

# Audacity: Editing Spoken Word

# How to Use This Course Book

This handbook accompanies the taught sessions for the course. Each section contains a brief overview of a topic for your reference and then one or more exercises.

## The Exercises

Exercises are arranged as follows:

- A title and brief overview of the tasks to be carried out
- A numbered set of tasks, together with a brief description of each
- A numbered set of detailed steps that will achieve each task

Some exercises, particularly those within the same section, assume that you have completed earlier exercises. Your lecturer will direct you to the location of files that are needed for the exercises. If you have any problems with the text or the exercises, please ask the lecturer or one of the demonstrators for help.

This book includes plenty of exercise activities – more than can usually be completed during the hands-on sessions of the course. You should select some to try during the course, while the teacher and demonstrator(s) are around to guide you. Later, you may attend follow-up sessions at IT SERVICES called Computer8, where you can continue work on the exercises, with some support from IT teachers. Other exercises are for you to try on your own, as a reminder or an extension of the work done during the course.

## Writing Conventions

A number of conventions are used to help you to be clear about what you need to do in each step of a task.

- In general, the word **press** indicates you need to press a key on the keyboard. **Click**, **choose** or **select** refer to using the mouse and clicking on items on the screen (unless you have your own favourite way of operating screen features).
- Names of keys on the keyboard, for example the Enter (or Return) key, are shown like this ENTER.
- Multiple key names linked by a + (for example, CTRL+Z) indicate that the first key should be held down while the remaining keys are pressed; all keys can then be released together.
- Words and commands typed in by the user are shown like **this**.
- Labels and titles on the screen are shown like **this**.
- Drop-down menu options are indicated by the name of the options separated by a vertical bar, for example **File|Print**. In this example you need to select the option **Print** from the **File** menu. To do this, click with the mouse button on the **File** menu name; move the cursor to **Print**; when **Print** is highlighted, click the mouse button again.
- A button to be clicked will look **like this**.
- The names of software packages are identified *like this*, and the names of files to be used like **this**.

## Software Used

*Audacity 2.0.3*

*Mac OSX/Windows XP*

## Files Used

To be made in class

## Revision Information

Version	Date	Author	Changes made
1.0	February 2011	Stephen Eyre	Created
1.1	March 2011	Stephen Eyre	Updated content
1.2	November 2011	Stephen Eyre	New Content
2.0	February 2013	Stephen Eyre	New Logos
3.0	July 2013	Stephen Eyre	Version 2 software and comprehensive re-write

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# 1 Introduction

Welcome to the course **Audacity: Editing Spoken Word**.

This booklet accompanies the course delivered by IT Services, IT Learning Programme. Although the exercises are clearly explained so that you can work through them yourselves, you will find that it will help if you also attend the taught session where you can get advice from the lecturers, demonstrators and even each other!

If at any time you are not clear about any aspect of the course, please make sure you ask your lecturer or demonstrator for some help. If you are away from the class, you can get help by email from your lecturer or from [help@it.ox.ac.uk](mailto:help@it.ox.ac.uk)

## 1.1 What You Should Already Know

This session is one of a series that cover the important aspects of using *Audacity* to record spoken word (and other elements) that can then be used for podcasting or presentation aides. You will have confidence to build and manage audio files that can be used in a variety of ways and contribute to your personal media library.

The computer network in IT SERVICES may differ slightly from that which you are used to in your College or Department; if you are confused by the differences, ask for help from the lecturer or demonstrators.

## 1.2 What You Will Learn

This course will help you learn to use *Audacity* to produce spoken word files. It is a single session, covering key techniques and automations, and provides tasks for hands-on practice.

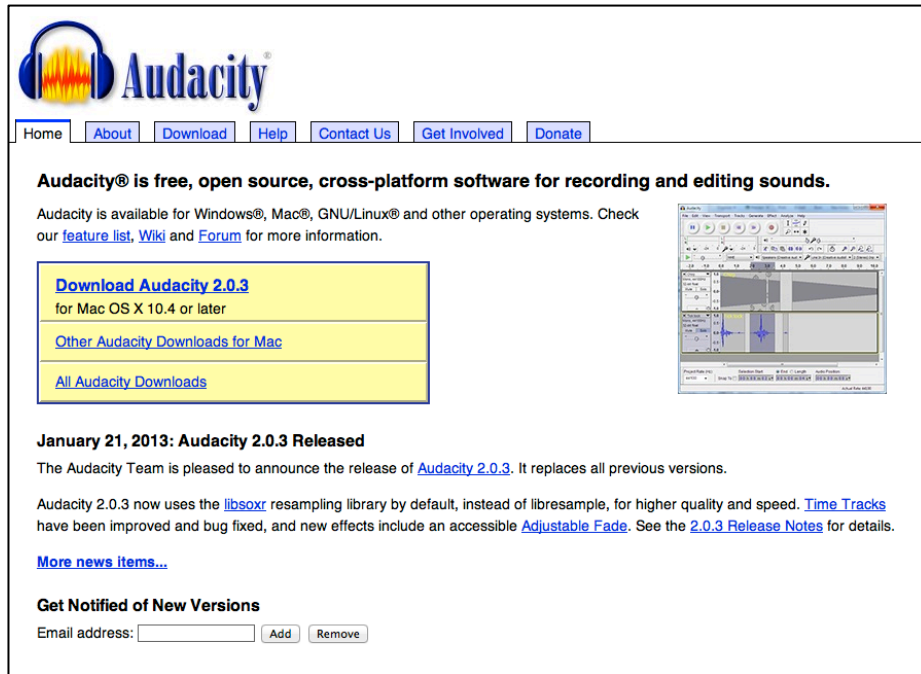
In this session we will cover the following topics:

- Recording spoken word directly into the computer
- Importing audio into the project from pre-recorded sources
- Editing the audio to deal with problem areas
- Improving the audio quality

## 1.3 Where Can I Get a Copy?

You can download a copy of Audacity and all necessary and optional add-ons from:

<http://audacity.sourceforge.net/>



The screenshot shows the Audacity website homepage. At the top left is the Audacity logo, which consists of a pair of blue headphones with a yellow and red flame-like soundwave inside. To the right of the logo is the word "Audacity" in a blue, serif font. Below the logo and name is a navigation menu with buttons for "Home", "About", "Download", "Help", "Contact Us", "Get Involved", and "Donate".

The main content area features a bold heading: "Audacity® is free, open source, cross-platform software for recording and editing sounds." Below this, it states: "Audacity is available for Windows®, Mac®, GNU/Linux® and other operating systems. Check our [feature list](#), [Wiki](#) and [Forum](#) for more information." To the right of this text is a small thumbnail image of the Audacity software interface.

There is a yellow box containing download links: "Download Audacity 2.0.3 for Mac OS X 10.4 or later", "Other Audacity Downloads for Mac", and "All Audacity Downloads".

A news section is titled "January 21, 2013: Audacity 2.0.3 Released". The text below reads: "The Audacity Team is pleased to announce the release of [Audacity 2.0.3](#). It replaces all previous versions. Audacity 2.0.3 now uses the [libsoxr](#) resampling library by default, instead of libresample, for higher quality and speed. [Time Tracks](#) have been improved and bug fixed, and new effects include an accessible [Adjustable Fade](#). See the [2.0.3 Release Notes](#) for details." Below this is a link for "More news items...".

At the bottom, there is a section titled "Get Notified of New Versions" with an "Email address:" label, an input field, and "Add" and "Remove" buttons.

Instructions on how to install the program and the LAME Mp3 encoder that is needed if you want to export audio as an Mp3 are found here:

[http://manual.audacityteam.org/o/man/faq\\_installation\\_and\\_plug\\_ins.html#How do I download and install the LAME MP3 encoder.3F](http://manual.audacityteam.org/o/man/faq_installation_and_plug_ins.html#How_do_I_download_and_install_the_LAME_MP3_encoder.3F)

This software is open source and is free to use as well as being intellectually free to contribute to. It is also cross platform and will run happily on Linux, Windows and Apple operating systems.

For more information on Open source projects and how they work, see:

<http://sourceforge.net>





## 2 Audacity

Show website  
 Download and setup issues  
 Record raw data  
 Save and archive project  
 Top and Tail – fade in  
 Editing audio  
 Splitting tracks  
 The move tool  
 Create new tracks  
 Copy tracks  
 Export selection as an audio file  
 Import existing audio

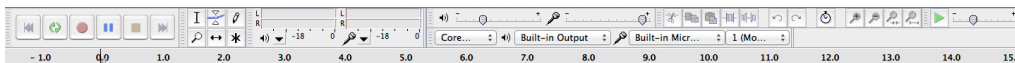
Audacity is a cross platform audio sequencer/editor that can record, import, edit and export audio in a variety of formats to suit a wide range of needs – including educational podcasting. The fact that it is widely used in higher education and is very capable in performance ensures its place as an essential tool in creating media for our Web 2.0 world Audacity is also one of the simpler audio editors to learn and is free to download from:

Audacity

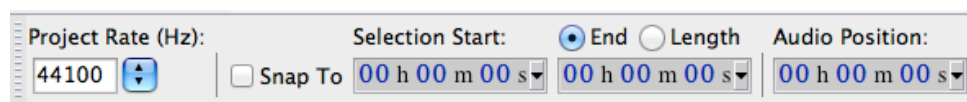
<http://audacity.sourceforge.net/>

The website has comprehensive help sections and there are tutorials and the online manual under help. There is also a FAQ section and a wiki with some very useful entries about effects. Audacity allows many types of plugin effects that treat the sound recorded to be used. Effects in the formats of LADSPA, Nyquist, Audio Unit and VST are supported. The download page o the website begins to give an idea of the versatility and range of effects available.

Use the manual to learn the program and follow the online links to follow areas of interest.



**Figure 1: The program's toolbar**



**Figure 2: Project details in the bottom left of the program window**

You can use the project menu, import audio command to import mp3's and wav files into Audacity for later editing.

## 3 Downloading and Installing Audacity and the LAME MP3 Encoder

### 3.1 Downloading and installing Audacity:

Downloading Audacity is very simple and the instructions for doing so on all the major platforms are here:

[http://manual.audacityteam.org/o/man/faq\\_installation\\_and\\_plug\\_ins.html#exe](http://manual.audacityteam.org/o/man/faq_installation_and_plug_ins.html#exe)

Here is the section covering Windows download and setup:

**Save:** On the *download page*, left-click the "installer" link to save it to your computer. Check the browser preferences if necessary to find out where your downloads are saved. Alternatively, right-click over the link, "Save Target As" or "Save Link As" and choose the location to save the file to. Then double-click the downloaded .exe file to start the installer. You must be an administrator on the computer to do this, or follow the prompts to confirm your permission to install.

**Run:** Using Internet Explorer and a few other browsers, you can left-click the "installer" link and select an option to "Run" the file. This launches the Audacity setup immediately. **Note:** Some security programs will query or block installers running from the computer's temporary space.

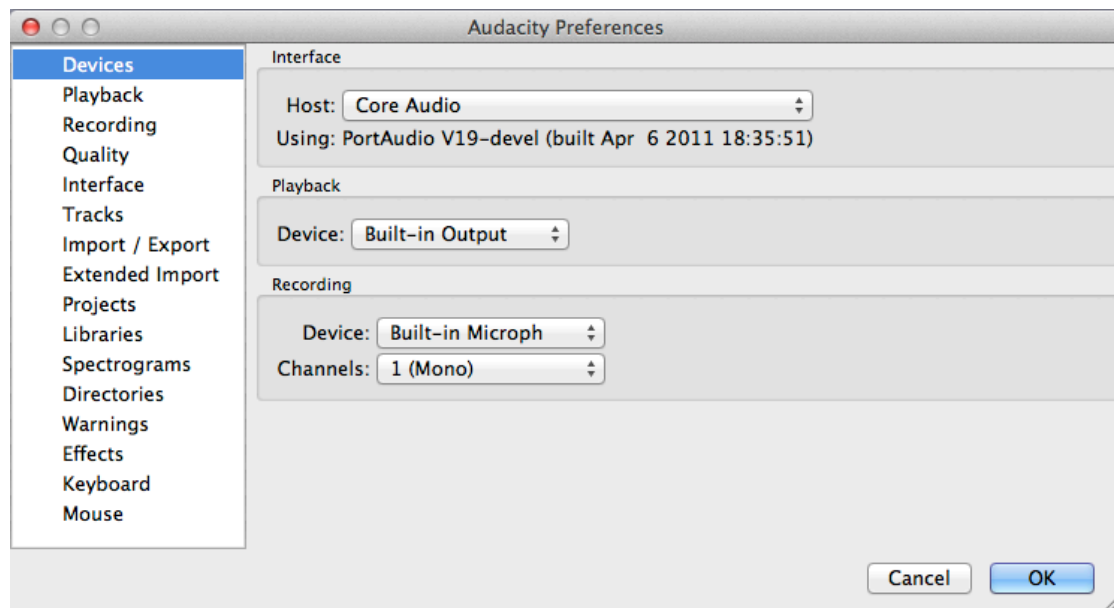
**Updating a previous installation:** If you install a new Audacity version after installing a previous one, the installer will offer to install to the same directory as the previous installation. If the previous installation was Audacity 1.2 or 2.x, the installation directory is normally `Program Files\Audacity` (or `Program Files(x86)\Audacity` on 64-bit Windows). As long as you don't change the installation directory, Audacity will install over the previous 1.2 or 2.x version, and any extra plug-ins you added to the "Plug-Ins" folder will still be available.

If the previous version was 1.3.x, please uninstall 1.3 before installing the current 2.x version. After uninstalling 1.3, any extra plug-ins you added to that version will remain, and you can move them to the "Plug-Ins" folder of the new installation.

**Updating optional libraries:** If upgrading from Audacity 1.3.6 or earlier, you must update to the *latest LAME* MP3 encoding library. Otherwise there is no need to upgrade LAME or *FFmpeg* unless this is indicated in the *Release Notes* for the new version of Audacity. Installing the MP3 Encoder

Please look at for the full instructions and FAQ:

## 3.2 Setting Preferences



**Figure 3: The preference window for Audacity**

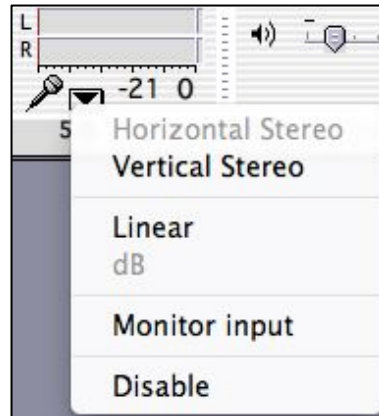
Setting up Audacity on your home machines should be easy – just select Preferences from either the Edit menu (Windows) or From the Audacity Menu (Mac) and point the program to the audio connectors and settings you wish to use. In the audio I/O tab, your sound card should be seen straight away and you can set it to be the input and output. USB mics and similar equipment should also be detected by Audacity and these should be selected as appropriate.

The File formats tab deals with the Mp3 encoder and all you have to do is point Audacity to the place you downloaded (and uncompressed) the Lame encoder to. These tasks only have to be performed once and then you are ready to record and export as Mp3 whenever you need to.

## 4 Recording and Editing

### 4.1 Recording

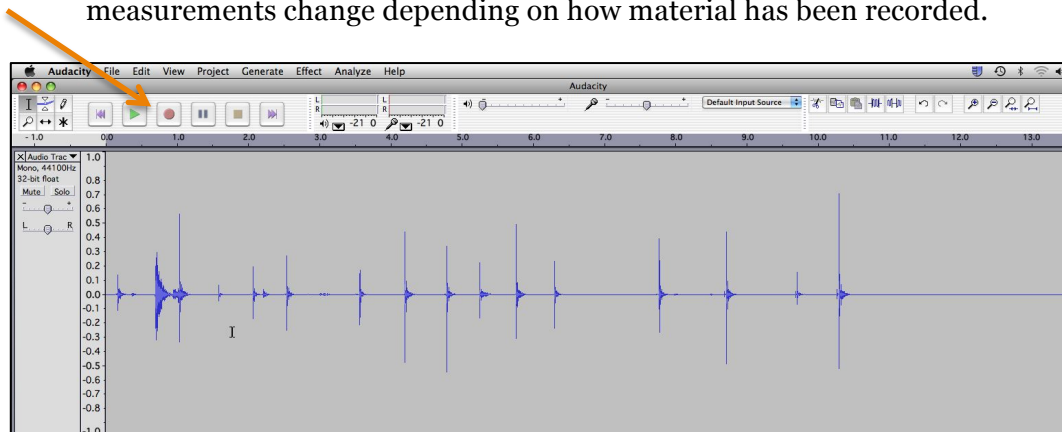
Before recording you can check that your signal (your voice for example) is being seen by Audacity by choosing to monitor the input. You will see a red signal in the stereo meter above the drop down arrow if signal is being successfully monitored.



**Figure 4: The Monitor Input dialog – select to see the signal level of recorded source**

To record a track, press the red record button, and start to speak. When you want to stop recording you can press the space bar to stop. A new track will have been created and you should see a visual representation of the recorded sound waves running from left to right across the arrange area.

There is a time ruler underneath the toolbar which is context sensitive; the time measurements change depending on how material has been recorded.

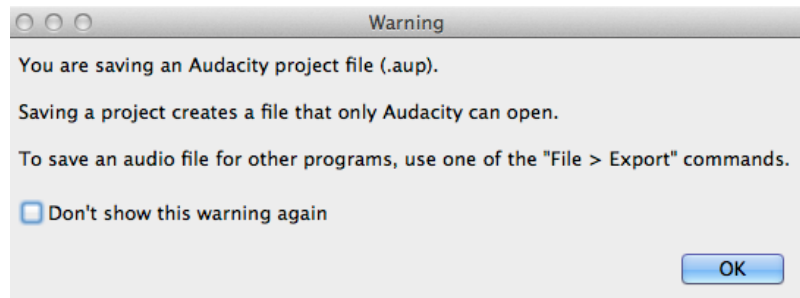


**Figure 5: A recorded track with the wave representation showing**

### 4.2 Saving your work

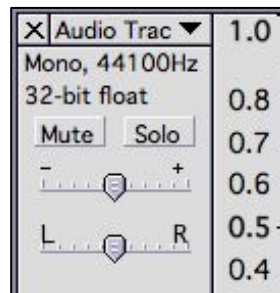
Once you have recorded your raw audio you should save your project and archive the audio before doing any editing. This means you can always return to the original state of the project should you need to in future and saving the project regularly means that you will keep edits you are making safe from any program crashes

Choose File, save project to save your work as an Audacity project. You will be warned that you are saving in a special audio format that is unlikely to be opened by other programs like audio players.



**Figure 6: The file warning message that is shown when you save the project. Click ok**

This underlines the important difference between saving the project and exporting out the audio in a usable file type – these are different processes and are done for different reasons. You save the project so you can open it again in future and continue to work on it. You export the audio out in a file format that can be played by many devices so you can put your audio somewhere where it will be accessed by your audience – your website or a social media site for example.



**Figure 7: The track information pane. Select *Audio Track* to rename**

Name tracks by using drop down arrow in the track view. Call the first track original, the second, edit.

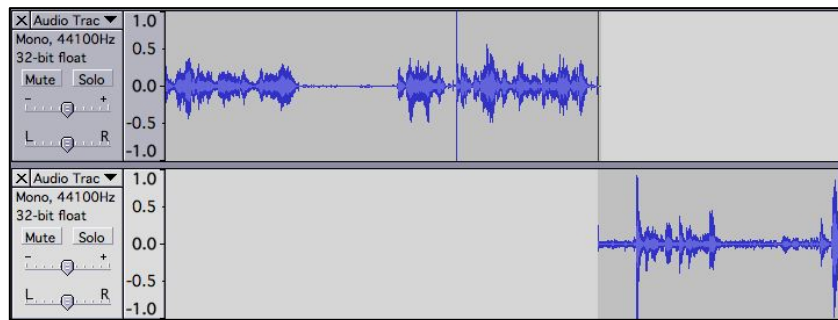
Select View, fit in window to see the whole audio track. You can change the resolution of your view using the zoom tools and click and drag at the track edges. You can also choose fit vertically to fill the window with the two tracks.



**Figure 8: Audacity zoom tools**

You may want to record several piece of audio in the same project. If you press record again, a new track will be created automatically. The audio will start recording at the beginning of the project which might not be what you want. However, if you place the time line in the project where you want in the existing track, the new track will record from that location. This will allow you to record sections starting where you want. You can further edit tracks to fine tune them but the basic structure will be correct. If you record where other material is

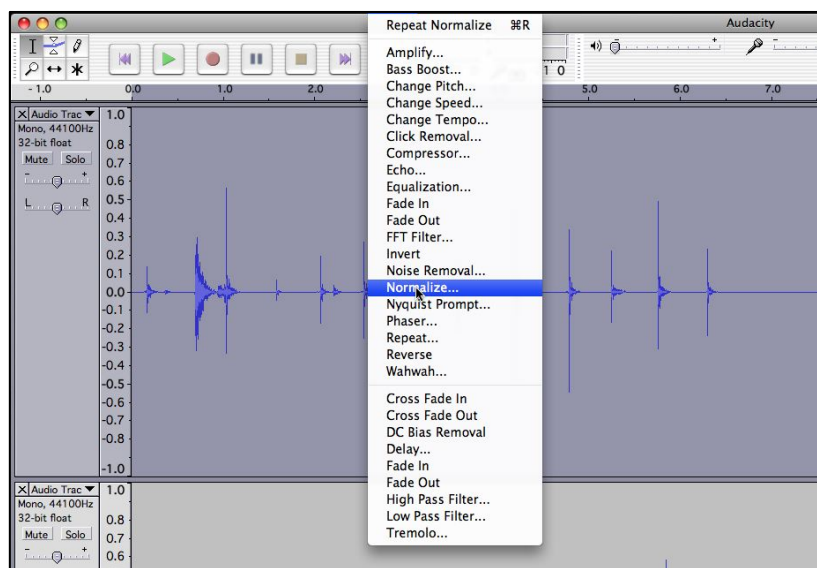
already present on other tracks, you will want to mute these tracks. Click on the Mute button in the track header.



**Figure 9: Recording from a set place in the time line**

### 4.3 Normalising a weak audio track

Click in the track detail pane to select the entire track. Choose Effects, Normalize. This will increase the volume of the entire audio file proportionately, so that the signal peaks at  $-3\text{db}$  (or the default setting). This leaves a little headroom for further processing. This is a quick and efficient way of boosting a weak audio recording's signal to a useable level. One downside to using this tool is that it will of course boost any background noise as well. Another thing to consider is that if there is one loud moment in the track – a cough for example, then normalising the track will only increase the volume marginally. The cough will limit the effect as it is already loud. It is better to do a little editing before normalising – removing unwanted material and treating anything else that is too loud (see 5.6) so the whole track is reasonably uniform before choosing to normalise. Unless there is a good reason to do otherwise, normalising a track would be one of the last functions to perform. Some of the export choice include normalise too.



**Figure 10: Choosing the *Normalize* option from the effects menu**

## 5 Editing

### 5.1 Selecting material to edit

When you edit material you first have to select it. Click and drag your mouse over the audio material in a track to select it. The audio will appear with a darker grey background.

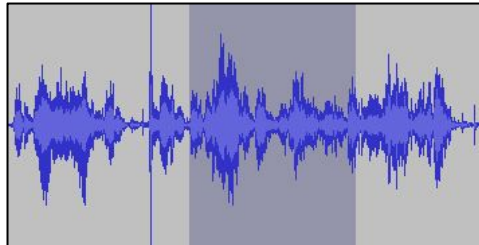


Figure 11: A selected piece of audio in a track

### 5.2 Trimming the beginning and end

Deleting silence at the beginning of the file. Click and drag to select the beginning section of the track where there is no wanted signal and then click backspace to delete it. You can select and delete material from anywhere in the track by doing this including the end.

### 5.3 Fade in (and out)

Select a short segment of file from the beginning of the file and then choose Effects, Fade In. This is very useful to avoid a surprisingly loud signal from the start. It allows the listener time to adjust to what they will be hearing.

### 5.4 Cut, Copy and Paste

You can cut or copy material and paste to other tracks or other parts of the same track: To select the part you wish to cut, copy or paste to, use the selection tool.

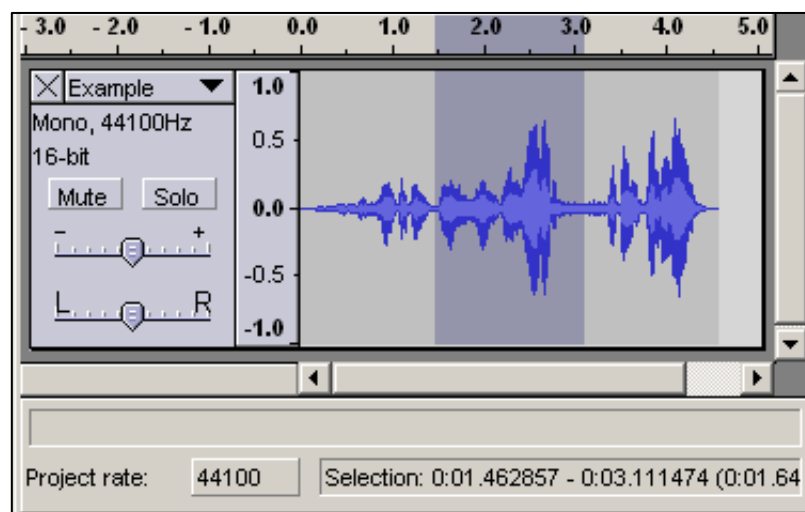


Figure 12: Part of a track is selected ready for cut, copy and paste



Press and hold the left mouse button while you drag the mouse to mark an area. This area is now darker than the surrounding area of the clip. You can press the space bar to listen to the audio in the marked area to audition it to make sure you are happy with the selection.

You can extend or contract your selection by holding down the SHIFT button and clicking on the area you wish your selection to extend or contract to. If you click at a spot that is on the left hand side from the middle of the current selection, you will set the right hand boundary of your new selection.

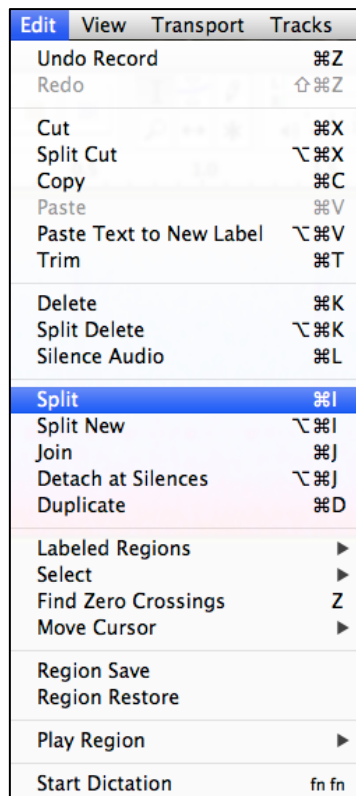
## 5.5 Cutting the selection

Cut the selection by selecting "Cut" from the Edit menu ... or press CTRL+X. To undo this operation, select Undo in the Edit menu or press CTRL+Z. Copy (CTRL+C) will copy the selection to the clipboard. You can then paste that data back in to a new track (or at the end of an existing track) by selecting Paste in the Edit menu, or press CTRL+V (replace CTRL with CMD for a mac).

During all operations of this kind, the bottom info pane of the screen will display the start time and the end time of your selection.

## 5.6 Splitting, Copy and Move

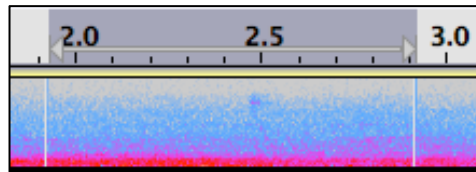
You can split audio into shorter segments to edit by using the Split command in the Edit menu. Make a selection and then choose Split and the Audio will be split into segments with their start and end points at the beginning and end of the selection you made.



**Figure 13: The Split option in the Edit menu**

Use the timeshift tool to move the audio around including putting onto other tracks. You can copy and paste audio by making a selection and choosing Edit,

Copy and pasting at another point in the time line and on another track if you wish.



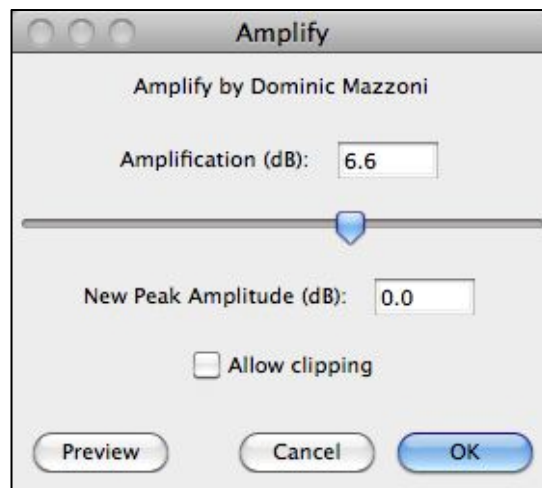
**Figure 14: The white vertical lines indicate where the audio has been split**

## 5.7 Treating unwanted or difficult material

### 5.7.1 The Amplify tool

Use the selection tool and click and drag in the track over material that is unwanted or difficult to select it. It appears as a greyed area. If you click on Back Space you can delete that part of the file where the selected material was.

You can also try to improve the audio selected by reducing the volume of problem areas such as plosives or sibilance. Choose Effects, Amplify. Select a reduction on the material. This can be more natural than deleting. Try setting the level up to -7 db to start with. You can re-apply the effect if needs be. If the problem sound is a pop or something similar, you can try the drawing tool to draw in a reduction where the lick plays. See the Tools Section to read about the Draw tool.



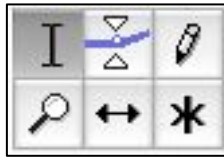
**Figure 15: The Amplify interface in Audacity can be used to reduce the volume of material**

### 5.7.2 Generating Silence

Click on Generate, Silence. The selected area contains silence. The material has been erased and silence replaces it. This tool is obviously useful to remove background noise at beginnings and ends of recordings and unwanted audio anywhere within an audio file. Using the amplify tool to reduce volume often gives better (natural) results though.

Use the selection tool to click and drag the areas that contain silence. Press the backspace key to delete these from the audio file. You can use Edit menu, undo, to correct any mistakes you make.

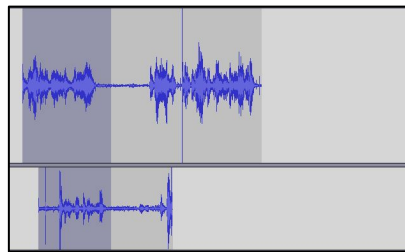
## 6 Tools



**Figure 16: The Audacity tools with the selection tool in use**

### 6.1 Selection

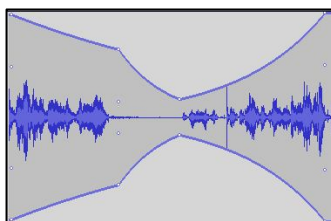
The selection tool is the default tool that your mouse operates when you start Audacity. You can use it to click and drag to select parts of different audio. You can select Audio from two or more different tracks if you drag across them. Play back will start from the point in the track you have selected using the selection tool. A black line across the track visually shows this.



**Figure 17: Two pieces of audio selected using the selector tool**

### 6.2 Envelope

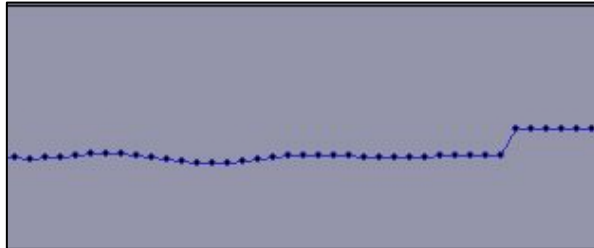
The envelope tool allows you to draw the volume changes such as fade ins and outs directly to the audio. Click to create nodes and drag existing nodes in the track to change volume settings. Click anywhere in the track to create new nodes. Edit undo will help you experiment and get out of trouble if you make a mistake.



**Figure 18: Using the envelope tool**

## 6.3 Draw

You can draw in to the actual waveforms using this tool. Firstly you must zoom in to the waveform until you can see the individual nodes in the line. This will take multiple clicks on a zoom tool. Just keep clicking until you see the wave display change to having a series of dots. This can be useful to eliminate small pops and clicks from material. **ALT + click** smoothes an area of audio **CTRL + click & hold** edits only one sample, no matter whether you move the mouse left or right.



**Figure 19: A piece of Audio zoomed in to show the nodes**

## 6.4 Zoom

Use the zoom tool to click into an area to expand its horizontal detail. If you click and drag to select a piece of audio with the zoom tool, that selection will then fill the width of the screen. Right click to zoom out.

## 6.5 Time Shift

The time shift tool allows you to move audio regions (not selections) backwards and forwards in the time line. Select this tool and click and drag the audio where you want it. This is specially useful if you have a multi track project that you edit and then need to line up the audio again so that it flows. Be careful to switch back to the selection tool afterwards.

## 6.6 Multi Tool

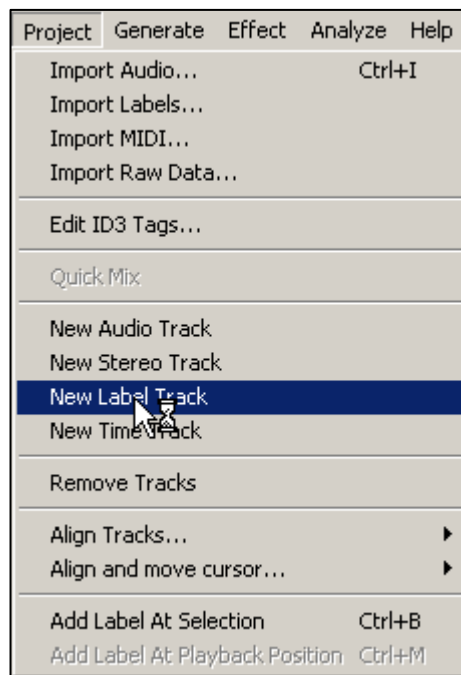
The multi tool allows you to perform the tasks of the selector tool and the envelope tool with one tool.

## 7 Other Track Types

### 7.1 The Label Track

Inserting a label track into your project means that you can add a label in the time line of the recording and then use it as a way of navigating the project, either visually or by jumping from one label to another. In longer projects, this is a very useful tool and can be deployed to signify content changes (sections of a long talk) or changes of the material (one recording finishes and another piece starts). Musically it can be used to annotate verses and chorus etc.

In the project Select the Project menu and choose New Label Track:



**Figure 20: A New Label Track can be selected from the project menu**

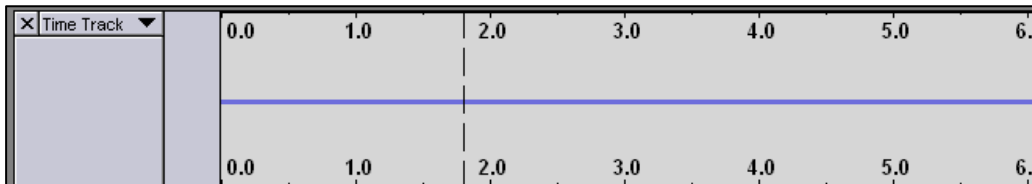


**Figure 21: Labels appear in red with a flag. Click on a label to edit its text**

You can insert a label anywhere along the time line by clicking with the selection tool in the audio file that you are referencing with the labels and then choosing Ctrl+B. A label will appear in the label track and you can enter text into it. You can run multiple label tracks in a project and export labels out to a text file which can then be imported with annotations if there is a lot of text to be entered. Labels can be deleted by selecting them and choosing Edit menu, delete. To

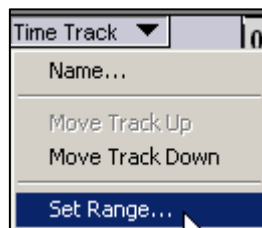
## 7.2 Time Tracks

Inserting a time track into your project gives you control over the play back speed of the recording. Essentially, you can speed up and slow down how the recording plays to accentuate detail. In a spoken word environment, this will not always be useful, but if you are adding commentary to field recordings, you may wish to use this tool to focus attention on sections. Click on the Project menu and choose New Time Track to create the track. Before you manipulate the time click on the track header pop down list and choose Set Range



**Figure 22: A time track before parameters have been changed**

Once you have a time track in the project, choose the set range option from the track header (see below) to set the maximum parameters fo change for the speeded up sections and the slowed down sections. It is in percentage values so 200% as a range will allow you to double the speed of a section or halve it, depending on which paramerter you are setting.

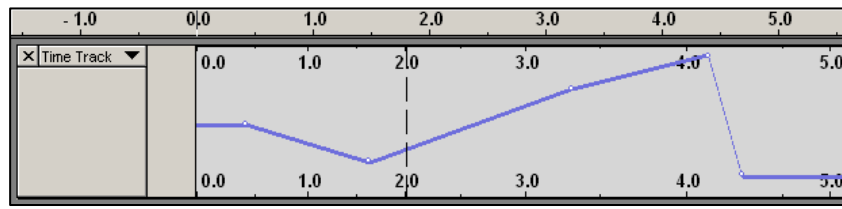


**Figure 23: Click on the Track header drop down arrow to set the rngce of the time track**



**Figure 24: Use the envelope tool to changes the time track**

Once you have selected the ranges you can use the envelope tool to create nodes in the time line that can be positioned to speed the track play up or slow it down. Just click above or below (above is faster) the horizontal line to affect the track. You can click and hold on a node to move it once it has been placed in the time line.



**Figure 25: A time track with changes made - note the time ruler and the time indication in the track and how they change**

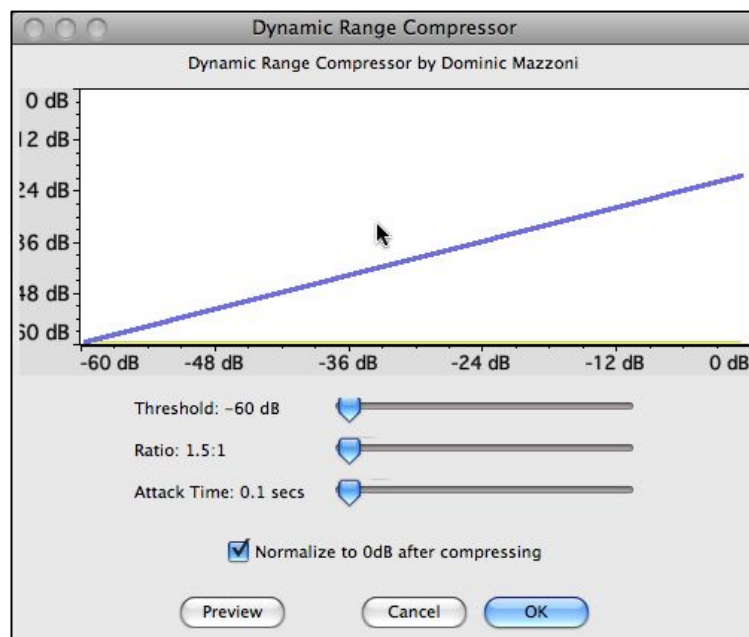


## 8 Processing Audio

### 8.1 Compression

Simply put, a compressor reduces audio levels once they go over a set threshold. The compression ratio is the amount of reduction applied – so a ratio of 2:1 means for every 2 decibels over the set threshold, only 1 decibel in increase will happen.

Select the whole track and choose Effects menu, Compression. Compress the whole signal on the lowest ratio as shown below. The Threshold setting means the whole signal will be compressed. The ratio of compression is at its gentlest and the attack time is at its fastest which means the beginning of the signal will be compressed too.



**Figure 26: The compression window using the mildest compression on the whole signal**

## 8.2 Equalisation

Equalisation (or EQ) is a tool that allows you to boost the volume of selected frequencies whilst all others are left unaffected. You can cut the volume of frequencies as well as boosting them, and cutting often sounds more natural than boosting.

Select the whole track and choose Effects menu, EQ. Set the EQ to a smile curve as shown. Shelf off unwanted top and bottom signal – look for voices at around 100 Hz – 1 KHz and experiment putting the curve there.

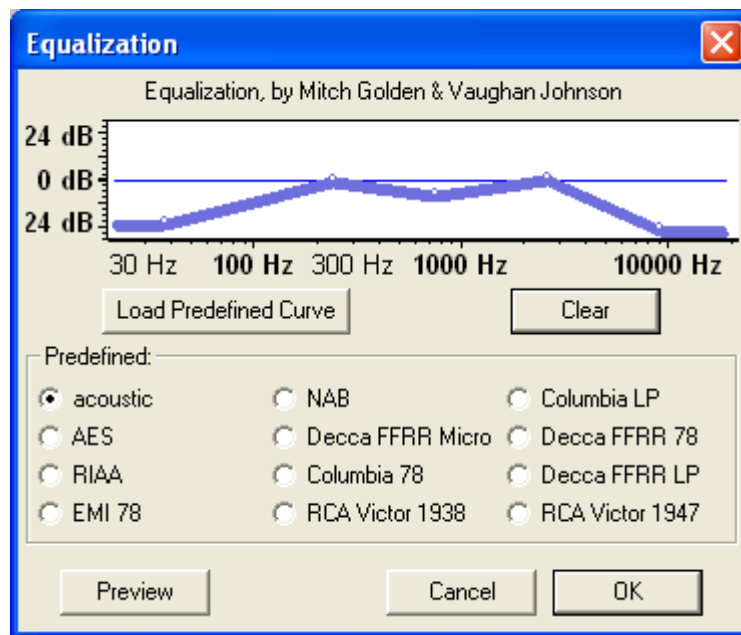
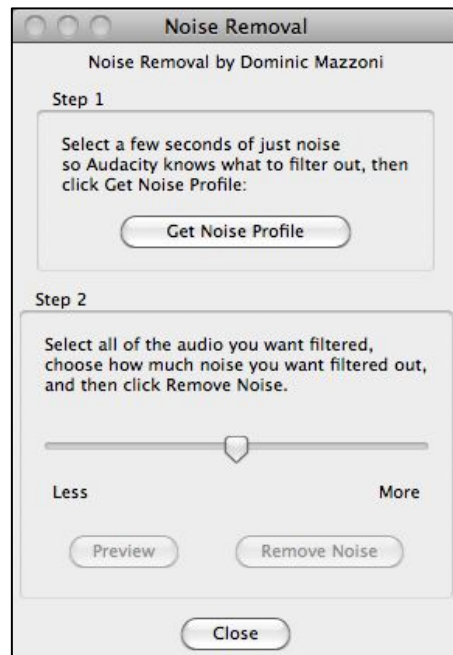


Figure 27: The EQ window

## 9 Noise removal



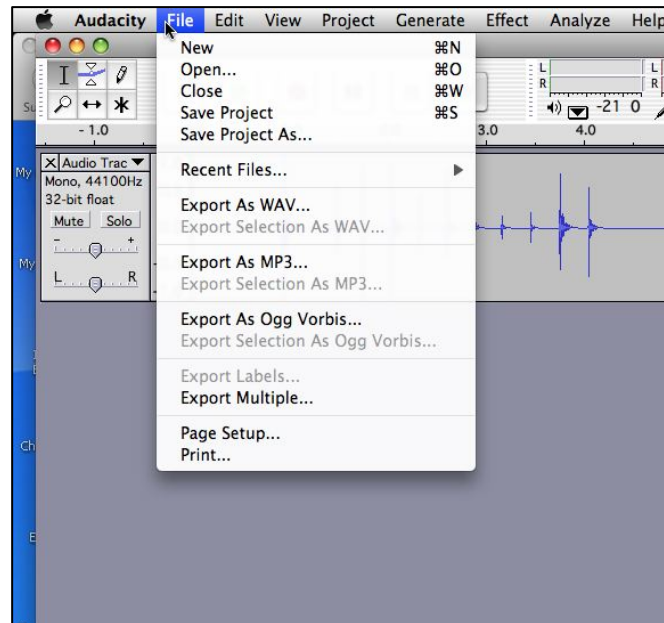
**Figure 28: The Noise removal dialogue**

You can remove background noise with the noise removal tool. Select some audio from the track that doesn't have the signal you want (spoken word etc.) but has some background noise. Under the effects menu select the Noise Removal tool and click on the Get Noise Profile button. Then go back to the main screen and select the whole track and re-open the noise removal tool if necessary. Click on the Remove noise button and audition the result. Choose edit, undo if the noise isn't successfully removed and experiment with the Less/More slider in the tool to achieve a better result. Starting with less is a good idea.

The Noise Removal tool can produce some invasive results if the frequencies you want to get rid of are to be found in the spoken word you wish to keep. The tool works by scanning the piece of audio you refer it too (the piece with just the background noise on) and it makes a frequency profile from this. When you select the whole track to be treated, the tool then applies a reverse of the frequency graph it mapped previously to the whole file. So it takes these frequencies out of the whole signal. If these frequencies are in the source you want to keep, that source will be effected too. In many instances you will have to make a compromise between reducing unwanted noise and keeping an authentic voice that you need. Here, it is good to remember that our job in editing is not to aim for perfection but to improve what we have if possible.

## 10 Export/Saving

You can save your work as an Audacity project (\*.aup file) that can re-opened and edited as many times as you wish, or you can export the audio to file as a wav, mp3 or ogg file. The most common export for podcasting will be to mp3 which is a compressed file format that keeps quality acceptable whilst reducing the file size so it can be accessed easily from the web.

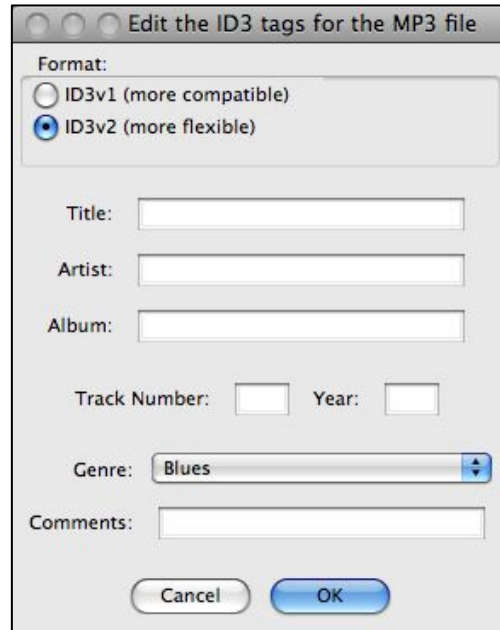


**Figure 29: The save as options from the file menu**

Choose file menu, Export As, .wav (best quality), .mp3 or .ogg

Wave files (.wav) take up a lot of space but are not compressed. They retain the original projects quality and are the best choice for archiving material for re-deployment in the future. The Mp3 file is a good compromise. The compression rate can be set from very low (64 kbps) to good quality (320 kbps). .Ogg is another compressed audio file format.

If you Export As an Mp3, you will have the option of adding tags which will then appear in some Mp3 players displays. It is always worth filing these details in even though they are couched in musical terms. You can add useful information here that documents the file's properties. Change the genre to alternative or other.



**Figure 30: The ID3 tag options for labelling an Mp3**

## 11 Hardware recommendations:

### 11.1 Microphone

The easiest way to get a good quality audio signal into your computer (and Audacity) is with a USB microphone. A popular and good quality solution for podcasting would be the Samson Co1U or Co3U (advice true in November 2011).

<http://www.dv247.com/microphones/samson-co1u-usb-condenser-microphone-29724>



**Figure 31: Samson's USB mic is ubiquitous and good value**

### 11.2 Monitors

There is a huge range of choice on monitors for your computer and the only real advice that can be given across the board is not to use the tiny speakers that most computers can with – especially laptop speakers - that simply cannot accurately reflect the range of audible material that can be recorded.

If the budget is a real consideration then products such as the Tascam VL-M3 Powered Monitors will make a real improvement for not much money.

<http://www.dv247.com/studio-equipment/tascam-vl-m3-powered-monitors--70093>



**Figure 32: Relatively cheap but much better than computer system speakers**

### 11.3 Headphones

Editing solely on headphones is not a great idea as what you hear is so specifically placed in the stereo image as you have one speaker up against each ear. If you are going to use headphones select a full enclosure pair and at least a good HiFi standard. The Sony MDR-XD200 would be a good starting point. If your budget stretches a little deeper, then the industry standard choice is the Beyerdynamic DT 150 Dynamic Studio Headphones



**Figure 33: Good quality budget headphones with comfortable ear pads**



**Figure 34: These Beyerdynamics are expensive but are the industry standard**

<http://www.dv247.com/headphones/sony-mdr-xd200--65158>

<http://www.dv247.com/headphones/beyerdynamic-dt-150-dynamic-studio-headphones-with-cable-250-ohm--5021>