

The Audacity Sound File Editor



The following tutorial was edited from the Audacity Web site:
http://www.agnula.org/documentation/dp_tutorials/audacity/

Figure 1 shows Audacity in its default start-up condition :



Figure 1: Audacity

After starting the program select File/Preferences and browse the various options there. If your soundcard supports full-duplex operation be sure to enable the box labeled "Play other tracks while recording new one" on the Audio I/O tab. You may also need to enable the "Record in Stereo" box if your single-track recordings play back at half-speed. Now set the sample rate and format on the Quality tab. Remember that higher sampling rates and greater bit resolutions require more performance from your CPU, so set these values to reflect your hardware capabilities. We'll leave the other tabs at their defaults, and we are ready to record our first track in Audacity.

It can't get simpler: press the round red Record button and away we go. Audacity draws the recorded waveform in near-realtime, so you can immediately see what you're putting on disk (though performance is hardware-dependent). When you're done, click on the yellow square to stop, and Audacity will graph the newly-recorded waveform. You can now record another track, and another, and so on to the limits of your hardware. When you finish, your recordings will be ready for editing and processing by Audacity's native effects or the LADSPA plugins.

Audacity's view and edit tools are simple and powerful. Practice making selections with the mouse and using the zoom-to-selection and fit-to-window view tools. Try the standard cut/copy/paste operations available from the Edit menu. Drag the waveform displays around in their tracks and import a WAV file to a new track. Note that many actions in Audacity have keyboard equivalents, and real power-users will enjoy the speed of combining the keyboard accelerators with the mouse.

Processing acts on the whole file or selection-only, and stereo files can be split into two tracks for independent treatment.

After editing and processing your recordings you can save them in a variety of formats, including WAV, MP3, and OGG. Audacity will save files in multichannel formats in up to 32-bit resolution at sample rates up to 48 kHz (96 kHz may be supported soon).

Let's make use of Audacity's full-duplex record mode to go through the following project steps:

- Import a WAV file into a track(a way to add background music to your podcast)
- Record a new track while listening to the first (imported) track
- Edit as necessary
- Add effects
- Save as WAV and OGG files

Open Audacity, pick Import Audio from the Project menu, then import a drum loop from the \$AGNULA_HOME/Samples/Loops/ directory. Now select the entire sound with either Ctrl-a or from the Edit menu. Copy the entire sound with Ctrl-c (or again from the Edit menu), then position the cursor at the file end-point by clicking on the Skip to End button at the right of the record button. Select Edit/Paste (or use Ctrl-v) and you will see the copy appended to the end of the original sound. Repeat this process two more times to create a 4-bar sequence. Now copy the 4-bar sequence and paste it three times after the original to create a sequence composed of a 4-bar intro followed by a 12-bar song body. If you want to get a little fancier you can copy the first beat of the pattern and append it to the end of the 12-bar sequence for a final downbeat. Use the zoom-to-selection tool to make any fine edits needed, and you are now ready to record a second track over this rhythm sequence.

Before going further you should save your project as an AUP (AUDacity Project) session file. AUP files include an entire record of your project actions, providing a great convenience for recalling a whole session (i.e., not only its final state). However, you can also go to File/Export As Windows Wave to store a session as a stereo WAV mixfile.

By the way, if you're new to multitrack recording you should take a few minutes to plan your session. Typically you will prepare your rhythm tracks first, recording your drums and bass before adding backing guitar and other rhythm instruments, and finally adding your vocals and lead parts last.

Now let's record a new track while listening to our rhythm track. First make sure you have enabled the correct mixer channel for recording (or "capture" in ALSA-speak). All you need to do now is press the Record button again, and when your first track has played through its intro you can start recording Track 2. Actually you might be wise to make a couple of test recordings before getting serious. Remember, Audacity's handy Undo is always ready and willing to be of service. When you're happy with levels and recording quality go ahead and record Track 2.

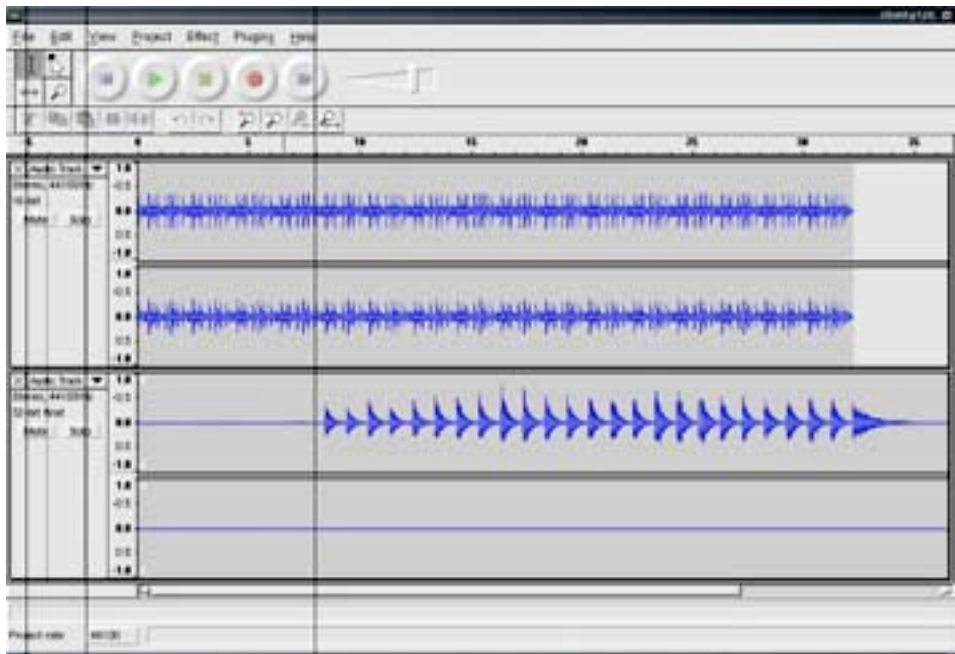


Figure 2: Simple multitrack recording with Audacity

At this point your display should look something like Figure 2. You've successfully recorded a multitrack performance, and congratulations are in order, but first check the synchronization of your tracks on playback. Consumer-grade soundcards are especially susceptible to drift as they deliver data to the disk, but have no fear, Audacity's designers have already considered this situation. The time-shift tool is just what you need to correct any wayward timing, letting you move a track forward or backward in time, even during playback. This kind of realtime editing is a blessing for those of us born with innate

timing problems and less-than-nimble fingers.

Save your project again, then take a look at the contents of the Effects and Plugins menus. Audacity's native effects are quite good (guitarists should definitely check out the Wahwah), but if you don't find what you need there you'll probably find it in the big list of LADSPA plugins.

LADSPA Hint: If you have a guitar but no bass guitar, and you need to lay down a solid bass groove, just record the bass line from your guitar then use Steve Harris's excellent LADSPA pitch scaler to drop the guitar's pitch by 50%. Voila, instant bass ! This effect works particularly well with an acoustic guitar but can be used with an electric just as well. Other LADSPA plugins can be used to dramatically alter the characteristic sound of an instrument, so even if you have only some pre-recorded loops and a single guitar you can still create a rich and varied sound for each of your tracks.

You can continue to record new tracks up to the limits of your hardware. Disk space and CPU speed will certainly be primary considerations, but the limitations of your soundcard will also appear during this kind of recording. Good results can be obtained from cards supporting hardware mixing (such as the SoundBlaster Live!), though of course professional-quality audio boards such as those from M-Audio and RME will perform far better than consumer-grade cards,

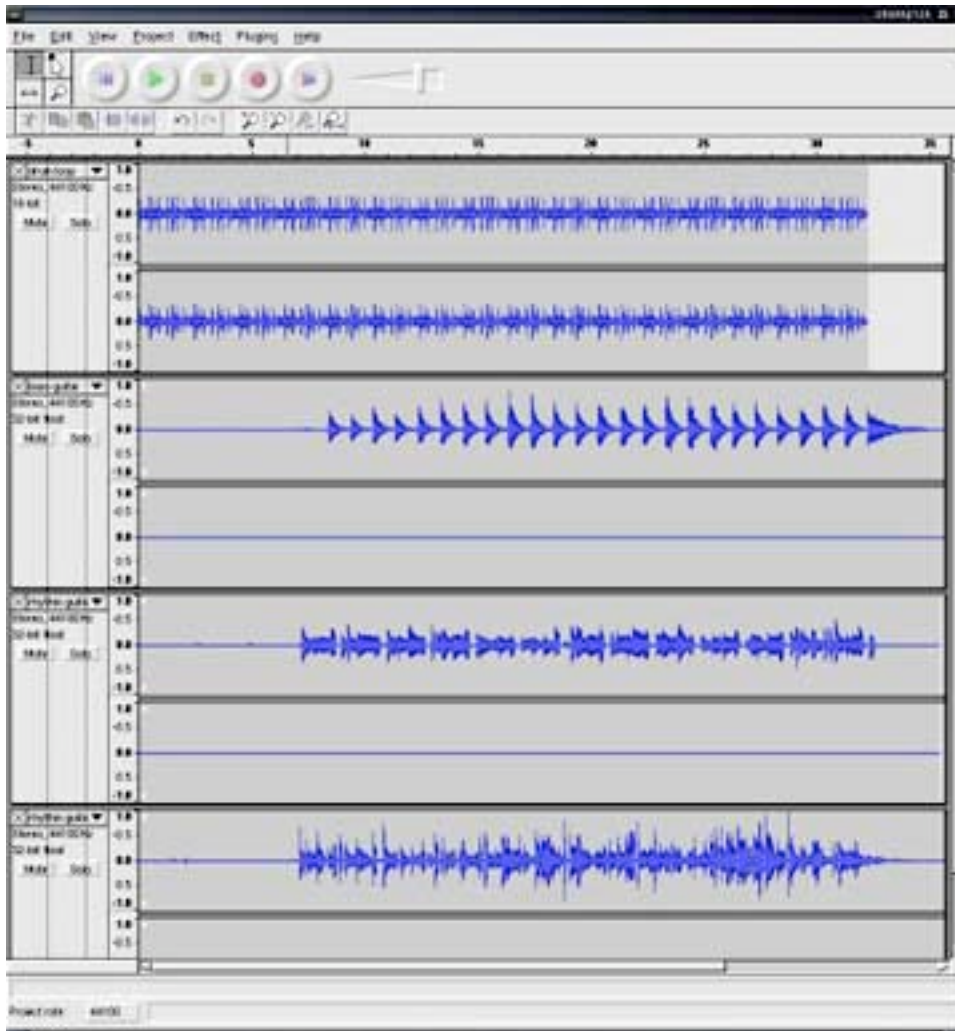


Figure 3: More multitracking with Audacity

Once again, save your project. Now you can save your work as a WAV file, as an MP3, or as an OGG file. Because OGG is a completely free format for high-quality compressed let's use it instead of the MP3 format. You'll need to go to the File Formats tab in File/Preferences and enable Use OGG instead of MP3. You can also set the default quality here, and you may need to experiment a bit to determine what setting is best for your needs. Remember that higher quality audio always requires more storage space and/or transmission bandwidth. Return to the File menu and you will now see an Export as OGG menu item. Select it, follow the instructions in the file dialog, and within moments your session will be saved as a stereo OGG file.

There you have it ! You've completed your first Audacity project, recording and editing a multitrack performance of your own music with free and open-source software (software libre) and saving it in a high-quality patent-free format for compressed audio suitable for delivery over the Internet. And even though we've gone some way into Audacity you might also want to work through Daniel James's Audacity tutorial available from the

Documentation menu. After going through this tutorial and Daniel's you'll be well on your way to mastering Audacity.

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