

* This guide has been created using MaximumPC's awesome write-up, and after some further investigation on my part, some fine-tuning & tweaking *

How To Rip CD-Quality MP3's

The secret lies in three components:

- A ripper that won't let bad extractions through
- An encoder that delivers sparkling audio @ reasonable file sizes
- A process that isn't a chore to complete

This process automatically (if you're connected to the internet) looks up your CD info on freedb.org after you insert the CD, and with a single click will rip the contents, compress the music, tag the tracks, name & number the files, create folders for your ripped files, and put each file into the folders you set up.

If you want spectacular rips from your CD's without having to worry about reviewing every track for flaws, Exact Audio Copy is the answer to the ripper you're looking for. EAC double-checks every bit for accuracy against the original; if it finds discrepancies, it reads the data again, and yet again if necessary. As a result, it's slower than other rippers, but with the automated process you're going to learn, you just *Ron Popeil voice* SET IT, AND FORGET IT!

First, let's assemble the programs you are going to need.

The currently recommended version of EAC is "**Exact Audio Copy 0.9 beta 4**" (pre-beta versions 0.95pb4 and so on are unstable, have important features removed (for "legal reasons") and have known bugs involving the tags, therefore SHOULD be avoided). EAC does not have THAT version on their website, so Google the phrase I put in bold quotes, and download it.

For Windows 2000 & XP users, download the Nero ASPI Layer DLL Driver. You must place this DLL file in the directory you will be installing EAC (Usually C:\Program Files\Exact Audio Copy). Windows 95/98/ME already has an ASPI layer built in. You can find it at http://www.nero.com/en/ASPI_Driver.html

You'll also need to download the LAME encoder. The best current version to use is "**LAME v3.90.3**" Again, Google the phrase I put in bold quotes, and download it (currently can be found at www.rarewares.org, but may disappear. (download the "LAME 3.90.3 **stable bundle** version).

Unzip & install EAC, LAME & (if needed) ASPI layer into the same directory.

After all the software is installed, EAC needs to be configured. Put an audio CD in your CD-ROM drive BEFORE you open EAC. Launch EAC. EAC will perform an initial drive test. When asked, select Optimization for "accurate results". If you have more than one CD drive, EAC will default to what it considers the best drive. You can change this in the Options menu to the drive you wish. EAC also offers to configure LAME for you. When it starts to search your drive for the LAME .exe, CANCEL the search and point EAC to it yourself to save time. When asked, select the "standard" LAME setting option for now (we will change this later) Last, choose the Expert interface option.

Now, Some Fine Tuning

From the EAC -->EAC Options menu, select the General tab and check "On unknown CD's", then click the "Automatically access online freedb database" button.

Now select the Filename tab, and under Naming scheme type %A\%C\%N - %T (including the space after the %N and before the %T tag). This will result in your directory structure being set up as follows (this example is simply one of the more common ones, you may set YOURS up however you wish using the naming options):

```
Folder (Artist Name)
  |_Subfolder (Album Name)
    |_Number - Name.mp3 (song file)
```

Next you need to specify where all your ripped CD's will be sent to. Select the Directories tab, and choose "Use this directory". Pick where you want EAC to put all your music folders/CD's.

Go to EAC -->Drive Options menu. The box marked "Drive is capable of retrieving C2 error information" might already be checked. If so, **UNCHECK** it. Inevitably it will be the one thing that causes you headaches.

DO NOT UNCHECK SECURE MODE! The whole point of using EAC is its secure mode! Using Burst Mode is POINTLESS if you wish to ensure your rips are flawless!

Go to the EAC -->Compression Options menu. Select the External Compression tab and make sure the LAME MP3 Encoder is displayed in the "Parameter passing scheme" pulldown box. If it isn't, choose it. You will be unable to change anything else if it ISN'T, so this step is vital.

You now have a choice to make. You can save your music in either constant (CBR) or variable (VBR) bit rate form. If you choose any of the VBR rates, *your songs MAY be unplayable in certain cases, **but the chance is slim***, and further investigation on my part leads to telling you *VBR is the preferred bit rate form*. Why? LAME will vary the bit rate for each section of the track, i.e. silence will be encoded at 64kbps and very complex parts may even reach 320kbps. A track encoded using a constant bit rate of 192kbps (for example) will sound far worse than a VBR file with an overall bit rate in the same region.

By not wasting space encoding simple parts of a track at a high rate the LAME VBR setting lets more complex parts of a track be recorded in more detail, giving you a smaller file size without loss of quality. There is some discussion over the various VBR setting that LAME has, but when it comes to VBR vs CBR there is no contest, unless you want to encode all your files with a CBR of 320. This would give you files with the same quality as VBR files but will be three times the size, so you might not even want to bother.

Whatever your choice, either select 320 as the Bit Rate from the the "Bit Rate" pulldown menu if you wish to use CBR, or select 192 if you wish to use VBR (**selecting 320 using VBR causes a known bug**).

If you are using VBR, in the box next to "Additional command line options", **CUT AND PASTE** to enter the following: `--alt-preset standard`

This command line option is much better than normal VBR modes, specially optimized in the program code and produces a higher quality file.

Go to the EAC -->freedb Options menu. Make sure your e-mail address is correct and click the "Get active freedb server list" button. This will probably take a while. After you have the list, the default will probably be the <http://freedb.freedb.de:80/~cddb/cddb.cgi> server. From the drop down menu, select a server close to you - hint - check the server name for an idea of where it's located.

Now, remove the CD from your drive and double check all your settings are correct.

Ready, Set, Test!

Now that EAC is ready, let's rip a CD! This first rip will be a test of your configuration. Insert a CD into your drive. EAC should automatically check the freedb server for track data. If it seems like it is NOT, press Alt-G to do so.

Highlight some tracks and hit the MP3 button. EAC will now start extracting the audio from your CD. Once the first track is complete, a black DOS window should open (that's your MP3 being created). Don't close it, it will do that automatically once it's done. When you're all done, check the folder you ripped to in order to ensure LAME is finished. If so, you should have a folder full of mp3 files ONLY. If you have .wav files or .tmp files, wait a bit until LAME is done.

Pat yourself on the back! You've just automated your CD ripping, enhanced the accuracy of the final product, and are now creating the highest quality MP3's possible!

Normalizing Your Files

If you wish to normalize the volume levels from track to track (NOT recommended, unless making a "mix CD") do NOT use regular normalizing software, and DO NOT normalize the original file. Create a copy of the file(s) you wish to normalize and make any changes to the copy. To normalize files that will be burnt to CD, use MP3Gain (download at www.geocities.com/mp3gain). Do NOT use MP3Gain for any other use.

Possible Problems?

While ripping may go quickly, please keep in mind that EAC is NOT designed to be a fast worker, it's meant to be a CAREFUL one instead. Depending on the condition of the CD (scratches and whatnot) and the accuracy of your drive, ripping could take a while. When the test run is finished, review your tracks. If they are blank or there are any errors, check the settings above once again. If everything checks out, PM me with questions and I'll see if I can help you out. If the settings look good, double check to make sure (if you have Windows 2000 / XP) you have the ASPI layer installed in the EAC folder. Your PC can't rip music without an ASPI layer, and 99% of errors are solved by using the correct ASPI layer - again, if you are using Windows 98SE or lower, the ASPI layer will already be present, Windows 2000/XP REQUIRE that ASPI layer.

Also, if your CD's are scratched TOO badly, EAC can't always correct them. After a number of tries, EAC will give up its attempts to correct the error and report a Read Error or Sync Error on the log after it has finished ripping. What are some options to remove the scratches? Commercial scratch removers, such as the Skip Doctor line of products (careful, the discs used remove different amounts of material, stick with Skip Dr) work well, or you may wish to give something you may have lying around the house a go, such as Brasso or toothpaste (stick with the "old skool" versions or the "whitening" versions).

A CD consists of a reflective silver layer 'sandwiched' between 2 protective layers: one on top (the label side, often decorated with text and colour) and one below (the clear side: thick transparent plastic through which you can see the reflective silver layer). The label side is thin, if a scratch on it reaches and damages the delicate reflective layer (typical is that you can locally look through the CD), the CD is broke and cannot be repaired. The clear side is so thick that scratches on it most likely will not reach the reflective layer. In the worst case they diffract laser light so that it doesn't reflect properly on the reflective layer, causing read trouble. This is what we try to fix with the methods listed above. These methods will generally only work for pressed CD's (the ones you buy in a store).

First, try to determine which of the (many) scratches is causing the trouble. Look for concentric scratches. These do more harm than radial scratches (concentric = parallel with the outer edge of the CD, radial = from center to outer edge). On the CD each track circles around the previous one. So, if EAC reports an error on the last track, your scratch must be near the outer edge of the CD.

Rub the scratch with Brasso. Put some brasso on the clear side, where the scratch is. Rub with a cloth at medium pressure, preferably in radial direction (you know why). If you need to remove a deep scratch, rub in a direction crossing the scratch even if it isn't radial (because that works fastest), but take care to finish radially (preferably with fresh brasso). As you rub, the fine grit present in the brasso pressed between your fingers and the CD, will wear away some of the plastic layer together with its scratches. You may rub firmly to make the work advance, but hold on long enough to make sure the scratch gets removed. As the brasso gets thicker due to the worn away plastic it will get less grinding, so you might need to use fresh Brasso. Complete removal of a scratch is often not needed to make the scratch harmless.

If you think you've done enough, clean the CD with water. Be careful when you wipe off the water (this causes new scratches). A radial direction is again a good idea. The whole process is a matter of a few minutes. You might feel a little unsure the first time you try it, but don't worry, it is something easy to learn. It also may be your last resort, so what do you have to lose? 🤖