Using Audacity – A Tutorial

Peter Graff
Production Manager, KBCS FM

These days, there are many digital audio editors out there that can do amazing things with sound. But, most of them cost money, and if you're just getting into producing for radio, or simply want to build your digital editing chops, dropping $300 or more on a piece of software probably isn't an option.

Fortunately, there's Audacity. Audacity is an open source cross platform audio editor you can download right now (go to http://audacity.sourceforge.net/). Yes, it's fairly simple and may not have all the bells and whistles of more svelte editors like Pro Tools or Audition, but, it's completely free. And, since it's open source, there are improvements being made to it on a fairly regular basis. For basic multitrack mixing for broadcast applications, you can do a surprising amount with it.

This tutorial is intended to introduce you to Audacity, and will walk you through producing a very simple station ID for broadcast, composed of two sound files you'll edit and eventually mix together.

1. To do this tutorial, you'll need two sound files—a short voice-over of a station ID, and an excerpt of a song that will become the ID music bed. Of course, you can provide these yourself, or, you can download my examples by entering the following URLs into your browser:

   Voice file: http://kbcs.fm/downloads/Tutorials/Audacity/station_ID.wav
   Song excerpt: http://kbcs.fm/downloads/Tutorials/Audacity/song_excerpt.mp3
   This tutorial: http://kbcs.fm/downloads/Tutorials/Audacity/Audacity_Tutorial.pdf
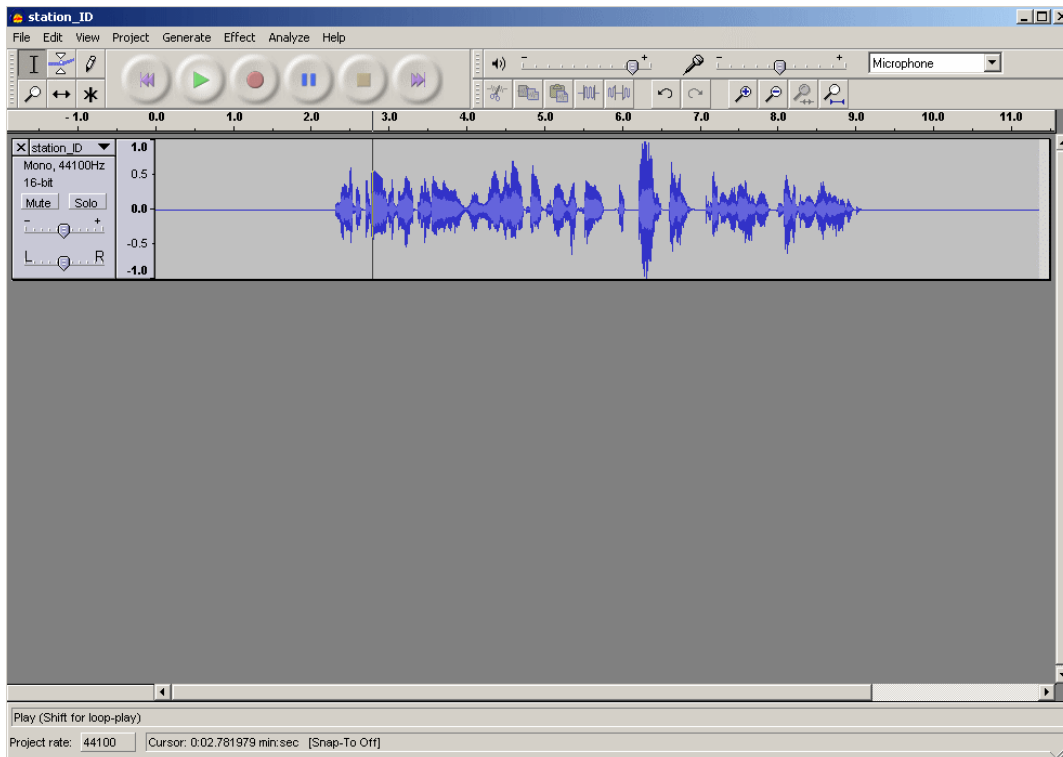
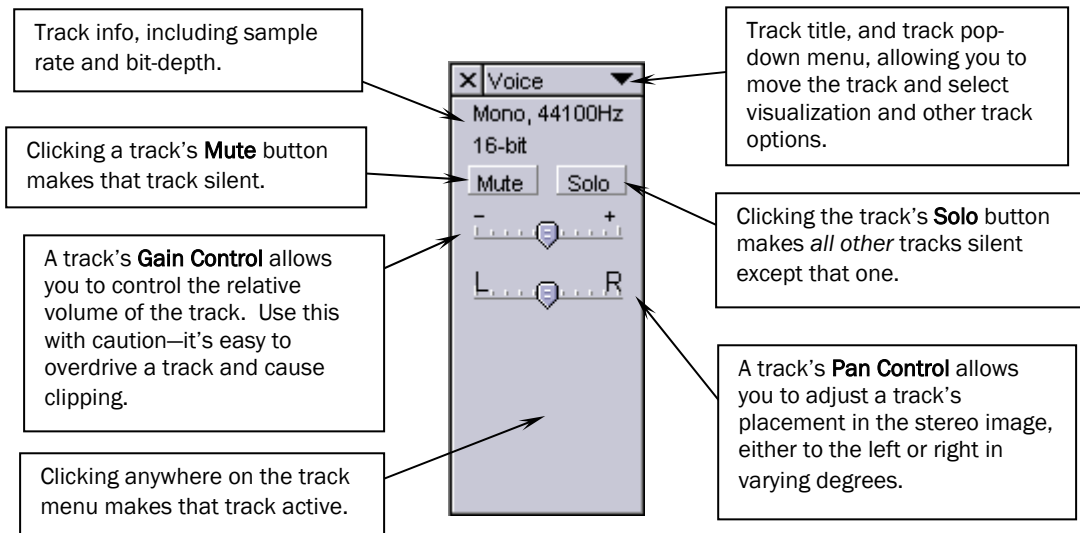2. Open Audacity. You should now see the (empty) Audacity project workspace.
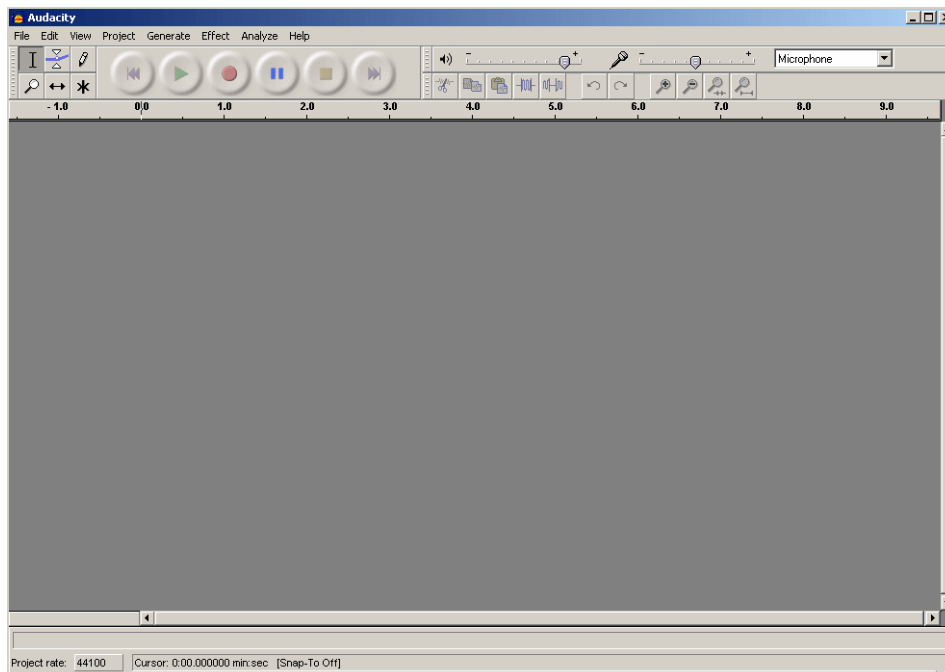
3. Click **File→Preferences**, and then click the **Quality** tab. Select 44100 Hz as your default sample rate, and 16-bit as your default sample format (this is a standard sampling frequency and bit depth for CD and broadcast quality audio). This sets your defaults, so you only need to do this once. Click OK to close the dialog box.
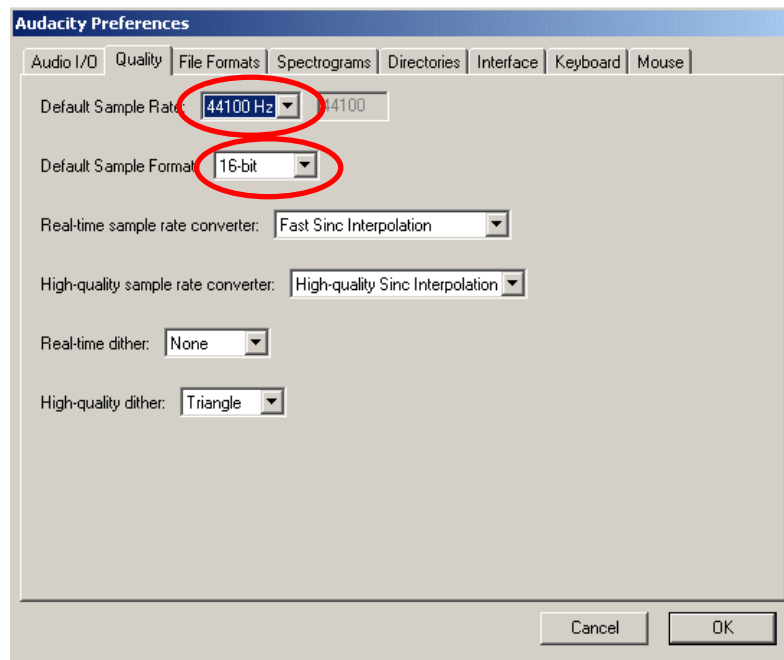

4. Now, you need to bring audio into your Audacity project. Click **Project→Import Audio…**, navigate to the *voice_ID.wav* file, then click **Open**. You should now see the file represented as a track.

5. Let's take a quick look at the track menu.

Track info, including sample rate and bit-depth.

Track title, and track pop-down menu, allowing you to move the track and select visualization and other track options.

Clicking a track's **Mute** button makes that track silent.

Clicking the track's **Solo** button makes *all other* tracks silent except that one.

A track's **Gain Control** allows you to control the relative volume of the track. Use this with caution—it's easy to overdrive a track and cause clipping.

A track's **Pan Control** allows you to adjust a track's placement in the stereo image, either to the left or right in varying degrees.

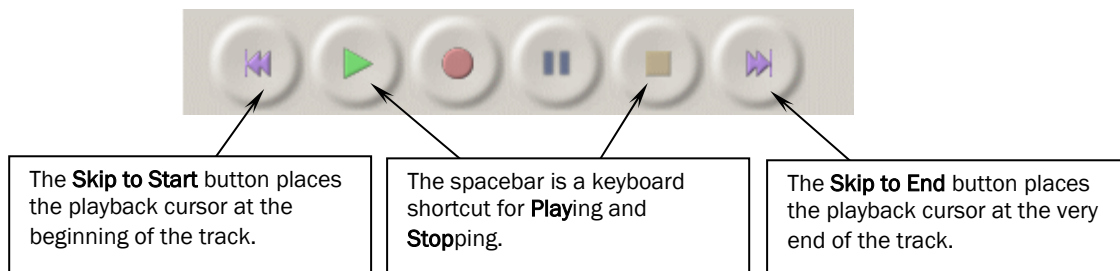Clicking anywhere on the track menu makes that track active.

6. You can adjust track heights to your own taste. Since we're only going to be using two tracks for this tutorial, let's first adjust the height of this track to make it easier to edit. Hover your cursor over the bottom edge of the track until it changes to two vertical arrows, then adjust the track height by dragging vertically.
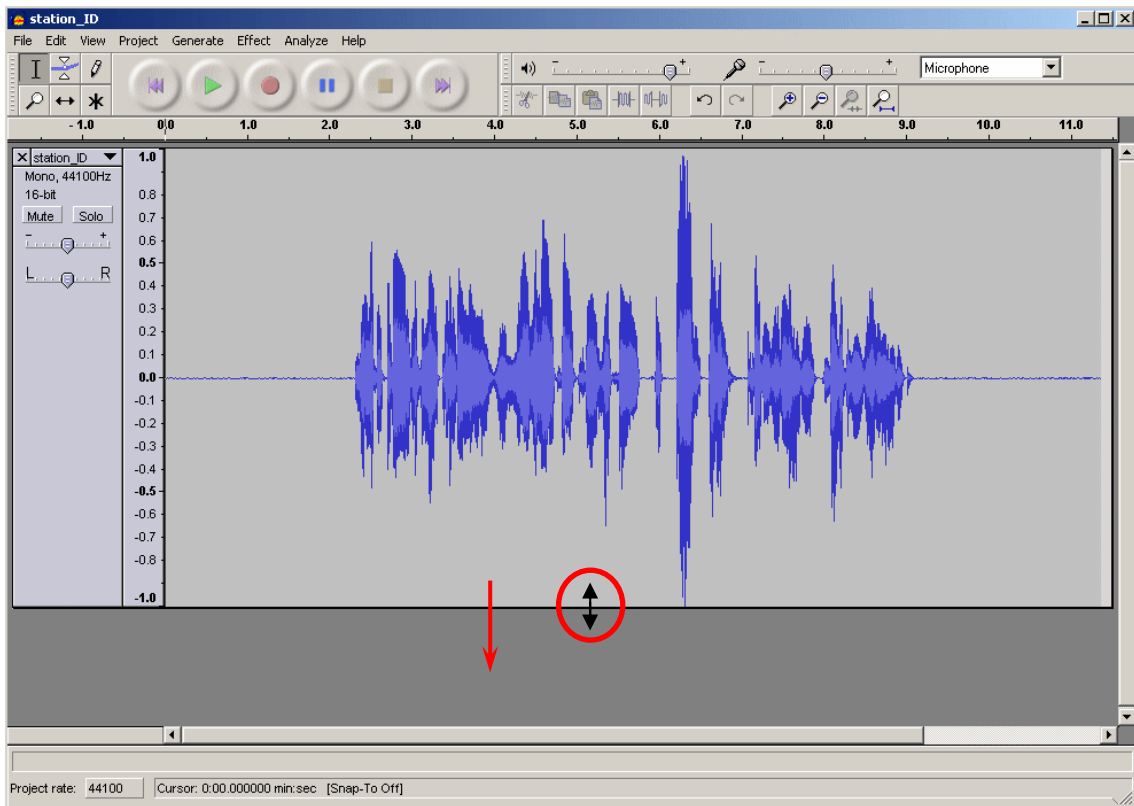
7. Let's change the name of this track to something more descriptive. Click the down arrow in the track label region, and select **Name…**. In the Track Name dialog box, type "Voice," and click OK.
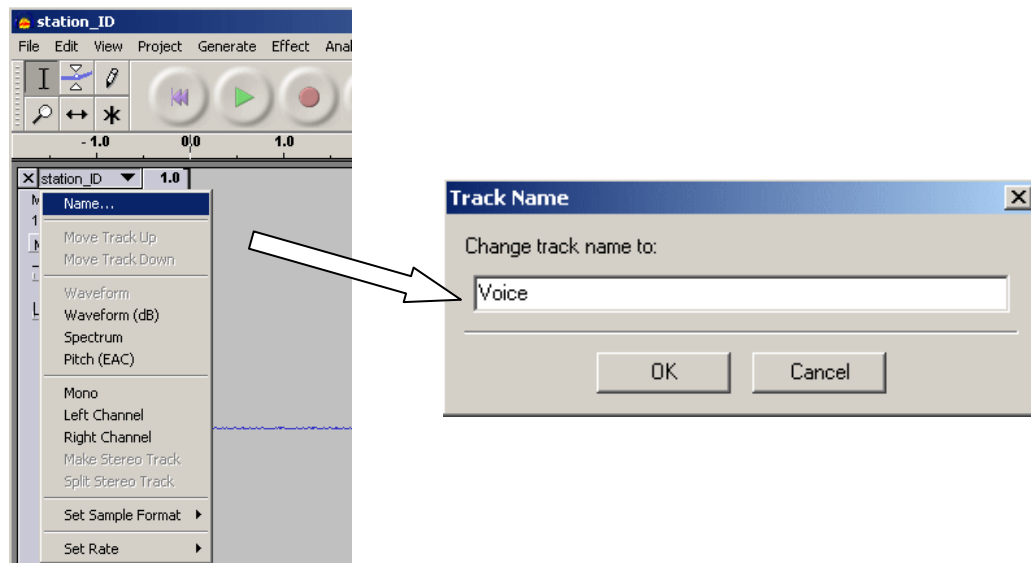
8. Now, listen to this audio by clicking the **Play** button (or, you can press the spacebar, which is a keyboard shortcut for the **Play** and **Stop** buttons). Notice that this file does in fact need some editing (you probably guessed as much).

The **Skip to Start** button places the playback cursor at the beginning of the track.

The spacebar is a keyboard shortcut for **Play**ing and **Stop**ping.

The **Skip to End** button places the playback cursor at the very end of the track.

9. To quickly listen to any part of the file, first make sure the selection tool (Keyboard shortcut F1) is activated.
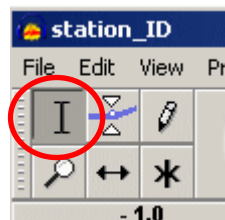
Then, simply left click anywhere in the track to position the playback cursor, and press the spacebar to play (or click the Play button).

10. Now, let's make our first edit by removing the cough. To do this most effectively, we'll zoom up on the cough portion of the file using the zoom tool. Click the zoom tool button to activate it (or use keyboard shortcut F4).
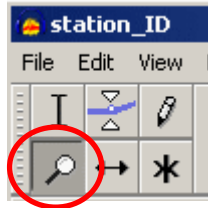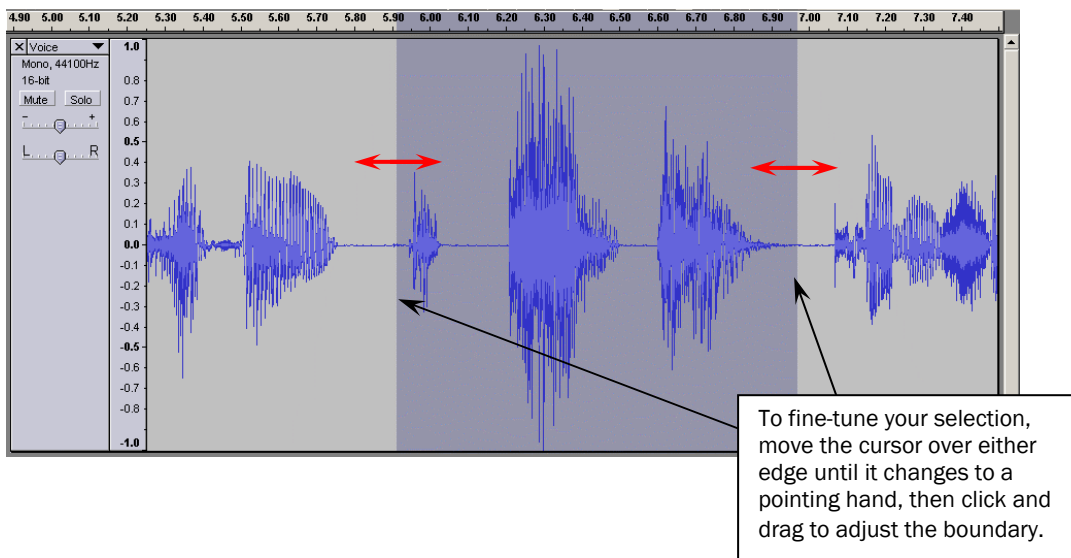

Notice that your cursor will change to a little magnifying glass to reflect this.

11. With the zoom tool activated, select the range of the file containing the cough by clicking and dragging over the region. The edges of your selection are denoted by vertical dashed lines, and upon releasing the mouse button, the file will be zoomed.
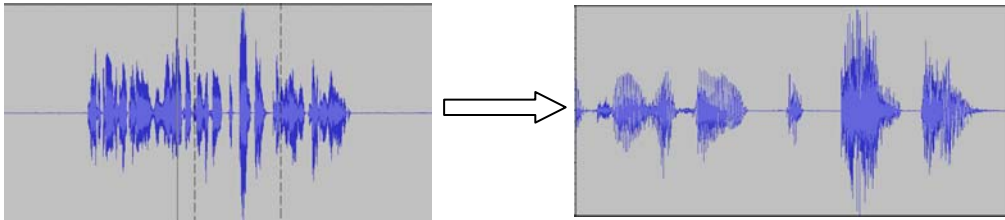

12. Activate the selection tool (F1), then select the exact region containing the cough by clicking and dragging. You can fine-tune your selection by hovering the cursor over the left or right edges of the selection until the cursor changes into a pointing hand. Then, clicking and dragging will adjust only that side of the selection range.


To fine-tune your selection, move the cursor over either edge until it changes to a pointing hand, then click and drag to adjust the boundary.

13. Now that we've located and selected the cough, let's get rid of it by hitting the Delete key. This can also be accomplished by using **Edit→Cut** (which will place the selected audio onto the clipboard for pasting).

To convince yourself that the cough is gone, place your cursor before the edit point, and play the audio. No more cough, right?

14. Zoom all the way out to see all audio on the track by clicking the **Fit Project in Window** button (or Ctrl+F).
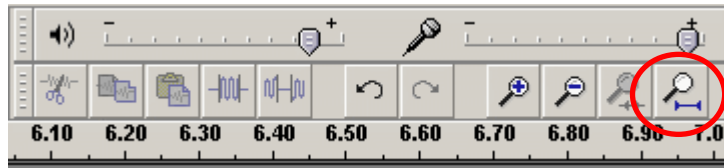

15. Notice that this voice track has a substantial amount of silence at the beginning and end. Let's clean it up by trimming. Select the region of the audio that you'd like to keep (remember, use the selection tool, F1).
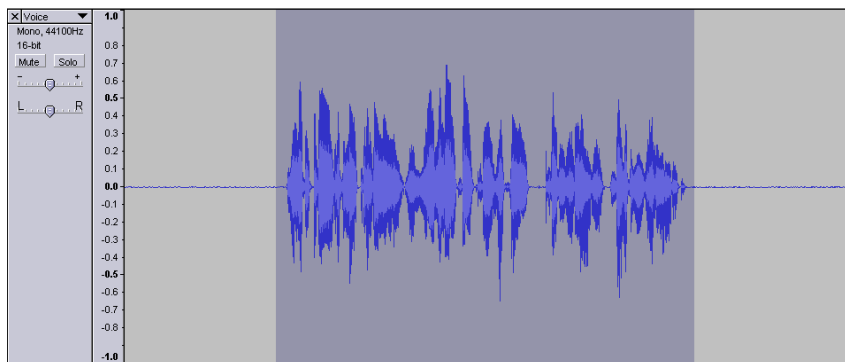
16. Now, click the **Trim outside selection** button (or Ctrl+T) to trim all audio not in the selection range.
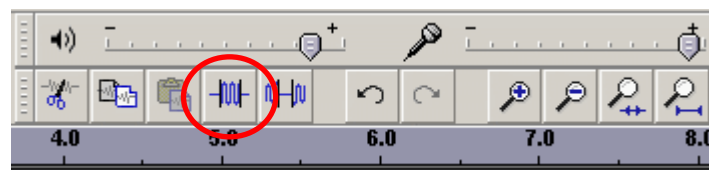
17. Notice that the sections of silence have now been removed.
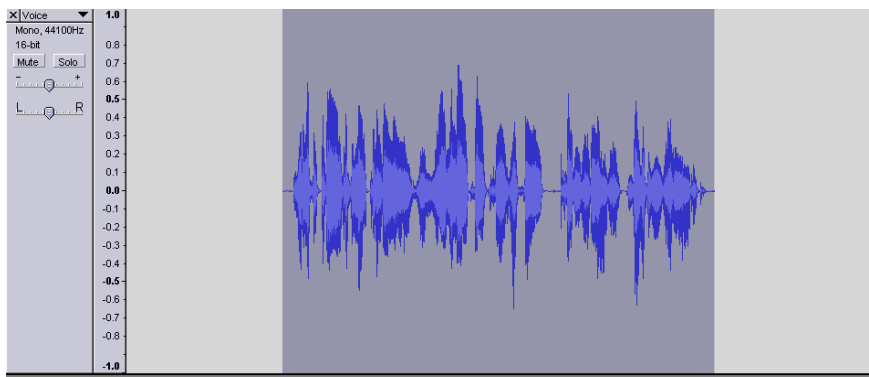
18. Now is a good time to save your project. Go to **File→Save Project As**, and save this project as *tutorial.aup*. The project file contains all the details of this project—your zoom adjustments, track heights, track names, volume settings, etc.

    Note that the aup project file does *not* contain audio (hence its relatively small file size), rather, the details of all edits you've made to this point. Later, after shutting Audacity down, you can simply open an .aup file and Audacity will automatically retrieve the audio files associated with the particular project, as well as all track adjustments you've made, etc.

19. Now let's import some music for our bed. Go to **Project→Import Audio…**, navigate to the *music_excerpt.mp3* file, then click **Open.** This will place the song audio onto a new track in your Audacity project.

    Adjust the track heights so that both tracks can be viewed in the project window, and then change the new track's name to "Music."
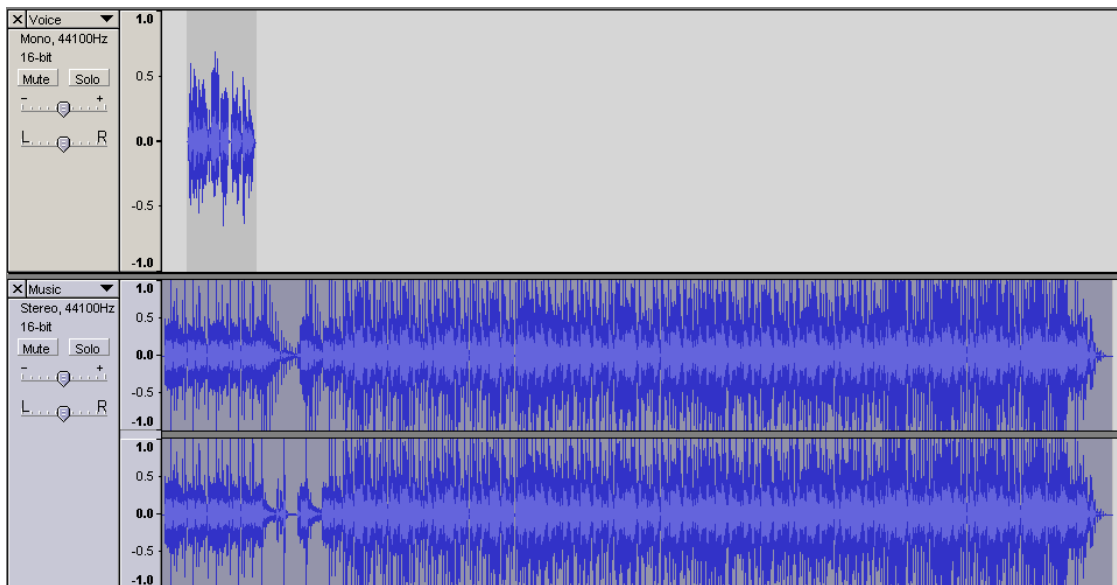
20. Let's say that we went the voice track to begin later in the song, when the drums really kick in. First, we're going to trim off the initial phrase of music that we don't want. Zoom in to make a more exact edit using the zoom tool.
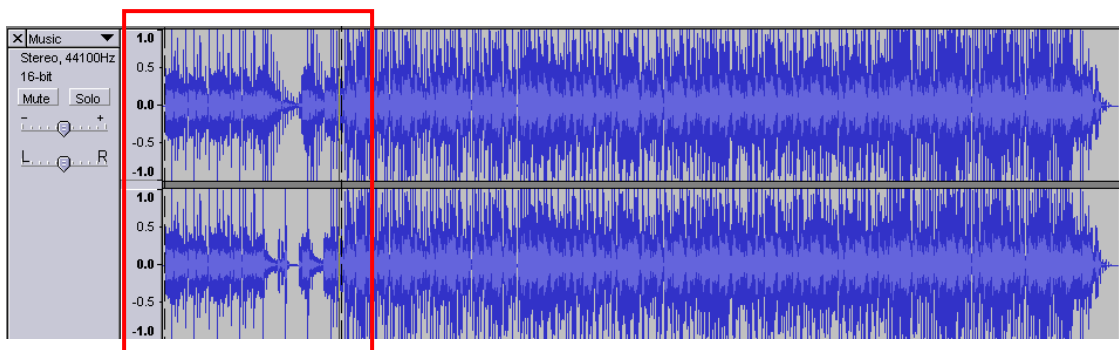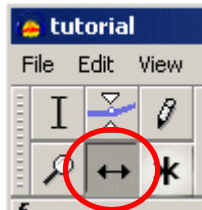
21. Delete the initial phrase of the song by first selecting it…
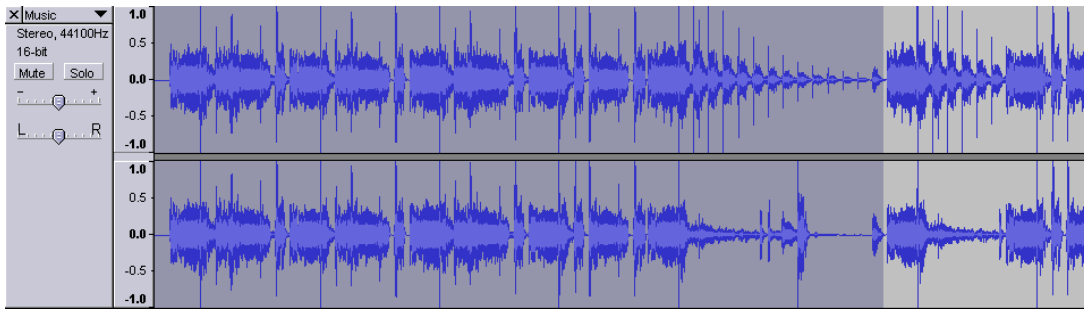
Then pressing the delete key (or, cutting it by pressing Ctrl+X).

22. Listen to the voice track and song together. Adjust the placement of the voice track by first clicking the **Time shift** tool. Note that the cursor will change to a double arrow when this tool is activated.


Click on the voice track audio, and by dragging left or right, adjust the voice track so that it begins after the primary drum beat kicks in.

Using the Time shift tool, adjust the placement of the voice track to fit with the music.
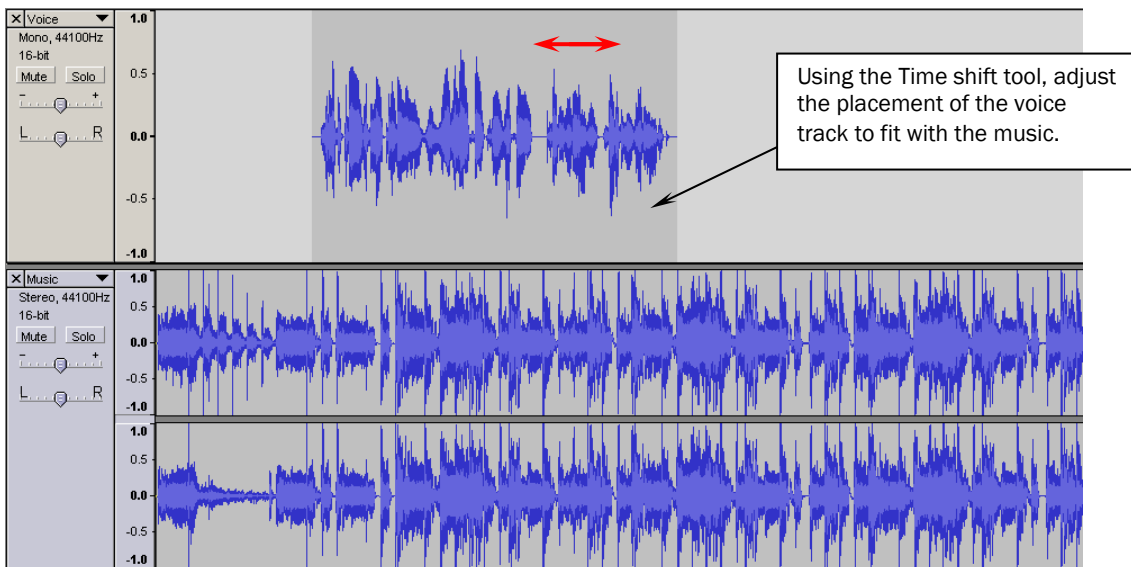
23. Notice that the music track overpowers the voice. We need to fade down the music so that the voice ID is more clear, then fade the music back up once the voice ends. Then, as the spot ends, we want the music to fade out nicely to silence.
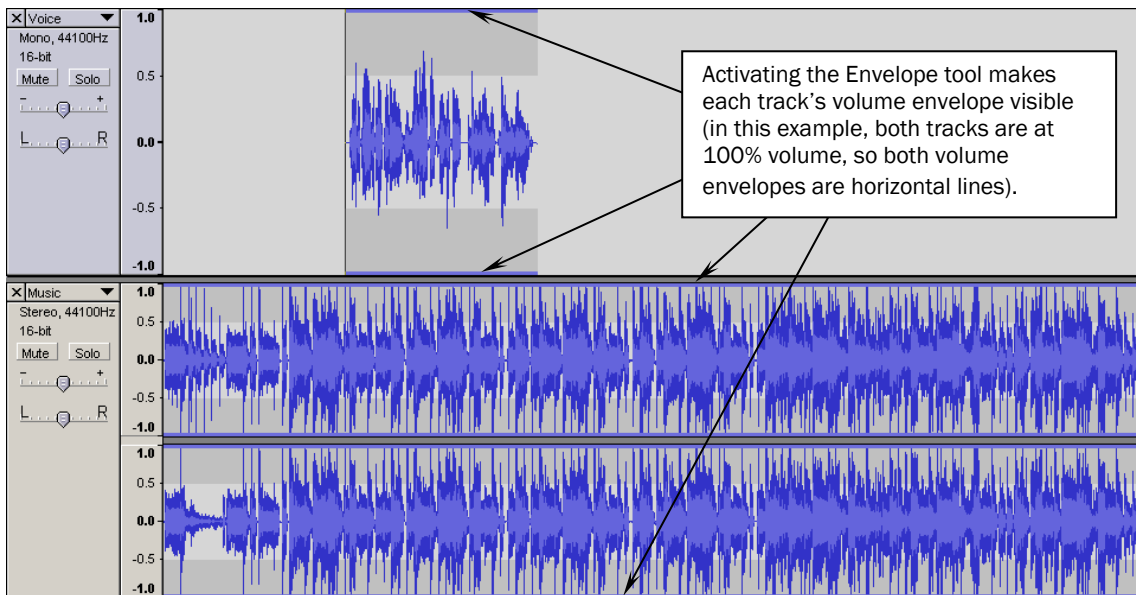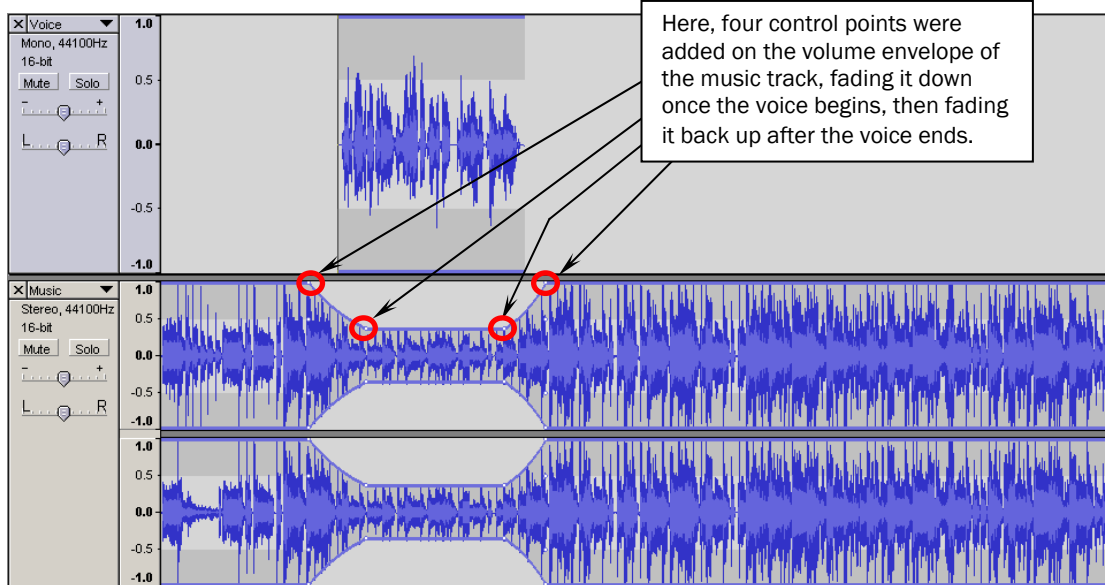
Click the **Envelope** tool.
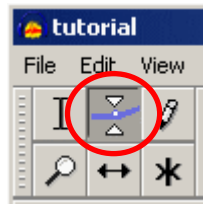
Using this tool will allow us to adjust the volume envelope of the tracks. Once the Envelope tool is activated, your cursor should change shape to reflect this.

24. Notice that once the envelope tool activated, you can see horizontal lines at the top and bottom of each track. These are graphical representations of the track's volume. So far, we've made no adjustments to the volume envelope of either track, so the volume lines are at 100%, or, at the very top and bottom of each track.

Activating the Envelope tool makes each track's volume envelope visible (in this example, both tracks are at 100% volume, so both volume envelopes are horizontal lines).

25. So, we're going to adjust the volume envelope of the music track to compliment the voice track. To do this, click on the music track volume envelope to add a control point. Continue adding control points and dragging the envelope to create the desired shape. Listen, adjust control points, then listen again. Repeat until it sounds good.

Here, four control points were added on the volume envelope of the music track, fading it down once the voice begins, then fading it back up after the voice ends.

To remove an unwanted control point, simply drag it off the track. Notice that when working with a stereo track, one needs only adjust either the left or right channel, and the changes will be reflected in the other.

26. Now we're going to fade the music down to silence to end the spot. Use the same techniques as in the previous step, adding control points and dragging them to fade to zero volume at the end. This is an inherently iterative process, so get in the habit of adjusting, listening, adjusting some more, and listening again.
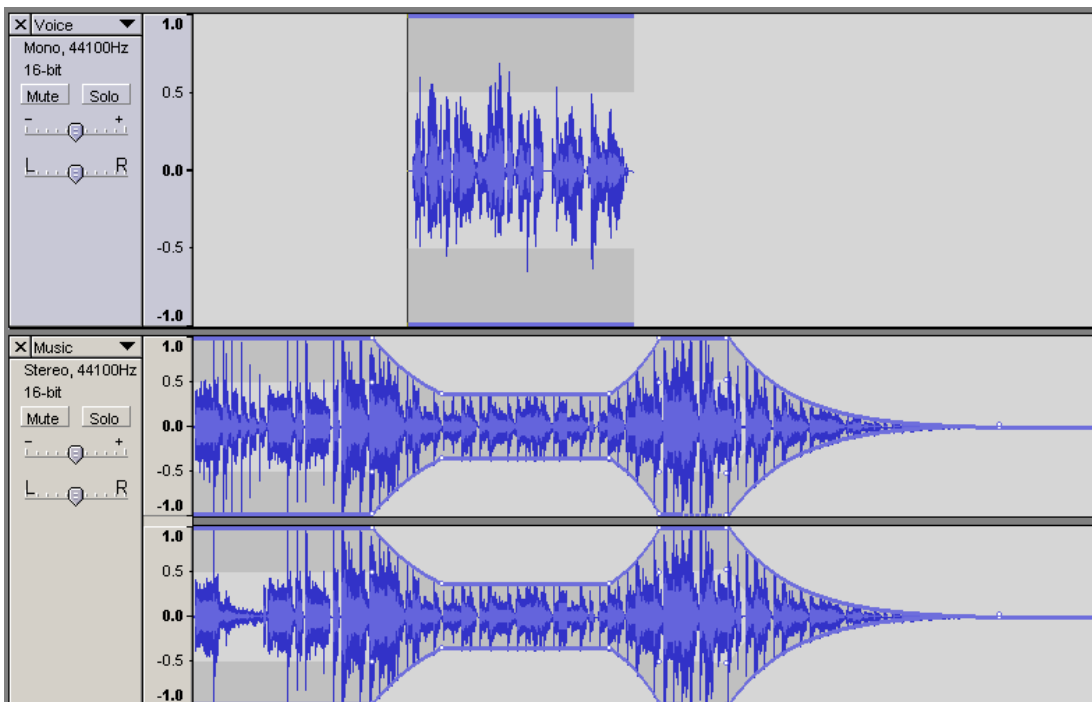
27. To view both tracks in their entirety, click the **Fit project in window** button.


28. Notice that there is a significant amount of silence on the music track. This is because the remainder of the song is still there, it's just turned down to zero volume.
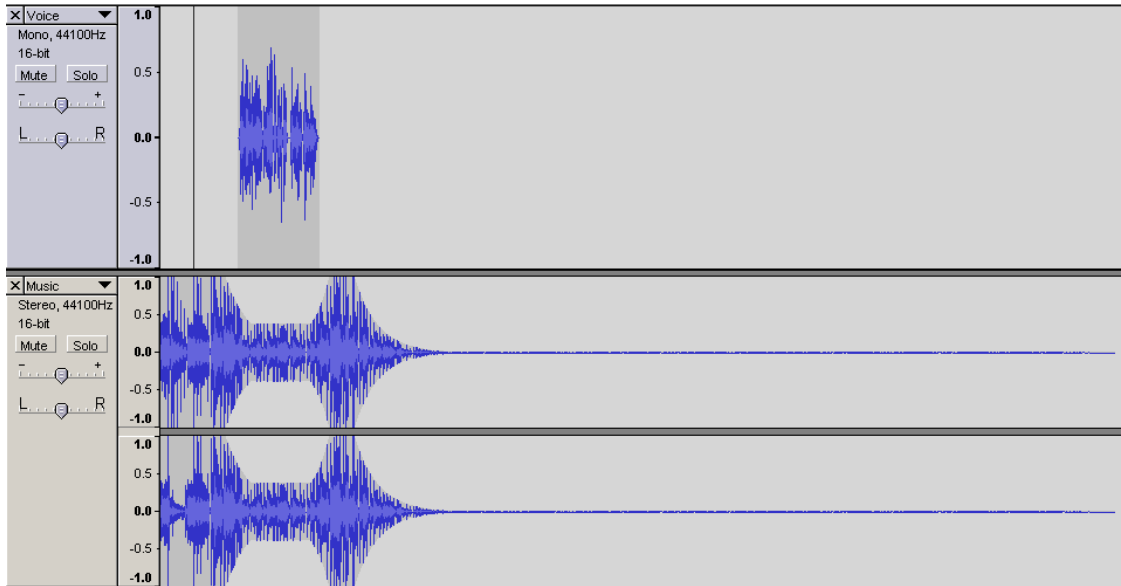
Let's get rid of it by selecting and deleting (or cutting) it. After selecting and deleting the silence, click the **Fit project in window** button once more.

Because the long silence has been removed from the music track, it now ends immediately after the fade.
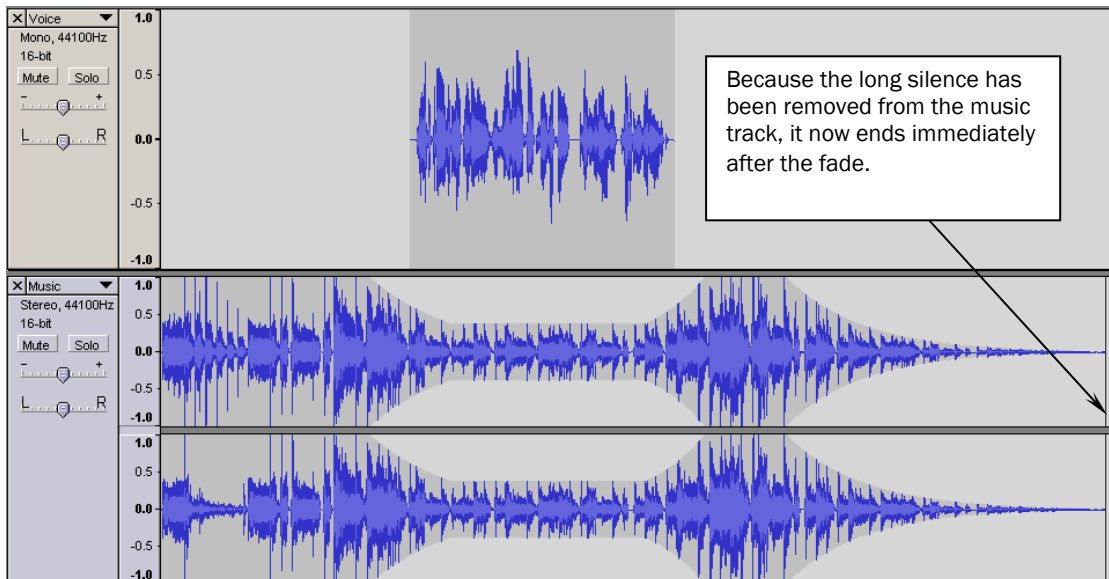
29. We're almost done. First, let's make sure this spot begins at time zero. Use the shift key and select both tracks to make them active (click on the track menu anywhere beneath the pan control slider). You can tell if a track is active by the color of the track menu—an active track's menu is a darker shade than an inactive track's menu. With both tracks active, click **Project→Align Tracks…→Align with Zero**.

Both tracks are active (hence the darker track menus).
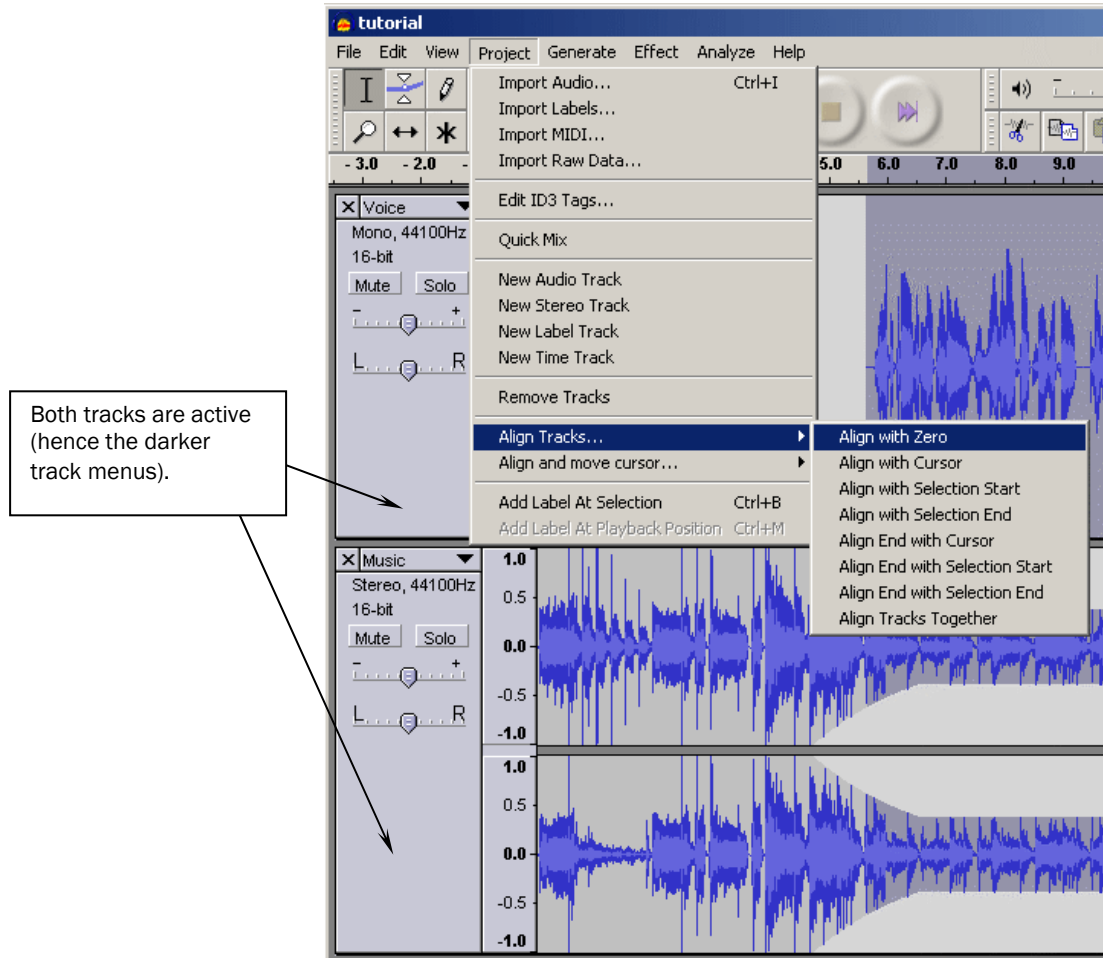
This adjusts all active tracks as a group until the left-most track is at time zero. Experiment with the other alignment options and convince yourself you understand how they work.

30. Assuming we're pleased with the sound of the spot at this point, it's now time to mix it down. This means we will create a single file from the mix of all the tracks that we've created thus far. But first, before we mix down, save your project once again.

Now, to create mixdown file, click **File→Export as WAV**. Navigate to the desired folder, name the new file *tutorial_mixdown.wav*, and click OK. This will create the file in the directory you specified. Note that when Audacity is finished creating the mixdown, you won't see any changes in your current project. This is because you've exported this mixdown file to the folder you specified—you haven't told Audacity to bring it into your current project (but, once it's created, you could).

OK, that's about it. If you've made it this far, congratulations. Obviously, this tutorial serves as a simple introduction to Audacity, and there are many more functions I'd encourage you to experiment with. Some to try out:
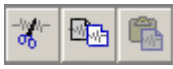

Cutting, copying, and pasting – works just like your word processor. Select some audio, copy or cut it, move your cursor to a new location, then paste it. Easy.


Label tracks – these allow you to annotate a file, or in other words, to mark locations on a track for later reference. They're very helpful, for example, with a long interview in which you need to mark certain quotations for later use. You create label tracks by clicking **Project→New Label Track**.

Splitting – The split function allows you to move sections of audio to a new track, leaving silence on the track from which it was taken. Select audio using the selection tool (F1), then go to **Edit→Split**. A new track will be created containing the selected audio.
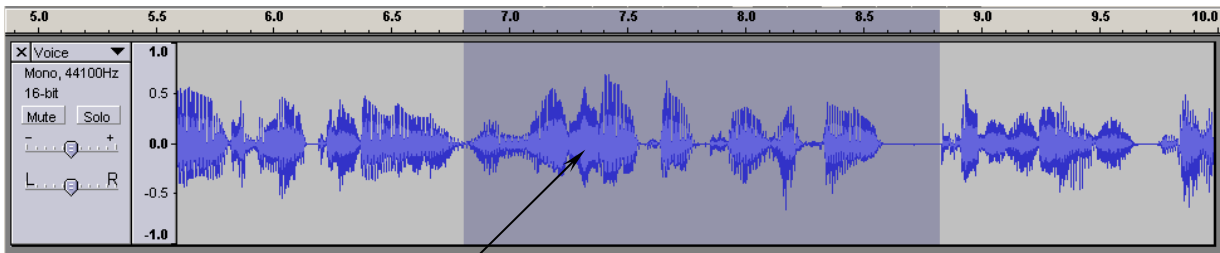

The split function allows you to move selected audio to a new track (leaving silence on the original track).
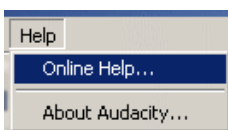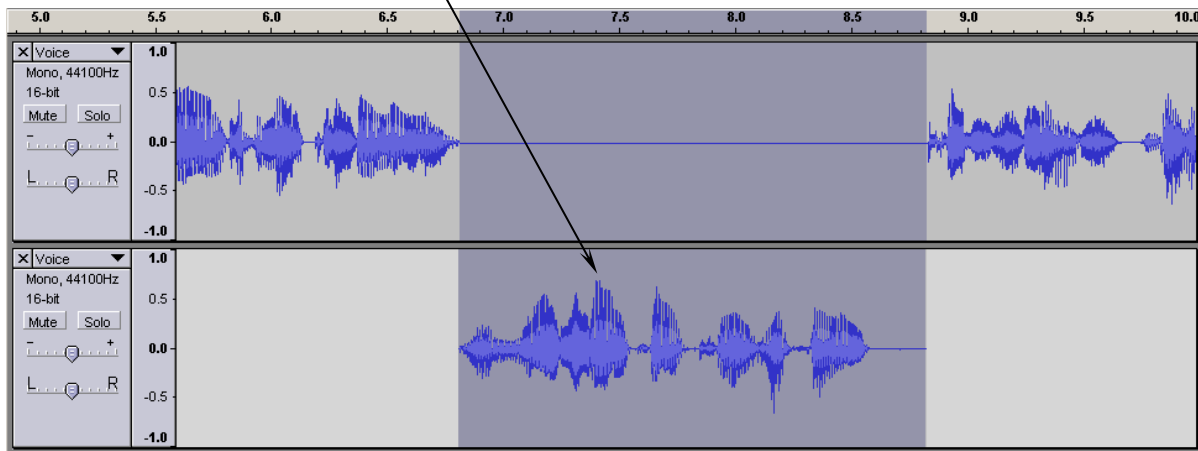
Help - Make sure to check out the online help (**Help→Online Help**), which is simple, but gives a quick outline of just about every function in the editor.

Keyboard shortcuts - As with any audio editor, if you're going to be using Audacity regularly, it's very beneficial to learn at least a few of the keyboard shortcuts. Audacity also allows you to program your own keyboard shortcuts for just about any of the functions. Do this by going to **File→Preferences** and clicking the **Keyboard** tab. Scroll through the functions and enter the key sequences of your choice.
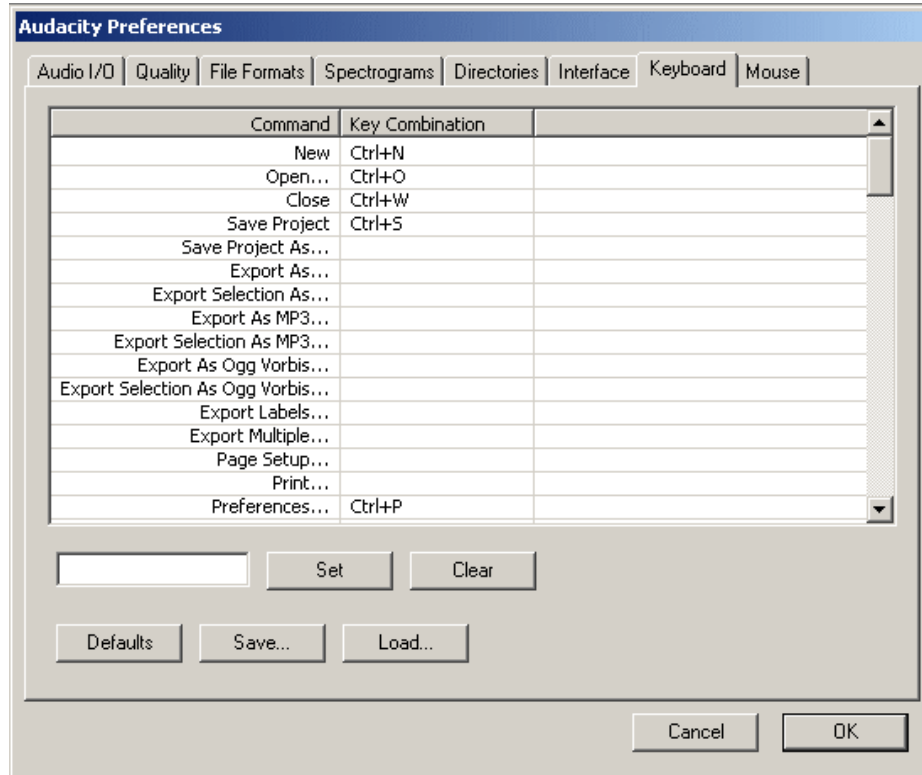
Additional Resources:

The online Audacity manual is chock full of tips and also contains a separate tutorial section worth a look:

http://audacity.sourceforge.net/manual-1.2/tutorials.html

Jeff Towne at Transom.org put together a brief tutorial for (a slightly older version of) Audacity. Check it out here:

http://www.transom.org/tools/editing_mixing/200404.audacity.html

Questions or comments?
Contact Peter Graff through KBCS at pgraff@bcc.ctc.edu.