Converting and Cleaning Analog Recordings

With

LP/Tape Assistant

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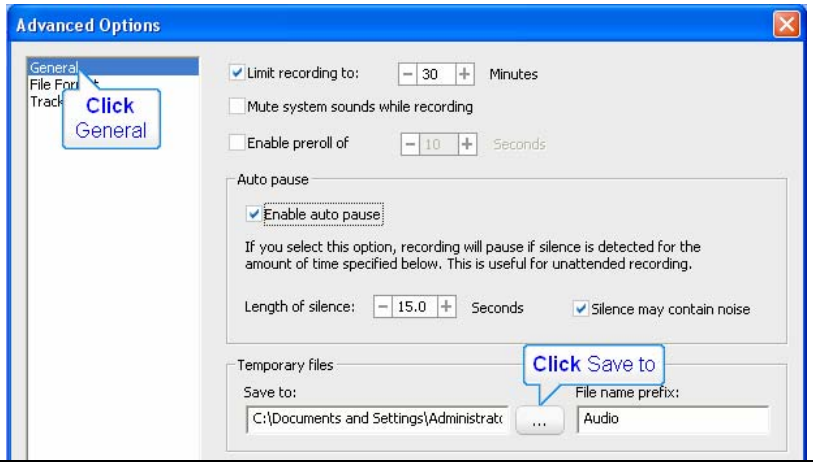
Introduction: Many music lovers have LPs and tapes they'd like to convert to digital so they can create CDs or listen to the songs on their iPods. But the process seems like it might be too complicated, or not worth the effort given that some of their analog content has degraded over the years. Roxio's LP and Tape Assistant makes it easy to connect your analog player to your computer, and record and then clean cracks, pops and hisses from your songs. Then you can convert your music to MP3 files or audio CDs. Here's how.	
1. In Easy Media Creator 10 Suite, **click** Audio, then **click** Convert LPs/Tapes. Roxio's LP and Tape Assistant Opens.	
2. If you need help connecting your turntable or cassette player to your computer, **Click** Recording Setup Guide, which tells you what you'll need and how to connect. You can read the Guide online or print it. 3. You can probably just accept all default options and start recording, but there are some useful options available in the Advanced Options dialog. **Click** Advanced Options to open that dialog.	

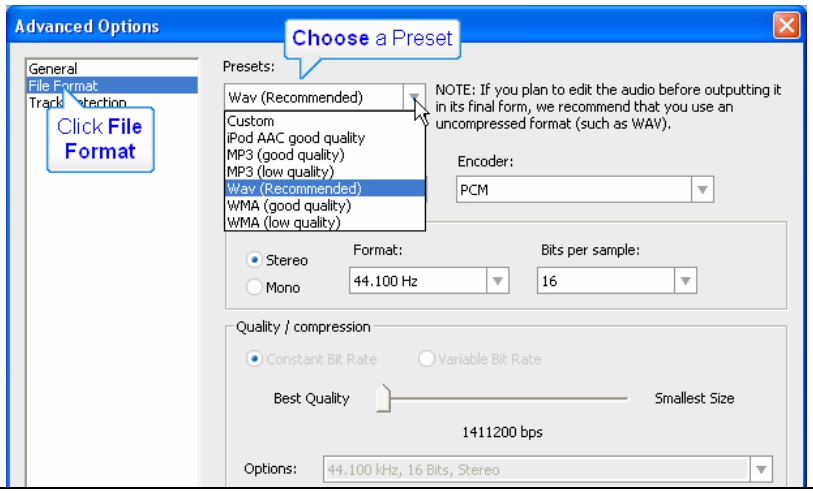
4. Click General if not already selected. In this dialog.

- **Click** the Limit recording checkbox and set the duration if you want to leave after starting the recording and won't be around to stop the recording.
- **Click** the Mute system sounds checkbox to prevent the software from recording system sounds like incoming mail, time announcements or other error messages.
- **Click** the Enable preroll checkbox and enter a duration to record a rolling preroll of the specified duration. This is useful when you're not sure when to start recording and don't want to miss the first few seconds of the recording.
- **Click** the Enable auto pause checkbox and enter a duration to stop recording after the specified number of seconds. This is also useful for unattended recording sessions.
- If desired, **Click** the Save to button and change the location of the temporary files created during recording.



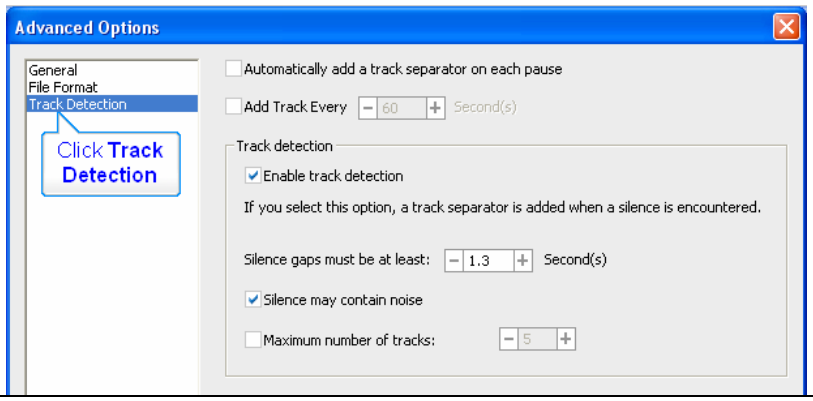
5. Click File Format. In this dialog:

- **Choose** a Preset in the list box. In most instances, you should capture an uncompressed Wav at 44.100 Hz, 16-bits, Stereo, especially if you need to Clean the audio after recording.
- If the audio doesn't have lots of hiss or pops, you can record directly into compressed format, either choosing a preset that matches your playback device, or choosing custom and selecting the parameters yourself.
- Note the Stereo/Mono radio buttons. If recording from a mono source, be sure to check the Mono radio button.



6. **Click** Track Detection. This dialog contains many useful options to consider when recording a complete tape or album with multiple songs. These include:

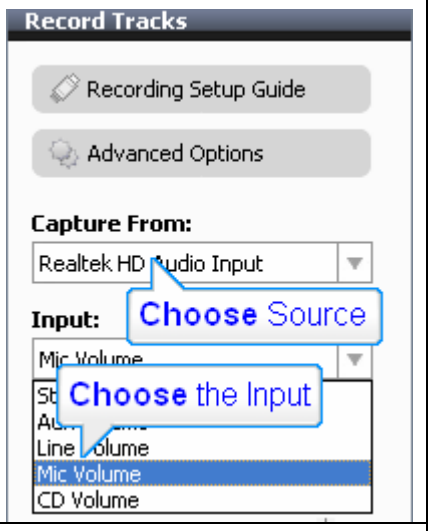
- **Click** Automatically add a track separator if the source audio contains multiple songs with gaps between them.
- If desired, **click** Add Track Every and specify a duration.
- If you clicked Automatically add a track, **click** Enable track detection, and specify an interval. If recording from a noisy source, like cassette or turntable, check the Silence may contain noise checkbox if the program isn't detecting tracks.
- If desired, **click** the Maximum number of tracks checkbox and choose a number.
- **Click** OK (not shown) to close the dialog and return to the main program.



7. Now let's choose input parameters.

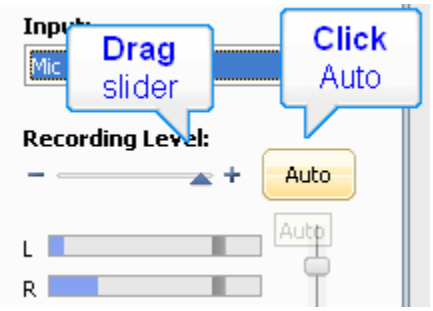
- If you have multiple audio sources attached to your computer, like a web cam and a sound card, **click** the Capture from list box and **choose** the source.
- After choosing the source, **click** the Input list box and **choose** the input. For most sound cards, this will either be the microphone or line in ports.

After making these selections, play some music. You should see some bouncing in the level meters shown in the next screen shot. If not, you have the wrong settings, or your physical connections are incorrect.



8. Next, set the audio levels. Set them too low and you'll have to boost the audio later, and if too high, you'll "clip" the audio, producing distortion in louder sections.

- To set levels manually, play a louder region in your recording, and **drag** the volume slider until the maximum peaks approach, but don't quite reach the right edge of the meter.
- To let the software set the levels, play a louder region in your recording, and then **click** Auto. The program will adjust the slider to the maximum level possible without clipping.



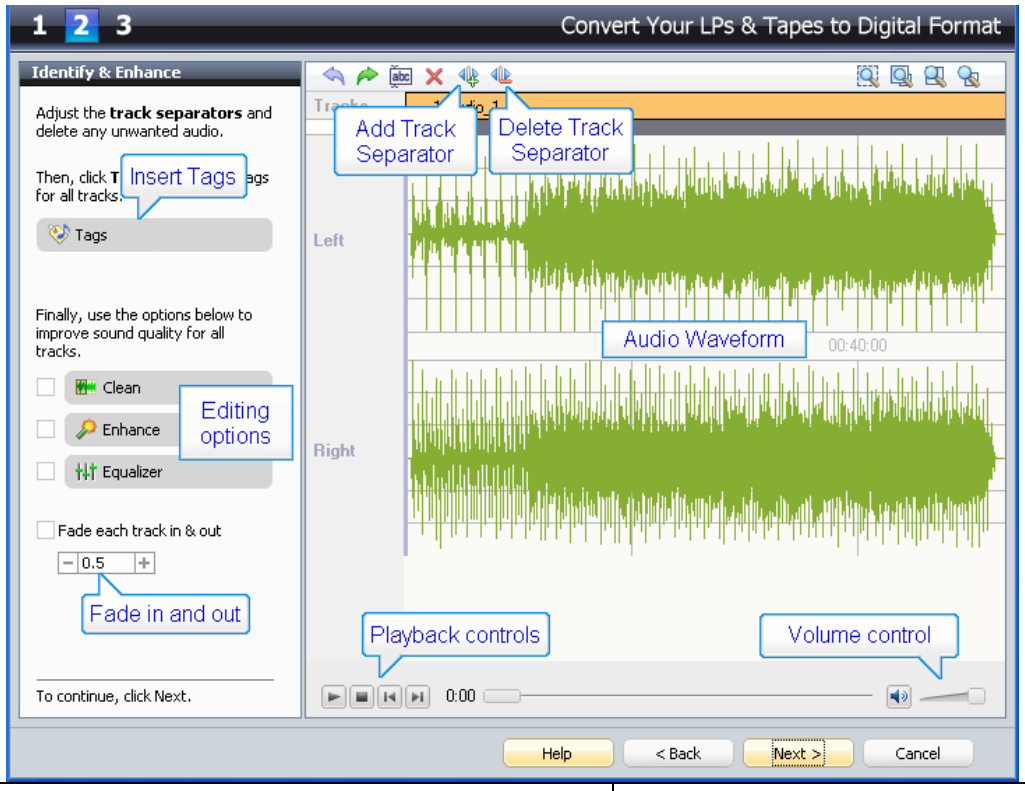
9. Once you've set your levels,

- **Click** Record to start recording, and start your player device.
- **Click** Stop to finish.

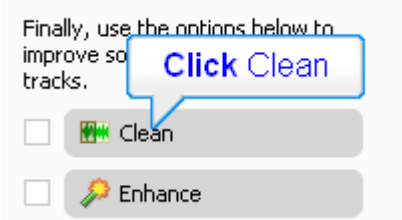
Then click **Next** (not shown) to move to edit your audio.

10. You're now in the Identify & Enhance screen shown below. Let's explore options here.

- Audio Waveform. First, look at your audio waveform, which is a great diagnostic tool. In the screen shot below, I have good levels in both tracks, meaning that the loudest regions in the audio approach the very top and bottom in both the left and right tracks.
    - If most of the audio is crowded near the top and there are large flat regions pressed against the maximum volume levels, you recorded at too loud a volume setting and your file is clipping. Re-record at a lower volume.
    - If most of your audio is clustered around the centerline, with no peaks approaching the maximum levels, you've recorded too low. Go back and record again, boosting volume in your player or in the software controls.
    - If only one track has audio, either your setup is faulty or you're recording from a mono source. If the latter, click the Mono radio button referred to in Step 5 and re-record.
    - If the waveform has regular, tiny peaks, like those below, they are usually cracks and pops, especially when recording from vinyl. I'll clean those in the next step.
- Add and Delete Track Separator. Use these to add and delete tracks in a multi-song recording.
- Playback Controls. These allow you to play through the captured waveform. Note that you can also click the waveform with your cursor at any point to start playback there.
- Volume control. This adjusts playback volume (but not the volume of the recorded audio).
- Fade in and out. Click to fade each track in and out and set the desired interval.
- Editing options. I'll discuss Clean below. Both the Enhance and Equalizer functions go beyond the scope of what I cover here, but both have very descriptive explanations in the Help file.
- Insert Tags. This is where you insert information like title, artist, album, genre and year. Note that Roxio can automatically retrieve much of this information for you via Grace Notes.



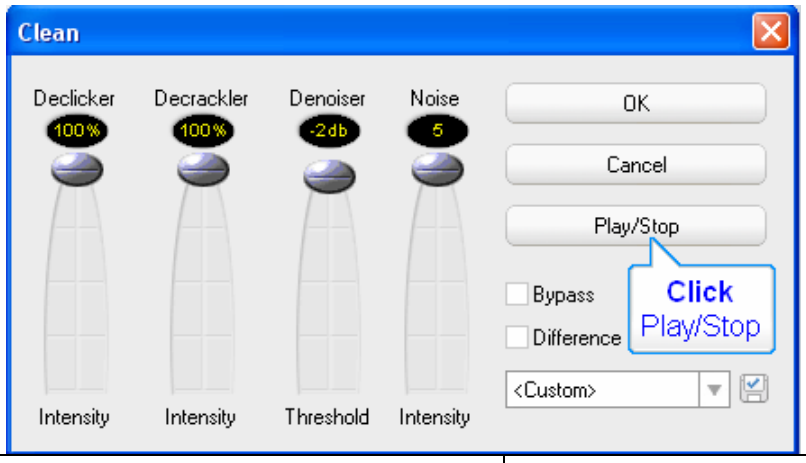
11. Let's remove the pops and clicks from this audio file. **Click** Clean to open the Clean dialog.



12. In the Clean dialog, you'll see four controls. These are their functions:

- Declicker – targets clicks like vinyl scratches.
- Decrackler – targets crackling sound like old vinyl.
- Denoiser – targets hiss and rumble, most commonly found on cassettes and other tapes.
- Noise – adjusts the intensity of the Denoiser.

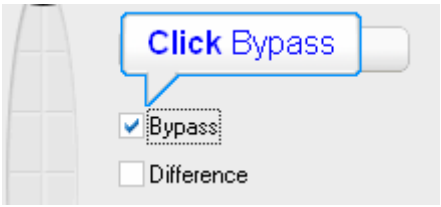
Adjust these dials, and then test the adjustments by **clicking** the Play/Stop button until you achieve the desired reduction in noise without distorting the underlying music or speech content.



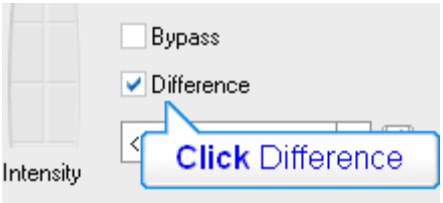
13. To test your adjustments, **click** the Bypass checkbox on and off while playing back the audio. When the Bypass checkbox is enabled, playback disables the Clean filters and you can hear the original recorded audio. Uncheck the box, and you can hear the filtered audio.

- If there's very little difference, and you can still hear noise in the original, raise the filter levels.
- If the noise is gone, and the audio sounds muted or distorted, decrease the filter levels until you hear the noise. Then back down to the maximum, noise-free level.

Remember to uncheck the Bypass checkbox before moving to the next step.



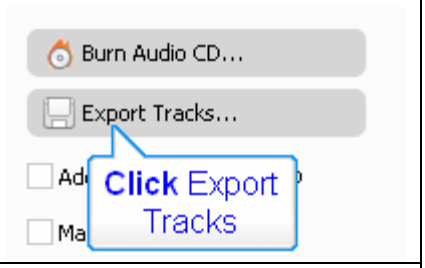
14. To further test your adjustments, **click** the Difference checkbox while playing back the audio. When the Difference checkbox is enabled, Roxio plays back only the audio being removed from the file. Your goal should be to maximize noise reduction without removing any of the original content of the recording. If you hear any music or speech with the Difference checkbox checked, you may distort the final audio, so reduce the Clean settings until you hear only the noise.



15. Once you've reached the optimal levels, **uncheck** the Difference checkbox, and **click** OK to close the Clean dialog.

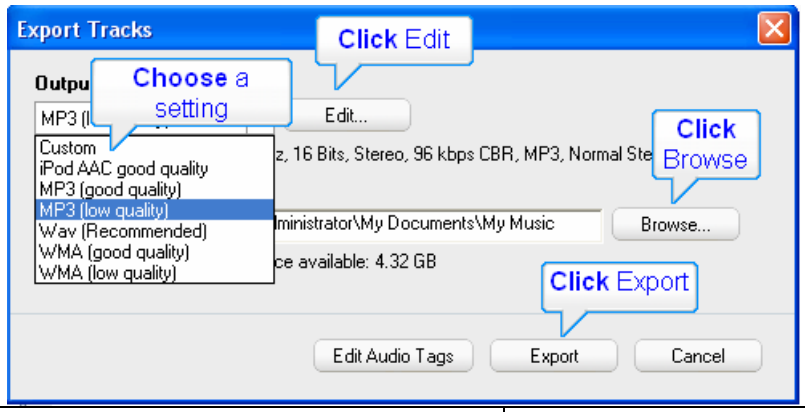
Then **click** Next (not shown) to move to the Output Tracks step.

16. In this window, **click** Export Tracks to export the captured audio into separate digital tracks.



17. In the Export Tracks dialog:

- **Choose** a setting, or Custom.
- **Click** Edit to customize your setting.
- **Click** Browse to change the location of the rendered file.
- **Click** Export to start the rendering process and close the Export Tracks dialog.



18. To burn an audio CD:

- **Insert** a blank CD-Audio disk in your recorder.
- C**lick** Burn Audio CD.

19. If you have multiple recorders, **click** the target recorder. Then **Click** OK to start recording the disc.