

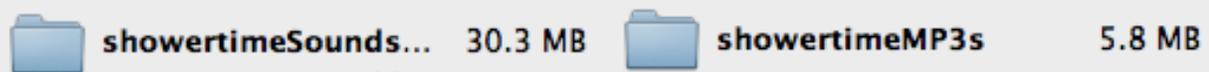
## A Little More Audacity by Ann Brundige



The freeware application Audacity is a very powerful sound editor that works on both Mac and Windows, including the latest version of both operating systems. You will need to download separate versions. After spending only a short time with it, I could load sound files, record, change the pitch so that my voice sounded like a baritone or a child's voice, convert a sound effect to match the same format as my recording, and add my sound effect after the recording to create one long track. Many features I don't know how to use—I don't know that much about sound—but there are many useful and easy features even for the sound-ignorant. ☺

### How to Get Audacity And Add MP3 Capability

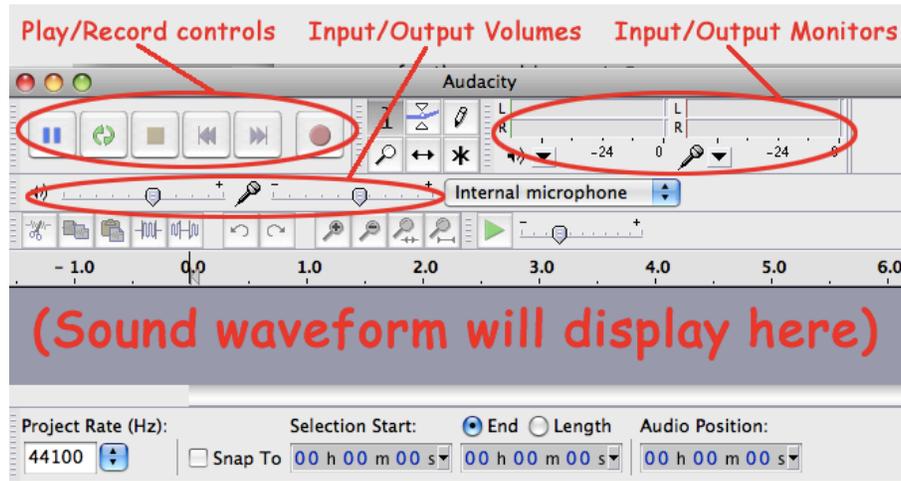
At the end of this document are instructions for obtaining and installing Audacity and also an optional add-on, the LAME encoder, which will let you export MP3 files from Audacity. You do want to add that MP3 exporter, because Classroom Suite®, Clicker 5®, PowerPoint® and many other applications can load these and they are about 1/5 the file size of the same file as .wav. Proof? Take a look at these before



and after sound folder sizes for a project that required over 50 short error prompts. As you can see, I could not have used recorded sound if I had been limited to the original .wav format sounds, since they alone are 30 MB! But by exporting as .mp3 files, the same set of sounds is under 6 MB.

One caution about using the MP3 format for sounds: This is a "lossy" compression type. Like the JPEG compression for graphics, the MP3 compression achieves its teeny file sizes by throwing away part of the data, in effect, cutting each tiny increment of the sound data in half and discarding one half--or more. The result is not quite as clear as the original. That's fine for one compression. The loss in sound quality will not be apparent. But if you were to take an MP3 file, further edit it, and save again as MP3 several times, then you'd notice the loss in quality. So use the MP3 versions in your activities, but **always save the original sound file**, in case you need to use it and/or edit it later.

## Using Audacity: Basic Controls



When you open a new project in Audacity, you will see a window where the waveform will show once you load in a sound file. Above it, at the top of the screen, are a standard set of **Play/Record** buttons. To the right of the **Play/Record** buttons, you can turn on **meters** to **monitor the sound input and output levels** (microphone and speaker icons). Just below the **Play/Record** buttons are sliders to **set the output and input volumes**, also handy. Below that, just above the window, are a row of editing functions such as **Copy**, **Paste**, etc. There are a couple of special ones there, **Trim outside selection** and **Silence selection**.

There are many more functions, and you can **hover the cursor** over the various controls to find out what they do. Try them out on a sample file.

For both **Quick Start** instructions and a link to download the full manual in PDF format, see **Help**. There are also options to customize the interface under **Preferences**. There are even some tutorials and the entire manual in other languages, including French and Spanish, at <http://audacity.sourceforge.net/help/>

## Getting Started

Try loading in one of the files from the **Media** folder of Classroom Suite, Clicker 5, My Own Bookshelf, or any other .wav file you might have. (Audacity actually loads quite a few other file formats. See **Preferences**.) You will see a schematic of the waveform for the file in the window. Click at the left end of the waveform schematic to indicate the starting point, and click **Play** to hear the entire file. Click

and drag to select a portion of the schematic and click **Play** to hear the selection only. Edits, filters, etc. will affect the selected part of the file.

Note that there is some information about the file down in the lower left, including the frequency in Hz. **IMPORTANT:** If you are combining files, this needs to be the same for both files or you will get strange results. Just use the drop-down menu to change the frequency. I find that 22050 Hz or even 11025Hz is fine for voice, and you may want to try an even lower number for sound effects. For music, you may need more Hz. **Higher number=Better quality sound=Bigger file.**

### Two Sounds Open: Making Tracks

Leave the Audacity sound window open. Go up to **File** and choose **New**. You now have two sound windows open at once, so you'll be able to work on both and potentially copy and paste between them. You can also go to the **Project** menu and add a second track, or import audio into an open sound and it will appear as a separate track. When you export the file to either .wav or MP3, all tracks are mixed together. I haven't experimented with how to align tracks, however.

### Filters

Try recording a short sentence. Play it back. Select your recorded sound, and go up to the **Filter (Effect)** menu. One filter you might often use is **Amplify**, which can raise or lower the sound volume for the entire sound, or for a selected section. Two more I find useful are **Fade in** and **Fade out**, to smooth the beginning and end of a sound such as a music clip or sound effect. These filters you would use on a short selected section at the beginning and end respectively. **Echo** can be fun, if applied with caution.

**My favorite filter is Change Pitch**, which in Audacity works to make this change without changing the tempo. This means you can raise the pitch slightly to convert a woman's voice to a child's voice, or lower it to sound like a man, without speeding it up like a chipmunk or slowing it down like a snore. Think of the possibilities there for having many recorded voices in an activity!

### Stringing Sounds Together

Let's try combining sounds. Leaving my recorded sound window open, I opened one of the sound effects from the Media folder of Classroom Suite. It was a 11025 Hz file. I highlighted the waveform, copied, and pasted it in at the end of my recorded

sentence. But when I played the entire track, the sound effect came out too fast and at a much higher pitch. Then I noticed that the recording was at 44100 Hz. Oops! No wonder it played the pasted sound effect four times faster!

I then went back to the window with the sound effect, changed the project rate (lower left) to 44100Hz in the original sound effect, and exported the amended file as .wav. When I opened that, it was now 44100Hz, and I was able to copy and paste it after my recorded sentence and have it sound right.

Try opening a sound effect file, note its Hz rate, match that to your own voice recording, and paste it in to make a combined soundtrack.

**Classroom Suite Idea:** By carefully noting the length of each section in seconds, you can construct a combined sound track to match events on an **IntelliMation** timeline. You can even insert silence of a certain number of seconds to space out sounds. You could then load the entire track as a **Page Sound**, and it will play as the soundtrack for the entire animation.

### Obtaining and Installing Audacity

Download Audacity at: <http://audacity.sourceforge.net/download/> Follow the instructions on the Audacity site for installation on your particular operating system.

There are versions for Windows, Mac OSX, and and a legacy version for Mac OS 9. They do not have updated versions for OS9, however, so not all features would be in that version. At this writing, there is a beta 1.3.5 version for Mac OSX 10.4 or later. I converted the sound files for Showertime, did some minor editing including

**Support Audacity!** If you find Audacity as useful as I do, consider a donation to the development team at <http://audacity.sourceforge.net/community/>. It amazes me that people would put this much effort into something on faith!

**Resell Audacity!** Suggestion: a class project where students create a CD of sound effects, sing songs, or make short speeches. You could include the Audacity application and its documentation, and sell this CD to raise funds for the school. Information for vendors is on the website at: <http://audacity.sourceforge.net/about/>.

amplification, and the beta seems to work well. There is also a beta 1.3.5 for Windows, but I haven't tested it. Presumably it's about the same stability.

Download, decompress, and install the main Audacity application, and also download and install the optional [LAME MP3 encoder](#), which allows Audacity to export MP3 files. Instructions for obtaining and installing LAME follow.

**Installing the LAME encoder:** This is a separate library, so you will have to tell Audacity where it resides in order for it to function. Here are the instructions for linking the LAME encoder to Audacity. Source: detailed instructions from the Audacity Wiki at <http://audacityteam.org/wiki>

### Windows Instructions

#### \* For 1.3.3 and later users:

First, if you are using Audacity Beta 1.3.3 or later, try exporting an MP3 straight away! 1.3.3 or later on Windows will look automatically in your system folders for the LAME encoder. If you already have it, you can simply export an MP3 by clicking **File > Export**, then in the **Export File** dialogue, choose **MP3 Files** in the **Save as...** type dropdown, and click **Save**. If you then see the Metadata Editor for editing your MP3 ID3 tags, all is well. Otherwise, you will see the **Locate Lame** dialogue. The simplest choice then is to press **Cancel** and proceed as per the following **All Users** section.

#### \* All users

- ▶ Download an unzipped copy of the required **lame\_enc.dll** from [http://www.gaclrecords.org.uk/lame\\_enc.dll](http://www.gaclrecords.org.uk/lame_enc.dll)
- ▶ **Do not open this file**, but save it to your computer. Since you will be using this .dll file directly for encoding, it is recommended to **save it into your Audacity installation folder**. This is normally at **C:\Program Files \Audacity**. Once **lame\_enc.dll** is saved to your computer:
- ▶ Launch Audacity, click **Edit > Preferences** and go to the **File Formats** tab. If you are using Audacity 1.2.x and this tab is not visible, click on the left-pointing arrow top right of the window. Note: in Audacity 1.3.4 this tab is called Audio Files.
- ▶ In the bottom of the window there is a section called **MP3 Export Setup**.
- ▶ Click on the **Find Library** button
- ▶ In Audacity 1.2.6 this will ask you if you want to locate the LAME encoder. Click **Yes**. In Audacity 1.3.3 or later, click the **Browse** button
- ▶ In the dialogue box, go to the folder where you put **lame\_enc.dll** earlier, and select it.

- ▶ Click **Open**, then **OK**. You should now be able to export files to the MP3 format.

## Mac Instructions

### \* Download the LAME compressed file.

- ❖ OS 9: Download: <http://spaghetticode.org/lame/LameLib.sit>
- ❖ OS X:
  - ▶ For Audacity 1.2.5 for Intel Macs, Download:  
<http://spaghetticode.org/lame/libmp3lame-osx-universal-3.97.zip>
  - ▶ For Audacity 1.2.6 for Power PCs, Download:  
<http://spaghetticode.org/lame/LameLib-Carbon-3.91.sit>
  - ▶ For Audacity 1.3.3 (Beta) (Universal Binary for Intel Macs and Power PCs), Download:  
<http://spaghetticode.org/lame/libmp3lame-osx-universal-3.97.zip>

### \* Decompress and Save

When you have finished downloading, use [StuffIt Expander](#) to extract the files (this may happen automatically), then save the file called "LameLib" or "libmp3lame.dylib" anywhere on your computer. The directory in Applications where you installed Audacity would be a good idea.

### \* Point Audacity to the LAME encoder

- ▶ Open Audacity and go to **File > Preferences**.
- ▶ Go to the **File Formats** tab. Note: In the beta 1.3.5 version, this is **Import/Export** tab.
- ▶ In the bottom of the window there is a section called **MP3 Export Setup**.
- ▶ Click on the link labeled **Find Library**.
- ▶ This will ask you if you want to locate the lame encoder. Click **Yes**. In Audacity 1.3.3, click **Browse**.
- ▶ In the dialogue box, go to the folder where you put the unstuffed **LameLib** or **libmp3lame.dylib** file earlier, and select it.
- ▶ Click **Open**, and then click **OK**. You should now be able to export files to the MP3 format.