

Audacity is a free multitrack audio editor and recorder that is available for Linux, Macintosh, and Windows. It supports WAV, AIFF, Ogg, and MP3 digital audio formats. It also offers professional features including envelope editing and built-in effects processing. Audacity can be used to record podcasts as well as music. Audacity was started in 1999 as part of a research project, then over time was developed into a general audio editor. It is distributed under the terms of the GNU General Public License (GPL). You are free to use this program for personal or commercial purposes.

## Creating a New Project

To create a new Audacity project:

1. Choose File > New.
2. Save your project by selecting File > Save Project As. Click on OK if you get a warning message about saving project files.
3. Enter a file name for your project and choose a save location.
4. Click on Save.

The project file (.aup) includes a record of all of your changes, letting you open the file for editing at a later date. To copy this file to another computer, you also have to copy a data folder created by Audacity to hold the actual sound clips. This folder can be found in the same location as the project file. It has the same name as the project file with \_data appended to it.

## Setting Up the LAME Encoder

Audacity does not export to MP3 directly, but instead relies on a plug-in called the LAME Encoder to do the conversion to MP3. MP3 is a well supported format so you should try to export your projects as MP3 files whenever possible, especially if you're going to post the file online. To set up the LAME Encoder on Windows:

1. Download the LAME installer file (libmp3lame-win-3.97.zip) from <http://lame.buanzo.com.ar/>.
2. Open the zip file using either the built-in Windows compressed folders feature or a zip utility such as Winzip.
3. Find the lame\_enc.dll file, select it, and choose Edit > Copy (or Control + C).
4. Go to any location on your computer (the Audacity install folder located at C:\Program Files\Audacity is a good

location) and choose Edit > Paste or Control + V.

To set up the LAME Encoder on an Intel Mac:

1. Download the LAME installer file (libmp3lame-osx-universal-3.97.zip) from <http://lame.buanzo.com.ar/>.
2. Open the zip file and drill down through the following folders: package \usr\local\lib.
3. Copy the file libmp3lame.dylib (Edit Copy or Command + C).
4. Go to any location on your computer, such as the Audacity install folder in the Applications folder) and choose Edit > Paste or Command + V.

## Setting Preferences

To set up your Audacity preferences:

1. Choose Audacity > Preferences (Mac) or Edit > Preferences (Windows).
2. In the Audio I/O tab, select your microphone from the recording device dropdown menu.
3. Select either one channel for mono or two for stereo.
4. In the Quality tab, set your sampling rate. For CD quality sound, it should be set to 44.100 Hz. The other settings should be left at the defaults unless you have a good reason to change them.
5. In the File Formats tab, choose a format for uncompressed audio. WAV is the default uncompressed format for Windows and AIFF is the default uncompressed format for the Mac. WAV files can be opened on either platform.
6. Click on the Find Library button and tell Audacity where to find the LAME

encoder file (lame\_enc.dll on Windows; libmp3lame.dylib on the Mac) and click on Open.

7. Select a Bit Rate for your recording. If you are only recording vocals (for a podcast) you can set the bit rate lower. This will result in a smaller file. For music MP3s the bit rate should be set to 128 or higher for best quality.
8. Click OK to close the Audacity Preferences window.

## Recording

Audacity creates a new track each time you press the Record button in the controls area. As you record, you will see a waveform in the timeline.



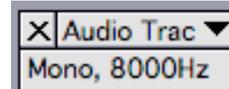
The height of this waveform indicates the volume level of your recording. Any spikes in this waveform may indicate pops and other problems with your audio. The numbers above the timeline indicate the time in seconds of your recording.

To record a new track:

1. Click on the Record button in the controls area. 
2. To pause recording, click on the Pause button. Note that some of the features in the menus will be unavailable while the Pause button is active. To resume recording, click on the Pause button again. 
3. To stop recording, click on the Stop button. This will return the playhead to the point where you started recording. 
4. To play back your recording, click on the Play button or press the Space Bar on your keyboard. To start play back at another point in the timeline, move your cursor to that location before clicking on the Play button. 
5. To play back just a section of your recording, make a selection first: with the Selection tool, click with your cursor where you want to start the selection and drag to highlight an area in the waveform. 

When you press the Play button, only the highlighted area will play back.

6. To name a track, choose the disclosure triangle next to Audio track in the track controls area (on the left side of the track), then choose Name, enter the track name, and click on OK.



7. To delete a track, click on the X in the track controls area.
8. To undo any action in Audacity, select Edit > Undo.

## Basic Editing

Once you make a selection in Audacity, you can cut, copy, and paste its contents using the options in the Edit menu or the buttons in the toolbar.



You can copy and paste a selection to either another point in the timeline or another track. To create a new track without pressing the Record button, choose Project > New Audio Track (mono) or New Stereo Track.

The toolbar also includes two trim buttons which allow to delete everything that is not selected (keeping only the selection) or vice versa.



Other options in the Edit menu include:

- Duplicate: copies the selection to another track so you can try out effects while having the original selection to compare your changes.
- Split: removes the selection and pastes it into a new track.
- Silence: flattens the waveform in the selection, eliminating any sound. You should use a fade effect before and after the silenced selection so it is not as abrupt.
- Delete: cuts the audio in the selection.

The zoom buttons are helpful when making selections and editing. The two buttons on the right allow you to fit either

a selection or the entire project in the window.



### Importing Music

To import an MP3 or other audio file into your project:

1. Select Project > Import Audio.
2. Locate the file you want to import on your computer.
3. Click on Open. Audacity will import the audio into a new track.

### Time Shift Tool

The time shift tool can be used to move the audio in a track so that it does not play at the same time as the audio in another track. This tool can be used to arrange recorded vocals and imported music so that they play in sequence on separate tracks. To use the Time Shift tool, click on the time shift button in the toolbar and click on the track you want to modify, then drag in the direction you want to move the audio.



### Adjusting Volume and Pan

To adjust the volume of an individual track, use the volume slider in the track information area.



Dragging to the right increases the volume, while dragging to the left lowers it. For more control over the volume levels at different points in your recording, you can use the Envelope tool.

To use the Envelope tool:

1. Click on the Envelope button.
2. Click on the blue line that appears along the edges of the track to set a point.
3. Drag the point to adjust the volume up or down.
4. Set multiple points to change the shape of the line and adjust the volume over time. This technique can be used to create fade effects.



To split a stereo track into its two channels, click on the triangle next to the

track name in the track controls area (or Audio Track if you have not named it) and choose Split Stereo Track. You can then use the pan slider in the track controls area to adjust how far to the left or right the audio in each channel is panned.



The solo button in the track controls area allows you to preview the sound on a track by itself so you can get a more accurate idea of how it sounds.

### Effects

Audacity includes many professional effects:

- Noise Reduction - removes background noise:
  1. Record a few seconds of background noise before you record the rest of your track (music or vocals) as usual.
  2. Select the background noise you recorded and choose Effect > Noise Removal.
  3. Click on Get Noise Profile
  4. Select the entire track
  5. Choose Effect > Noise Removal again.
  6. Use the slider and the Preview button to adjust the level of noise reduction until you get the quality you want while removing as much background noise as possible. Making a series of small adjustments works best.
  7. Click on Remove Noise.
- Amplify - raises the volume level of the audio in a selection:
  1. Select the section of audio you need to amplify.
  2. Choose Effect > Amplify.
  3. Make sure Allow Clipping is checked and use the slider and the Preview button to set the level.
  4. Click on OK to perform the amplification
- Normalize - ensures that the volume level is the same throughout a selection by using a target peak amplitude (loudness) of -3 dB:
  1. Select the audio you want to normalize.

2. Choose Effect > Normalize.
  3. Make sure both checkboxes are selected and click on OK.
- Fade In/Fade Out - gradually raises/lowers the volume as the audio plays:
    1. Make a selection at either the beginning or end of the recording. The length of the selection will determine how long it takes for the fade in/out to complete.
    2. Choose Effect > Fade In or Effect > Fade Out. This effect does not have any options that need to be set in a dialog box.
3. Click on Choose and select a save location for the exported files.
  4. Set "Split files based on" to Tracks.
  5. Choose how the files will be named:
    - Using a Label/Track name: choose this option if you have named your tracks
    - Numbering consecutively: Audacity will use the prefix you enter and add a sequential number to each file.
  6. Click on OK to bring up the ID3 tags window.
  7. Enter the ID3 information and click on OK. A dialog box will let you know how many files were exported.

## Exporting

Audacity can export uncompressed audio using either the WAV (Microsoft) or AIFF (Apple) formats. To export a project as an uncompressed audio file, choose File > Export as WAV or File > Export as AIFF (the option that is available in the menu will depend on the setting in the File Formats tab of the Audacity preferences).

If you're posting the audio online you will want to compress it so it does not take a long time to download. With the addition of the LAME Encoder plugin, Audacity can export compressed audio files using the MP3 format, which is the most popular format for music on the Web.

To export a recording as an MP3 file:

1. Choose File > Export as MP3.
2. Enter a name for your file and click on Save.
3. Enter any information that you want to associate with the file into the ID3 tags window. Make sure ID3v1 (more compatible) is selected.
4. Click on OK to export your project as an MP3

## Batch Exporting

Audacity also has a batch export feature that allows you to export each track as an individual file. To use the multiple export feature:

1. Open a multi-track project and choose File > Export Multiple.
2. Choose a format using the Export format pulldown menu.

The export multiple feature can also be used to create multiple files from one project by using labels (even if you only have one track). To add a label:

1. Place the cursor where you want to add the label.
2. Choose Project > Add Label at Selection. This will add a new label track.
3. Click on the label icon to add the label text, then press Enter.



4. To delete a label, make a selection around the label in the label track and choose Edit > Silence.

Once you have created all of your labels you can use them to split a project into multiple files:

1. Choose Export Multiple and select an export format and save location.
2. Choose Labels in the "Split files based on" section.
3. Choose Using Label/Track Name in the "Name files" section.
4. Click on Export to bring up the ID3 window.
5. Enter the ID3 information and click on OK. A dialog box will let you know how many files were exported.

## Keyboard Shortcuts

- Space Bar: Play/Stop
- R: Record
- Control/Command + L: Silence
- Control/Command + D: Duplicate