

Manual for CDex 1.50 beta

(c) 1998-2003 by Albert L Faber&Sean M Burke



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Version 2, June 1991

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Introduction

This document describes CDex, a utility for extracting sound files from CDs in your CD-ROM drive, and for converting WAV files into several other (compressed) formats, like the popular MP3 format.

The latest version of CDex can be downloaded from:

<http://www.cdex.n3.net>

[System Requirements](#)

[Status of CDex](#)

[Acknowledgements](#)

[Change log](#)

Installing CDex

How to install CDex.

Important:

CDex needs ASPI drivers to work properly; you should have installed this on your system, because otherwise you cannot use the extracting of CD-ROM tracks.

Installing CDex (when you downloaded the ZIP file) is straightforward and easy. In order to install CDex, open the file Zip file with a utility like WinZip and extract the file to whatever directory you like (e.g. c:\Program Files\CDex). Once it has extracted, close WinZip, open a Windows Explorer window and select the directory where CDex is installed. Just double-click on the CDex.exe file to run it. That's all! Optionally you can create a shortcut to CDex -- but if you do, make sure though that you set "Start In" field to the directory where you have installed CDex.

Even easier is the installation from the CDexSetup.exe file. Just double click on the CDexSetup.exe file, and the setup wizard will guide you through the installation process.

[How to uninstall CDex](#)

A Quick Tour

This chapter is for those who can't wait; it discusses briefly how to configure the main options and how to use it. It is assumed that you have already installed CDex (see previous chapter). Now the first thing you have to do is to configure CDex, below a short description of the main items that have to be configured.

After you have started CDex, you have to select the configuration option from the options menu (or click on the configure on the toolbar).

[How to get started](#)

Digital Audio Technology

This chapter explains briefly the basic topics related to digital audio.

What is CDDA or DAE:

The purpose of audio compression:

Which bitrate should I use to get CD-Quality:

Bitrate Options:

Creating an Audio CD from MP3 files:

Configure CDex

This chapter explains the configuration TABS that are available within CDex.

[General Settings](#)

[Filename Settings](#)

[CD-ROM Settings](#)

[Encoder Options](#)

[Local CDDB Options](#)

[CDDB Options](#)

Menu Options

This chapter explains all the menu options that are available.

[File Menu Options](#)

[Edit Menu Options](#)

[Convert Menu Options](#)

[Play Menu](#)

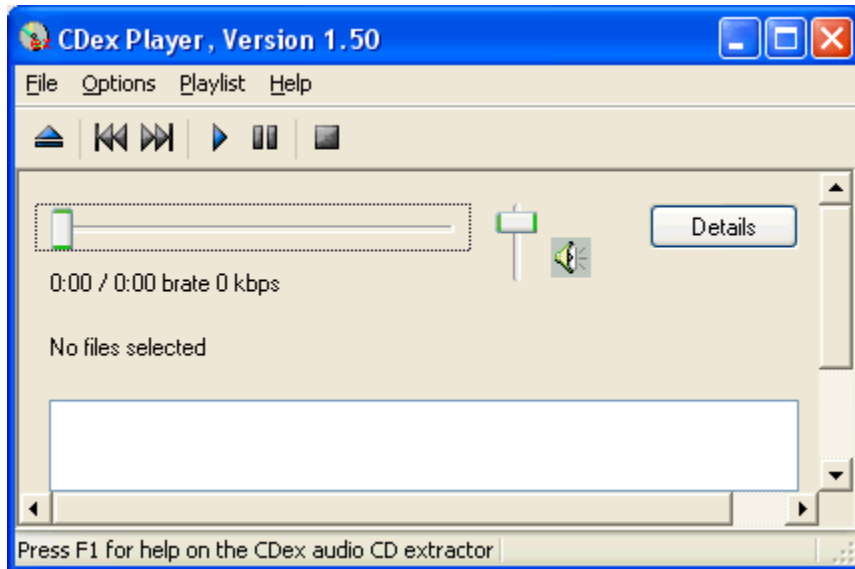
[CDDB Menu](#)

[Options Menu](#)

[Help Menu](#)

CDex Player

CDex contains a small Media Player and playlist editor. The main player screen is shown in the following figure:

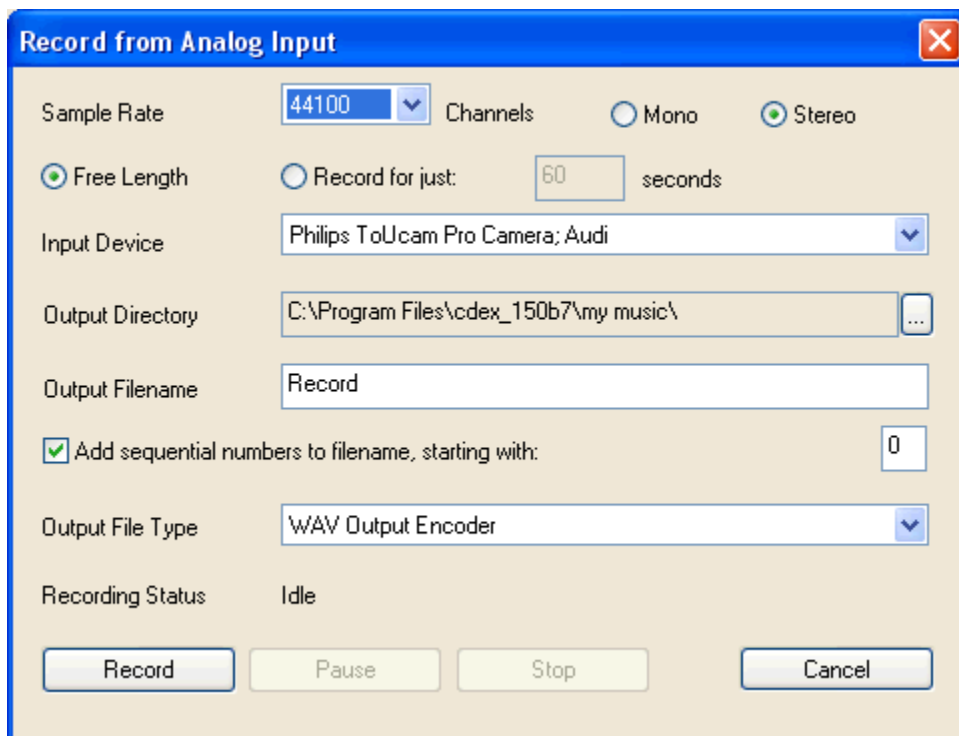


The player can operate independent of the main CDex ripper program. The main window contains a file list, the so-called playlist. Files can be added by either dragging and dropping files into the CDex Player window, or by selecting the "Select Files" button on the toolbar.

The file types that can be played with the CDex Player depends on the available Winamp plugins that have been installed in the Plugins directory. By selecting Configure/Configure Winamp Plugins menu option from the main menu, you can see which plugins are installed (and recognized) by CDex.

Record Files

CDex contains an option to record sound files using your sound card. When selecting "Tools / Record Files" the following dialog will be displayed:



You can either specify time-limited recording (meaning that when you hit Record, it will stop recording after that many seconds), or you can use the free length encoding (meaning that when you hit Record, only Stop will stop the recording).

Also, you can specify the output encoder.

However, whether this will work or not, depends on the system configuration and selected encoder. If your system is not fast enough to do real time recorder+encoding (i.e., if it can't encode the data as fast as it's coming from the input), you will have to select the WAV output type and optionally convert the files to the desired output format (encoding it in two steps). Also remember that recording to WAV will use a lot more disk space.

One simple way to guess whether your system is fast enough to keep with real-time encoding with a particular encoder, is to compare how long it takes that encoder to encode a CD track, compared to the play-time of that itself. If you experiment and find that on your system, LAME (with your settings) encodes a **five**-minute track in about **one** minute, then that means your LAME (with those settings) can encode "five times faster than real-time". So recording real-time data will be no trouble. But (for example), if you try encoding that same five-minute track with an Ogg Vorbis encoder with particular settings, and it takes **six** minutes, then that encoder (with your settings, on your current system) will not be able to handle real-time encoding. If it takes about **four** minutes to encode that five-minute track, then in theory, the encoder could keep up with the real-time input, but just barely, so it might be a bit risky.

As processors become faster and faster, typical encoders (like MP3 encoders with usual settings) can encode many times faster than real-time, so this should be less and less of a problem.

Troubleshooting

This chapter has some information in case you have problems with CDex. It is recommended though that you also read the CDex FAQ, which might have more up-to-date information about your specific problem (see <http://www.cdex.n3.net>).

[System Information Dialog](#)
[Frequently Asked Question:](#)

Keyboard Shortcuts

CDex knows the following keyboard shortcuts:

- F2 Rename Track
 - F3 View ripping status
 - F4 Configure CDex
 - F5 Refresh track list (re-read the Table of Contents and re-read CDDDB information)
 - F8 Rip selected tracks to a WAV file
 - F9 Rip selected track to a compressed file (like MP3)
 - F10 Partial track extraction
 - F11 Convert WAV to a compressed (MP3) files
 - F12 Convert compressed (MP3) file(s) to a WAV file(s)
- Ctrl-A Select all tracks

Bug reports and suggestions

IMPORTANT:

Do not send me large attachments or large files! If you have a problem, please **READ the Help File** first. If this doesn't solve your problems, take a look at the latest **FAQ** on the website (<http://www.cdex.n3.net>), it may have a solution for your problem(s). If you still have problems, **then** you can send me an e-mail describing your specific problems. Also include as much as possible information, like:

- Which version of CDex do you use?
 - What ASPI drivers do you have installed on your system?
 - What kind of CD-ROM do you have (brand + type)?
 - What kind of CD-ROM settings do you use (Read Sectors and Read Overlap)?
 - Did you try the Auto Detect function yet?
 - Which encoder you have selected?
 - If the problem involves CDDDB, are you behind a firewall?

And if something doesn't work, please explain in detail what you attempted to do.

Also add the information which is displayed in the "System Info" window, which you can get to from the "File" menu in CDex. For your convenience, you can have CDex copy the information to the clipboard, which you can paste (control-v) in your e-mail program.

Glossary

codec

ID3

Mouse Click

MP3

MPEG

Fraunhofer

Ogg

RIFF

WAV

System Requirements

To run CDex, you need at least:

- Microsoft Windows 95/98/NT/ME/2000/XP operating system
 - Adaptec's ASPI for Win32 Manager (version 4.54 or better)
 - A CD-ROM which has Digital Audio Extracting capabilities (most IDE drives and SCSI drives will do)
- Intel Pentium or compatible processor
- Lots of free disk space to record your WAV / Encoded (MP3) files
- A player is recommended (like Winamp). Take a look at www.mp3.com where you can find much more information about MP3.

Status of CDex

CDex is under continuous development, often following users' suggestions. See the CDex Sourceforge web page

<http://sourceforge.net/projects/cdexos/>
for existing bug reports and pending feature requests.

Acknowledgements

Thanks are due to the many people that have worked on the LAME encoder, especially Mark Taylor, Robert Hegemann, and Takehiro Tominaga.

Also thanks for the many beta testers of CDex, who went through the trouble testing the many beta versions of CDex, and took the time to write up bug reports. And of course all, thanks to the users that came up with new feature requests and ideas to improve CDex.

A special thanks to Dustin Halstead (aka: Mangax, mangax@midsouth.net), who designed the new CDex logo and CDex buttons.

The original CDDB was designed and developed by Ti Kan and Steve Scherf (<http://www.cddb.com>).

Change log

Version 1.50 beta : (November 2002)

- New look (buttons&logo)
 - Support for Monkey's APE encoder (version 3.97)
 - Support for native Ogg Vorbis DLL encoder libraries (version 1.0)
 - Support for NTT VQF encoder DLLs
 - Add feature to keep the original directory structure when converting files
 - Added track offset feature
 - Added Digital CD playback option
 - Added profile feature
 - Many small bug fixes

Version 1.40: (March 2002)

- Added MPEG->MPEG transcoding option
 - Avoid long delays between file conversions when ID3V2 Tag option is enabled
 - Make sure that the CD-ROM is unlocked after ripping a CD
 - Upgraded to Vorbis RC2 (encoder)
 - Upgraded to latest LAME version
 - Support Winamp Plugins
 - Support for CDDB protocol level 5

Version 1.30: (March 2001)

- Improved MP3 player (switched to MPG123 decoding engine)
 - CDDB submit support for freedb.org
 - Recording from a soundcard
 - Improvements to the playlist file generations
 - Added support for the Vorbis Encoder / Decoder
 - Support for GoGo MP3 encoder
 - Included latest Lame Encoder
 - Support for latest FAAC DLL

Version 1.20: (December 1999)

- Automatically match up the CD drive letter with the CD-ROM device
 - CDDB ID of mutli-media CDRoms are now calculated correctly
 - Better site query of CDDB sites
 - Fixed (hopefully) Windows codec enumeration bug
 - On the fly encoding for external encoder (if ext encoder supports this)
 - Added support for FAAC dll
 - Included latest Lame Encoder (speed and quality improvements)
 - Added additional settings for Lame Encoder
- Setting proper logical drive in CD-ROM configuration dialog
 - Save the remote CDDB sites properly
 - Fixed bugs in normalization code (Thanks to Frank!). Decreased normalization buffer size in order to avoid stack overflow problems
 - Save Correct TAG (Category Field) when performing Partial Track copy
 - Added Simple MP3 Player
 - Switched to Lame Encoder (version 3.58)

- Added Joint stereo and Fake Stereo option in Internal Encoder options Fixed problems when converting MP3->RIFF WAV (was not doing anything)
- Made changes to Codec enumeration, hopefully this solves the weird crashes
 - Store the CDDB query sites result correctly
 - Added WMA encoder
 - Better handling of ASPI errors
 - Fixed problems with pause button
 - Avoid system crash when no CD-ROM drive has been found

Version 1.10: (March 1999)

- Major re-code of the ripping and encoding part, in order to more easily add new encoders and to avoid a maintenance trap. Unfortunately, this has introduced many new bugs, therefore many service releases were necessary to make it stable again.
 - Moved the ripping stuff into a separate DLL.
 - Added the CD selection bar in the main menu.
 - Better support for external encoders.
 - Dropped (or convert WAV files) now also supports multiple CD-ROM configurations (i.e. the settings of each CD-ROM are saved in the INI file).
- Added support to get the CDDB server list.
 - More flexible file name building (including dynamic directory creation).
 - Support for Windows MP3 compression Codec.

Version 1.02: (December 1998)

- Minor improvements to version 1.02, mostly related to slow response time of Windows NT systems.

Version 1.00: (October 1998)

- Improved user interface (removed plain buttons for Extracting toolbar)
 - Added remote CDDB support
 - Added support for external encoders (AAC/VQF/MP3 like Blade Encoder, Plugger, L3Enc etc.)
 - Added support for Blade Encoder DLL
 - Several bug fixes

Version 0.15: (August 1998)

- First public release

How to uninstall CDex

CDex does not install any additional DLLs or components; all the files are located in the CDex directory, except for the CDex.ini file, which is located in the Windows directory. Just remove the directory where CDex is installed, and delete the CDex.ini file that is located in the Windows directory.

If you have installed CDex via the CDexSetup.exe file, you can select the Uninstall CDex option from the Start/Programs/CDex XXX/Uninstall CDex menu option. However, the Uninstall won't delete the CDex.ini file, which you have to delete by hand from the Windows directory.

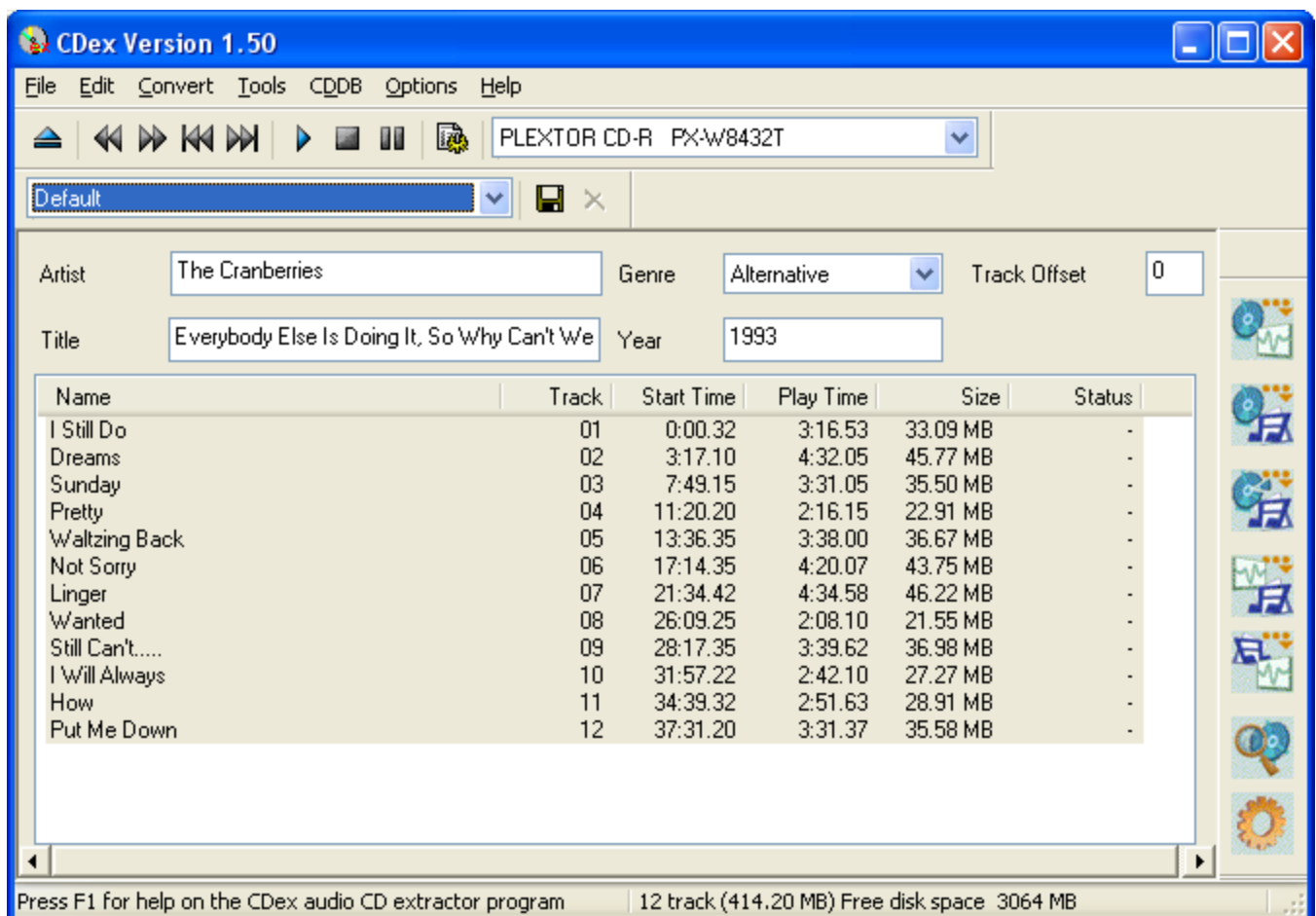
How to get started

First select the configure button (F4) and select a proper output directory. For all the available shortcuts, see also [Short Cuts](#).

Secondly, select the CD-ROM tab and make sure that the CD-ROM settings are correct. At least make sure that the logical drive letter is set up correctly for your CD-ROM (otherwise you might have problems with reading the CDPlayer.ini file). Optionally you can select another encoder (like changing from LAME to Ogg Vorbis, or Fraunhofer). You can select the encoder by clicking on the MP3 tab.

Finally, you have to fill in the CDDDB settings; at least make sure that you specify your e-mail address when you want to use the remote CDDDB functionality.

Once you have set up everything, click on the OK button. The settings will be stored to the CDex.ini file that is located in the Windows directory. Now that the setup has been completed, it is time to rip some files:



The figure above shows the main CDex screen. Once you've put a CD in, the first thing I would recommend doing is to fill out the Artist/Album information as well as the each track's title. It seems like a bit of work, but it saves you time, because otherwise you will end up with a bunch of files with the meaningless names, which you'll then have to rename or just throw away.

Luckily, there is a large database on the Internet called CDDB. This database has track and artist information of just about every CD album. The only thing you have to do, in order to use this database, is to fill out the e-mail address field in the [CDDB options](#) (or at least something that looks like an e-mail address like joe@sixpack.com).

Now select one (or more) tracks from the track list. You can select tracks by [clicking](#) on the tracks; to select more than one track, hold down the CTRL key while [clicking](#). To select a range of files, you can hold down the SHIFT key while [clicking](#) on the first and last track you want to select. You can select all files at once by hitting the CTRL-A [Short Cuts](#) key. This shortcut is native to Windows (for example, you can do that in Windows Explorer to select multiple files), but many users are unaware of it.

Once you have selected the tracks you want, you can extract these tracks to either WAV files or extract them directly to compressed files (like MP3 or Ogg).

If you want to extract them to WAV files, hit F8, or click on the topmost button on the Recording Toolbar, which says "WAV" on it. (The Recording Toolbar is along the right side the main CDex screen.)

If you want to extract them to compressed files (like MP3), hit F9, or click on the second button on the Recording Toolbar.

To rename the track files, you have to select a track first; once the track is selected, click on it again (with left mouse button, or press the F2 key); now a cursor will appear; type in the track. Hit the return key when done. (This procedure is similar to the file renaming the Windows Explorer). Or if you have selected a track, you can use the right mouse button to get the pop-up menu, then select Rename and the text cursor will appear.

Most of these functions are available when you press the right mouse button in the track list!

[Profiles](#)

What is CDDA or DAE:

The process of direct reading the audio data is called CD Digital Audio (CD-DA) or sometimes referred to as "Digital Audio Extraction" (DAE) or as "CD ripping" . CDex uses CD-DA to read the audio data of the CD disc and write the resulting data into a WAV file or a MP3 file. The advantage of CD-DA above recording the file using your sound card is that there is no loss of music quality; the data in the WAV file is an exact copy of the data on the disc. (In technical terms, using your sound card, the digital data from the CD is converted to an analog signal, which is then digitized again by the sound card. Often the sound quality will deteriorate when going this route, and producing noisy WAV files.) Furthermore, DAE is also a lot faster than ripping audio data with your sound card.

The purpose of audio compression:

Until audio compression was invented, high-quality digital audio data took a lot of hard disk space to store. Let's go through a short example. Suppose you want to sample your favorite 1-minute song and store it on your hard disk. Because you want CD quality, you sample at 44.1 kHz, stereo, with 16 bits per sample.

44100 Hz means that you have 44,100 values per second coming in from your CD-ROM (or input file). Multiply that by two, because you have two channels, left and right. Multiply by two again because you have two bytes per sample (i.e. 16 bits per sample). The song will take up $44100 \text{ samples/s} \times 2 \text{ channels} \times 2 \text{ bytes/sample} \times 60 \text{ seconds/min}$ Mbytes equals about 10 megabytes of storage space on your hard disk, for each minute!

If you want to download that over the Internet, given an average 28.8 modem, it would take you about $10,000,000 \text{ bytes} \times 8 \text{ bits/byte} / (28800 \text{ bits/s}) \times (60 \text{ s/min})$ or about 45 minutes. Just to download one minute of music!

Digital audio coding (also called "digital audio compression") is the art of minimizing storage space (or channel bandwidth) requirements for audio data. Modern perceptual audio coding techniques (like [MPEG](#), [Ogg Vorbis](#), AAC) consider how we actually perceive sound, to give higher fidelity to the parts of the sound that we hear most clearly, and to simplify the parts of the sound where we are less likely to notice any difference. Using compression that uses these techniques can take uncompressed audio, and represent it in about a twelfth the original disk space, without any noticeable loss in fidelity. It can compress it even further and further, if you are willing to put up with less and less fidelity.

So such schemes are the main technology for high quality low bit-rate applications, like soundtracks for CD-ROM games, solid-state sound memories, Internet audio, digital audio broadcasting systems, and the like.

When you deal with compression technology, often you have to specify the "bitrate". The "bitrate" refers to how much data is needed to represent how much sound. If less data represents each second of sound, then the sound quality will be lower; but if more data represents each second, the quality will be better.

For example, an MP3 encoded "at a bitrate of 128 Kbps" (a very common compression rate) represents each second of sound using 128,000 bits -- roughly like the quality of FM radio with good reception. The same sound encoded "at a bitrate of 64 Kbps" will represent each second using half as much data, so the file on the whole will be half the size of the 128 Kbps) and the audio quality will be lower. It's not quite right to say that it's "half as good", since it's hard to really use numbers for how good we think something sounds; but 64 Kbps could be compared to the quality of a copied cassette tape.

Which bitrate should I use to get CD-Quality:

This is another of those questions that people debate **endlessly**. There really is no single (correct) answer - it depends on your ears, your equipment, the quality and complexity of the input sound data, etc. I think it's probably fair to say that 128 Kbps is a bit on the low side for music, but it may sound fine from some encoders for some songs under some circumstances; while 160 Kbps done by a good encoder should sound pretty good to most people under most circumstances. But I know some people will insist on higher standards. Which MP3 encoder you use really does make a difference - I personally recommend using the LAME MP3 encoder (the default in CDex), or the Fraunhofer MP3 encoder.

Also note that simple speech is generally much less acoustically complex than music, and that people generally care less about the audio quality of speech, as long as it's understandable. This means that bitrates below 128 Kbps can be just fine for compressing speech, even though those bitrates are usually not even worth considering for music.

Bitrate Options:

There are three types of bitrate options that you can specify for each the encoder (although some encoders may not allow any options).

1) Constant Bitrate (CBR)

This is the default encoding mode, and also the most basic. In this mode, the bitrate will be the same throughout the whole file. So, a second of audio from one part of the file takes just as much disk space as a second from any other part of that file -- regardless of whether either part is silence, acoustically simple, or quite complex. This means that you are likely to hear distortion more in the complex parts than in the simple parts. The advantage of CBR formats is that even older players understand them, and that you can reliably predict the file size from the duration of the sound (or vice versa).

2) Average Bitrate (ABR)

In this mode, you tell the encoder to aim for an average bitrate that you specify, skimping on the simpler parts of the music, and using higher bitrates for the parts of your music that are more complex. The result will be of higher quality than you'd get in a CBR encoded file of the same size. This mode is highly recommended over CBR. This encoding mode is similar to VBR.

3) Variable bitrate (VBR)

In this mode, you say what level of quality you want in the output file, and the encoder compresses each second as best it can to get just that level of quality -- using less information to represent simpler parts of the song, and more information to represent the more complex parts. However, this mode relies heavily on the encoder's model of how you perceive quality, and could lead to a few "bad choices" in the encoding process. If possible, you may want to specify a minimum bitrate (e.g., 64 Kbps) to avoid those potential errors.

Creating an Audio CD from MP3 files:

I've gotten many questions about how to create an audio CD from MP3 files, so that the CD can be played in a regular CD player - and not just in the new players that can read MP3 data CDs!

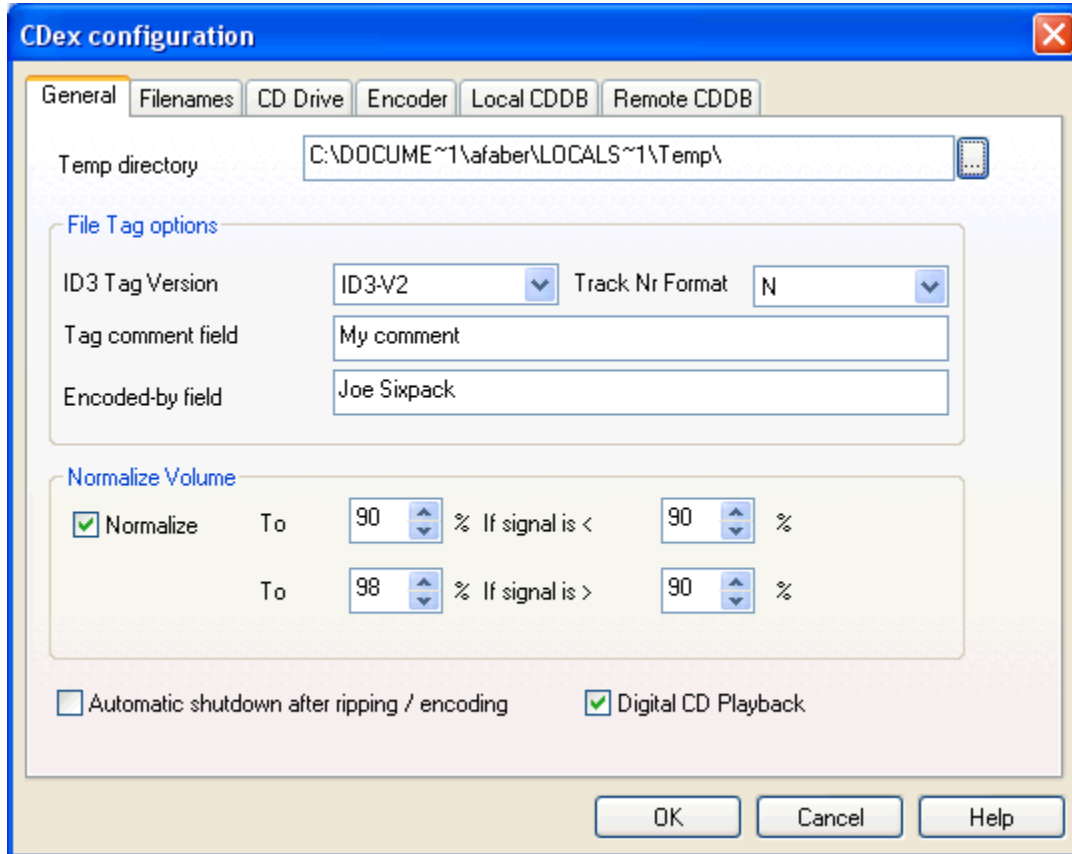
There are programs that claim to be able to take MP3 files and decode them and burn them to an audio CD all in one operation... MP3 CD Maker is one such program. However, I still use a two-step process:

1) Decode the MP3 files to WAV files. You can use CDex for this by using the "Convert/Convert Compressed Audio File(s) to WAV file(s)" menu option. Or you can even achieve this with Winamp using the "Nullsoft Disk Writer plugin".

2) Burn the WAV files to an audio CD using a CD-burning program like Easy CD creator, WinOnCD, Fireburner etc. I personally use WinOnCD (it came with my burner, and it works very well), but pretty much any CD burning program should be able to burn an audio CD from WAV files sampled at 44.1 KHz, 16 bits per sample and two channels, without a problem. Make sure that you choose the "Audio CD" option - you don't want to just copy the WAV files to a data CD. Also, if you want the disk to play and select tracks without a problem in various audio CD players, you might want to try and use the "Disk at once" option, which burns the whole CD without turning off the laser. CDs burned in "Disk at once" mode will generally be handled better by audio CD players. CDs burned in "Track at once" mode, where the laser is turned off between each track, will generally play okay, but many audio CD players can't successfully skip to any track other than the first on such disks, which is kind of a pain.

The bitrate is not relevant to the CD format - the bitrate is a measure of how severely the data was compressed, but once the file has been converted to a WAV file (and hence decompressed) the bitrate is gone. However, files which were compressed to a lower bitrate (and hence compressed more) will not sound as good as ones which had a higher bitrate. I would listen carefully to a 96kbps file before burning it to CD and ask yourself: is the quality really good enough?

General Settings



ID3 tag version

ID3 tag track number (not applicable for ID3 V1 tags)

Tag comment field:

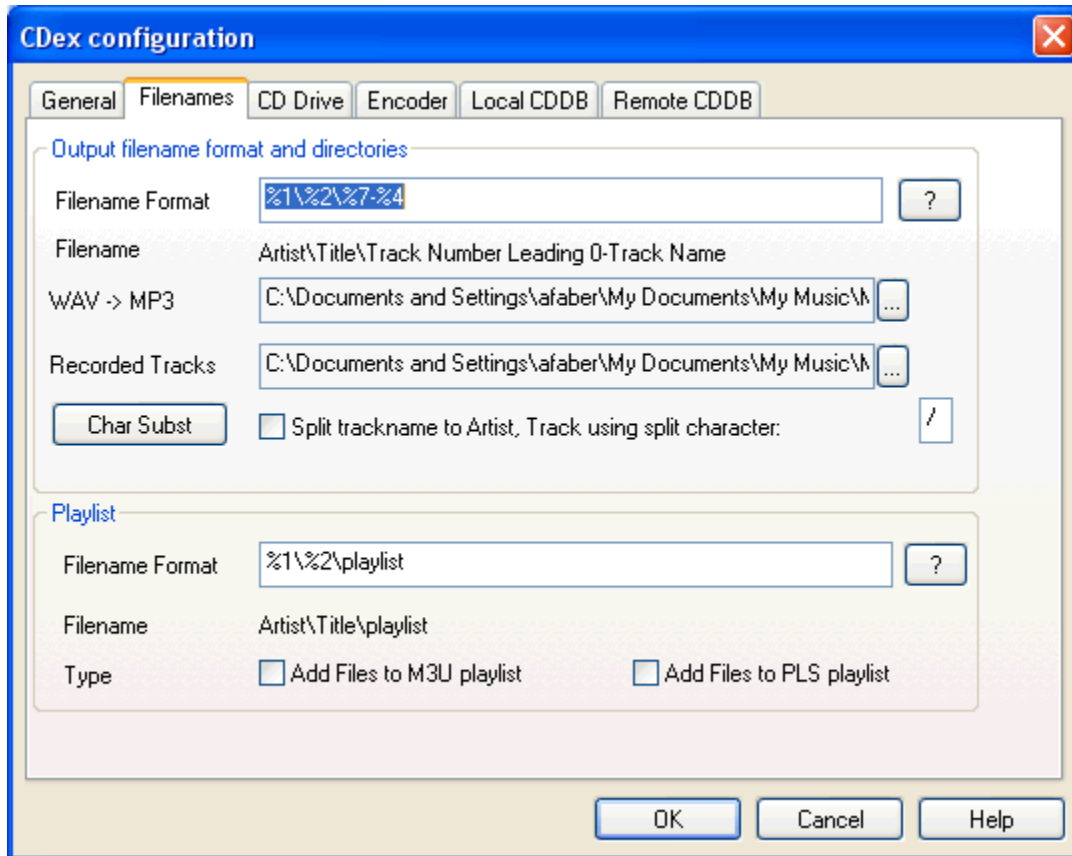
Encoded-by field (not applicable for ID3 V1 tags)

Normalize track volume:

Automatic shutdown after ripping / encoding (default: off)

Digital CD Playback (default: off)

Filename Settings



Filename builder:

WAV->MP3 Output Directory:

Recorded Tracks Output Directory:

Character Replacement button:

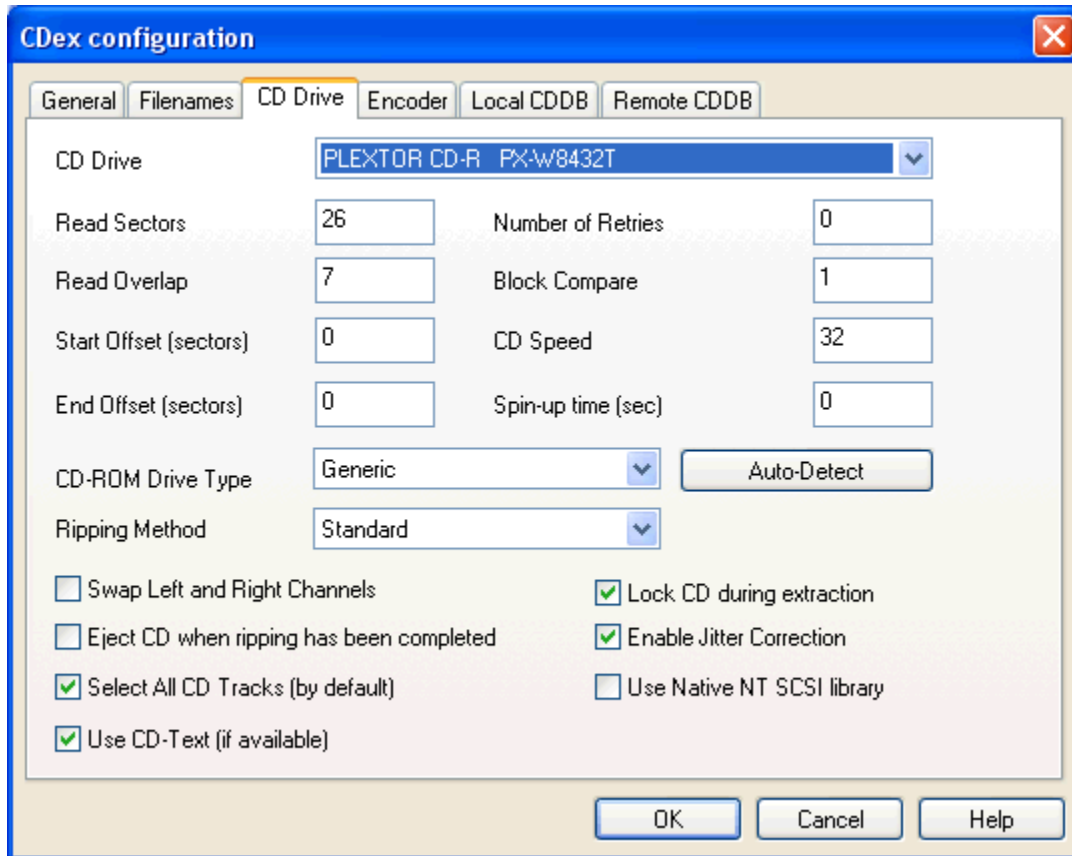
Split Track name to Artist/Track using X character:

Playlist filename builder.

Add Files to M3U Play-list.

Add Files to PLS Play-list.

CD-ROM Settings



CD-ROM drop down list:

Read Sector (default value 26)

Read Overlap (default value 7):

Block Compare (default value 1):

Number of Retries (default value 0):

CD Speed (default value 0):

CD-Read Type (default value Generic):

Auto Detect Button:

Swap Left Right Channel (default value off):

Enable Jitter correction (default value on):

Start and end Offset (default values 0):

Spin up time (default value 0):

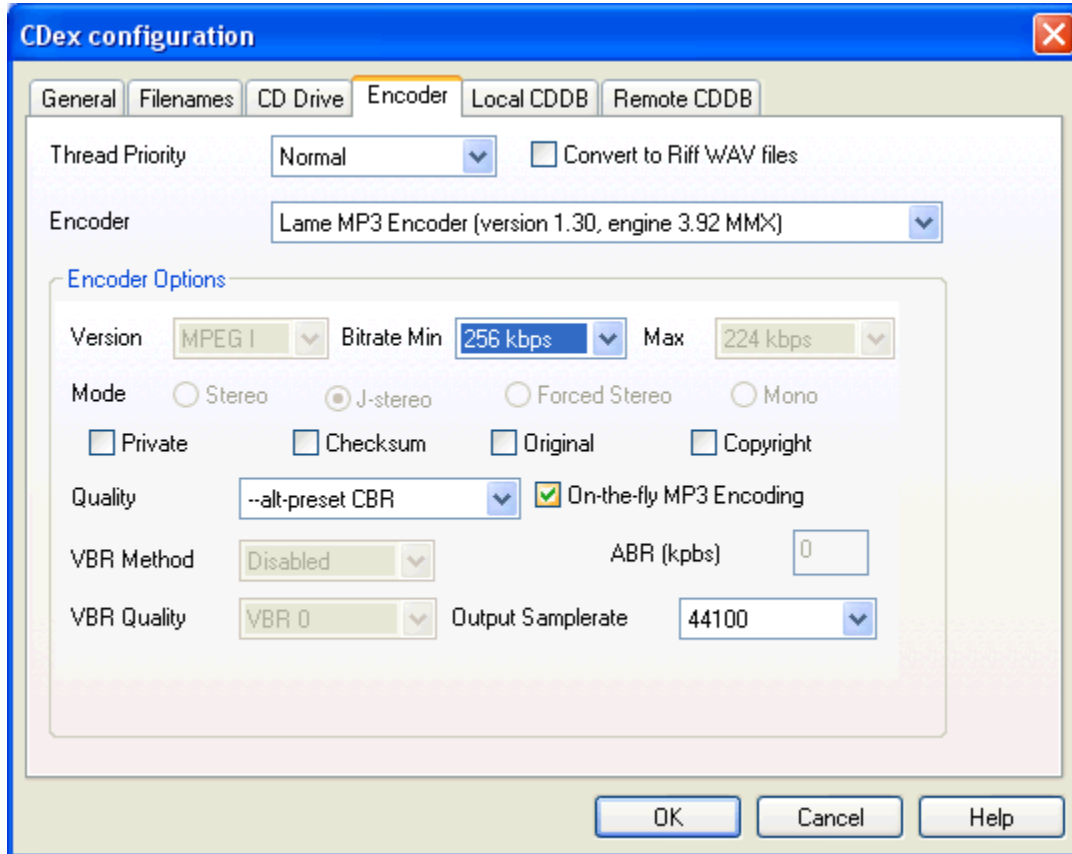
Eject CD when ripping has been completed

Select All CD Tracks (by default)

Use Native NT library (default value off):

Ripping Method (default value: Standard):

Encoder Options



This section describes the options that can be filled out in the MP3 Encoder options window.

Bitrate values and how to interpret them:

Thread Priority:

Output to Riff-WAV file:

Encoder:

Settings for Lame MP3/Blade DLL/Internal MP3 encoder:

On-the-fly MP3 encoding (default value: on):

External Encoder:

AAC Astrid/Quartex encoder:

Yamaha VQF encoder options:

Windows Codec options:

Microsoft WMA encoder options:

Psytel AAC encoder:

External Xing Encoder:

External MusePack (MPC) Encoder:

WAV output Encoder

FAAC DLL Encoder

Vorbis DLL Encoder

Local CDDB Options

■

Local CDDB path:

CDDB type:

Store in CDPlayer.ini file:

Store in local CDDB:

CDDB Options

The screenshot shows the 'CDex configuration' dialog box with the 'Remote CDDB' tab selected. The dialog has a blue title bar and a close button in the top right corner. Below the title bar are five tabs: 'General', 'Filenames', 'CD Drive', 'Encoder', 'Local CDDB', and 'Remote CDDB'. The 'Remote CDDB' tab is active and contains the following fields and controls:

- Remote Server:** A dropdown menu showing 'freedb.freedb.org http 80 (freedb, Random freedb server)'.
- Location:** A text field containing 'freedb, Random freedb server'.
- Address:** A text field containing 'freedb.freedb.org'.
- Path:** A text field containing '/~cddb/cddb.cg'.
- Protocol:** A dropdown menu showing 'HTTP (default port 80)'.
- Port:** A text field containing '80'.
- Your E-mail address:** A text field containing 'al.faber@hccnet.nl'.
- Timeout (seconds):** A text field containing '20'.
- Use Proxy:** A checkbox that is unchecked, with an empty text field next to it.
- Proxy Port:** A text field containing '80'.
- Authentication:** A checkbox that is unchecked, with an empty text field next to it.
- Password:** An empty text field.
- Auto connect to remote CDDB:** A checkbox that is unchecked.

At the bottom of the dialog are four buttons: 'Add Site', 'Query Sites', 'Reset All', and 'Submit Options'. At the very bottom are three buttons: 'OK', 'Cancel', and 'Help'.

What is the CDDB anyway?:

Remote server:

The Query Sites button:

E-mail address:

Time Out value: (default 20)

Firewall settings: (default disabled)

Auto-connect to remote CDDB: (default disabled)

Submit Options:

Manually Edit Server properties:

Reset Button:

File Menu Options

System Info:

Compare two files:

Exit:

Edit Menu Options

Select All:

Copy to clipboard:

Rename Track:

Refresh track list:

Convert Menu Options

Extract CD Track(s) to WAV files:

Extract CD Track(s) to MPEG files:

Extract Partial CD Track:

Re-encode Compressed Audio Files:

Convert WAV files to Compressed Audio Files:

Convert Compressed Audio Files to WAV files:

Add RIFF-WAV header to MP2/MP3 files:

Strip RIFF-WAV header from MP2/MP3 files:

Play Menu

Play Files:

CDDB Menu

[Read from local CDDB:](#)

[Read From Remote CDDB:](#)

[Read From CDPlayer.ini:](#)

[Read CD-Text:](#)

[Save To Local CDDB:](#)

[Save To CDPlayer.ini:](#)

[Submit to Remote CDDB:](#)

[CDDB Batch Query:](#)

Options Menu

Settings:

View Play:

View Record:

View Ripping Status Details:

Clear Ripping Status:

Help Menu

[Help Topics:](#)
[About CDex:](#)

System Information Dialog

The System Information dialog box displays information that is important when you submit a bug report. For your convenience, you can let CDex copy the information to the clipboard which you can paste (control-v) into you e-mail program when you send in a bug report.

Frequently Asked Question:

Q: Winamp doesn't display the proper track duration. When I rip some music from a CD onto an MP3, the MP3 does not have any information on the music length. For example, when the file is opened in Winamp, there is no length of time shown. When opening MP3s that were not created with CDex, the music length for those files is shown. What's wrong?

Q: When I extract MP3 files from a CD, I would like CDex to create 'Napster Style' filenames (i.e. [artist]-[title].mp3) instead storing tracks into separate directories based on artist/album/trackname information, how can I do that?

Q: At home, I can access the CDDB database, but when I use CDex at my work place it won't work. Why not?

Q: When I try to access the CDDB database, I get an Invalid E-mail Address message

Q: I like to create filenames that have track number with a leading zero (so 01 02 03 etc instead of 1 2 3)

Q: When I try to start CDex, it complains that it can't find the CDRip.dll file or Lame_enc.dll.

Q: Is it possible, using CDex, to save several CD tracks all into a single WAV or MP3 file?

Q: I get an message that there is too much jitter, what do I have to do to solve this problem?

Q: Can I convert MP3 files back to WAV files?

Q: When I extract files, there are is no music information, just dead silence

Q: When I convert/rip MP3 files, CDex is slow as molasses; what's wrong with my system?

Q: The ripping status window says that I have jitter problems; what does that mean?

codec

A codec is a "coder/decoder", a software library that supports a particular kind of data storage by providing functions that turn it to and from a more normal format.

ID3

ID3 (whether version 1 or 2) is the format for storing data, in an MP3 file, about what the music is - song name, album name, artist name, year, genre, track number, etc.

Mouse Click

A mouse click is pressing and releasing the left mouse button on an item.

MP3

An MP3 is the most common form of high-quality compressed audio on the Internet. It is typically stored in files with the extension ".mp3".

MPEG

For our purposes, "MPEG" is an alternate term for an mp3 file.

MPEG stands for "Moving Picture Experts Group", the technical committee that came up with the MP3 compression format.

Fraunhofer

A German company that reportedly holds the patent to MP3.

See: <http://www.mp3.com/news/095.html>

Ogg

"Ogg" is the most common name for the Ogg Vorbis sound file format, Fraunhofer-free compression format. Ogg files typically have slightly better quality than MP3s of the same size, but take a longer to encode. Ogg Vorbis files typically have the extension ".ogg".

See: <http://www.vorbis.com/>

RIFF

RIFF ("Resource Interchange File Format") is a file format used by Microsoft, typically with the ".wav" extension (just like WAV files). A RIFF file can contain various kinds of compression (including MP3) and metadata.

Since Windows takes care of interpreting RIFF files, you can use put MP3-compressed data into a RIFF file, and applications that don't directly understand MP3 should be able to handle the resulting file (assuming MSWindows has a codec for MP3).

WAV

A WAV ("waveform") file is a Microsoft file format that usually contains audio data sampled at 16 bit stereo, 44,100 samples per second (CD quality).

However, WAV files can contain other qualities of data, even a few kinds of compression.

RIFF files files typically have a ".wav" extension, making them hard to tell from normal WAV files.

Profiles

CDex has the ability to select and store configuration profiles. When saving a profile, all current configuration settings are saved under the selected profile name. Once a profile has been saved under a particular name, the entry will be added to the profile selection box. If you change make any changes in the configuration settings, the new configuration settings will always be stored under the currently selected profile name. The active profilename will be persistent as well; so when you restart CDex, it will come up with the last active profile.

ID3 tag version

CDex can write ID3 tags within the MP3 file. This tag contains information about the recorded track. This information can be useful if you decide to use any MP3 catalog programs. The catalog programs will read the embedded tags and do the work for you automatically.

You can view the embedded ID3 tags of an MP3 file in Winamp. Play an MP3 file in Winamp, right-click on the track's title in the Winamp Playlist box, and select File Info from the menu. You'll see all of the ID3 tag information.

The ID3 Version selection box option allows you to select which ID3 tag format shall be used by CDex. The advantage of ID3 V2 over V1.0 is that the track/artist/comment fields are not limited to 30 characters, and additional tags have been defined. Although support for ID3 V2 is very common now, you might want to make sure that your player supports it - otherwise the player may not even play the MP3 files! More details and background information about ID3 tags can be found at www.id3.org

ID3 tag track number (not applicable for ID3 V1 tags)

This option allows you to specify the track number format written to the ID3V2 track field. The following options are available:

Option

N : Track number only

N / TN : Track number / Total tracks

0N : Track number with leading zero

0 N / 0 TN : Track number / Total tracks both with leading zero

Tag comment field:

All tag formats (like the ID3, APE, Ogg Vorbis tags) do support a comment field. The content of the comment field can be set in the "Tag comment field" edit control.

Encoded-by field (not applicable for ID3 V1 tags)

Many tag formats (like the ID3-V2, APE, Ogg Vorbis tags) do support an "Encoded-by" field. Often, the person who encoded the file will put his name or handle into the "Encoded-by" field. If the tag remains empty, the "Encoded-by" field will not be inserted into the file tag.

Normalize track volume:

Sometimes, a CD may contain tracks with different volume levels. If you want to make the volume level the same for all the tracks on the CD, you can enable normalization, which will make adjustments to the track volume for you.

The upper and lower boundaries, as well as the normalization values, can be specified in the four edit boxes. The values are in percentages. Keep in mind that this option only works when the On The Fly MP3 encoding option is disabled.

Default settings:

Lower Normalization value: 98%

Upper Normalization value: 98%

Lower value 90%

Upper value 98%

How does normalization work?

First, CDex determines the maximum level (the "peak level") in the sound file. The peak level is determined by taking the absolute value of the raw sample values. The raw samples values (16 bit) range between -32768 up to 32767. When ripping a file, the peak level is also expressed in decibels (dB). This value is determined by the following formula: $\text{peak level dB} = 20 \log(\text{signal} / 32767)$ if signal > 0, and set to -96 dB if the signal is 0.

Then, depending on the settings, it will scale the data to the requested level. So for example, when you have the following settings:

To 80% if signal < 88%

To 98% if signal > 95%

If the peak level of the sound file is 50%, then the data is scaled to 80%, so all samples are multiplied by a factor $80/50 = 1.60$. If the peak level of the file is 99%, then the data is scaled to 98%, so all samples are multiplied by a factor $98/99 = 0.989$.

Automatic shutdown after ripping / encoding (default: off)

When enabled, the computer will shut down after the ripping and encoding process has been completed.

Digital CD Playback (default: off)

This option allows you to digitally play back a CD. Basically it will read the CD and send the read data to the sound card. This way, you can play back CDs even when there is no direct connection between the CD-ROM and the sound card.

Filename builder:

The filename option string determines how the output files will be saved to disk. The following identifiers are available to dynamically create filenames:

- %1 Artist information
 - %2 Album information
 - %3 Track number
 - %4 Track name
 - %5 CD Volume ID
 - %6 CDDB ID
 - %7 Track number with leading zero
 - %8 Total number of tracks on the album
 - %G ID3 Genre tag
 - %Y ID3 Year tag
 - %A Artist name, not affected by the Track/Artist split setting
 - l, u and c prequalifier, which will format the strings to lower case, upper case and upper case of first character of every word

Also the backslash (\) might be used to indicate what part will be used as a directory name. Beware that you shouldn't have a backslash at the beginning or end of the filename option field. Nor should you specify the extension of the file.

Examples:

`%1\%2\%4` creates the files, named after the track name, in the directory: `artist\album`

`%1-%2-%3` creates the track files named like `artist-album-trackname`.

`%1\%2\%7_%4` will create track files in an `artist\album` directory, named like `tracknumber_trackname`, like `"Beck\Odelay\08_where it's at.mp3"`

`%u1\%l2\%7_%c4` will create track files in an upper case `artist\lower case album` directory, named like `tracknumber_trackname` (each first character of every word of the track name will converted to an upper case character, like `"BECK\odelay\08_Where It's At.mp3"`)

Notes on compilation discs:

You can use the also the artist name. Remember to enable the 'Split artist in track name' in the Filename configuration TAB.

For example you can use:

`%A - %2\%7 - %4`

this creates the following output directories / filename

Various - Chirstmas Hits\01 - trackname01.mp3

Various - Rock Hits of the 90s\01 - trackname01.mp3

and so on...

If you don't want artist folder, simply use:

%2\%7 - %4

that should create names like:

Chirstmas Hits\01 - trackname01.mp3

Rock Hits of the 90s\01 - trackname01.mp3

WAV->MP3 Output Directory:

This indicates where the converted MP3 files should be stored. The output directory can be changed by pressing on the "." button. Once selected, a directory selection window appears; select the appropriate output directory and press the OK button.

Recorded Tracks Output Directory:

This indicates where the extracted MPEG (or WAV files) are stored after ripping. The output directory can be changed by pressing on the ".." button. Once selected, a directory selection window appears, select the appropriate output directory and press the OK button.

Character Replacement button:

When this button is pressed, a window pops up in which you can select the character replacements you want to use for illegal filename characters.

For example, suppose you had a track called this:

Beethoven - Symphony No. 3 in E flat major, op. 55 "Eroica": Allegro

Then that couldn't just be turned into this filename:

Beethoven - Symphony No. 3 in E flat major, op. 55 "Eroica": Allegro.mp3

because a filename can't contain double-quotes or colons. So in the Character Replacement window, you can decide what character should replace those. Currently the defaults are to replace them with an underscore, so that the file will be named:

Beethoven - Symphony No. 3 in E flat major, op. 55 _Eroica__ Allegro.mp3

But if you changed double-quote to turn into a single-quote, and colon to turn into a dash, then the file will be named:

Beethoven - Symphony No. 3 in E flat major, op. 55 'Eroica'- Allegro.mp3

Currently, replacement can change a character to at most **one** character - so you can't (for example) replace colon with **two** dashes.

But you can set the replacement to be empty. In this situation, the illegal character is just removed from the filename.

Besides replacing the illegal filename characters, you can also optionally replace the space character.

NOTE:If you want to replace the space character with something (like the underscore character, or a dash), make sure that you delete the existing replacement character (by default, just the space character itself) in the "space replacement character" edit field -- since you can replace the space with only a single character!

So if you set space to turn into an underscore, then the above-mentioned track name will be saved as:

Beethoven_-_Symphony_No._3_in_E_flat_major,_op._55__Eroica__Allegro.mp3

As an extreme case, if you set the space and all the illegal characters to empty replacement strings, that file would be named like this:

Beethoven-SymphonyNo.3inEflatmajor,op.55EroicaAllegro.mp3

You see that the quotes, the spaces, and the colon have just been left out of the filename, instead of being substituted to anything.

Split Track name to Artist/Track using X character:

When this option is active, the Artist name is extract from the track name. All the characters before the "using X" character is used as the Artist name, everything after the splitting character is used as the track name. This option might be handy if you have a collection CD (samples) which contains various artists.

Example: if the split character is set to / and the track name is: Dire Straits/Love over Gold The artist name is set to "Dire Straits", and the track name is set to "Love over Gold"

Playlist filename builder.

For the playlist filename builder, the same parsing routines are used as for the regular filename builder (see this section for more details).

Add Files to M3U Play-list.

When enabled, it will add the recorded files to the file Playlist.m3U. The location and the filename of the M3U playlist depends on the Playlist filename builder string.

Add Files to PLS Play-list.

When enabled, it will add the recorded files to the file Playlist.pls. The location and the filename of the M3U playlist depends on the Playlist filename builder string.

CD-ROM drop down list:

This selection box shows the available CD-ROMs, select the CD-ROM from which you want to extract the CD-ROM tracks.

Read Sector (default value 26)

Some drive can't read more than 26 sectors at once, so if you get silent WAV files, make sure that this value is less than 27. If your drive can read more than 27 sectors at once, you can try to increase the value to say about 400; this can speed up the ripping process considerably!

Read Overlap (default value 7):

The problem with reading the audio CD format is that you can't very well position the starting track. This might cause a mis-alignment when reading two separate blocks of data - so gaps can occur, where some sound data is getting lost, or there might be overlap between first and second block of data.

To solve this problem, CDex uses "jitter correction", which means CDex doesn't position the laser to the end of the first block, but a few sectors earlier. This number of overlapping sectors can be set in the Read Overlap field; this number should be large enough so there will be enough overlap to compensate for mis-positioning of the laser. If you hear strange noises in your MP3 or WAV file, try to increase the read overlap number. Be aware that the read overlap value should always be less than the Read Sector value.

Block Compare (default value 1):

Now that we have read some additional sectors, it is time to actually do the jitter correction. Thus, the last sectors of the first data block are compared with the sectors of the second data block. The question is how many sectors do we have to compare to be sure that the blocks truly aligned? Well, I am using 1, but if you think this is not enough, please feel free to increase this number (which of course will slow down the recording process and might increase the number of jitter errors). Make sure though that the Block Compare value does not exceed $0.5 \times \text{Read Overlap value}$.

Number of Retries (default value 0):

This number specifies the number of retries that will be attempted if un-recoverable jitter errors occur during the ripping process. When retries are attempted, the CD-Read speed is reduced to 1x. Increasing the number of retries might slow down the ripping process considerably (it is probably better to increase the number of Read Sector and Read Overlap Sectors to avoid jitter errors)

CD Speed (default value 0):

Indicates the relative reading speed of the CD-ROM. The default value is 0, which means that it uses the default recording speed. You might want to try to increase this value (e.g. 60) in order to speed up the ripping process (mostly noticeable when ripping WAV files).

CD-Read Type (default value Generic):

This option allows you to select the CD-ROM brand you have, based in this information CD audio data is read differently. By default it is set to Generic, which should work for most drives. However, if you don't get any audio data into the WAV or MP3 file, you might want to change this setting to your specific brand of CD-ROM.

Auto Detect Button:

Pressing the auto-detect performs a that pops up a new window. You **MUST** have an audio CD in your CD-ROM drive. The auto detection might take some time (a couple of minutes). If you are lucky, the auto detection will find at least one combination that reports success. Select this line from the list box and press the OK button. If it does not work, send me the file CDexAutoDetect.txt that is created in the root directory of your drive.

Note: Some people have reported that CDex or the system would crash when doing the auto detection procedure, they got around this problem by turning off the DMA setting in the Control Panel-> System -> Device Manager ->CD-ROM -> Your brand of CD-ROM (press properties button and select the Settings TAB). If CDex is still not able to read audio data from your CD-ROM, please send me an e-mail, include the CDexAutoDetect.txt and add also the info you get from the System Info button (see also contact for more details what information is useful for me).

Swap Left Right Channel (default value off):

With certain types of CD-ROMs, the left and right channels are reversed. With this option enabled, you can correct for it.

Enable Jitter correction (default value on):

This setting controls if the jitter error correction function is enabled. Unless you have a very good CD-ROM drive (like a Plextor drive), I would advice you to turn on the jitter correction, to avoid click/plops and other artifacts in the extracted WAV of MP3 file. However, if you have a good CD-ROM drive (e.g. Plextor drives), you can turn off the jitter correction. Doing so can improve the ripping speed considerably!

Start and end Offset (default values 0):

With the start and end offset you can tweak the actual start and end position. The values can be positive as well as negative. One unit corresponds to a sector, which is $1/75$ th of a second.

Spin up time (default value 0):

Some drives give small artifacts in the first couple of seconds of the WAV file; this is likely because the CD-ROM has not yet spun up completely. In order to avoid these artifacts, you can increase the spin-up time value (value is in seconds).

Eject CD when ripping has been completed

When this checkbox is set, the CD will be ejected when the ripping has been finished properly.

Select All CD Tracks (by default)

When this checkbox is set, all the CD tracks will be selected when a new CD-ROM is inserted (and during startup).

Use Native NT library (default value off):

When enabled, CDex will use the Native Windows NT SCSI library, instead of the ASPI library. As the name indicates, this option is only useful for Windows NT and Windows 2000. If you enable this option, you have to restart CDex, before this change can take effect.

Ripping Method (default value: Standard):

This option allows you to change the ripping method that is used to read the data from the CD-ROM. Additional information about the cdparanoia library can be found at the following location:
<http://www.xiph.org/paranoia>

The following Ripping Method settings are available:

- Standard: the standard CDex jitter correction algorithm. When the jitter correction is enabled, extra data (overlap) is read from the CD (between two adjacent reads). This overlap area is used to detect the jitter errors by simply comparing the overlap area with the data gathered during the previous read.
- Paranoia Overlap Only: Basically the same as the Standard Ripping Method, except that it uses the cdparanoia library.
- Paranoia No Verify: Uses the full cdparanoia ripping method, except that the verification option is disabled.
- Paranoia No Scratch Repair: Neither look for scratches nor perform scratch-tolerant synchronization during verification.
- Paranoia Full: All the available cdparanoia options are enabled.

Bitrate values and how to interpret them:

Almost all the encoders work with a bit-rate parameter; with this variable you can set the amount of "compression" of the audio files.

The bitrate is a measure of the number of bits (or kilobits, etc) that it takes represent one second of sound. A higher bit-rate results in better sound quality, since the encoder retains more or the original sound wave information. The downside of a higher bitrate is the increase in the file size. You can calculate the output file size based on the bit rate as follows:

OutputFileSize [kilobytes] = Bitrate [Kbits/s] * Song Duration [sec] / 8 [bits-per-byte].

Thus a song with a play time of 3 minutes and 16 seconds, compressed at 128 Kb/s will yield:

FileSize = $128 * (3*60 + 16) / 8 = 3136$ kilobytes

If this song were recorded as a plain WAV file (at the usual settings of 44.1 thousand samples per second, stereo, 16 bits per channel), the file size would equal $44.1 * 2$ [two channels] * 2 [two bytes per sample] * $(3*60+16)$ [seconds] = 34,574.4 kilobytes.

So the compression ratio in this example is $34,574.4 / 3136 =$ about eleven.

(The figures above are approximate, and don't take into account a few bytes here and there for headers, ID3 tags, etc.)

A handy rule of thumb with 128Kbps compression is that it's about "a meg a minute". ($128*60/8 = 960$ KB, about 1MB)

Thread Priority:

This setting allows you to change the thread priority of the encoder. Turning up the thread settings can reduce the encoding time, at the expense of Windows becoming less responsive.

Output to Riff-WAV file:

The output file is written as a RIFF-WAV file. This means that there is stored an additional header (a so-called RIFF-WAV header) at the beginning of the encoded file. Furthermore, the extension becomes .WAV. If you have installed a Windows Codec to decompress MP3 Files, this option might be useful. Since Windows takes care of the decompression, even applications that are not aware of the MP3 format can handle this file format via the Windows Codec.

Encoder:

The encoder type specifies which encoder is used. Depending on the selected encoder, you can fill out the proper options:

Settings for Lame MP3/Blade DLL/Internal MP3 encoder:

This paragraph describes the options for the encoder mentioned above. However, not all options might be available for certain encoders.

Bitrate (default value 128 Kbits/s):

Determines the number of bits per second.

Mode (default value Stereo):

With the LAME encoder, you can specify how the file is encoded. The default stereo option is recommended, but at lower bit-rates, the Joint-stereo or Forced stereo can yield better sound quality.

- *Stereo:* In this mode, the encoder makes no use of potential similarity between the two input channels. It can, however, negotiate the bit demand between both channels, i.e. give one channel more bits if the other contains silence.
- *Joint stereo:* In this mode, the encoder will make use of a correlation between both channels. The signal will be matrixed into a sum ("mid") and difference ("side") signal. For quasi-mono signals, this will give a significant gain in encoding quality. This mode does not destroy phase information like IS stereo that may be used by other encoders. This setting can be used to encode DOLBY ProLogic surround signals.
- *force joint stereo:* This mode will force MS joint stereo on all frames. It's faster and it uses some special mid and side masking threshold.
- *Mono:* This option will forcibly generate a mono file; if the input file is a stereo file, the input stream will be read as a mono by averaging the left and right channels.

Quality (default value Normal):

With the LAME encoder, you can specify the output quality; thus you can trade off encoding time against sound quality. The default (normal) is recommended for the lower bitrates (<160 kbps), high quality for bitrates >160 kbps. The voice quality is more or less optimized to generate the best quality for voice. Details of the R3Mix quality option can be found at <http://www.r3mix.net>.

MPEG-I/II setting (default value MPEG-I):

The difference between MPEG-I and MPEG-II are the sample frequencies of the input file. MPEG-I can handle input streams (WAV files) with a sample frequency of 48000, 44100 and 32000 Hz. MPEG-II on the other hand will support stream for 24000, 22050 160000 Hz. Basically, use MPEG-II when you want to encode with low bit rates (e.g. for voice files, or if you need small MP3 files with reduced quality). As you can see, the lowest bit-rate for MPEG-II is 8 Kbits/sec while for MPEG-I the lowest bit rate is 32 Kbits/s.

VBR Method Setting

The VBR method setting allows you the change the VBR algorithm which is used for the encoding (detailed information can be found in the LAME user documentation - see <http://www.sulaco.org/mp3/doc/html/index.html>). The following selections are available

- Disabled: Don't use VBR; instead encode with a Constant Bit Rate (CBR)

- VBR-Default: Use the default VBR method (currently set to VBR-MTRH)
- VBR-Old: LAME's first functional approach, based on masking, bisection in the bit domain.
- VBR-New: LAME's second approach, based on masking and direct noise allocation.
- VBR-MTRH: a combination of old and new (VBR) routines
- VBR-ABR: The Average Bit Rate (ABR) setting, the encoding principle is similar to what AAC uses as VBR encoding, it is based on perceptual entropy, but more like CBR than VBR. When you select the ABR option in the VBR Settings box, the ABR edit box will be enabled. In this edit box you can specify the target average bit rate. Of course, a larger bit rate will yield generally better-sounding (but larger) MP3 files.

ABR Settings

VBR Quality Setting

This option allows you to set the Variable bit-rate option. Variable bit-rate encoding will enable dynamically determined bit-rates that depend on the music content of the current frame. This improves the overall quality of the encoded file without increasing the file size. This option sets the criteria used to determine when to increase the bit-rate for a frame. The lower the number, the lower the criteria will be. Thus VBR_0 will yield the best quality (but the largest file size) while VBR_9 will have less sound quality but the file size will be the smallest. The recommended variable bit-rate option is VBR_4. If you don't want VBR encoding, set this option to None.

Private

When enabled, it will set the private flag in the MP3 stream.

Original

When enabled, it will set the original flag in the MP3 stream.

Copyright

When enabled, it will set the copyright flag in the MP3 stream.

Checksum

When enabled, it will add a cyclic redundancy check (CRC) code in each frame, allowing [the decoding software] to detect transmission errors that could occur on the MP3 stream. However, it takes 16 bits per frame that would otherwise be used for encoding, and therefore will slightly (probably imperceptibly) reduce the sound quality.

On-the-fly MP3 encoding (default value: on):

When enabled, tracks are recorded directly into the desired compressed format (e.g. MP2/MP3) without having to store the entire file first to a WAV file. However, with some configuration people have heard strange clicks in the output file. Therefore, if this option is on, the file is first recorded as a WAV file, which can be converted to the desired output format. The WAV file is automatically deleted when the conversion has been completed.

DISABLE THIS OPTION IF YOU EXPERIENCE STRANGE CLICKS IN YOUR MP3 FILES.

External Encoder:

The external encoder option allows you to use one of the command-line-based encoders, such as l3Enc.exe, plugger+.exe, BladeEncoder.exe etc.

Browse button:

If you have such an encoder, you first have to specify the path where the encoder is located. To specify the encoder path, select the Browse button; a file selection window will appear. Go to the directory where the external encoder is located, and select the executable or batch file that will call the external encoder, and of course select the OK button. Once completed, the full filename path is displayed in the Encoder Path box.

Parameter String (default: %1 %2 -br %3)

The parameter string determines the options that are passed into the external encoder. CDex has a few pre-defined placeholders, which will be substituted with the correct parameter value right before the encoder is executed. The following placeholders are available:

- %1 = input filename
- %2 = output filename
- %3 = bit rate in bits/sec
- %4 = bit rate in Kbits/sec
- %a = Artist name
- %b = Album name
- %t = Track name
- %g = Genre string
- %y = Year
- %tn = Track Number (with leading zero)
- %tt = Total number of tracks (with leading zero)

So for example, the parameter string could be like:

```
%1 %2 -br %3"
```

This will expand (for example) to:

```
inputfile.wav outputfile.mp3 -br 1280000
```

On The Fly encoding):

As of CDex beta 9, there is an option to use on-the-fly encoding (thanks to Egor Duda). If the "On The Fly" option is enabled, CDex does not generate a file, but outputs the stream data (raw audio data, 16 bit 44100 Hz 2 channels, without a WAV header) to a pipe. In order to use this option, your external encoder should have an option to accept data coming from the standard input stream. So, for example, to use LAME as an external encoder, you should use the following parameter string:

```
-v -V4 -ms -b%4 -x - %2
```

This "-" before the %2 specifies that standard input stream will be used.

Send WAV header to stdin): When this option as well as the on-the-fly encoding is enabled (i.e., so that

the encoder will get its data through the stdin pipe), CDex will send a RIFF-WAV header before it sends the raw WAV data stream to the encoder, so that the encoder can figure out the properties of the RAW data stream. If this option is disabled, CDex will only send the RAW data stream.

AAC Astrid/Quartex encoder:

To set up the encoder, press the browse button; then navigate to the proper directory where you have installed the AAC encoder (filename: AacEnc.exe). For the AAC encoder, only the bit-rate selection can be changed (see Internal MP3 encoder options for more details). Keep in mind that only a few bitrates are supported; see AAC encoder documentation for more details.

Yamaha VQF encoder options;

In order to use the VQF encoder, select the browse button in the MP3 settings dialog, a file selection dialog box should appear, Locate the file SVQbatch.exe (default installed in the \program files\yamaha\SoundVQenc directory). Click on the OK button and select the VQF radio button, and you are all set. In addition, you can specify the output format from the VQF mode drop-down list.

Windows Codec options:

For the Windows Codec, there are two drop-down lists. The first one specifies which encoder to use. The second one specifies what mode should be used for encoding.

In addition, you can set the On-The-Fly encoding option, see [On-the-fly encoding for more details](#) encoding for more details.

Microsoft WMA encoder options:

Microsoft's WMA encoder is also supported within CDex. However, you should have installed the proper WMAudio SDK package. You can specify the bit-rate and the On-the-Fly encoding options (see [On-the-fly encoding section for more details](#)). You can also enable the Digital Right Management (DRM), which will add copy protection to the encoded file. (You ought to set this option when you encode files with more than 128 bits per second)

Psytel AAC encoder:

To set up the encoder, press the Browse button, then navigate to the proper directory where you have installed the AAC encoder (filename: mp4.exe). For the AAC encoder, only the bit-rate selection can be changed (see Internal MP3 encoder options for more details). Keep in mind that only a few bitrates are supported; see AAC encoder documentation for more details.

External Xing Encoder:

To set up the encoder, press the Browse button, then navigate to the proper directory where you have installed the Xing Encoder encoder. For the available options, please consult the Xing documentation.

External MusePack (MPC) Encoder:

To set up the encoder, press the browse button, then navigate to the proper directory where you have installed the Musepack encoder. For the available options, please consult the MusePack documentation.

The default encoding string is set to "--verbose %1 %2" and can be used with the latest MusePack encoder. If you use an older version, you probably have to use "%1 %2 -v" encoder string.

WAV output Encoder

The WAV encoder allows you to generate WAV files with any kind of settings; but note that you have to use it with the "CD->MPEG" option rather than the "CD->WAV" option (Since "CD->WAV" will generate only WAVs with the standard settings of 44100 Hz, 16 bit, stereo).

With this encoder, you have the following options:

Output Format (default WAV):

For the output format, you select the WAV format.

Compression (default PCM(none))

Depending on the output format, there are a few compression options available. From the drop-down list, you can select the one of the available compression formats.

Samples/sec (default 44100)

The samples-per-second setting allows you to select the number of samples per second. For high quality, use 44100 (CD quality); for medium quality, select 22050 samples per second; and for low quality (e.g. voice), you can use a sample rate of 11025 samples per second.

Channels (default stereo)

This option specifies the number of output channels.

FAAC DLL Encoder

CDex has support for the FAAC encoder DLL. The DLL can be downloaded from Menno Bakker's home page
<http://www.slimline.net/aac/>

Copy the DLL into the CDex Directory; then start CDex, and the encoder DLL should be recognized by CDex. See FAAC documentation for more details about the settings.

Vorbis DLL Encoder

CDex has support for the Ogg Vorbis encoder. The DLL is included with the CDex distribution. The following items can be specified:

- Quality (-1.00 .. 10). The quality setting is proportional with the output quality (and therefore also the filesize). A setting of -1 is the lowest quality (low bitrate voice encoding) and most compact file; while 10 is the best audio quality, but also results in the largest audio file. The quality setting is the recommended settings, however, you can also choose to encode the file at a specific bitrate by filling out the Minimum/Nominal and Maximum bitrate fields (usefull if you want to stream the file for example)

- Minimum bit rate
 - Nominal bit rate
 - Maximum bit rate

Local CDDB path:

CDex will store the data gathered from the remote server into a local CDDB database. You have to provide the location where you want to store the files, or if you point it to an existing local CDDB.

CDDB type:

The local CDDB files can be stored either in Windows-format CDDB files or in UNIX-format CDDB files. The advantage of the UNIX CDDB format is that for each entry a unique file is created, allowing much faster lookup of CDDB entries. However, due to the nature of a FAT16 partition, each (typically tiny) file can take a considerable amount of disk space. This can be avoided by using the Windows type of CDDB Windows CDDB type, which can store several entries in each file.

Store in CDPlayer.ini file:

You can store the results gathered from the remote Cddb (which you have manually entered) in the CDPlayer.ini file as well. This allows the track information to show up in the Windows CD Player as well.

Store in local CDDB:

When this option is enabled, CDex will copy the track/album information gathered from the remote CDDB (or if you entered them manually) into the local CDDB database. It is recommended that you have this option enabled, since the local CDDB can hold much more information than the CDPlayer.ini file can.

What is the CDDB anyway?:

CDDB (CD database) is an information database containing artist, disc title, track titles and other information for digital audio compact discs. It was created originally to support xmcd, a CD-audio player software package for many computer platforms (primarily UNIX) running the X11 window system.

Early versions of xmcd allowed users to enter the CD information and save it on the computer's local disk. The next time a user put the same CD in the drive, the saved information was automatically retrieved and displayed. Later, a "Send" feature in xmcd allowed users to submit CD information entries to the central archive via Internet electronic mail. Over time, this archive grew to contain a large and rapidly growing collection of CD information.

The CDDB data archive used to be available in full via FTP on the Internet, so that users could download this archive onto their computers and use it with xmcd. However, the database grew large enough that it couldn't be easily distributed that way.

To address this issue, xmcd began supporting the concept of CDDB servers, so that users no longer needed to download the entire CDDB to make full use of it, but instead could just ask a server for the entry for any given CD. So a number of CDDB server hosts have been set up on the Internet around the world. Running xmcd (or any other newer player that supports CDDB) on a Internet-connected computer, allows you to querying CDDB servers to get the data for a given CD.

However, the original CDDB (www.cddb.com) may not be freely accessible anymore, since it has gone commercial (owned by Gracenote). Luckily, there is a good free alternative named freedb (www.freedb.org), which is a free and stays free. Therefore I would recommend to submit an entry when it is not available in the freedb database, so that your hard typing effort can be shared with other users.

Remote server:

Select one of the remote servers; probably the fastest response time will be obtained when you select a server that is physically located the closest to you.

The Query Sites button:

The number and location of CDDB servers changes once so often. To obtain a new list of the active CDDB servers, click on the Query sites button. CDex will access the CDDB main server to obtain the latest list with active CDDB servers.

E-mail address:

In order to access the CDDDB remote database, CDex has to provide an e-mail address. Therefore you have to enter an e-mail address (or at least something that looks like an e-mail address, i.e., it should at least contain a @ character).

You should really use your actual e-mail address, especially when you are trying to submit a new/modified entry. In case something goes wrong, you'll get emailed a detailed report of what went wrong during the submission.

Time Out value: (default 20)

This value (specified in seconds) will determine how long CDex is willing to wait for a remote server to answer, before it gives up and aborts the connection. If you experience a lot of time-outs (due to slow responses of the CDDB server), you can increase this value.

Firewall settings: (default disabled)

If you are behind a firewall, you have to fill out the following fields in order to be able to access the remote CD database:

Use Proxy: Enable this setting if you are behind a firewall, otherwise disable it (default).

Proxy port: This setting indicates which port the firewall will use to access HTML file on the Internet. The value depends on the firewall configuration (values that often used are 80,81 or 8080).

Authentication: Under certain configurations, you have to use authentication to access files through a firewall. If this is the case, you have to enable the authentication, and you have to fill out the field next to the Authentication field (with your user ID) and have to fill out the Password field.

Auto-connect to remote CDDB: (default disabled)

When auto-connect is enabled, CDex will access the remote CDDB automatically when the CD information is not located in the local CDDB or the CDPlayer.ini file.

Submit Options:

When you press this button, a window with the CDDB submit options will appear. You can adjust how to submit a new item (via e-mail or using the HTTP protocol), and specify the e-mail address / submit web address respectively. Keep in mind that submitting via HTTP does not work for www.cddb.com (Gracenote CDDB), since CDex's submit option has not been validated by Gracenote, the owner of this particular CDDB database. However, you can use it with freedb, which is the really free (as in free speech, and as in free beer) CDDB database.

What are the CDDB naming rules for submitting CD's to the freedb?

- Never submit info completely in capitals or completely lowercase, unless there is a special reason for it.
 - For bands that have a leading "the", simply leave out the "the" (e.g. use "Rolling Stones" instead of "The Rolling Stones") (Obviously, this rule does not apply to "The The!")
 - Names of people should be written "Firstname Lastname" - NOT "Lastname, Firstname". (So, use "Annie Lennox", not "Lennox, Annie".)
 - If the album has no title, use the artist's name again in the "title" field. This is often the case with an artist's first major label release, such as with the B-52's, whose first major album was untitled, as so is called "The B-52's")
- When submitting an "enhanced CD" (i.e., a combined audio/data CD), name the data-track "Data" or something like that - do not leave the track-title blank.
 - When submitting a compilation (as many soundtracks are) or a sampler, you should include the track-artist in the track-name, using the syntax "artist / track-title" and set the CD-artist to "Various".

Manually Edit Server properties:

If you want to add a new remote CDDB server, you have to click on the Add Site button first. Afterwards, the properties of the server can be altered, the following fields can be modified:

Location: This field indicates the location of the remote CDDB server (informative) Address: This field lets you modify the address of manually added CDDB server(s) Path: This field indicates HTTP path (normally set to / cddb/cddb.cgi) where the CDDB cgi script is located Port: This field indicates port number of the remote CDDB server (80 for HTTP, 888 for CDDB IP protocol) Protocol: This field specifies the remote CDDB server is using (HTTP or CDDB IP protocol)

Reset Button:

If you click on the "Reset" button, all server settings are removed, and the default CDDB server settings are restored.

System Info:

[See troubleshooting section for more details.](#)

Compare two files:

This option allows you to compare two WAV files. This tool differs from a regular file comparison utility (like diff.exe or fc.exe) in that it ignores the WAV header. So this option can determine the time shift between two files, and sees whether the actual WAV data is the same.

Exit:

Selecting "Exit" will close the CDex application.

Select All:

This options selects all the tracks in the track list window.

Copy to clipboard:

This option copies the track information to the clipboard, so you can paste it into another application. The format is as follows:

```
'Artist Name' <new line> 'Album Name' <new line> <new line> 'Track Number (with leading Zero)' 'track  
name' 'start time' 'duration' <new line>
```

There is a tab character between each field in each track line.

Rename Track:

This option allows you to rename the currently selected track. Once you're done editing a track name, you can hit the Return key to edit the next track entry. You can finish editing by pressing the Esc key.

Refresh track list:

This option will re-read the information from the CD-ROM and will get the data from the local CDDB or CDPlayer.ini files. This option does not save the current track information before it overwrites it with the data from the local CDDB or CDPlayer.ini files - so be careful with this option!

Extract CD Track(s) to WAV files:

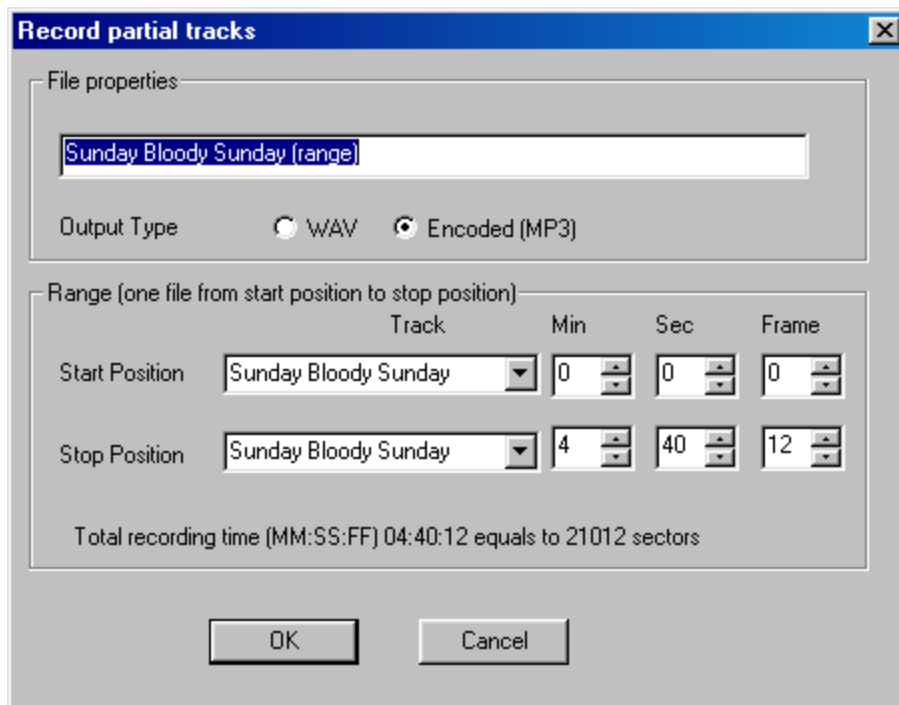
This option allows you to extract the selected CD audio tracks each into a WAV file.

Extract CD Track(s) to MPEG files:

This option allows you to extract the selected CD audio tracks each into a compressed file (e.g. MP3).

Extract Partial CD Track:

This option will extract a portion of the CD, into either a WAV file or a compressed file. This might be useful when you want to merge several tracks into one WAV or MP3 file. When selection this option, the following window pops up.



The dialog box titled "Record partial tracks" has a blue title bar with a close button. It contains the following elements:

- File properties:** A text field containing "Sunday Bloody Sunday (range)".
- Output Type:** Two radio buttons: "WAV" (unselected) and "Encoded (MP3)" (selected).
- Range (one file from start position to stop position):** A table with columns for Track, Min, Sec, and Frame.

	Track	Min	Sec	Frame
Start Position	Sunday Bloody Sunday	0	0	0
Stop Position	Sunday Bloody Sunday	4	40	12
- Total recording time (MM:SS:FF) 04:40:12 equals to 21012 sectors**
- Buttons:** "OK" and "Cancel".

Within this window, you can select the first and last track number, including the start time and end time. Also you can specify the track name and whether it should save it to a WAV or Encoded (MP3) file.

Re-encode Compressed Audio Files:

The Re-encode Compressed Audio Files allows you re-encode (sometimes called transcode) Compressed Audio Files files (like Ogg, MP2, MP3 files etc). This option can be useful if, for example, you want to encode a MP3 file to a lower bit rate. The ID3 tags (ID3 V1 or ID3 V2) are copied from the source to the destination file as well.

Convert WAV files to Compressed Audio Files:

When you select this option, a file selection window will appear. You can select several (uncompressed) WAV files by holding down the SHIFT or CTRL button. Once they are selected, press the OK button to encode each of the selected WAV file to a Compressed Audio File (the output format of the Compressed Audio File is selected in the Encoder Settings TAB in the CDex configuration dialog box).

Convert Compressed Audio Files to WAV files:

When you select this option, a file selection window will appear. You can select several Compressed Audio Files by holding down the SHIFT or CTRL button. Once they are selected, press the OK button to decode each of the selected Compressed Audio Files each to a (uncompressed) WAV file.

Add RIFF-WAV header to MP2/MP3 files:

When you select this option, a file dialog box will appear. You also can select several MP2/MP3 files by holding down the SHIFT or CTRL button. Once selected, press the OK button to add a RIFF-WAV header to each of the selected MP3/MP3 files. See also the [Output to Riff WAV section](#).

Strip RIFF-WAV header from MP2/MP3 files:

This option will strip the RIFF-WAV header from the selected MP2/MP3 files. See also the [Output to Riff WAV section](#).

Play Files:

As of version 1.30, CDex has a small player to listen to MP3 files. Select this option to get access to the MP3 player.

Read from local CDDB:

The track information of the current CD is read from the local CDDB.

Read From Remote CDDB:

The track information of the current CD is read from a remote CDDB server. If you are not connected to the Internet, this may cause your computer to try to dial your ISP to connect.

Read From CDPlayer.ini:

The album information of the current CD is read from the CDPlayer.ini file.

Read CD-Text:

Some newer audio CDs do contain album information on the CD itself (CD-Text). If your drive supports CD-Text and you have an audio CD which contains this CD-Text information, this menu option will read the album information from the audio CD and store it in the local CDDb and/or CDPlayer.ini file (depending on the current settings).

Save To Local CDDB:

This menu options stores the current album information to the local CDDB database.

Save To CDPlayer.ini:

This controls whether the track information (for albums that you put in the drive while CDex is running) is stored to the CDPlayer.ini file.

Submit to Remote CDDB:

If you have an audio CD which is not known to the remote CDDB database, and you have filled out the track and artist information, you can upload this information to the remote CDDB database using this option.

CDDB Batch Query:

This menu option will query all pending CDDB queries.

Here's how it works: when you insert a CD, and it is not found in the local CDDB or CDPlayer.ini, CDex will add an entry in the CDDB Batch query file (CDDB_Batch.txt file located in the CDex directory). Once you select the CDDB Batch Query menu option, it will gather the CD information of the pending disc entries (i.e. the albums specified in the CDDB_Batch.txt file), and it will save the disc information into the local CDDB and/or CDPlayer.ini files, depending on your current settings.

This option can be very useful for people who have a dial-up Internet connection, so you can keep the on-line time to a minimum. That is, if you are going to rip tracks from two dozen new CDs, you can put the disks one at a time into the drive while CDex is running. Even though you aren't ripping any tracks, will CDex can see that these are all albums that it needs to look up, and it will note this in CDDB_Batch.txt. Then you can log in, do a batch query, and log out. And then you can actually start putting the discs in and ripping tracks, since now when you put the CDs in, the album info will be there (assuming that the albums are actually known to the CDDB you used, as they generally are).

You may want to delete your CDDB_Batch.txt file from time to time, to avoid re-querying for albums that you no longer care about and that were not found in CDDB (like a mix CD that you put together for yourself, which won't be in a CDDB).

Settings:

See section [configure CDex](#) for more details.

View Play:

This option allows you to turn on or off the play toolbar.

View Record:

This option allows you to turn on or off the record toolbar.

View Ripping Status Details:

Select this option if you want to have more detailed information about the ripping status. This option is useful when you want to examine where jitter errors have occurred during the ripping process. If jitter errors have occurred, these errors are indicated with an X in the track list window (in the Status column). The Ripping Status will display more detailed information about which block the jitter error(s) occurred in.

Clear Ripping Status:

Select this option to clear the ripping status.

Help Topics:

Select this option to start the CDex help.

About CDex:

When you select this option, a dialog box with the CDex Logo, version number and copyright notice will be shown.

Q: Winamp doesn't display the proper track duration. When I rip some music from a CD onto an MP3, the MP3 does not have any information on the music length. For example, when the file is opened in Winamp, there is no length of time shown. When opening MP3s that were not created with CDex, the music length for those files is shown. What's wrong?

A: There was an incompatibility between Winamp which has been solved since version 2.72. So please check your Winamp version, and upgrade if you have an older Winamp version.

Q: When I extract MP3 files from a CD, I would like CDex to create 'Napster Style' filenames (i.e. [artist]-[title].mp3) instead storing tracks into separate directories based on artist/album/trackname information, how can I do that?

A: Just change the output filename format (press F4 and select the Filenames tab) to %1-%4 and you should be set. Take a look at the help file for more details about what options you can use for the output filename format.

Q: At home, I can access the CDDB database, but when I use CDex at my work place it won't work. Why not?

A: At your work, you are almost certainly behind a firewall; so you have to select the Use Proxy option in the CDDB options dialog box (use F4 and press the CDDB-TAB). Also, you have to fill in the proxy address in the edit field next to the Use Proxy selection box (which should be enabled when you've selected the Use Proxy option), and you might have to change the Proxy Port. A tip: take a look at the proxy settings of your Web browser (e.g. Internet Explorer or Netscape) to determine the proxy address and proxy port.

Q: When I try to access the CDDB database, I get an Invalid E-mail Address message

A: You have to fill in the E-mail Address field in the CDDB options dialog box (use F4 and press the Remote CDDB tab).

Q: I like to create filenames that have track number with a leading zero (so 01 02 03 etc instead of 1 2 3)

A: Use the %7 option in the output filename format instead of the %3 option. The %7 tag will be replaced with the track number, including a leading zero for single digit number (i.e. track 1..9) when creating the file name.

Q: When I try to start CDex, it complains that it can't find the CDRip.dll file or Lame_enc.dll.

A: Make sure that you unzip all the files (using WinZip or PowerArchiver, for example) into the CDex installation directory (or "folder" as it called nowadays). Furthermore, make sure if you have created a desktop short-cut that the "Start In" field points to the directory where the CDex.exe and its DLLs reside (this is the folder in which you have extracted the files that were in the ZIP)

Q: Is it possible, using CDex, to save several CD tracks all into a single WAV or MP3 file?

A: What you can do, is select several tracks and hit the Partial Track copy. With this option you can select a range **which can span several tracks**, to rip or encode into one (potentially large!) file.

Q: I get an message that there is too much jitter, what do I have to do to solve this problem?

First make sure you have installed the proper ASPI drivers; most problems I've seen are related to the ASPI drivers (not properly installed or out-of-date ASPI drivers). Furthermore, you can try to increase the Read Overlap value in the configuration dialog box (i.e., press Configure from the main dialog box). The overlap and block compare value are restricted; make sure that the sum of the two does not exceed 27.

Also, setting the CD Speed to 1 might help to reduce jitter errors (you have to do some experimenting to find out what works best with your drive). Also, cheap CD-ROM drives can produce a lot of errors. If you can not resolve the jitter errors by applying the tips above, it is probably time to upgrade your CD-ROM drive.

Q: Can I convert MP3 files back to WAV files?

A: Yes, CDex version 1.0 and up can convert MP3 files back to WAV files.

Q: When I extract files, there are is no music information, just dead silence

This problem might be a couple of things:

- Make sure that you have installed the proper ASPI drivers. This following link:
<http://users.westnet.gr/vamp71/rippers/aspi.htm>
has information how to install the proper ASPI drivers (version Adaptec's ASPI version 4.54 or 4.57 should work). You might run the ASPI check utility to make sure that the ASPI drivers are properly installed.
- Make sure your drive does support CDDA
see <http://www.mp3.com/cdrom.html>
to determine if your drive does support CDDA
- Some CD-ROM drives cannot read more than 27 sectors at once. You might try to reduce the Read Sectors value.
 - Try the Auto Detect feature.

Q: When I convert/rip MP3 files, CDex is slow as molasses; what's wrong with my system?

A: Well nothing, I would say. Audio compression needs a lot of computation power. To get an idea about the encoding time: on a Pentium 166-MMX, with 32 Mb of SD-RAM, a one minute song will take about 2.5 minutes to encode. However, with certain CD-ROM drives you might get better ripping performance when you set the CD Speed to 32, but this might increase the chance of jitter errors.

If you want your system to be more responsive while you're encoding, turn the CDex thread priority down. You can set this by hitting F4, choose the "Encoder" tab, and choose the "Thread Priority" pulldown. This will make encoding take longer, though.

Q: The ripping status window says that I have jitter problems; what does that mean?

A: Well, you can try to increase the Read Overlap value in the configuration dialog box. Furthermore make sure that the CD is clean; dirty discs can cause jitter problems. So you may want to try another disc first. In addition, you can increase the read overlap value a little, or try to set the CD Speed value to 1.

Also, some cheap CD-ROM drives produce a lot of errors. If you can not resolve the jitter errors by applying the tips above, it is probably time to upgrade your CD-ROM drive.

