Working with audio and video data on your PC

This page shows you how you can use free tools for sound and video capture and processing on your PC. If you want to replay audio from a web page, see How to play audio from a web page.


Audio capture from microphone
Sound recorder

If you are capturing short sounds from a microphone or the line input, the Sound Recorder application that comes with Windows is just about adequate. On Windows XP, you can find it under Start/Programs/Accessories/Entertainme nt. Note that Sound Recorder has some strange default settings, including a limitation to record a maximum of 60 seconds.

One tip about Sound Recorder is to change the default recording sampling rate. Before you record, choose File/Properties and Format Conversion/Convert Now. Then on the format dialog (see below) choose "PCM/22.050kHz 16-bit Mono". This is adequate for most speech work.
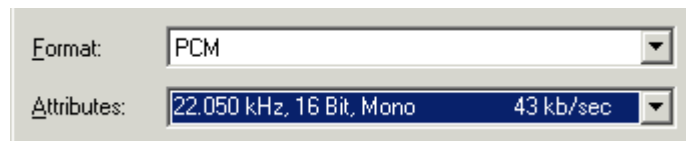
Once the speech is recorded, you can use Sound Recorder to change the compression format to save space on you disk. Do not do this if you want to perform instrumental analysis on the signals. To save as a compressed audio file, choose File/Save As, then change the file format specified at the bottom of the save dialog box.

WASP

The WASP program allows you to record single-channel audio in WAV format up to the limit of your computer's memory (many minutes, typically). This program can also display a spectrogram and a pitch track. It does not have any editing facilities and cannot save in compressed audio.

Audacity

The Audacity project is building a cross-platform open-source audio editor. This is a sophisticated program that allows you to edit and mix audio and save in compressed formats.

Audio capture from an audio CD
CDex
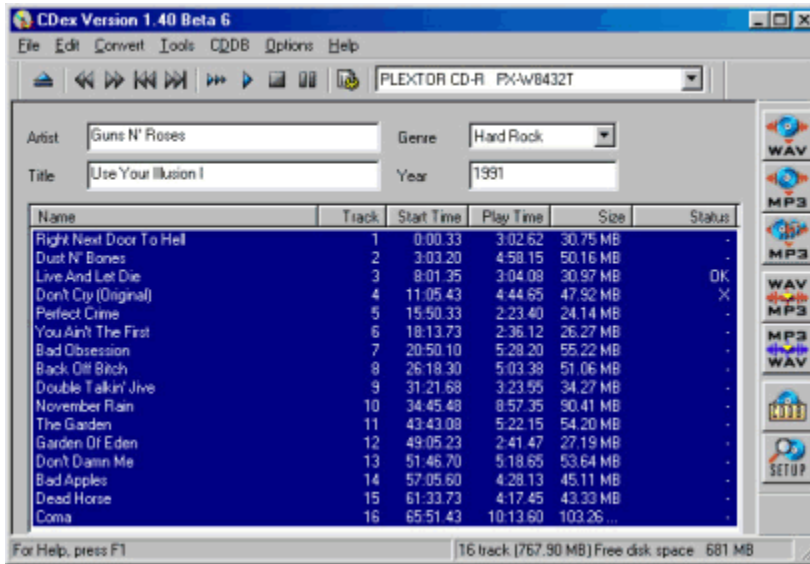
The CDex project is home to a "CD ripper" for copying audio from CDs on to your hard disk. The program has support for the CDDB database of track titles and can compress audio to a number of different formats through installable CODECs. However, if you plan to analyse the audio, just save in uncompressed, or "PCM" format.

Audio capture from a streaming audio web site
Net Transport
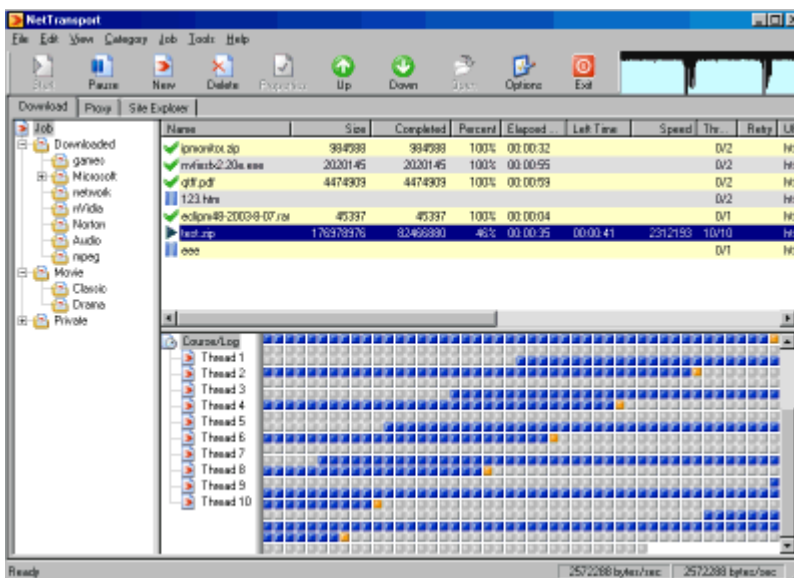
The program Net Transport is a web download manager that also has the capability of capturing most streaming audio. This program is rather difficult to use, and it takes a while to find out how best to make it work for you. I prefer to switch off all its automatic functionality and just ask it to download single audio files by typing their name individually. Here is how I might capture a program from the BBC radio web site. After installing Net Transport, you will find a new option on the right-click menu in your browser, called "Download by Net Transport". I find a link to the radio programme that I want to download and right click on it, choosing "Download by Net Transport". Usually this file will have a file extension called *something*.**rpm** or *something*.**ram**. This file downloads rapidly in Net Transport, typically it is only 50 bytes long. You then need to look at this downloaded file - Windows notepad is an easy way to do this. Inside the rpm file you will find the name (or multiple names) of each actual audio file making up the program that you want to capture. Typically each file will be called **rtsp:***something*.**ra**. You just cut and paste this name into Net Transport and it will download the streaming audio into a file on your system. You can then copy this file to your laptop, or your PDA, and then replay it with Real Player, or with Media Player Classic with Real Alternative, see below. The file is still in Real Audio format, however, so you can't access the actual audio this way for analysis.

Video capture
CamStudio
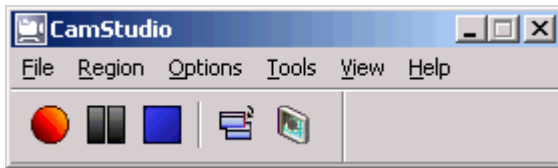
CamStudio is a package to capture your computer screen activity into a video file. It can capture cursor movement **and** a simultaneous audio channel, so it is very useful for making multimedia lectures from a powerpoint presentation. It works extremely well, creating video files in AVI format that are very small - perhaps 10Mb/minute - so that an hour's lecture might fit on one CD.

Some tips for getting the best out of CamStudio:

- Set the video processor to Microsoft Video 1
- Set the audio compression to "PCM 22.050kHz 16-bit Mono"
- Set capture region to the whole screen.
- Set your screen resolution to 800x600 for recording. This makes the video file smaller, the program work faster and means that the playback screen fits within a normal desktop.
- Write down the keyboard commands for starting (F8) and stopping (F9) recording.

If you feed the audio output from your computer into the audio input, you can capture any audio generated by the computer during the lecture. The writers of CamStudio suggest that you can even display a web-cam image on the screen and capture that too.

Audio-video replay
Media Player Classic

If like me you are fed up with the ghastly appearance of the recent Windows Media players, and the nagging reminders to "upgrade" that come with Real Player, you will find great relief in the old-fashioned simplicity of Media Player Classic. This player is actually just a very simple front-end to what audio and video codecs you happen to have on your system. It doesn't necessarily provide you with the capability of playing any more AV formats than your could before.

If you want to play Real Audio in Media Player Classic, you should get Real Alternative a version of Media Player Classic that comes with codecs that replay Real Audio files.

Video processing
Virtual Dub

Virtual Dub is a program to perform simple transformations on video data. It can convert video between formats, and add or strip audio channels.

Unfortunately Virtual Dub cannot write MPEG-1 files, for that you need …

TMPGEnc

TMPGEnc is just an MPEG compression program that can make MPEG1 movie files from an AVI input. This the sort of file you need if you are planning to make a Video CD - that is a CD of video that you can replay in your home DVD player.