

REALLY EASY RECORDING & EDITING

This session will look at the basics of recording and editing student performances using inexpensive equipment and free software. The techniques covered are perfect for recording students in class, archiving school ensemble performances, creating podcasts, digital storytelling and more.

SOFTWARE:

Audacity is a free software program for both Mac and PC, which allows you to record and edit audio. It's easy to use and has lots of uses in the classroom.



There are currently two versions available: 1.2.6 and 1.3.12. I would recommend downloading **1.3.12** since there are a few useful extra things you can do in that version (like remove vocals from a CD recording) that can't be done in the earlier version.

You can download Audacity from <http://audacity.sourceforge.net/>

HARDWARE:

Buy the best you can afford, but don't forget that you can still make recordings on a tight budget. Hardware choices depend largely on:

- What it is you want to record (speaking, singing, class ensemble performance, VCE student performances)
- How good the quality needs to be
- Budget

What do I need?

1. Computer

- Laptop or desktop
- the more RAM the better

2. Microphone

- Inbuilt laptop mic
- Gaming headphones with microphone (best for speaking/stories/podcasts)
- iPod with microphone
- Handheld microphone (Microtrack II, Edirol R09, Zoom H4N)
- USB microphone
- Dynamic microphone (ie. Shure SM58)
- Condenser microphone (good quality, but more expensive. Need phantom power)

3. Audio interface

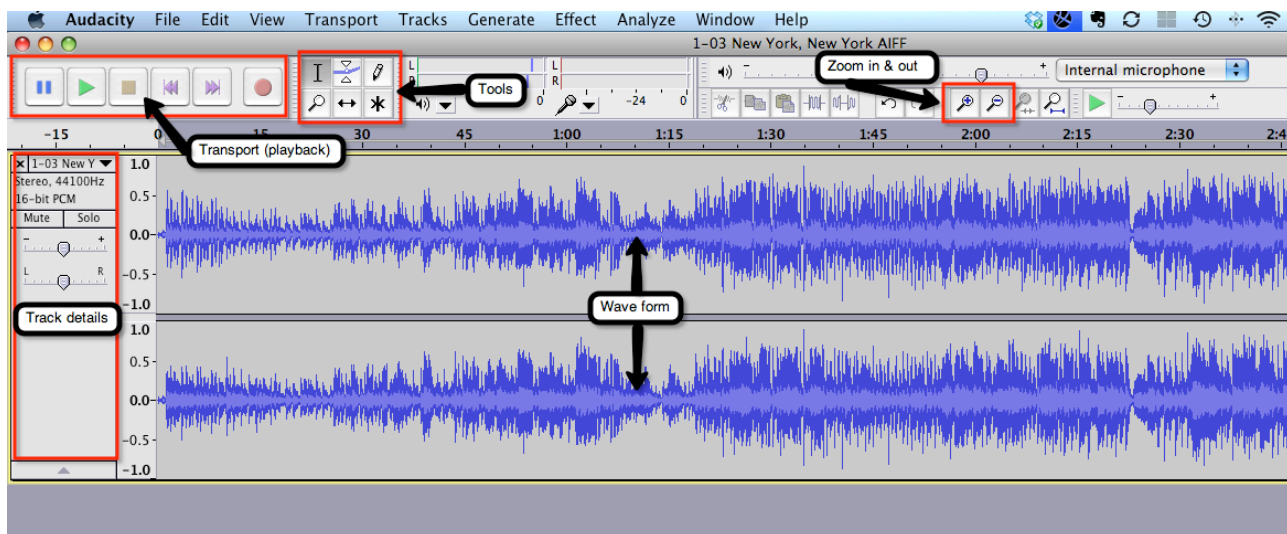
- Only needed if using a dynamic or condenser mic that does not plug into your computer via USB

4. Headphones to monitor the recording

- Use the best you can afford

AUDACITY

Audacity screen:

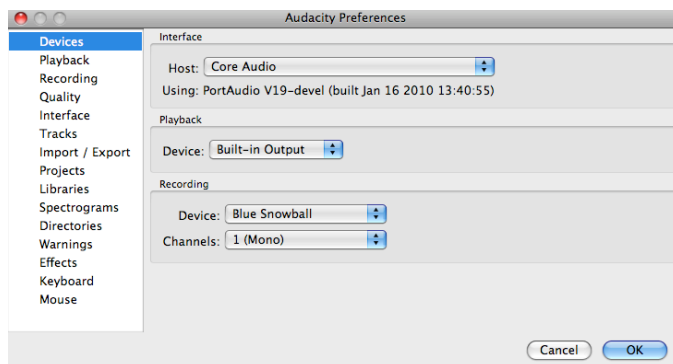


SETTING UP AUDACITY FOR RECORDING

Open up Audacity's Preferences dialogue:

- PC: go to **File > Preferences**
- Mac: go to **Audacity > Preferences**

Click on **Devices** in the list on the left and check that your microphone is selected in the **Recording Device** drop-down menu. Click **OK**



RECORDING & IMPORTING AUDIO

To start recording, simply click on the **record button**. Audacity will start a new audio track and when you start speaking/singing/playing, you'll see a wave file appear.

If you use a handheld recording device (such as an iPod, Edirol R09, Microtrack II), you will record your audio on to that device and then import it into Audacity. The steps:

- Create your recording
- Plug the device into your computer and save the recording on to your hard drive. Instructions for this step vary depending upon the device you're using
- Open Audacity and go to **File > Import > Audio**
- Navigate to the place you saved your recording on your computer and click **Open**
- The audio file will appear in Audacity ready for you to edit it

SHORTEN A SONG

Now that you have your recording in Audacity you can edit it. One common editing task is to remove unwanted audio at the beginning or end (or even the middle) of a recording.

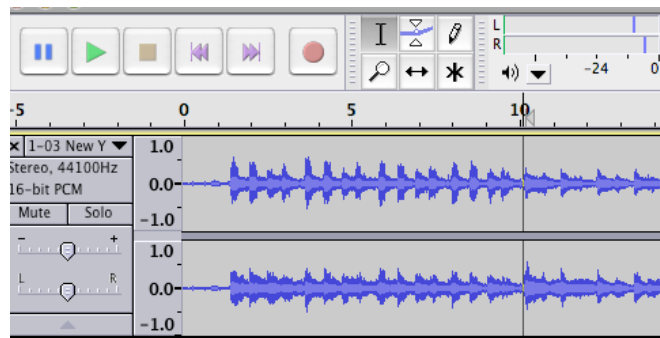
- In Audacity, zoom so you can see the track in detail (go to **View > Zoom In** or click the **Zoom in** tool)

- To shorten the intro, play the song and choose the place you're going to cut the beginning; click on the wave form to place the playback line in the correct position

- Hint: you can press the **[** key (the key to the right of the letter "P") during playback to stop the playback line at the correct place)

- Select the material you want to delete (ie. the beginning part) by going to **Edit > Select > Track start to cursor**

- Click on the **Cut** button (it looks like a pair of scissors and is located in the middle of the toolbar area at the top) or press **Delete**. The remainder of the track will move up to the start



- You can cut the end using the same method: place the cursor (playback line) where you want to cut and then go to **Edit > Select > Cursor to track end**. Click on the **Cut** button to delete the selected part



EFFECTS

Once you've topped and tailed your recording, you might like to consider adding some effects. Effects can help to "correct" a recording: give it more warmth, boost a bass instrument, add crispness, smooth out the dynamic range and make your ensemble sound as though they performed in a concert hall.

NB: Before you add any effects, save a copy of your project. That way you can come back to the original recording if necessary.

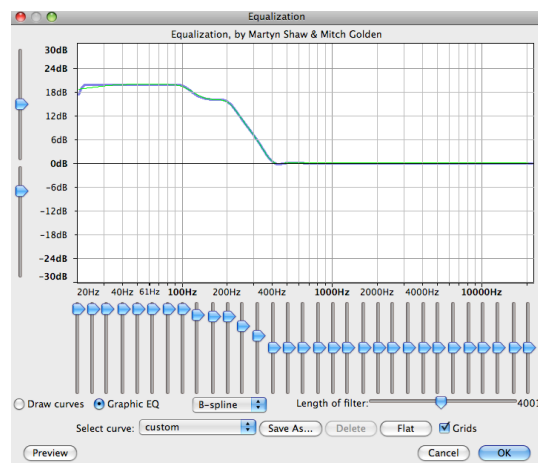
EFFECT #1: EQUALIZE

Equalization is the process of editing the **volume of individual frequencies** in a recording. When you think back to the "older" style amplifiers, radios and car stereos they usually had two or three knobs that allowed you to adjust the low (bass), mid or high (treble) signal.

- **Low:** increasing the low/bass frequency will boost the kick drum, bass guitar and some low vocal sounds. It will also add some warmth to the recording. Over-emphasising these frequencies might result in a "muddy" sound. Decreasing the bass frequency too far might mean that some of the low sounds disappear
- **Mid:** mid-range frequencies include most of the common vocal sounds: speaking, singing
- **High:** increasing the high or treble frequencies will boost high sounds such as upper woodwinds, upper piano keys, high vocals. You can boost the high frequencies to add clarity, crispness and brightness. You can also reduce them to eliminate "S", "T" and "Z" sounds and hissing

In Audacity, go to **Effect > Equalization** and the window to the right will open. It's best to use the **Graphic EQ** option, or **Draw curve** option to adjust the frequencies.

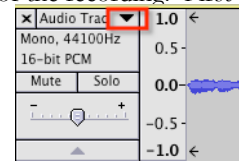
- For example, if you want to boost the low frequencies select the **Graphic EQ** option and then drag the sliders on the left side upwards (as pictured)
- There are also some preset "curves" in the drop-down menu. Once you've adjusted the frequencies you can **Preview** your changes by using the **Preview** button
- Go easy when making changes – even a small adjustment can have a big effect
- When you're happy with the changes, click **OK**



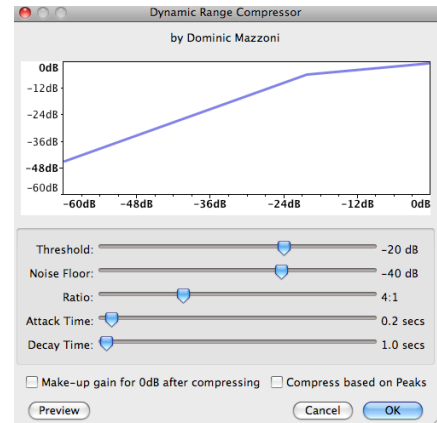
EFFECT #2: COMPRESS

Compression is used to smooth out the peaks in a recording, that is, it reduces the *dynamic* range of the recording. First of all it's best to work out what the peak levels are in your recording:

- You can discover the dynamic range of the recording by clicking on the drop down menu next to the track header
- Choose **Waveform (db)** from the menu
- Now you can look at the waveform and identify the peak levels



If your peak levels are around -8db, go to **Effect > Compressor** and use these settings:

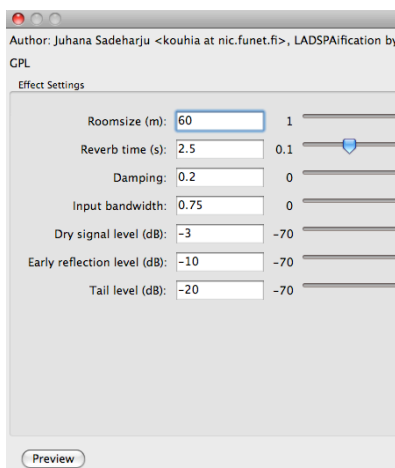


EFFECT #3: REVERB

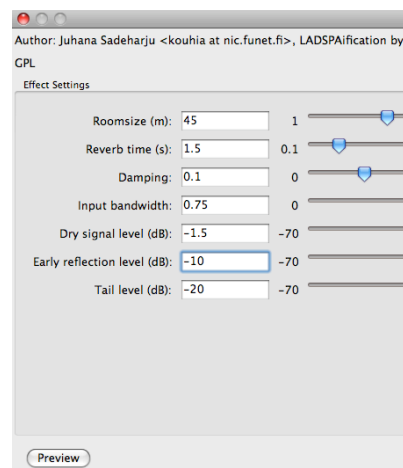
Adding reverb will “extend” the sound in your recording. By applying a reverb effect you can make it sound as though your students recorded their performance in small hall or a large concert hall.

Go to **Effect > Gverb** and try these settings:

Concert Hall



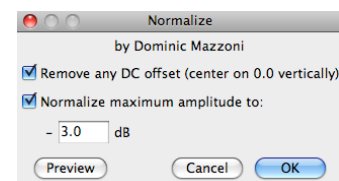
Small Hall



EFFECT #4: NORMALISE

A normalisation effect is usually applied at or towards the end of the editing process and will increase the amplitude to the maximum level without distorting the audio.

- Go to Effect > Normalization
- Type 3.0 or 5.0 into the db box
- Click **OK**



FADE-INS AND FADE-OUTS

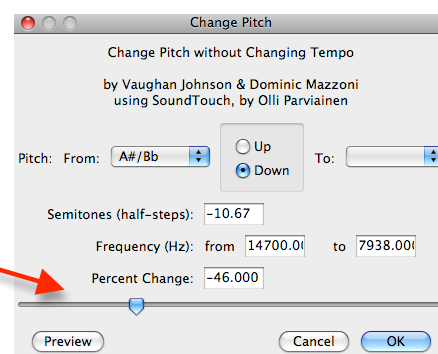
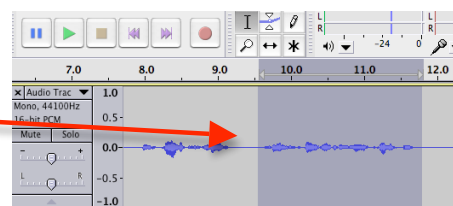
- Create a fade-in by selecting the first section of audio (click and drag the mouse to select) and then go to **Effect > Fade in**
- Create a fade-out by selecting the last section of audio (click and drag the mouse to select) and then go to **Effect > Fade out**

ALTERING YOUR VOICE

You can use the effects in Audacity to alter the spoken voice quickly and easily. Students can record their own stories and then enhance them by using these effects.

Darth Vader

- Record some speaking and select the part of the wave file you want to alter
- Go to **Effect > Change pitch**.
- For my own adult female voice, I usually move the slider to the left until the **Percent Change** is at around **-46.000** (adjust the amount if you're changing a child's recorded voice or that of an adult male). Click **OK**



Chipmunks

- Select the wave file and go to **Effect > Change pitch**. Move the slider to around **+76.000** (experiment with the settings for the voice type you're working with) and click **OK**

You can also experiment with the other effects in the menu. Try: Reverse, Echo, Change Speed, Wah wah.

EDITING SONGS FROM YOUR CD COLLECTION

You can't import a song into Audacity directly from a CD. You need to "rip" the required track from the CD using a separate audio extractor program such as

- iTunes (Mac and PC)
- Windows Media Player
- Audiograbber
- CDex

The best formats to use are WAV files (PC & Mac) or AIFF files (Mac only). MP3 files are also readable by Audacity but their quality is not as high as WAV or AIFF files.

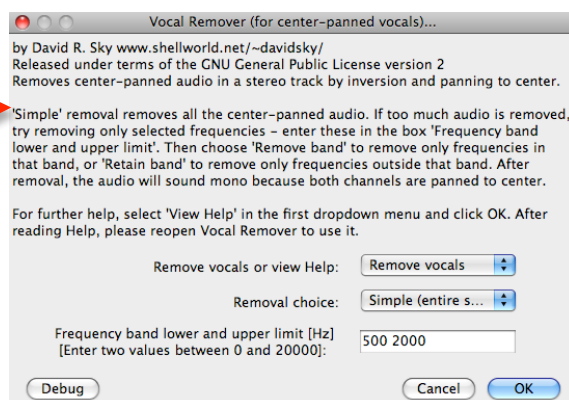
Once you have imported a song into Audacity, you can edit it the same way we've been editing our "live" audio. You can also try the following:

REMOVING VOCALS

Removing vocals from a recording is a common desire and there are numerous software packages available for purchase that will do this – with varying success. The latest release of Audacity also includes a Vocal Remover effect, so you can test out this function for free.

A word of warning: the title "Vocal remover" can be a little misleading. Any program that claims to remove vocals really only reduces the level of the original vocals. There will always be some residual vocal sound on the track. However, using such an effect may create a backing track that is good enough for your purposes.

- Go to **File > Import > Audio**
- Locate the song and click **OK**. The song will appear in Audacity and you can play it back by using the playback controls in the top left-hand corner
- To remove the vocals, go to **Effect > Vocal Remover (for centre-panned vocals)**. Leave the settings as they are and click **OK**
- Play back song to test the results. If you get a poor result, try running the effect again with different settings



CHANGING KEY

You can transpose the song in Audacity using the Change Pitch effect. It's best not to transpose the song by more than 2 or 3 semitones, since the quality of the recording will be reduced and the change too obvious.

- Open the audio file in Audacity as before
- Go to **Effect > Change pitch**
- Choose whether you'd like to transpose **Up or Down** and then adjust the key of the song in the **Pitch: From and To** drop-down menu. You can also type in the number of semitones

CHANGING TEMPO

You can use Audacity to slow a song down for rehearsal purposes: you can change the tempo without affecting the pitch of the song.

- Open the audio file in Audacity as before
- Go to **Effect > Change tempo**
- Drag the slider in the Change tempo dialogue to the left (try -20.00 percent or so) to make the track play slower without losing pitch. You can also speed up the song by dragging the slider to the right

SAVING AND EXPORTING YOUR FILES

You'll need to save your file in a format that can be played back with Windows Media Player or iTunes, or be burnt to CD.

- Go to **File > Export**. The Edit Meta Data dialog will open: leave the settings as they are and click OK
- In the next window, give the track a title, select the location and choose the file format: WAV or AIFF (large files) or MP3 (smaller)
- Lastly, you can play the track back on your computer using your chosen media player or you can burn it to CD