio format on the Macintosh, and it is supported by most computer systems, but it is not quite as common as the WAV format. Audacity can read and write this format.

#### *Sun Au / NeXT*

This is the default audio format on Sun and NeXT computers, and usually u-law compressed, so it is not a very high quality format. U-law compression is a very simple, fast but low quality way to reduce the size of the audio by about 50%. This format was one of the first audio formats supported by Web browsers, and it is still often used for short sound effects where quality is not as important. Audacity exports both 8-bit u-law files, and 16-bit uncompressed files, which are the same quality as wav or aiff files.

#### *MP3 (MPEG I, Layer 3)*

This is a compressed audio format that is a very popular way to store music. It can compress audio by a factor of 10:1 with very little degradation in quality. Audacity can both import and export this format. For more information on how to export MP3 files from within Audacity, see Exporting MP3 Files.

### *Ogg Vorbis*

This compressed audio format was designed to be a free alternative to MP3. Ogg Vorbis files are not as common, but they are about the same size as MP3 with better quality to rival AAC or WMA. Audacity can import and export this format.

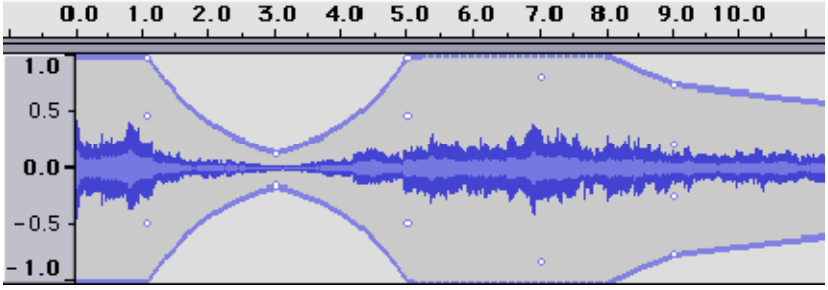
## Envelope Editing

Audacity lets you edit the amplitude envelope of a track directly using the Envelope Tool:

*Envelope tool*

Editing the amplitude envelope lets you change the volume of a track gradually over time by adding a number of *control points* to the track. Each control point sets the amplitude (volume) at that point in time, which can be as low as zero, and as high as 150% of the normal maximum volume, and the volume is interpolated smoothly between the points.

The image below shows a track with an amplitude envelope, with the Envelope Tool selected:




In the figure above, there are five control points, at 1.0, 3.0, 5.0, 7.0, and 9.0 seconds. Each control point has up to four "handles" arranged vertically. The top and bottom handles are positioned at the target volume, and the middle handles are positioned a quarter-screen down, giving you a way to move the envelope above the 1.0 level.

Note the dotted line at the top and bottom between 5.0 and 8.0 seconds. This indicates that the actual envelope is above the screen. You can see the entire contour by zooming vertically — position the cursor over the vertical ruler to the left of the track and shift-click to zoom out.

To create a new control point, just click. To move a point, just drag. To remove a point, click on it and drag it outside of the track, then let go.

## MP3 Exporting

Audacity cannot encode MP3 files by itself, because the MP3 encoding algorithm is patented and cannot legally be used in free programs. However, Audacity has been programmed to recognize other existing MP3 encoders that you can download separately. All you have to do is obtain the appropriate MP3 encoder for your computer and then show Audacity where it is located.

| If you use… | You need to… |
|---|---|
| Windows | Download **LAME** and look for the file called **lame_enc.dll** |
| Linux/Unix | Download **LAME** and compile it as a shared object,<br>then look for the file called **libmp3lame.so** |
| Macintosh | Download **LAMELib** (see our website for more info). |

For links to these MP3 encoders, go to the Audacity web page (http://audacity.sourceforge.net/) and go to the page for your operating system.

The first time you try to export an MP3 file, Audacity will ask you to locate your MP3 encoder. Locate the file indicated above. From then on, Audacity will not need to ask you again and you will be able to export MP3 files easily.

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Version 2, June 1991


```
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