

REVIVE YOUR PRECIOUS MELODIES



You no longer need to worry about your precious melodies in the cassettes and vinyl records gathering dust. Audacity software lets you digitalise them, remove their background noise and store in wave, MP3 or DVD format



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Digital audio has become widespread due to the convenience in its recording, manipulation, mass production and distribution. Distribution of audio as data files rather than physical objects has significantly reduced the cost too. During digital transfer, the analogue signal is converted into digital signal at a given sampling rate and bit resolution. The digital signal may contain multiple channels.

You can simply revive your favourite music collection stored in cassettes and vinyl records by converting it into digital format and preserving after removing the background noise. Many

digital software come handy for the purpose. One of the popular software is Audacity, which can be downloaded freely from the website www.audacity.sourceforge.net

About Audacity

The Audacity freeware for converting analogue sound signals into digital format has features like background noise removal, audio processing and editing. The digital signals can be stored either in wave format or MP3 format.

The Audacity frame is simple with easy-to-use tool bars and audio control buttons. The audio control buttons include play (green), record (pink), stop (yellow) and pause (blue). More information about the tool bars is available

in the help menu of the audacity frame.

Audacity's salient features include:

1. Import audio: Command used to import audio from a standard audio format into the project
2. Import raw data: Command to open files in virtually any uncompressed format
3. Quick mix: Command mixes all the selected tracks together
4. New audio track: Creates empty mono or stereo tracks
5. Add label: Creates a new label at the current selection
6. Add label at playback position: Creates a new label at the location where you are playing or recording
7. Effect menu: Allows amplification, bass boost, change in pitch and speed, compression, equalisation, etc
8. Noise removal: Allows you to clean up noise from the recording
9. Normalise: Allows DC offset correction
10. Meter toolbar: Allows monitoring of the input and output audio levels
11. Audacity Project Format (AUP): Projects can be stored in highly optimised AUP files.
12. MP3 format: Audacity can store the audio in MP3 format, which can be copied into a CD or other storage device. To save in MP3 format, it is necessary to download lame_enc.dll files too along with audacity.

Installing Audacity

The Audacity software can be easily downloaded from the website www.

audacity.sourceforge.net, along with MP3 format software lame_enc.dll. Once the downloading is complete, unzip the lame files and save in the Audacity folder.

To start Audacity, press Control P (Ctrl+P) to get 'Preferences' dialogue box. Select 'File Format' tab and find 'Library'. Click the lame_enc.dll file, followed by 'OK.' Then select 192 kbits/sec in 'MP3 Export' setup and click 'Audio I/O' tab. Make sure that the 'Software Play Through' option is ticked. Save the file by clicking 'OK.' The Audacity software is now ready for use from the icon on the desktop.

Hardware requirements

To copy the music from audio cassettes, you require a good-quality stereo tape recorder and a connecting audio cable. The audio output from the tape recorder can be obtained from the headphone (phono) socket or auxiliary output. These outputs give audio from the preamplifier stage, so the audio is clear without much distortion. The audio cable is used to connect the headphone socket of the tape recorder to line-in socket (blue-coloured) of the computer. Use a moulded audio cable with suitable jacks at the ends.

Soundcard optimisation

Before recording, optimise the soundcard setup of the PC. Open the soundcard's 'Volume Setup' by clicking Start → All Programmes → Accessories → Entertainments → Volume Control. Set the volume of recording to maximum. In Windows XP, click Start → Settings → Control Panel → Sounds and Audio Devices. Select 'Audio' tab and click 'Volume.' Adjust the volume tab to 75 per cent. Select microphone as the default device. Click 'Volume,' set the recording volume tab to the middle position and click 'OK.' Check whether the box 'Use Only Default Devices' is ticked.

In most of the sound cards' recording setup, the line-in input is kept as

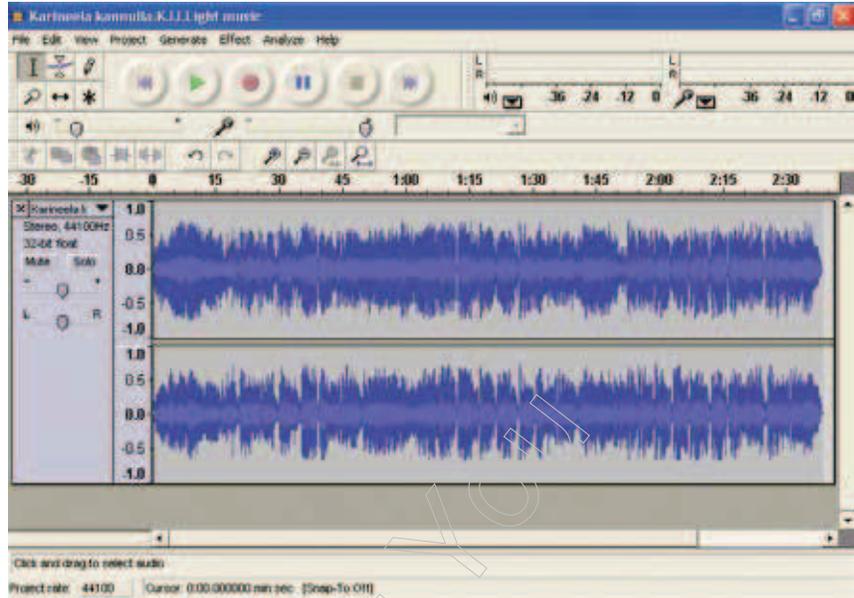


Fig. 1: Audacity frame with stereo waveform



Fig. 2 Hardware required for recording



Fig. 3: PC sound card

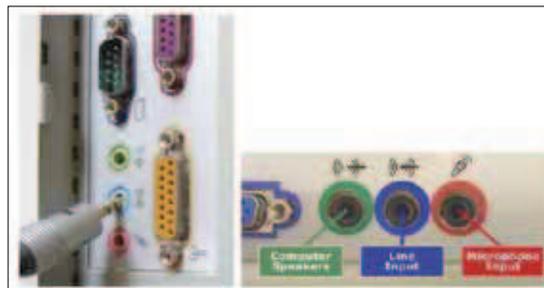


Fig. 4: Connecting the cassette recorder to line-in of the sound card

default. In that case, do not change the settings. In some systems, the line-in socket is kept as 'output' for the sur-

round sound. If so, change it to 'line-in' using 'Advanced Setup.'

Connecting the tape recorder to the PC

Using the audio cable, connect the headphone socket of the tape recorder to the line-in socket (blue) of the PC. Open the Audacity frame by clicking the icon on the desktop. Select 'Line-in Socket' as the input in the frame. Then select 'Monitor Input' from the dropdown box below the symbol of mic. This helps to hear the recording music through PC speakers. Adjust the microphone slider in the frame to maximum input volume and the volume slider of the speaker to the middle position.

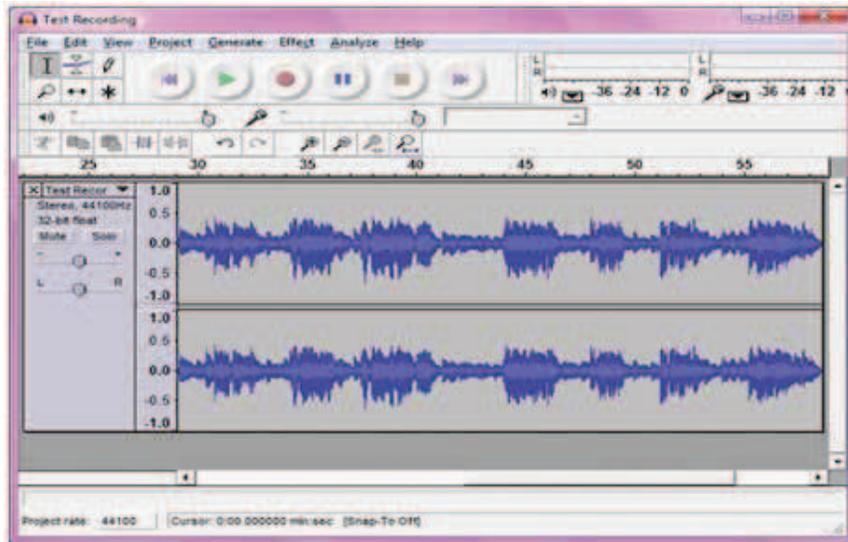


Fig. 5: Recorded stereo waveform in Audacity frame

Cleaning the cassette and checking its audio quality

If the cassette has not been used for a long period, there might be a lot of dust and fungus in the tape. Remove dust and clean the cassette properly. To remove fungus, play both sides of the cassette in the player before recording. If dirt accumulates on the tape head, noise will be generated and volume reduced. So thoroughly clean the tape head and pinch roller using spirit or some head-cleaning fluid.

To check the tape quality, play the cassette completely in the player. If there is no clicking or whistling sound, load the tape in the player and press 'Play' button. Open the Audacity frame and click 'Record' button. Music will be heard through the speaker. Adjust the volume control and bass treble control of the tape recorder to the middle position so that the audio is clear without much noise. Check the recorded track for assessing the quality. If it is alright, stick to the settings of the tape recorder for recording.

Recording

Now you are going to retrieve your melodies from the audio cassette. Open the Audacity frame and play the cassette. Press 'Record' button (pink) in the tool bar. Music will be recorded. You can see the waveform (two for

stereo) in the Audacity frame. Broken waves indicate noise. After recording completes, press 'Stop' button (yellow) to terminate recording.

Noise removal and normalisation

After recording completes, the track must be normalised. Select the entire track by pressing Control A (Ctrl+A) and verify for any break or straight line representing the noise. If there are straight lines, point the cursor to the site of noise. Click dropdown tab 'Effects' in the tool bar, select 'Noise Removal' and press 'Get Noise Profile.' Noise will be removed. Repeat the process to remove all the noise from the track.

Alternatively, the noise from the entire track can be removed by giving command to Audacity. For this, go to 'Effects' tab and click 'Noise Removal.' The software will identify the noise and remove it.

After noise removal, the waveform should be normalised. This will allow you to correct the 'DC Offset' (vertical displacement of the track) and amplify the wave to a fixed level of -3 dB. To normalise the track, click 'Effects,' select 'Normalise' and click 'OK.' The 'Effects' menu also has provisions like bass boost, change pitch, change speed, compression and echo. Modify the track as you like. Details are available

in the help menu.

Saving the project

Now the audio track is normalised for saving. You can save the file in 'wave' or 'MP3' format. If you want to split and label individual songs, click 'Audio' and point the cursor at the start of the first song. Click 'Tracks' menu. Choose 'Add Label,' fill in the boxes with the name of the song, author, etc and click 'OK.' Label all the songs in a similar way. Press 'File' menu and click 'Export Multiple' option. Songs will be exported to the folder created.

If you want to save the songs in one MP3 file, open 'File' menu and click 'Export MP3.' The songs will then be saved in MP3 format. Before saving the file, 'Edit ID3' frame will appear. It can be used for labeling the details of the songs. Fill in the boxes and click 'OK.' Now the songs are in the digital format saved as MP3. These can be played using any audio software such as Winamp or Media player or copied to a CD for playing in a CD player.

Creating a DVD format

Once you have digitalised your favourite melodies, it is possible to store thousands of songs in one DVD. If you store a song in DVD format, it can be played only on the DVD drive of the computer, and not on a DVD player. To play on a DVD player, the song must be saved using Audio-DVD software. You can burn the songs in a DVD using this software so that all the features supported by the 'DVD-Video' are obtained.

Reviving LP records

If you have a collection of old LP (Long Play) vinyl records, you can retrieve them too using Audacity software, but a preamplifier is necessary between the recorder's output and line-in of the computer. The steps of recording and saving the file are the same as for audio cassette transfer. ●

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