Audacity

We will use the free tool, Audacity to record. Audacity is a audio mixer, editor, and player. It supports WAV, AIFF, Ogg, and MP3 formats. Audacity can be download for free at: http://audacity.sourceforge.net/download/. You also need to install the Lame MP3 Encoder (http://audacity.sourceforge.net/help/faq?s=install&i=lame-mp3) to be able to export your project as an MP3.

Preferences

After completing the installation, follow these steps to configure the software.

Input and Output

1. Edit Menu
2. Preferences
3. Audio I/O (Input/Output) Tab
4. Playback Device: USB Headphone Set, or your sound card if using just a mic, such as the Snowball
5. Recording Device: USB Headphone Set or what ever you are using for your mic, such as the Snowball
6. Channels: choose Mono voice or Stereo for other; Stereo increases your file size significantly.
7. Play other tracks while recording new one:
   To listen to an existing track while recording a new one check this.
8. Software Playthrough: allows you to listen to yourself while recording
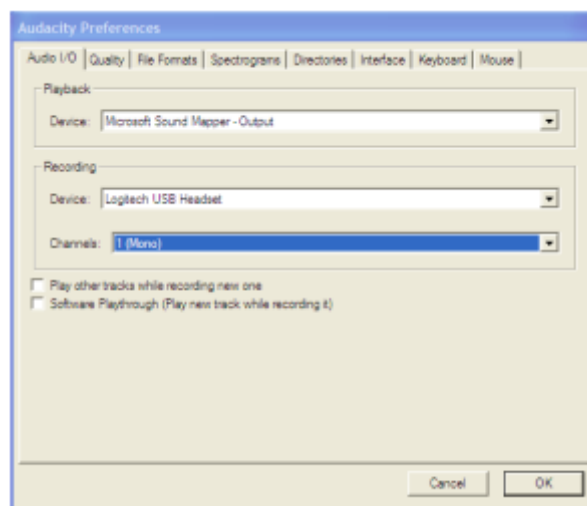
Audio Quality

1. Quality Tab
2. Default Sample Rate: 44100 Hz
3. Default Sample Format: 16 bit (CD Quality), 32-bit creates a much larger file
4. Click OK.

File Formats

1. File Formats Tab
2. Under: When importing uncompressed audio files into Audacity, check Make a copy of the file before editing. This way you will always have your original recording to go back to if needed.
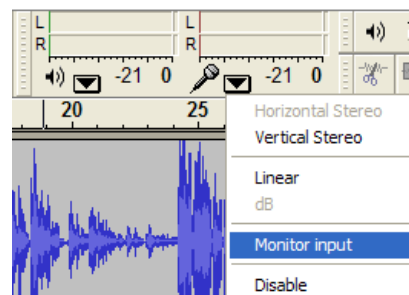3. Set the bit rate to 64 or 128.
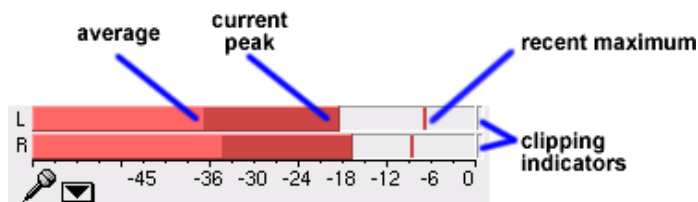4. Click OK.
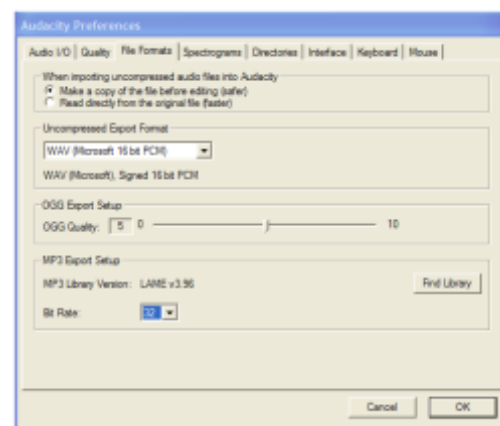
Testing Setup

Test your microphone levels.

1. Click the drop down arrow by the mic and choose Monitor input.

2. Speak into the microphone and watch the Monitor Toolbar.

   - **Average -** The brightest part of the bar shows the average audio level.
   - **Current Peak -** The darker part of the bar shows the peak audio level.
   - **Recent Maximum (peak hold line) -** The peak-hold line to the right of this shows the maximum audio level achieved in the last 3 seconds.
   - **Clipping Indicators -** The clipping indicators on the far right of each meter will light up if clipping is detected (meaning that the audio was too loud and will sound distorted). -6 is a good strong signal.

3. If clipping is detected you should lower the volume of your mic. **I've found if I use Sound Card's Audio Properties to adjust the volume it works better than using the Audacity's mixing toolbar.** You can right click on the speaker in the task bar and choose Adjust Audio Properties to access the volume of your mic.
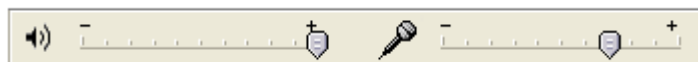
Recording

1. Click the record button   and new track will open and begin recording. Everytime you click the Record button a new track opens.
2. Speak into the microphone.
3. Click the pause button   to pause the recording and click the button again to resume recording.
4. Click the stop button   when you are finished with that track.

I prefer to record one show in several tracks, one track for the opening, another track for the teaser, another track for the closing, etc. This same concept could also apply to individual students recording tracks and then bringing them all together for one project.

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Saving a Project

As you work, you should save your Audacity project. This will allow you to continue editing and recording at a later date. Audacity projects are stored in an AUP file. Audacity projects can be opened only in Audacity.

It is important to keep all the files for a project in the same folder, recorded files, transition sound effect, music, etc. When you save an Audacity project, it creates both an Audacity file and a data folder. Both the file and the data folder must be kept together in order for the project to open.

1. Create a folder for the project.
2. Click File and choose save.
3. Enter a name for the file.
4. Click Save.

A 1 hour speech quality podcast will be about 30 megabytes. These files will quickly fill up your hard drive. It is a good idea to archive podcast by moving to a flash drive, burning them on a CD, etc.
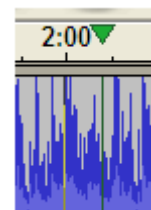
Playback Controls

1. File Menu choose Open.
2. Navigate to My Documents>Podcast folder, and choose practice track.aup.
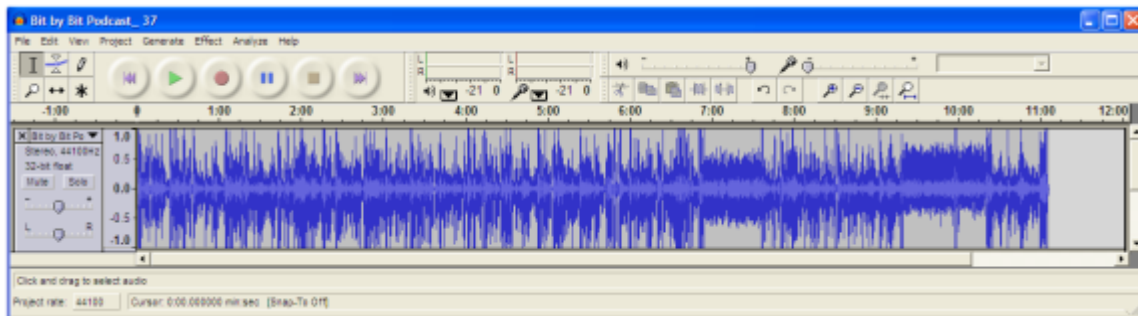
- Click the green **Play** button.   Notice the playhead, a green arrow that moves across clip with playback.

- Click the **Pause** button ——to halt the playbook, and keep the playhead in that position.

- Click the **Stop** button   and the playhead moves back to the beginning.

- Skip to **Start**

- Skip to **End**

- **Loop**: To play a selection of a clip over and over, hold down shift key. The play button changes to a loop button——. Click it.
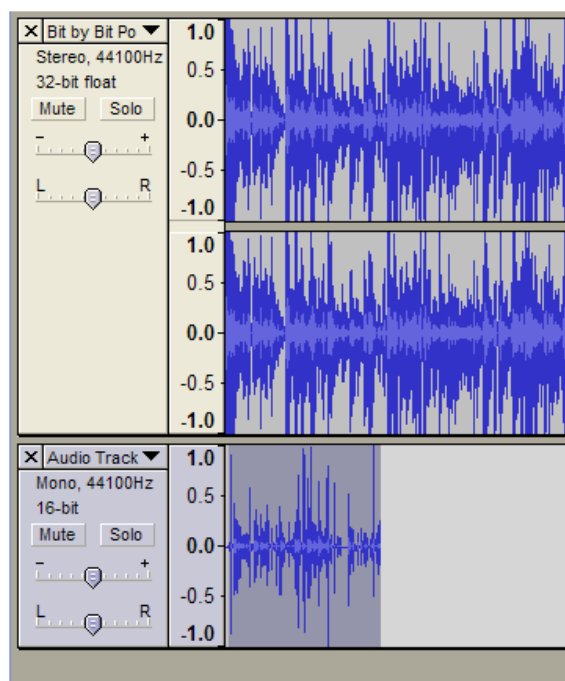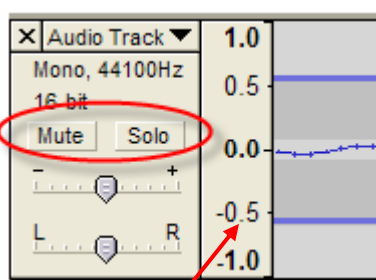
Tracks

The image to the right shows a project with 2 tracks:
- stereo track at the top with 2 waveforms
- mono track below with 1 waveform

Control Panel

- **Mute**: silence this track
- **Solo**: mute all other tracks
- These controls only effect playback in Audacity, not mixing or exporting.

- **Vertical Ruler:** View the levels in your waveforms. Anything beyond 1.0 or -1.0 will be clipped, which can sound like distortion.
- **Delete:** Click the X in the top left corner to delete a track.
- **Track Menu:** Click the triangle to display the track menu.
    - **Naming Tracks**: Use the Control Panel menu for the track and choose name. This is helpful when you have several tracks.
    - **Move Track Up/Move Track Down**: available in the track control panel menu; use to vertically arrange tracks in your project
- **Panning**: Use the Control Panel for the track to pan to the left or right, meaning that track will be heard more from the left or right side.
- **Gain:** Adjust the volume of a track using the gain slider. This works well when you have a voice track with background music and you want the voice to be louder.
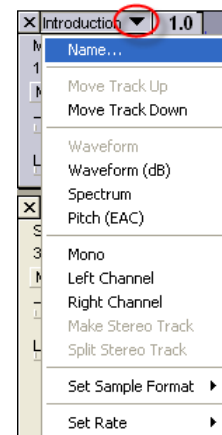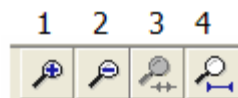
Panning

Gain
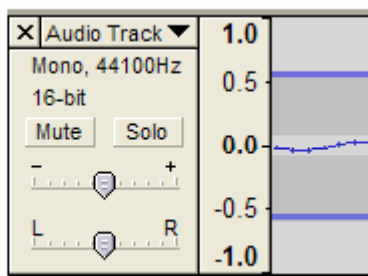
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Viewing

- **Zoom Toolbar**
1. Zoom in
2. Zoom out
3. Fit selection in window
4. Fit project in window: will fit all the   tracks
   horizontally on the screen.
- **Zoom Tool**: Click the button to zoom in on a particular point in a
  track.

**Place your cursor on edge of a track's waveform to drag it out to see all the controls. This
is useful when you have zoomed out so far you can't see the gain and left/right controls in the
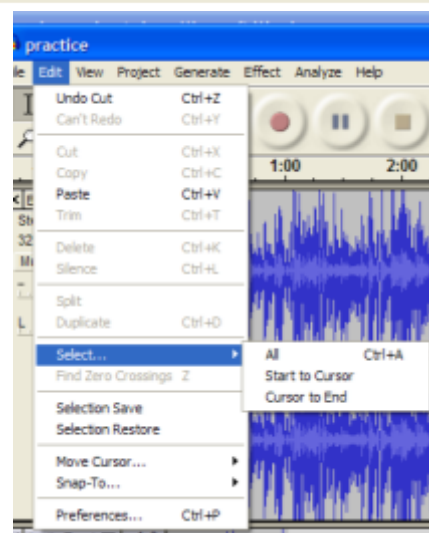track's control panel.*

Selecting

- To identify just a clip of the recording, click

  the **selector tool**   and then click and
  drag somewhere in the file to select a small
  clip to play.
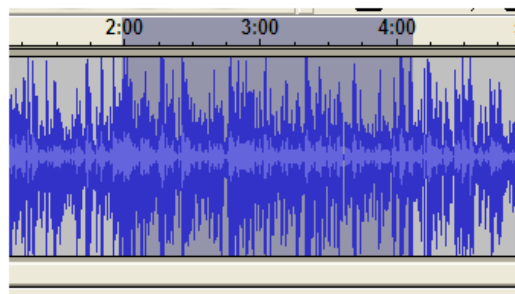
- You can also use the **Edit menu>Select>** and
  choose **All, Start to Cursor, or Cursor to End**
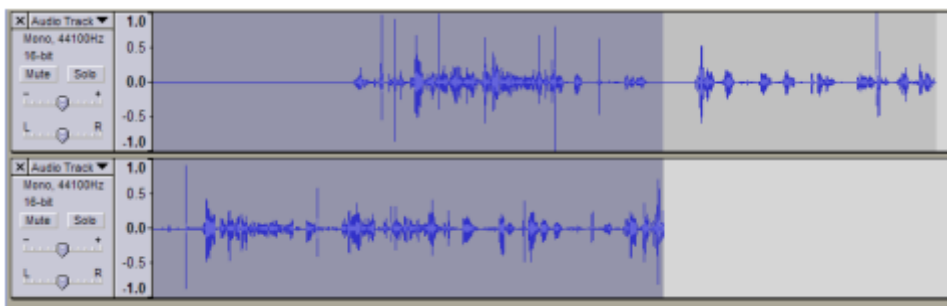
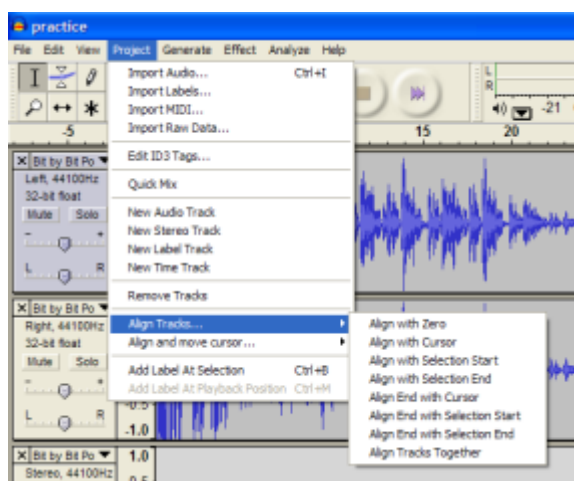# Basic Editing

Time Shift

Use this tool to move a clips within its track.

When arranging your tracks, zoom in so as not to leave a gap between tracks.

Align Tracks

1. From the Project menu choose Align Tracks.
2. Select an appropriate option from the menu.

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Delete Audio

After selecting the appropriate clip, click the cut button [cut button icon].

Cut and Paste Audio

1. After selecting the appropriate clip, click the cut button [cut button icon]. The audio shifts to the left.
2. Place cursor in a new location.
3. Click the paste [paste button icon] button.

* You can copy and paste from tracks in one project to tracks in another project. In the project you wish to paste into, use the Project menu and choose New Audio or Stereo Track. This will provide a blank track in which to paste the track you have copied.

Copy and Paste Audio

Use the same steps as cut and paste, except use the copy button [copy button icon] instead of the cut button.

Undo [undo/redo buttons icon]

You can use the undo buttons in the toolbar to undo the last think that you did. There is also a redo button available.

Click the View Menu and choose History. Here you see a list of actions that you can undo or discard.
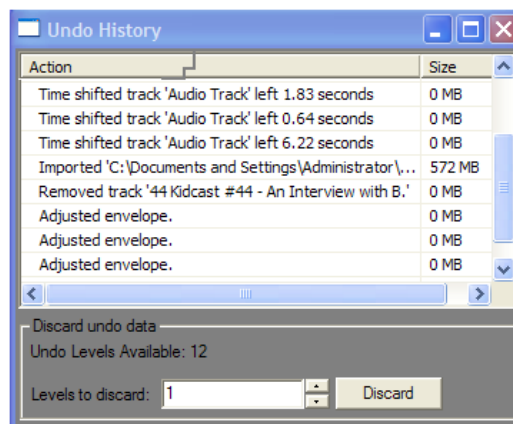
Import Audio

Use Import Audio to open an additional track in an existing project It is best to have the file that you wish to import in the project folder.

1. Click the project menu and choose Import Audio.
2. Navigate to the file.
3. Click the Open button.

More Editing

Splitting an Audio Clip

Split a clip into 2 parts, making it into 2 tracks .

1. Select the clip of the track that you want to move.
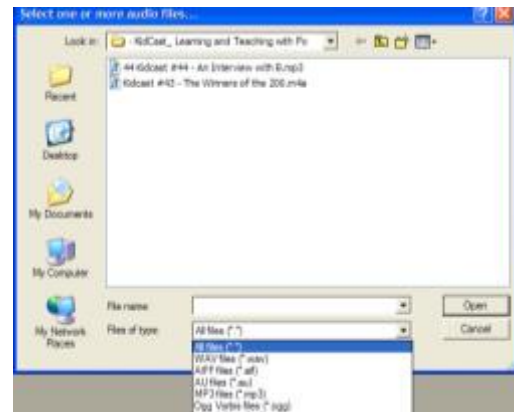2. Click the Edit menu and choose Split.
3. The selected clip will be moved down the screen, into a new track.
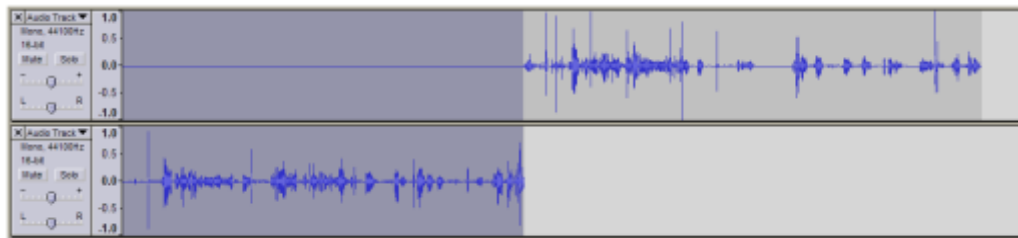
Duplicating a Selection of Audio

To copy a clip into a new track:

1. Select it.
2. Click the Edit menu and choose Duplicate.
3. Once the clip is in the other track, it can be moved using the Time Shift tool.
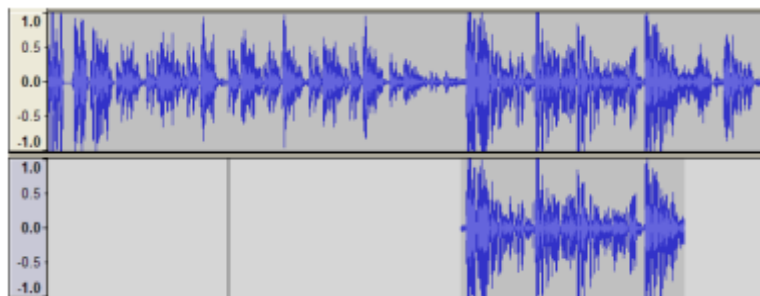
Trimming/Silencing Audio

Click and drag to select the clip that you want to modify. Then choose:

- Trim outside selection

- Silence selection

Generate Silence

1. Position the cursor where you need to add silence.
2. Click the Generate menu and choose Silence.
3. Enter the number of seconds.
4. Click the Generate Silence button.

Changing a Stereo Track to Mono

1. Click the drop down menu button by the title of the track and choose Split Stereo Track.
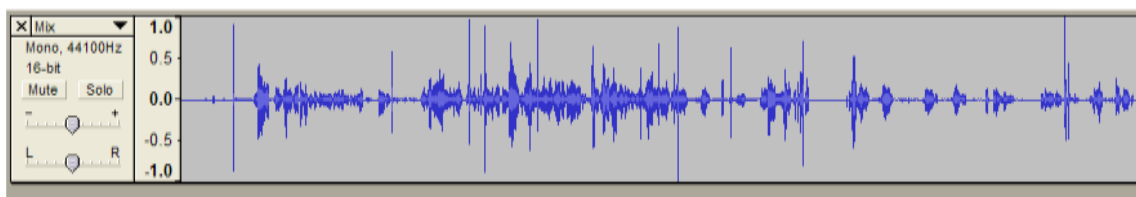2. Click the menu button again and choose Mono.

Combining Audio Tracks with a Quick Mix

To pull tracks together into one track:

1. Click the Edit menu choose Select All.
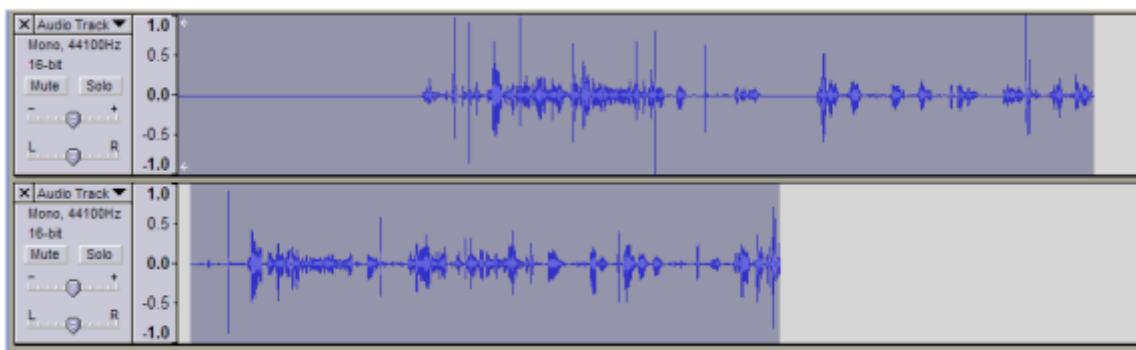
2. Click the Project Menu and choose Quick Mix. The two tracks are now in 1 track and you will see the word Mix in the menu at the left.

Envelope Tool

Use to edit the amplitude envelope of a track. Editing the amplitude envelope lets you change the volume of a track gradually over time by adding a number of control points to the track. Each control point sets the volume at that point in time, which can be as low as zero and as high as 150% of the normal max volume. The volume is interpolated smoothly between the points.

1. Click the envelope tool.
2. Blue borders will surround your audio sample. When you click on any point on the blue line a handle is added, a square white point.
3. You can widen the blue border to increase the volume between those points; narrow the blue border to decrease the volume.
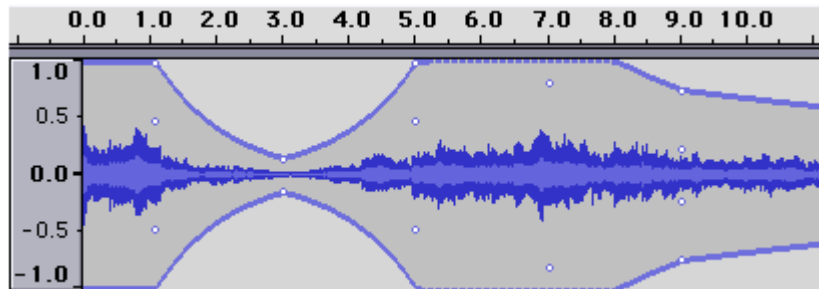
Drawing Tool

Use this pencil to re-draw waveforms to eliminate clicks or other distortions.

Effects

1. Click and drag with the selector tool to select the clip that you want   to modify.
2. Select an option from the Effect menu.
   - **Fade In/Out**: gradually increases/reduces the volume level of selected audio
   - **Amplify**: increases or reduces the volume; Audacity automatically calculates the maximum amount you could amplify the selected audio without causing clipping.
   - **Noise Remove**: remove constant background noise such as fans, but not talking or music. Uses this usually results in some distortion.
     1. First select a portion of your sound which is silent except for the noise.
     2. Then choose Noise Removal from the Effect menu.
     3. Click Get Profile.
     4. Select all of the audio where you want the noise removed.
     5. Choose Noise Removal again.
     6. Click the Noise Removal button.
   - **Normalize**: recommended; last thing to do before exporting because it can't be undone; increases the level of the whole audio file so that the loudest part of the sound is as high as it can be without distorting. The remainder of the audio increases proportionately.
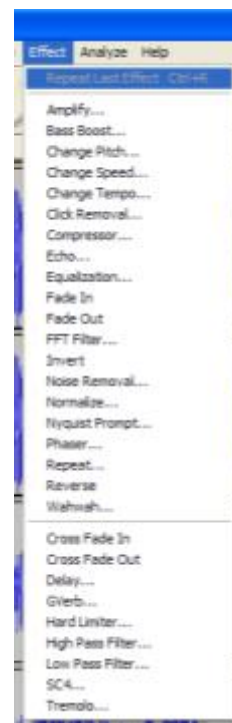
ID3 Tags

ID3 tags include data about the podcast episode. This data travels with the MP3 file and when played in a media player is displayed for the listener.
1. Go to the Project menu and choose Edit ID3 Tags.
2. Complete the fields.
   - Title: You should think of this as a headline for that episode.
   - Album: Before you decide on your show name, be sure it is not already trademarked by visiting the website: United States Patent and Trademark Office http://www.uspto.gov/index.html
3. Click the OK button.
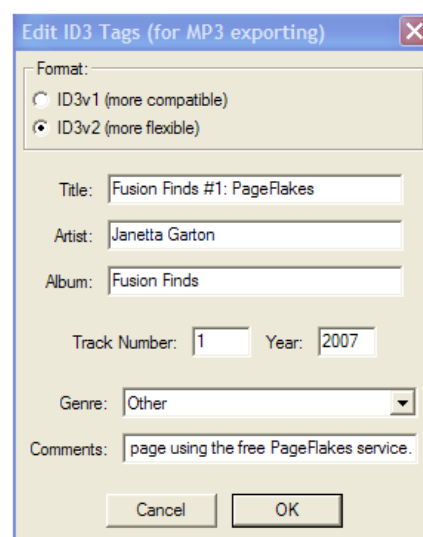
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Exporting an MP3

When you finish your podcast, you'll want to export it as an MP3 file for distribution online. You can choose to export all of the tracks in your project, a single track, or any part of a track. If you have more than one track in your project this will "mix down" your tracks. In other words, the audio on each track will be combined, or mixed into a single track.

1. Select the part of the track that you want to export. If you are saving a single track, select the entire track that you want to save.
2. From the File menu choose Export as MP3, or Export Selection as MP3.
3. If you have multiple tracks you will receive a warning that says, "Your tracks will be mixed down to two stereo channels in the exported file.
4. Click OK.
5. Choose the location for the exported file.
6. Enter a file name. Decide on a naming convention for your podcast files. A good file name will make it easy to tell at a glance what show and episode the file is from. For example, *podcast initialsdate.m3* format might look like *ff-2007-07-11.mp3*. Avoid spaces in the name.
7. Choose the file format MP3.
8. Click the Save button.
9. Wait as the file is exported.

If your project contains any stereo content, before you export to MP3, go to that bottom left Project rate button and select 22,050 Hz.