

Groove Mechanic 2.5a User's Manual

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Table Of Contents

Overview	3
Hardware Setup	5
Groove Mechanic's User Interface	7
Typical Usage (with audio from external device)	8
Typical Usage (with audio from disk)	9
Typical Usage (continued)	10
Registration	12
Working With Files	14
Opening and Saving Files	15
Temporary Files	16
Playing and Recording Audio	18
Analysis - Overview	19
Analysis Options	20
Repair Overview	22
Repairing Clicks	23
Repairing Rumble	24
Repairing Hiss	25
Normalizing Amplitude	26
Tracks Overview	27
Marking and Viewing Tracks	28
Extracting Tracks	30
Track Extraction to Compressed File	32
File Menu.....	35
Capture Menu.....	37
Audition Menu	38
Repair Menu.....	40
Tracks Menu.....	42
Devices Menu	43
Options Menu	45
Help Menu	49
Keyboard Mnemonics.....	51
Keyboard Accelerators	52
Command Line Operation Overview	54
Answers to Common Questions	56
Technical Support	57
Appx A - Performance Considerations	58
Appx B – Using Groove Mechanic with WINE under Linux	59

Please note: this is a PDF version of Groove Mechanic's built-in help system. It is suitable for viewing with a PDF viewer (or for printing), but of course the embedded hyperlinks will not function.

Overview

What does Groove Mechanic do?

The primary purpose of the Groove Mechanic is to dramatically improve the quality of the music on your old vinyl LP records and cassette tapes while getting them ready to record them to a CD. While it does not actually perform the CD writing, it does allow you to:

- capture the audio from LPs, tapes or other sources into audio files on your computer
- analyze the quality of the sound · remove the "clicks and pops" that often plague older LPs
- remove broadband noise (eg. tape hiss)
- remove the "rumble" that is sometimes apparent in both new and old LPs
- normalize (adjust) the amplitude of the file, to maximize the dynamic range
- work on an entire LP side at a time, and then split it into individual songs, or "tracks"

The output from Groove Mechanic is WAV files, which are accepted by nearly every CD-recording software package. The resulting CDs can be played back on any audio or computer CD player.

Groove Mechanic can also produce MP3 or OGG files. Both of these are compressed formats which are commonly used to pack many more songs onto a CD (or hard disk) than would otherwise be possible.

If you have already recorded your audio into files on your hard disk, these can be used as inputs to Groove Mechanic. These MUST be WAV files. If they are in some other format, there are lots of shareware tools available that can be used to convert them into WAV format.

System Requirements

Groove Mechanic runs under the following Microsoft operating systems:

- Windows 95
- Windows 98
- Windows NT 4.0
- Windows 2000
- Windows ME
- Windows XP

It MAY also run under Linux, using the WINE emulator, although this capability is not officially supported by Coyote. For pointers on using Groove Mechanic with WINE, see [Appendix B](#).

Groove Mechanic runs on the following processors:

- Intel Pentium with or without MMX
- Intel Pentium Pro/Pentium II
- Intel Pentium III
- Intel Pentium IV
- AMD K6-3
- AMD Athlon
- Transmeta Crusoe

and will likely run on subsequent compatible processors.

You should have at least 32 MB of memory installed, and sufficient disk space to hold the largest audio file you will want to work on, plus a copy of it. The disk should be unfragmented for best results (and audio capture may not function properly if the disk is very fragmented).

Hardware Setup

Audio Equipment

Connect your turntable and/or cassette deck to a preamplifier or "receiver" (ie. a pre-amp plus tuner), and connect the output of the pre-amp or receiver to your sound card's Line In input. To do this you will need a cable with the correct connectors at each end. Most home stereo equipment uses "RCA phono jacks" for all audio ins and outs. But most sound cards use 1/8" stereo jacks, which take up much less space. If this is the case in your setup, you will need an RCA to 1/8" adapter cable. These are commonly available at Radio Shacks for a couple of dollars.

It is not possible to directly connect your turntable to your sound card, because of the filtering that has been applied to LPs (and which is compensated for by the pre-amp). This filtering, called RIAA Equalization, will result in a very tinny sound if you connect your turntable directly to your sound card. You can, however, connect a cassette deck directly to your sound card without going through a pre-amp.

Since you will want to make the best quality CDs you can, ensure your turntable and cassette deck are in good working order, and the turntable is equipped with a good (and clean) stylus. Use a record-cleaning kit to get any extraneous dust or lint off your record. Clean your tape heads with a tape-cleaning kit. If the tape deck has been operated for a long time without degaussing (de-magnetizing), you may wish to degauss the heads also.

If possible, place your turntable and cassette deck a few feet away from your PC, to avoid pickup of hum.

Telling Groove Mechanic which Sound Device to Use

Use the menu item Devices to select which sound input device to use. If you have only one sound card, there may only be one item in the list under Input Devices, in which case you do not need to do anything. But if there are more than one device listed, ensure that you put a check mark beside the one that you have the external audio equipment connected to. See [Devices Menu](#) for more information.

Setting Levels

To ensure everything is set up correctly, put on a record or tape, set your preamp to input from the turntable or cassette deck, and start Windows' Volume Control application. This can be done by clicking on File, then Start Volume Control, or it can be found in your Windows Start menu, under **Programs - Accessories - Multimedia**, or **Programs - Accessories - Entertainment** (on later versions of Windows). Click on **Options - Properties**, and in the "Adjust volume for" box, click the "**Recording**" button and ensure the "**Line**" box is checked in the lower window. Click on OK.

You should see a window with one or two sections, one of which should be labelled "**Line**". Ensure the "**Balance**" control is set to the midpoint.

Leave the Volume Control application running. You will use it while setting the recording levels in Groove Mechanic.

Note that some sound cards may use their own volume control app, rather than the standard Windows one – if so, please refer to your sound card's software documentation to see how to select the source and adjust the volume.

Groove Mechanic's User Interface

The Main Window

Groove Mechanic's visual interface consists of:

- A menu bar at the top
- A toolbar just below that
- The main display area, which can display the Audio Timeline view or the Recording Levels view (selectable by the tabs near the top of the display area).
- A status bar at the bottom.

The menu bar, toolbar and status bar are similar to those of most Windows-based programs. The menu bar can be used to accomplish almost all tasks. The toolbar allows quick mouse-based access to commonly-used functions. (And if you position the mouse cursor over a toolbar button for a second or two, a "tooltip" will pop up, describing the function of that button). The status bar displays various characteristics of the currently open file.

The main display area, when set for Audio Timeline view, shows a representation of the entire audio file. A time axis is shown at the bottom. The volume level of the audio at each instant of time is shown in blue (for both the left and right channels). Any clicks that have been detected and not yet repaired show up as vertical red lines.

There is a Playback Cursor, which shows up as a vertical line in a contrasting colour. This represents the point in the file at which audio playback is occurring or is going to occur. The Playback Cursor can be set by left-clicking with your mouse, in the main display area.

Using the Mouse

The mouse can be used to access all menu items, all toolbar buttons and the Playback Cursor.

In addition, you can use the mouse to "drag-and-drop" a file from Windows Explorer into Groove Mechanic (which then behaves the same as if you had just done a **File – Open** and selected that file).

If you right-click the mouse in the main display area, it will bring up the **Repair** menu right where the mouse is.

Using the Keyboard

The keyboard can be used to access all menu items. See [Keyboard Mnemonics](#) for details.

Typical Usage (with audio from external device)

Start Groove Mechanic, click on **Capture – Select Save File**, and select a directory (folder) and file name for the new audio file you are going to record. (It will be in WAV format, and will have a sample rate of 44100 Hz and a resolution of 16 bits).

If your sound card supports multiple input sources (most do), the **Recording Source Selection** dialog box will appear. Choose the sound card input that your external audio equipment is connected to (normally this will be the Line In jack) and click **OK**.

Another dialog box will then tell you how much room you have on your disk for recording the file (in terms of minutes and seconds). Also, if you have a screen saver enabled, it will warn you to disable the screen saver (because if the screen saver activates during capture, it could result in missing chunks of audio).

The Groove Mechanic main window will then change to the **Record Levels** view. Now you should start your audio source (LP or tape deck) playing, preferably in the loudest part of the audio. Check that the coloured bars extend up into the -6 dB to -3 dB range. They can go higher than that, but if they hit 0 dB the file will have clipping distortion in it, which may be hard to remove. If the record levels never go above -12 dB or so, you should increase the audio level. You may be able to do this using either the Windows Volume Control application (see [File Menu](#) for details) or by increasing the volume level on your external audio equipment.

If you make a change to the audio levels, you may wish to reset the peak-hold feature of the bar graph by using the **Capture – Reset Peak-Hold** menu item.

When you are satisfied with the recording level, start the audio playing from the beginning, and start Groove Mechanic's capture process by using the **Capture – Start Recording** menu item or just pressing the spacebar.

When the recording is complete, stop it by using the **Capture – Stop Recording** menu item, or press Shift+F5.

The main window now changes back to the **Audio Timeline** view.

(After the Analysis phase completes, you will find out the maximum amplitude of the file you just recorded. If it is 100%, you have clipping distortion in the file and you should re-record with the volume turned down. If it is lower than about 90%, you can later apply [Amplitude Normalization](#) to restore it to a higher level. If the maximum amplitude is very low, you should probably re-record, rather than relying on the Amplitude Normalization).

[Next Steps](#)

Typical Usage (with audio from disk)

Start Groove Mechanic, click on **File – Open**, and locate your audio file. It must be in WAV format, and should have a sample rate of 44100 Hz and a resolution of 16 bits (since this is the standard for audio CDs).

Before you hit the **Open** button, decide whether you want Groove Mechanic to apply all repairs immediately to the file you are about to open. The advantage of this approach is:

- It is faster, since Groove Mechanic need not generate a copy of the WAV file
- It uses less disk space since no temporary copy is used.

The disadvantage is that the file gets overwritten when the repairs are done, so it is not possible to recover the original (unmodified file).

If you wish to apply all repairs immediately to the original file, check the box **Apply changes immediately to this file**.

Now click on **Open**.

[Next steps](#)

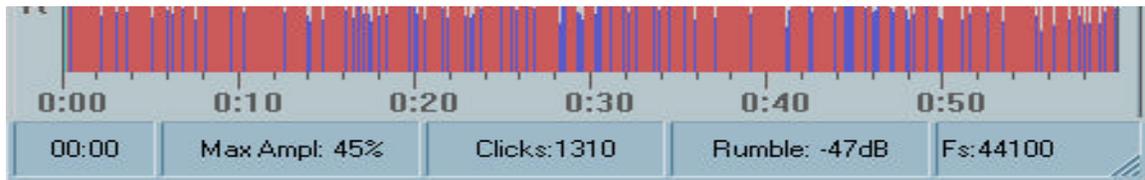
Typical Usage (continued)

Groove Mechanic will scan the file, measuring the amplitude of the signal. When it is finished (which should be only a few seconds) it will display the **Audio Timeline** view, showing the signal in blue. (If you cancel the file scan the timeline will be blank except for the time scale at the bottom).

Click on **Repair – Analyze Clicks and Rumble**. Groove Mechanic is now searching for clicks, and measuring the rumble in the file. This may take a few minutes, depending on the size of your audio file.

When the analysis is complete, the **Audio Timeline** window will show a graphical representation of the complete audio file. The audio waveform is shown in blue, and the clicks are shown as red vertical lines.

In addition, some statistics are now displayed in the status bar at the bottom of the screen.



The **Max Ampl** gives you the largest audio value that was found in the file, as a percentage of full scale. (Note that large clicks will often make this number higher than you would get due to the audio alone).

The **Clicks** field contains the number of clicks found during the analysis.

The **Rumble** field contains the amount of low-frequency rumble (sounds below about 30 Hz) in the file, expressed in dB relative to full-scale.

The **Fs** field displays the sample rate of the file.

Next, you should repair the clicks. To do this, click on **Repair – Fix Clicks**. A dialog box will pop up, to indicate the progress of the declicking. This may take some time, depending on the number of clicks in the file. Once click repair has completed, the audio timeline will be seen without the red vertical lines, and the **Clicks** field in the status bar will indicate 0.

Next, you may want to repair the rumble. If the rumble value is below about -50 dB, it will be inaudible and need not be repaired. If it is above -20 dB it should definitely be repaired. Between those two values, you can decide whether you want to repair it. To repair the rumble, click on **Repair – Fix Rumble**. Again, a dialog box will pop up to show the progress through the file.

If the audio came from a tape deck (or other source with considerable background hiss) you may now want to repair the hiss. To do this, first establish the noise base – that is, tell Groove Mechanic what part of the file contains *only* noise, no audio. To

establish the noise base, position the playback cursor at a point in the file where there is hiss but no noise, and click on **Repair – Hiss – Get Noise Base at Playback Cursor**. Now dehiss the file by selecting **Repair – Hiss – Fix Hiss**.

The final repair step is usually amplitude normalization. You should perform this step if the recorded signal level is somewhat low (eg. if the **Max Ampl** is less than about 70%). To ensure that the Max Ampl number reflects the amplitude of the audio, and not that of the clicks (which are now gone), you may wish to re-open the file and allow the file scan to proceed again.

To normalize the amplitude, click on Repair – Normalize Amplitude, then in the dialog box that appears, enter the value to which you want to set the largest amplitude. The default value of 95% is a good one, although you may use higher values (up to 100%) or lower values if you desire.

The repair has now been completed. However, in some cases some audible clicks may still remain in the file. These are usually small clicks which were not detected in the first analysis because they were “masked” by a nearby large click. If you need to perform a second pass of analysis and repair, save the file first, then open it again and follow the same steps (**Repair – Analyze Clicks and Rumble**, and **Repair – Fix Clicks**).

If the file contains more than one song, you may wish to split the file into multiple files, one for each song (or “track”). To do this, see [Marking and Extracting Tracks](#).

What if I want to try it again, with different settings?

After the repair, save the file into a different filename (eg. “originalname_FIXED.wav”). Then open the original file again, adjust the settings (Click Detection, for example), repair again, and save as yet another file. Then you can play all three version of the file by starting your favourite WAV file player (or by starting up 3 copies of Groove Mechanic, and opening a different file in each copy).

What if I don't like the results, and just want to revert to the original?

You can do this, as long as you did not specify **Apply changes immediately to this file** when you opened the file. Just open the original file again. You will be prompted for whether to save the current file; answer **No**.

Registration

Trial Evaluation

You can use Groove Mechanic for free, for a period of 15 days, with no restrictions on functionality. During this period, you will be able to get a good idea of Groove Mechanic's capabilities and performance, and decide whether Groove Mechanic is right for you.

The trial evaluation period begins at the time when you first run Groove Mechanic, and ends 15 days after that. After the evaluation period you can still use Groove Mechanic, but its declipping capability will be limited to the first two minutes of audio in each file.

Registering and Purchasing

Once you have decided to purchase Groove Mechanic, you may do so in one of two ways:

- via the web, using your credit card
- via conventional mail, using a cheque or money order

To register over the web, point your browser to www.coyotes.bc.ca/reg.htm and follow the instructions there. You will receive your registration key as soon as your credit card is verified.

To register by cheque or money order, make it payable to

Norm Campbell

and send it to:

Coyote Electronics Inc.
11174 Canyon Cres.
Delta, BC.
Canada V4E 2R8

along with

- your name
- your e-mail address
- your city and country

The cheque must be in the currency of your country. The cost of Groove Mechanic is \$39 US. To convert to your own currency, please use the standard rate of exchange. Current exchange rates can be found on the web, for example at:

<http://www.xe.net/ucc/>

<http://www.oanda.com/convert/classic>

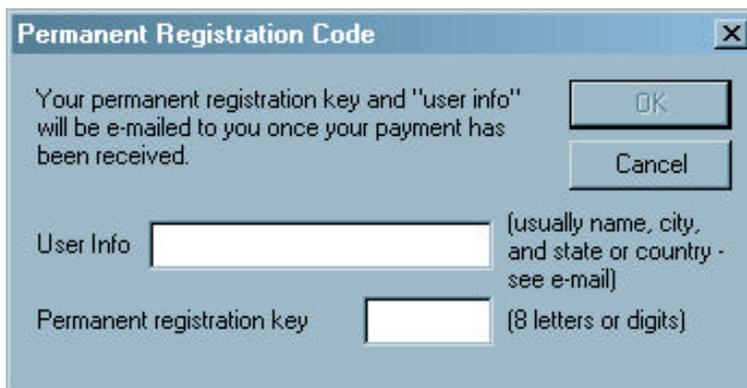
As soon as your cheque is processed, Coyote Electronics will send you the registration key.

Entering your Registration Key into Groove Mechanic

Once you have received your registration key (along with some text called the "user info", which is usually your name and country) you can enter it into Groove Mechanic, thus permanently enabling the full functionality.

When you start Groove Mechanic, you may encounter a dialog box asking if you would like to enter the registration key. If so, answer "Yes". Otherwise, you can get to the same point by clicking on **Help - Enter Permanent Registration Key**.

Fill in the two boxes (Registration Key and User Info) with the information you received via e-mail, then click on OK.



Exit Groove Mechanic and restart it. Now your name should be displayed in the "Registered to:" field when you first start Groove Mechanic.

Safeguarding the Registration Information

Your copy of Groove Mechanic is now registered to you personally, and you are entitled to run it on one PC. If you later upgrade to a different PC you are free to copy the registration to your new PC, as long as you delete it from the old PC.

Please keep your registration key confidential.

Also, please write down both the registration key and the "user info", in case you later suffer a failure of your hard disk or some other event that makes retrieval of them impossible. However, should you find that you have lost the registration information, contact Coyote Electronics Inc. at info@coyotes.bc.ca, and we will be pleased to send them to you again, at no charge.

Working With Files

See the following topics:

[Opening and Saving Files](#)

[Temporary Files](#)

[Playing and Recording](#)

Opening and Saving Files

Groove Mechanic works in a manner familiar to most Windows users – you open a file, work on it, then save it, or possibly save to a new file (thus preserving the original file). However, because the files you will typically work on are very large compared to most files, there are a few extra features in the file handling that you should be aware of.

Avoiding a Temporary Copy

In the event that you do not have enough disk space to allow the existence of both the original and a copy (to which the changes are made), you can tell Groove Mechanic to apply all changes directly and immediately to the original file. To do this, check the box **Apply changes immediately to this file** when you open a file. But be aware that it will NOT be possible to recover the unmodified original file.

Warning when Saving Files

By default, Groove Mechanic will ask for confirmation when you save a file (eg. by using the **File – Save** menu item). This is a precaution to avoid accidentally losing the original file. However, if you wish to, you can disable this warning. See [General Preferences](#) for details.

File Scan when a File is Opened

In previous versions of Groove Mechanic, the WAV file was not scanned until the Analysis was done. This was primarily to avoid a long wait each time you open a file. However, most PCs these days have disks that are fast enough that the file scan should take no more than a few seconds per song, and so Groove Mechanic now scans the file as soon as the file is opened. However, should you wish to avoid the delay involved in this operation you can press the Cancel button while the scan is proceeding. If you do so, the Timeline view will be blank, and the Max Amplitude will not be displayed. However, once you do the Analysis the timeline and max amplitude will then be displayed.

What Happened to the `_fixed` file?

In previous versions of Groove Mechanic, when you opened a file, you had to immediately specify what file the modifications were to be written to. This file by default had the same name as the original, but with “`_fixed`” appended. As of version 2.5, Groove Mechanic has eliminated this behaviour, to be more consistent with other Windows-based programs, and thus reduce some confusion.

See Also

[Temporary Files](#)

Temporary Files

Normally when you open an audio file and begin working with it, Groove Mechanic creates a temporary file in which it writes the modified audio. (Then later on, if you Save the file, the temporary file gets copied to the original file and the temporary copy is deleted).

Since the audio files you will be working with may be extremely large, you should be aware of the fact that this temporary files exists. There are two considerations – available disk space, and undeleted temporary files.

Available Disk Space for Temporary File

Groove Mechanic creates the temporary file in your default “temporary” folder. The exact location of this folder varies depending on your operating system, and whether you have instructed Windows to put it somewhere other than the default location.

Usually the temporary folder is either C:\Windows\Temp or C:\Temp (the disk letter might be different if you installed Windows to some drive other than C). If you are not sure where the temporary folder is, you can check to see what the value of the environment variable TEMP is. To do this under Windows NT or 2000, click on **Start, Settings, Control Panel, System**. Then click on the **Advanced** tab, and the **Environment Variables** button. Look in either the “**User variables**” or “**System Variables**” list for **TEMP**. In Windows 95 or 98, start a command prompt (**Start, Programs, MS-DOS Prompt**) and type **set**. All of your environment variables will be listed – one of them should be **TEMP**.

The important point is that the disk that contains the temporary folder **MUST** have enough free space to hold a copy of the file you are working with. If it does not, you have two options:

- Move the temporary folder to a different drive by changing the TEMP environment variable and rebooting Windows
- Open the audio file without a temporary file (by checking the **Apply changes immediately to this file** box).

Undeleted Temporary Files

If Groove Mechanic crashes (never happens!) or your PC crashes, Groove Mechanic will not get a chance to delete the temporary file. With most programs, this is not a big deal, and in fact your temporary folder is probably littered with undeleted temporary files. However, Groove Mechanic normally deals with very large files, so having a large unusable temporary file sitting around wasting disk space is not desirable.

If you suspect that a temporary file did not get deleted, use Windows Explorer to look at your temporary folder. If there is a file named GrvXXXXX.tmp (where XXXXX is a 5-digit number), and Groove Mechanic is not currently running, you should delete that file.

You may occasionally find a xxxxxx.MKC file in the same directory as your WAV files (where xxxxxx is the name of a WAV file that Groove Mechanic processed). Again, if Groove Mechanic is not currently running, you may safely delete the file.

Playing and Recording Audio

Playing Files

Using the mouse, left-click in the Audio Timeline window at the point at which you want the playback to start, then press the Play button (or use the **Audition – Play** menu item).

While the file is being played, the playback cursor will move along to indicate which part of the file is being played.

To stop the playback, press the Stop button (or use the **Audition – Stop** menu item).

The playback cursor will jump back to the point which you last set it to.

Recording Files

To record audio, you must set up your hardware and recording levels (see [Hardware Setup](#)), specify a file to record into (using **Capture – Select Save File**), then hit the red **Record** button (or use the **Capture – Start Recording** menu item).

To stop recording, hit the red Stop button (or use the **Capture – Stop Recording** menu item).

If you have specified a maximum recording time, Groove Mechanic will automatically stop recording when that time limit has been reached. See [General Preferences](#).

To avoid missing any audio data, do not use your PC for any compute-intensive or disk-intensive applications while the recording is going on. Also ensure your screen saver is disabled.

See Also

[Audition Menu](#)

[Capture Menu](#)

Analysis - Overview

Before any repairs can be carried out, the audio file must be analyzed. To do this, click on **Repair – Analyze Clicks and Rumble**

The analysis performs several functions:

- Checks for clicks
- Measures the average amount of rumble (low-frequency content)
- Measures the largest amplitude in the file

The click detection is the most involved of the three functions, and it takes up most of the time. Click detection is primarily a frequency-domain operation – that is, the signal is converted into its frequency components, and these components are checked to find the “signature” of a click.

Clicks are checked carefully to ensure that they really are artifacts, and not just spiky waveforms due to something natural (for instance, percussion instruments, or saxophones, which produce a repetitive sequence of spikes). Once a click is found, Groove Mechanic examines the edges of the click to find exactly where it starts and ends. This ensure that the subsequent click repair will only have to replace the minimum possible amount of audio.

Once the analysis has been carried out, the **Repair – Analyze Clicks and Rumble** menu item gets greyed out, and analysis cannot be performed again without opening the file again.

After analysis has been performed (and the clicks detected) you may also instruct Groove Mechanic to find “thumps”, which are loud sounds caused by scratches that are so big they actually obliterate the music for a millisecond or more. These are typically scratches that cut through several grooves, and thus they repeat every 1.8 seconds (for 33 1/3 rpm records). Their audio “signature” is unusual, but not really unique – some percussive instruments make a similar sound. Because of this, and the fact that they normally occur quite infrequently, Groove Mechanic requires you to tell it approximately where the thump occurs. Position the playback cursor a second or two before the thump (by left-clicking the mouse at the appropriate spot in the Audio Timeline) and click on the **Repair – Force Thump Detection at Cursor** menu item. Groove Mechanic will inform you as to whether or not it found a thump near that location (it will actually search for 5 seconds following the playback cursor).

Generally it is best to first do click detection and repair, and then if there are thumps that did not get corrected, use the manual thump detection. If a thump is detected, use the **Repair – Fix Clicks and Thumps** menu item to fix it. You can do this repetitively: find and fix a thump, then move on to the next thump, if any.

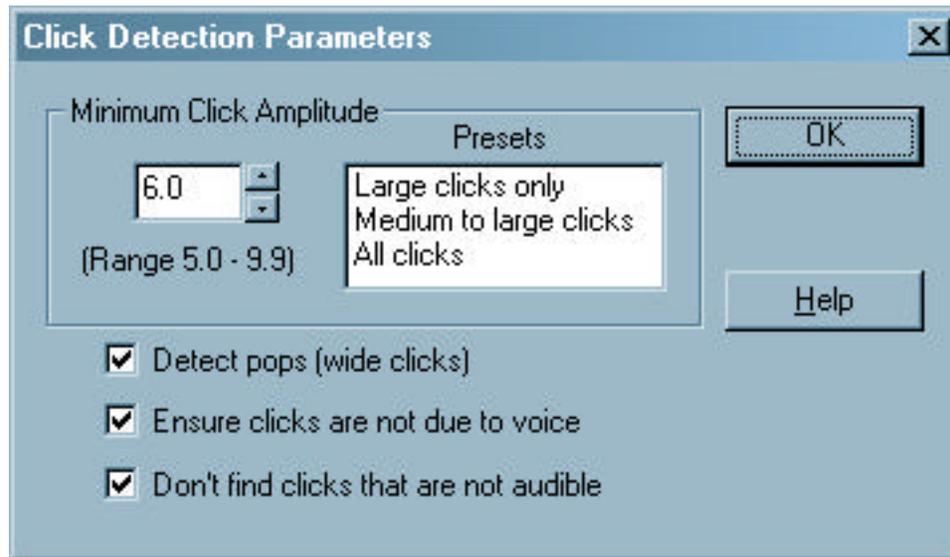
See Also

[Analysis Options](#)
[Repairing Overview](#)

Analysis Options

If you have not already done so, please read the [Analysis Overview](#).

The options relevant to the analysis phase mostly deal with click detection. The Click Detection parameters can be accessed by clicking on **Options – Click Detection**.



Minimum Click Amplitude

This determines the minimum size of a click for it to be detected. This is a measure of its “peakiness” in the frequency domain, and the value can range from 5.0 to 9.9. Clicking on one of the **Presets** will set the value as follows:

Large Clicks Only	9.9
Medium to large clicks	7.5
All clicks	6.0

The value can also be adjusted up or down using the spin control (the up and down arrows).

Detect Pops (Wide Clicks)

If this is checked, Groove Mechanic will (in addition to the normal search for clicks) attempt to find clicks which are more than 1-2 ms long. These sometimes occur on records that have visible scratches on them. If your LP is in fairly good shape you may wish to keep this unchecked, because it increases the likelihood that Groove Mechanic will interpret an actual sound (such as a percussive hit) as a click, and attempt to “repair” it.

Ensure clicks are not due to voice

This is checked by default. Some speaking voices (mostly male) and some instruments (such as saxophone and bass trombone) produce waveforms that very closely resemble a repetitive sequence of clicks! By checking this box, Groove Mechanic will examine the clicks carefully to determine if they are part of a repetitive sequence, and if so, will not count them as clicks.

This works very well most of the time. However, under some circumstances it may prevent Groove Mechanic from detecting some clicks that really are clicks. If you find

that Groove Mechanic is not detecting some obvious clicks, and the sound is not like any of those mentioned above, you can uncheck this box, re-open the file and re-analyze it, and then Groove Mechanic will likely catch the clicks.

Don't find clicks that are not audible

Groove Mechanic uses psychoacoustic principles to determine which clicks are not audible due to the phenomenon of "masking". Masking occurs when a sound cannot be heard because there is another loud sound of a similar frequency occurring at the same time. If Groove Mechanic thinks that a click is inaudible due to masking, it does not count it as a click.

Under some circumstances this may result in Groove Mechanic not detecting some very small clicks that are just barely audible. If you find this happens, uncheck the box, re-open the file and re-analyze it.

See Also

[Repairing Clicks](#)

Repair Overview

Repair of an audio file may consist of up to four components:

- [Click Repair](#)
- [Rumble Repair](#)
- [Hiss Repair](#)
- [Amplitude Normalization](#)

Repairing Clicks

Operation

Once the analysis has been done, and the Audio Timeline window shows the clicks (as vertical red lines), the clicks may now be repaired. Click on **Repair – Fix Clicks and Thumps** (or type Ctrl+C). The clicks will all be repaired. This may take some time, depending on how many clicks there are.

While click repair is going on, a dialog box will indicate the progress.

The dialog box has a **Cancel** button which may be used to cancel the click repair. If you do so, some of the clicks have been repaired and some have not, so you will normally need to repair them again. (In this case, the clicks which have already been repaired will be repaired again, but this produces exactly the same result as the original repair).

There are no user-adjustable parameters for click repair.

Once click repair has completed, the **Repair – Fix Clicks and Thumps** menu item gets greyed out, since there are no longer any clicks to fix.

The “Clicks” in the status bar will still show the number of clicks that were detected in the file, before the repair. However, they have now all been repaired, as you can verify by listening to the file.

Theory of Operation

Sections of audio that have been identified as clicks are completely erased, then reconstructed, using the characteristics of the audio sections immediately adjacent to each click (before it, and after it). The reconstruction guarantees that the audio signal will not have discontinuities at the click edges.

In nearly all cases, reconstruction is accurate enough that it is not possible to hear that there was ever an imperfection at all!

However, if the click was unusually long, so that more audio had to be reconstructed, it is sometimes possible to hear a slight “bump” where the click was.

See also:

[Repairing Rumble](#)

[Repairing Hiss](#)

Repairing Rumble

Operation

Once the analysis has been done, the rumble (very low frequencies) may now be repaired. Click on **Repair – Fix Rumble** (or type Ctrl+U). The rumble will be removed. This may take some time, depending on how large the audio file is.

While rumble repair is going on, a dialog box will indicate the progress.

The dialog box has a **Cancel** button which may be used to cancel the rumble repair. If you do so, the file will have a discontinuity in it, where the rumble repair left off, and therefore cannot be used. It will be necessary to open the original file again, analyze it, and repair the rumble again.

The cutoff frequency (selected using the **Options – Rumble Filter** menu item) determines which components of the audio get removed or reduced in amplitude. Roughly speaking, frequencies below the cutoff frequency get reduced or eliminated, while frequencies above the cutoff frequency are not affected. Make your selection before applying the rumble repair.

Once rumble repair has completed, the **Repair – Fix Rumble** menu item gets greyed out.

Theory of Operation

A 4-pole Butterworth high-pass filter is applied to the entire file. The cutoff frequency is selected using the **Options – Rumble Filter** menu item. The gain applied to signals at exactly the cutoff frequency is -3 dB. For lower frequencies, the gain is reduced at a rate of 24 dB per octave.

See Also

[Repairing Clicks](#)

[Repairing Hiss](#)

Repairing Hiss

Operation

Once the analysis has been done, the hiss may now be repaired. First, find a point in the audio where there is just hiss, no audio. Left-click at this location, so that when you hit the Play button, Groove Mechanic plays hiss only. Now click on **Repair – Hiss – Get Noise Base at Playback Cursor**. Groove Mechanic reads the file at the specified location and uses this as the “noise base”. Click on **Repair – Hiss - Fix Hiss**. The hiss will then be reduced considerably (it cannot be completely eliminated). This may take a considerable amount of time, depending on how large the audio file is.

While hiss repair is going on, a dialog box will indicate the progress.

The dialog box has a **Cancel** button which may be used to cancel the hiss repair. If you do so, the file will have a discontinuity in it, where the hiss repair left off, and therefore cannot be used. It will be necessary to open the original file again, analyze it, and repair the hiss again.

The amount of noise reduction applied to the audio during the hiss repair can be adjusted slightly using the **Options – Hiss Repair** menu item, before hiss repair is performed.

Theory of Operation

Hiss removal uses a technique known as spectral subtraction. Knowing the characteristics of the hiss (the Noise Base), Groove Mechanic examines each portion of the audio to see by how much it exceeds the noise base. The audio is examined in 32 different “bands”, from very low frequencies to very high frequencies. For each band, Groove Mechanic reduces the amplitude by an amount that is just enough to put the amplitude at the magnitude it would be if the hiss was not there in the first place.

See Also

[Repairing Clicks](#)
[Repairing Rumble](#)

Normalizing Amplitude

Operation

If you wish to change the volume level (amplitude) of the entire file (eg. to maximize the dynamic range, or to make this file roughly the same loudness as others), you can apply amplitude normalization. To do this, click on **Repair – Normalize Amplitude** (or type Ctrl+N), then specify the level which you would like the loudest sounds to be at. The default value is 95% of full scale, which is usually a good value. You can use larger (up to 100%) or smaller values if you so desire.

While normalization is going on, a dialog box will indicate the progress.

The dialog box has a **Cancel** button which may be used to cancel the normalization. If you do so, the file will have a discontinuity in it, where the normalization left off, and therefore cannot be used. It will be necessary to open the original file again, analyze it, and apply normalization again.

When Normalization Can Be Performed

Amplitude normalization can be performed when at least one of the following has occurred:

- Analysis has been performed, or
- The file was opened with the “Apply Changes Immediately to This File” box checked, AND the audio timeline shows the audio in blue (that is, you did not cancel the normal file scan when you opened the file)

Theory of Operation

A constant gain factor is applied to the entire file. The gain factor is calculated such that the largest amplitude portion of the audio file will end up at the specified level (eg. 95% of full scale).

See Also

[Repairing Clicks](#)
[Repairing Rumble](#)
[Repairing Hiss](#)

Tracks Overview

In many cases, a single audio file will consist of more than one song. This would be the case, for example, if you captured an entire side of an LP into a single file.

There are many advantages to working with an entire LP side (or even both sides) in one file, including consistency of the repairs that are applied.

Eventually, however, you will probably want to split the songs into individual files, so that they may be burned individually onto a CD. The advantage of doing so, of course, is that you can then later use your CD player's "track" controls to select which song to play. That is, the songs appear as separate "tracks" on the CD, rather than one big track.

Doing this splitting is a two-step process:

- Mark the tracks, thus telling Groove Mechanic where each song (track) starts
- Extract the tracks into individual files

Tracks may be extracted into WAV files (which can be burned directly onto audio CDs), or they may be extracted into MP3 files or OGG files. MP3 and OGG are both lossy compressed formats, which means that they sacrifice some sound quality in order to make the file smaller (sometimes MUCH smaller).

Tip: since Groove Mechanic initially considers the entire file to be just one track, the track extraction function can be used (without the marking step) to simply compress an entire WAV file – that is, to MP3-encode it (or OGG-encode it).

MP3- or OGG-encoded files on a CD cannot be played by a standard "audio" CD player, but many new CD players (and even DVD players) now are able to play CDs with MP3 files on them.

As each track is marked (or unmarked), Groove Mechanic's Audio Timeline display changes to indicate where the track boundaries are. The background colour alternates between two light colours. Each change in colour is the start of a new track.

[Marking and viewing the tracks](#)
[Extracting the tracks](#)

See also

www.vorbis.com - The OGG Vorbis home page

Marking and Viewing Tracks

If you have not already done so, please see the [Overview](#).

Track marking may be done automatically by Groove Mechanic, manually by you, or a combination of the two. It is usually best to do the automatic marking first, then use manual marking only if there are some errors in the automatic marking.

Automatic Marking

Once all the required repairs have been performed on the audio file, Click on **Tracks – AutoDetect**. You will be presented with a dialog box in which to enter the parameters that Groove Mechanic will use for automatically finding the track boundaries.

Minimum song duration:

Use a value that is somewhat less than the actual length (in seconds) of the shortest song in the file. If this value is too small, Groove Mechanic may interpret short pauses within a song as being the beginning of the next track. If this value is too large, Groove Mechanic may interpret two consecutive songs as being one track.

Minimum silence duration:

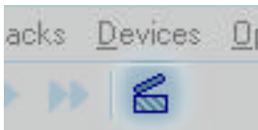
Use a value that is somewhat less than the actual length (in seconds) of the shortest pause between songs. The exact definition of “pause” is somewhat nebulous, since usually the space between songs is filled by various sounds (fadeout of the previous song, residual background noise, pre-echo of the upcoming song). The default value is 2.5 seconds. If the value is too low, Groove Mechanic may interpret very short pauses within songs as being the start of a new track. If the value is too high, Groove Mechanic may interpret two consecutive songs as being one track.

Threshold of silence:

This value will likely need to be determined by experimentation, although the default value of –25 dB is suitable for many LPs. If the value is too low (ie. a large negative value), Groove Mechanic may interpret consecutive songs as being one track. If the value is too high, Groove Mechanic may interpret quiet parts of a song as being the start of a new track.

Manual Marking

You may tell Groove Mechanic the location of the start of a track by clicking on **Tracks – Mark Track Boundary** (or typing Ctrl+M), or by clicking on the Mark button, while playing (auditioning) the audio file. By default, Groove Mechanic subtracts 0.5 seconds from the actual time at which you issued the command, so you can listen for the actual start of the track, then quickly hit the Mark button (see below), and you will most likely get the track start position correctly.



If you need to adjust one of the track boundaries slightly, just mark it again. If the new mark is within 5 seconds of the old one, Groove Mechanic will replace the old one.

If you need to delete a track boundary (eg. if auto-detection incorrectly marked a track boundary), position the playback cursor near the “bad” boundary and click on **Tracks – Delete Boundary Marker** (or type Ctrl+Shift+M). As long as you were within 15 seconds of the actual location of the track boundary, it will be erased. (To delete a marker, you must not be playing the file at the time).

Viewing the Track List

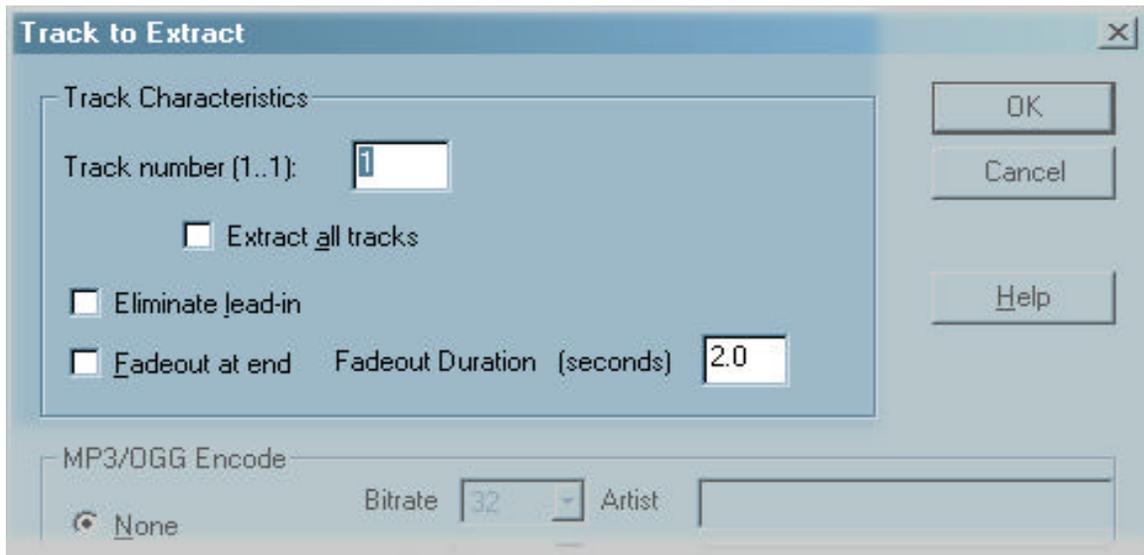
At all times you will see a graphical representation of the tracks in the Audio Timeline (indicated by alternating background colours). If you wish to, you can also see a track list, showing the start time and duration of each track. Click on **Tracks – View List** (or type Ctrl+V). This will bring up a dialog box that shows the list of the tracks. You may use the **Clear List** button to delete the entire track list, re-initializing it to consider the entire file as one big track again.

See Also

[Extracting Tracks](#)

Extracting Tracks

To extract one (or all) tracks, click on **Tracks – Extract Track to File** (or type Ctrl+E). This will bring up a dialog box by which you can control how the track(s) are extracted.



If you are extracting to WAV files, only the top portion is of relevance.

Track number

Enter the number of the track you wish to extract into a file (the first track is number 1).

Extract All Tracks

Check this box if you wish to extract all the tracks at once, into separate files.

Eliminate lead-in

Check this box if you want Groove Mechanic to try to eliminate any small amount of silence which may remain between the start of the track as marked, and the actual start of the song. If Groove Mechanic cannot locate the start of the song it will just extract the track as marked (and will inform you of this).

Fadeout at end

Check this box if you want Groove Mechanic to gradually reduce the gain to zero in the last few seconds of the extracted track. This is especially useful if there is still some background noise at the end of the song. If this box is checked, you can enter the value of the **Fadeout duration (seconds)**.

Then click OK. You will be presented with a dialog box in which to specify the name of the file into which the track will be written.

Then track extraction will proceed. While it is doing so, a dialog box will indicate the progress.

See Also

[Track Extraction to Compressed File](#)

Track Extraction to Compressed File

If you have not already done so, please read [Track Extraction](#).

If you want to extract a track into a compressed file (MP3- or OGG-encoded), then you need to proceed through the instructions given in the Track Extraction section, then fill in some MP3-specific or OGG-specific fields, described below.

MP3 Parameters

Fadeout at end Fadeout Duration (seconds)

MP3/OGG Encode

None Bitrate Artist

OGG Encoder Variable Title

LAME MP3 Encoder R3Mix Year Album

External Encoder Track Genre

Command Line:

You must select the **Built-in MP3 Encoder** radio button and the **Bitrate** field. All of the remaining fields are optional.

Bitrate

The bit rate (in Kbits/second) of the resulting MP3 file. Larger values sound better, but result in larger files. Values of 160 and higher are usually indistinguishable from the original uncompressed sound.

Var Bitrate

If checked, "variable bitrate" mode will be used. In this mode, the exact bitrate varies somewhat based on the instantaneous complexity of the audio. In general, this results in better audio quality for the same size of file. Most MP3 players can play variable bitrate files.

R3Mix

If checked (needs Var Bitrate to be checked first), the super-high-quality R3Mix mode is enabled. For more details, see [the LAME website](#).

Artist

This, and the remaining fields, allow you to specify "ID3" fields, which get written into the MP3 file. Most MP3 players recognize ID3 fields and will display some of them accordingly. Normally you would enter the name of the artist in this field.

Title

Normally you would enter the name of the song in this field.

Year

Normally you would enter the year the album was first released.

Album

Normally you would enter the name of the album in this field.

Track

Normally you would enter the track number. This is not necessarily the same as Groove Mechanic's track number; for instance in a file recorded from the second side of an LP, the first song would be Track 1 to Groove Mechanic, but would be a larger number with respect to the entire album.

Genre

You can pick one of many predefined genres. Numbers 0 through 79 (Blues through Hard Rock) are industry-standard values. Numbers 80 through 125 are "WinAmp"-defined values.

Numbers 126 through 147 are LAME-defined.

OGG Parameters

Fadeout at end Fadeout Duration (seconds)

MP3/OGG Encode

None Bitrate Artist

OGG Encoder Variable R3Mix Title

LAME MP3 Encoder Year Album

External Encoder Track Genre

Command Line

You must check the **Built-in OGG Encoder** radio button, and fill in the **Bitrate** field. All of the remaining fields are optional.

Bitrate

As in MP3 section, above.

Var Bitrate

OGG encoding always uses variable bitrate, so this box is always checked.

Artist, Title, Year, Album, Track, Genre

As in MP3 section, above.

External Encoder

In the case that you wish to use an encoder program other than LAME or OGGENC, you can check the **External Encoder** radio button, then enter the **Command Line** necessary to run the encoder.

This ability is provided as a convenience, but it is NOT officially supported by Coyote!

Typically you would enter the name of the encoder program, followed by the characters **%s** (which Groove Mechanic will translate into the track file name), and any option flags needed (eg. to set the bitrate or quality). If the encoder program name (including its path) has any spaces, you should enclose the whole path and name in quotes. Also if the track file name has any spaces in it, you should enclose the %s in quotes. So an example command line would be:

```
"C:\Program Files\SomeEncoder.exe" "%s" -b160
```

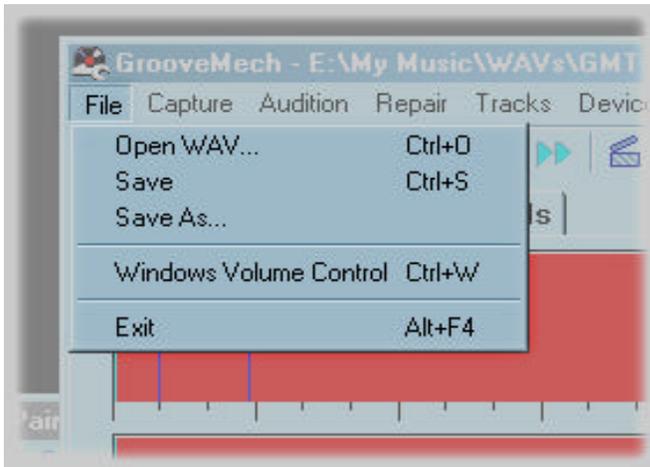
See Also

<http://www.vorbis.com> - OGG home page

<http://www.mp3dev.org/mp3> - LAME home page

<http://www.winamp.com/> _ WinAmp home page (reference for Genres)

File Menu



The File Menu can be accessed by clicking on **File** or by pressing the Alt key, followed by F.

Open WAV...

Brings up a dialog box in which you can browse to the file you wish to open. (This command will be greyed out while you are auditioning the current file).

Save

Saves the current file modifications, overwriting the original. This command will be greyed out until the file has been modified (that is, until there is something to save). Also, if the file was opened with the "Apply changes immediately to this file" box checked, the Save command will be greyed out, since any file changes are immediately saved.

Save As...

Brings up a dialog box in which you can specify the name of a file to save the modified audio to. This command will be greyed out until the file has been modified (that is, until there is something to save). Also, if the file was opened with the "Apply changes immediately to this file" box checked, the Save As command will be greyed out.

Windows Volume Control

Starts the Windows Volume Control application (SndVol32). Most sound cards use this to control the volume of the Line In input, as well as various other parameters related to recording and playing sound.

Exit

Exits Groove Mechanic. If you have modified the audio file but have not yet saved your changes, you will be prompted for whether to save or discard the changes, or cancel the exit.

If you have marked tracks but have not yet extracted them, you will be prompted for whether to cancel the exit.

See Also

[Working with Files](#)

[Setting Sound Levels](#)

Capture Menu



The Capture Menu can be accessed by clicking on **Capture** or by pressing the Alt key, followed by C.

Select Save File...

Brings up a dialog box in which you can specify the name of a file to write the captured (recorded) audio into. If the file exists, you will be prompted for whether to overwrite it. (This command will be greyed out while you are auditioning the current file).

Reset Peak-Hold

Resets the peak-hold function of the recording level meter. Use this if, for instance you have made a change to the sound card's volume level, and you wish to re-establish the maximum amplitude of the audio.

Start Recording

Starts capture into the selected "save" file.

Stop Recording

Terminates the capture, and changes the main window back to the **Audio Timeline** view.

See Also

[Working with Files](#)
[Playing and Recording](#)

Audition Menu



The Audition Menu can be accessed by clicking on **Audition** or by pressing the Alt key, followed by A.

Play From Cursor

Starts playback of the audio file, at the location of the Playback Cursor, playing via the sound device selected in the **Devices** menu. While playing, several other menu items (including File – Open, Capture – Select, and the Repair menu) will be greyed out. Once you stop playing, those menus will become enabled again.

Play Up To Cursor

Starts playback of the audio file at a position 5 seconds **prior** to the Playback Cursor. Playback stops when it reaches the Playback Cursor. This is useful for ensuring that the track positions you have marked are correct. For example, use Position To Track to position the playback cursor at a track mark, then use Play Up To Cursor to verify that the end of the previous track sounds correct.

Rewind

Moves the playback cursor towards the beginning of the file. Moves slowly at first, but gains speed after a few seconds.

Rewind to Beginning

Sets the playback cursor to the start of the file.

Fast Forward

Moves the playback cursor towards the end of the file. Moves slowly at first, but gains speed after a few seconds.

Fast Fwd to End

Sets the playback cursor to the end of the file.

Stop

Stops playback or positioning.

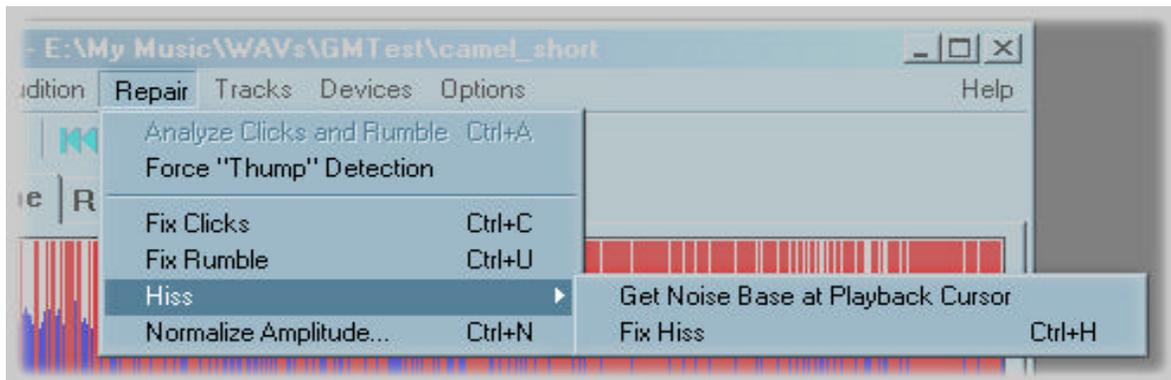
Position to Track

Brings up a dialog box in which you can specify the track number at which to set the playback cursor. Subsequent playback will be from this point.

See Also

[Playing and Recording](#)

Repair Menu



The Repair Menu can be accessed by clicking on **Repair** or by pressing the Alt key, followed by R.

Analyze Clicks and Rumble

Starts the analysis phase. See [Analysis Overview](#) for details

Force "Thump" Detection at Cursor

Tells Groove Mechanic to search the 5 seconds of audio starting at the playback cursor, looking for a "thump". Use this if click detection has failed to locate what sounds like a very large and obvious defect (such as is caused by a large scratch in an LP). See [Analysis Overview](#) for details

Fix Clicks and Thumps

Repairs all of the detected clicks and thumps. See [Click Repair](#) for details

Fix Rumble

Reduces low-frequency rumble. See [Rumble Repair](#) for details

Get Noise Base at Playback Cursor

Tells Groove Mechanic that the audio immediately following the playback cursor contains background noise only, and no actual music. See [Hiss Repair](#) for details

Get Noise Base at End of File

Tells Groove Mechanic that the audio in the last few seconds of the file contains background noise only, and no actual music. See [Hiss Repair](#) for details

Fix Hiss

Reduces the hiss, using the specified Noise Base. See [Hiss Repair](#) for details

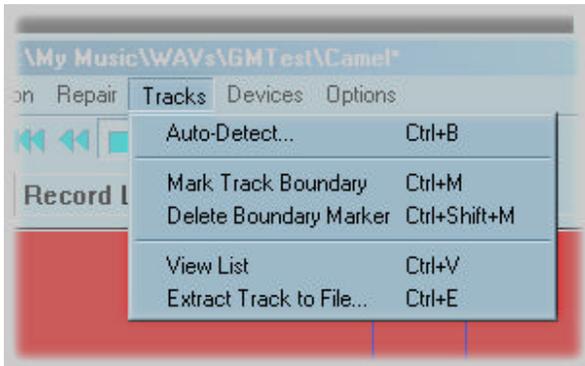
Normalize Amplitude

Changes the amplitude of the entire file, in order to make the largest signal amplitude become the specified value. See [Amplitude Normalization](#) for details.

See Also

[Repair Overview](#)

Tracks Menu



The Tracks Menu can be accessed by clicking on **Tracks** or by pressing the Alt key, followed by T.

Auto-Detect

Auto-detects track boundaries, based on parameters that you specify. See [Marking Tracks](#) for details.

Mark Track Boundary

Tells Groove Mechanic the current playback has just started playing a new song. This can be selected only while playback (audition) is underway. See [Marking Tracks](#) for details.

Delete Boundary Marker

Deletes the track boundary, if any, within 15 seconds of the Playback Cursor. This can be selected only when playback is stopped. See [Marking Tracks](#) for details.

View List

Brings up a dialog box listing the start times and durations of the currently-marked tracks. . See [Marking Tracks](#) for details.

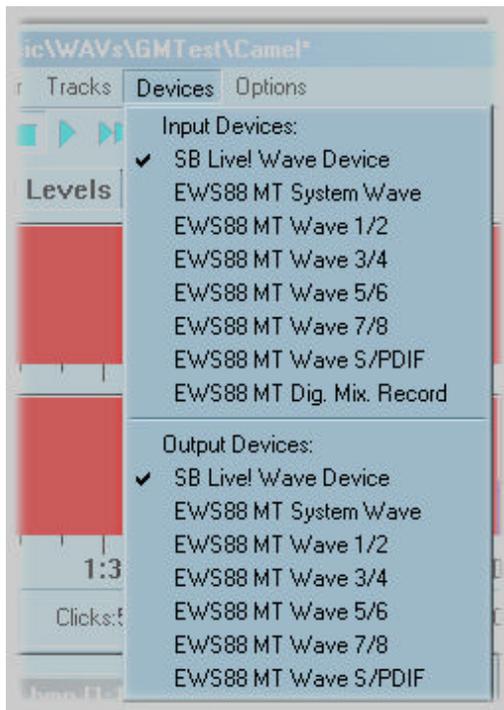
Extract Track to File

Brings up a dialog box in which you specify track extraction parameters, then extracts the selected track(s) to individual audio files. See [Extracting Tracks](#) for details.

See Also

[Tracks Overview](#)

Devices Menu



The Devices Menu can be accessed by clicking on **Devices** or by pressing the Alt key, followed by D.

The menu is divided into two parts: Input Devices and Output Devices. The devices listed will be specific to your system and may not resemble the example shown above. Most PCs will have only one or two devices listed for each of Input and Output.

The Input Devices are sound cards (or subsystems of a sound card) which are capable of recording a 44100 Hz 16-bit stereo audio signal. Before doing a Capture operation, ensure that the device that you have your turntable or tape deck connected to is the one with the check mark beside it.

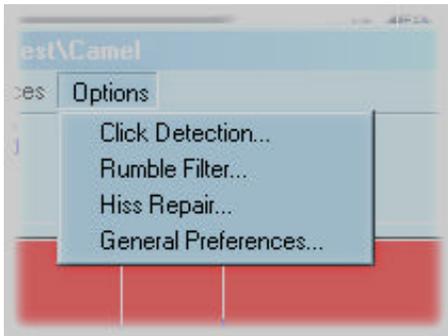
In addition to telling Groove Mechanic which sound card the capture should record from, you must also tell it which input of that sound card to record from. Most sound cards support multiple inputs (eg. Line In, Microphone In, CD In, and sometimes others) and they will record from only the input that is selected. You make this selection when you start the Capture. Groove Mechanic will examine the sound card that is checked in the **Input Devices** list, will report all of its inputs, and will let you specify which input the audio is actually connected to.

The Output Devices are sound cards (or subsystems of a sound card) which are capable of playing back audio in stereo. The device with the check mark beside it will be the one which the sound will be coming out of!

See Also

[Playing and Recording](#)

Options Menu



The options menu can be accessed by clicking on **Options** or by pressing the Alt key, followed by O.

Click Detection...

Bring up a dialog box in which you can specify the parameters for click detection. See [Analysis Options](#) for details.

Rumble Filter...

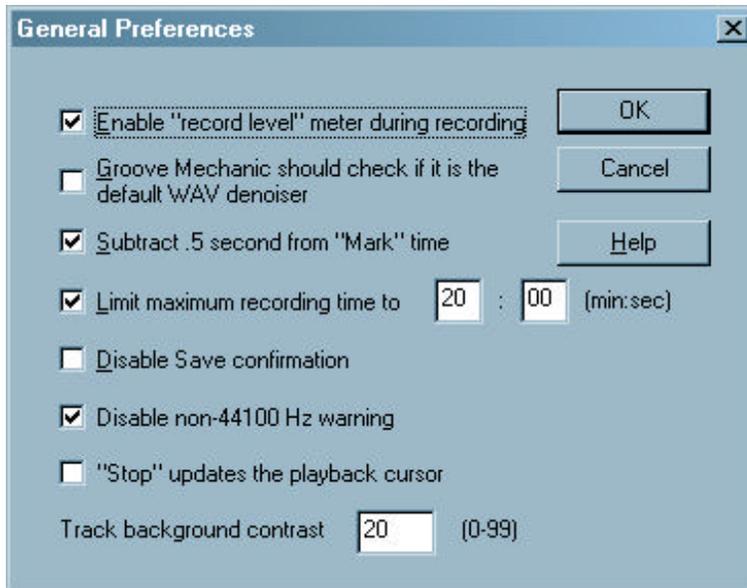
Brings up a dialog box in which you can specify the cutoff frequency for rumble repair. See [Repairing Rumble](#) for details.

Hiss Repair...

Brings up a dialog box in which you can specify the amount of correction to be applied during hiss repair. See [Repairing Hiss](#) for details.

General Preferences...

Brings up the Preferences dialog box.



Enable “record level” meter during recording

If checked, Groove Mechanic leaves the “record levels” running while the capture is going on. This allows you to constantly see the recording level, and ensure it does not go too low or high. However, on slower CPUs (200 MHz and below), the added computation due to this may interfere the capture process, resulting in skips in the sound. If this happens, uncheck this box and perform the capture again.

Groove Mechanic should check if it is the default WAV denoiser

Normally Groove Mechanic checks each time it starts to ensure it is registered as your default denoising program for WAV files, and if it is not, prompts you to let it re-establish itself as the default denoiser. If you do not wish this to happen, clear this box.

(What does “default denoiser” mean? If you start Windows Explorer and right click on a WAV file, you will see **Groove Mechanic** listed on the context menu. If you then click on **Groove Mechanic**, Groove Mechanic will start and will immediately open that file. The exact appearance of this context menu varies slightly on different operating systems).

Subtract .5 second from “Mark” time

If this option is checked, and you mark a track boundary by clicking on the “Mark” button (or the corresponding menu item), then Groove Mechanic will subtract half a second from the time at which you actually hit the button. This allows you to listen for the start of a song, and as soon as you hear it, immediately hit the button. Then the start of the track will usually be placed at exactly the right time, just BEFORE the song starts.

Limit maximum recording time to

If you check this box, you can enter a time, in minutes and seconds, which represent the longest that Groove Mechanic will capture (record), before it stops the recording. This is useful if you know how long an LP side lasts – you can start the capture of the LP, then go away, and Groove Mechanic will stop by itself.

Disable Save confirmation

Normally, when you use the **File – Save** menu item to save the file modification back into the original file, Groove Mechanic will prompt you to ensure you really want to overwrite the original file. If you do not want this confirmation, check this box.

Disable non-44100 Hz warning

Normally, Groove Mechanic will warn you if you open a file that was not recorded at a sample rate of 44100 Hz, because if so the file is probably not compatible with standard audio CDs. If you want to disable this warning, check this box.

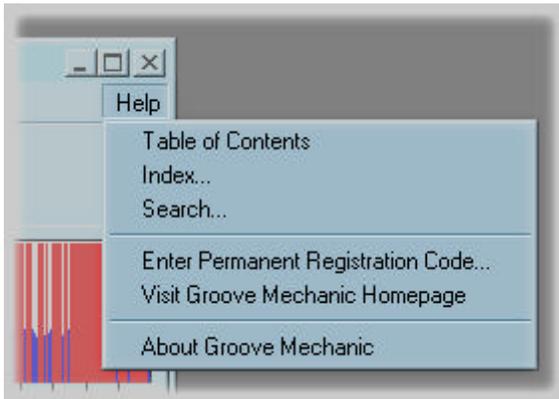
“Stop” updates the playback cursor

If this button is unchecked, then when you stop a playback the cursor jumps back to where it was last set to. This is useful if you want to repetitively play the same section of audio. However, if you want playback to behave as it did in previous versions of Groove Mechanic, check this button. Then each time you start a playback, it starts from where you last stopped.

Track Background Contrast

Use this to set the contrast between the two colours used to indicate adjacent tracks, in the audio timeline. If the value is set to zero, the two colours will be identical (light grey). At maximum (99), the colours will be very distinct (approximately pink and purple). Higher values can be used but are not very useful.

Help Menu



The Help Menu can be accessed by clicking on **Help** or by pressing the Alt key, followed by H.

Table of Contents

Starts the Windows HTML Help engine to display the Table of Contents in a separate window.

Index...

Starts the Windows HTML Help engine to display the help index in a separate window.

Search...

Starts the Windows HTML Help engine to display the searchable help in a separate window.

Enter Permanent Registration Code...

Brings up a dialog box in which you can enter your registration code. This consists of TWO parts – the key (8 digits and/or letters) as well as the “user info”, which is normally your name and city or country. After entering these, you must shut down Groove Mechanic and restart it, in order that the registration takes effect.

Visit Groove Mechanic Homepage

Starts your default browser and directs it to <http://www.coyotes.bc.ca>

About Groove Mechanic

Displays the version of Groove Mechanic, as well as the platform and operating system it is running on.

See Also

[Registration](#)

Keyboard Mnemonics

Most professional Windows programs support keyboard mnemonics, and Groove Mechanic is no exception. Keyboard mnemonics give you a way of accessing menu items without using a mouse at all. Some people find them much faster to use, once you learn the mnemonic keys for the commands that they use most frequently.

Keyboard mnemonics are accessed by first pressing and releasing the Alt key. You will see that menu items all have one letter underlined. If you press the key corresponding to an underlined letter, that menu will drop down. Then each of the items under that menu will have an underlined letter. If you press that letter key, that menu item will be activated.

As an example: Press and release the Alt key, then press F. The File menu will drop down. Now press O (the letter O). This produces the same result as if you had clicked on File, then Open, with the mouse.

Most dialog box buttons also have mnemonics, which can be used in the same way. However, because of the way “keyboard focus” works in Windows, you must generally press and hold the Alt key while you press the letter corresponding to the button you wish to activate.

See Also

[Keyboard Accelerators](#)

Keyboard Accelerators

Keyboard accelerators are similar to keyboard mnemonics, but accelerators provide single-character access to menu functions, and so they are slightly faster. The accelerators usually consist of the Control key (“Ctrl”) plus a letter. You must press and hold the Ctrl key while you press (and release) the letter key.

In some cases, other keys (such as Function keys or arrow keys) are used as accelerators.

Groove Mechanic uses the same accelerator keys as most other Windows programs do for the basic operations (eg. File Open, File Save), and then adds many more for its other functions.

In most cases, the accelerator is shown in the menu drop down, on the right hand side of the menu. (For instance, if you click on File and look at the Open WAV item, you will see “Ctrl+O” on the right side. Ctrl+O is the accelerator for the File – Open function). In some cases, a command may have more than one keyboard accelerator (for compatibility, or ease of access) and usually only one accelerator is shown in the menu item, to avoid cluttering up the menus.

Here is a complete list of all keyboard accelerators:

File – Open	Ctrl+O
File – Save	Ctrl+S
File – Windows Volume Control	Ctrl+W
File – Exit	Alt+F4
Capture – Select Save File	Ctrl+Shift+S
Capture – Reset Peak Hold	Ctrl+D
Capture – Start Recording	F5, Space, or Ctrl+R
Capture – Stop Recording	Shift+F5
Audition – Play	Ctrl+P or Right-arrow
Audition - Rewind	PageUp
Audition – Rewind to Beginning	Home
Audition – Fast Forward	PageDown
Audition – Fast Fwd to End	End
Audition – Stop	Left-arrow or Down-arrow
Audition – Position to Track	Ctrl+T
Repair – Analyze Clicks and Rumble	Ctrl+A
Repair – Fix Clicks	Ctrl+C
Repair – Fix Rumble	Ctrl+U
Repair – Hiss – Fix Hiss	Ctrl+H
Repair – Normalize Amplitude	Ctrl+N
Tracks – Autodetect	Ctrl+B
Tracks – Mark Track Boundary	Ctrl+M
Tracks – Delete Boundary Marker	Ctrl+Shift+M
Tracks – View List	Ctrl+V

Tracks – Extract Track to File	Ctrl+E
Help – Contents	F1

See Also

[Keyboard Mnemonics](#)

Command Line Operation Overview

Because Groove Mechanic is often used repetitively on several files at once, and because the audio repair process can take a considerable amount of time to run, it is possible to operate Groove Mechanic non-interactively, from a command line prompt. In a single command line operation, you can cause Groove Mechanic to open a file, analyze it, repair it, save it, and exit. By putting multiple commands into a batch (.BAT) file and starting the batch file, it is possible to run Groove Mechanic many times on different files, all with one command!

Syntax

The syntax for invoking Groove Mechanic from the command line is one of the following:

1. Groovemech <input_filename>
2. Groovemech <input_filename> <options>
3. Groovemech <input_filename> <output_filename>
4. Groovemech <input_filename> <output_filename> <options>

where <options> can be one or more of the following, separated by one or more spaces:

- c
- r
- h
- n
- q

Using -c results in click repair taking place. Using -r results in rumble repair. Using -h results in hiss repair. Using -n results in amplitude normalization. If any of the previous are specified, an analysis phase is automatically run first. Using -q results in the program quitting after the specified repair has occurred.

If syntax #1 is used, Groove Mechanic opens the file and then waits for the user to issue commands as usual.

If syntax #2 is used, Groove Mechanic opens the file, performs the specified repairs, and writes the resulting audio to the same file.

If syntax #3 is used, Groove Mechanic opens the file and then waits for the user to issue commands as usual. When the user exits the program, the results will be written to the output file, without prompting.

If syntax #4 is used, Groove Mechanic opens the file, performs the specified repairs, and writes the resulting audio to the output file. If either of the filenames contains space characters, the filename should be surrounded by quotes.

Example:

```
Groovemech "\My Music\WAVs\Test1.wav" "\My Music\WAVs\Test1_out.wav" -c -r -q
```

One way to process all of the WAV files in one folder using one command is to use the **for** command. Here's an example:

```
cd \MyWavFolder
for %i in (*.wav) do "c:\program files\coyote\groovemechanic25\groovemech" "%i"
"Fixed_%i" -c -r -q
```

This repairs the clicks and rumble in each WAV file in the folder, and saves the result of each to a file with the same name as the original, but prefixed by "Fixed_". This will process all the files at the same time, which may be too high a computing load if there are a lot of files.

To process the files one at a time, use:

```
cd \MyWavFolder
for %i in (*.wav) do start /wait
c:\PROGRA~1\coyote\groovemechanic25\groovemech.exe "%i" "Fixed\%i" -c -r -q
```

after first creating the subfolder Fixed, below the folder "MyWavFolder". You should not write the repaired files back into the original folder, or else the "for" command will find them and will start Groove Mechanic to process them, which will in turn create more files, and so on. The program name (c:\PROGRA~1\coyote\groovemech.exe) cannot have quotes around it, so it cannot have spaces in it, and therefore the "8.3" form of the Program Files folder name (PROGRA~1) should be used.

If you create a batch file (*.BAT) that runs these commands you should be aware that on some versions of Windows you may need to replace the percent signs shown with double percent signs (ie. %%).

Error Handling

Because the whole point of command-line operation is to run non-interactively, Groove Mechanic tries to handle simple errors by itself without prompting for assistance. In the case of, for instance, not being able to open the input file because it does not exist, Groove Mechanic will just exit. (And then if it was started by a batch file, the next command in the batch file will be executed).

Log

In command-line mode, Groove Mechanic writes to a log file, so that you can come back (after an overnight run, say) and find out what happened to all of the files you told Groove Mechanic to process.

The name of the log file is GrooveMech.log and it will be written to the default directory (this is usually the directory that the command line was defaulted to when Groove Mechanic was started). The log file contains major events, and the date and time at which they occurred. Each time Groove Mechanic starts up and finds an existing log file, it appends any new messages to the end of the file, without erasing the file first.

Answers to Common Questions

- 1. Why doesn't my registration key work?**

Most likely, there is a minor error in the entry of either the key itself or the "user info" (which is usually your name and city or country). BOTH the key and the user info must be entered into the registration dialog box.
- 2. Will my key still work if I change to another PC?**

Yes. Your registration key will work on any PC.
- 3. Can I upgrade Groove Mechanic?**

Yes. Just download the latest version and install it, and it will recognize your registration key and all of your previous settings.
- 4. When I try to record, I get no sound at all.**

Probably your sound card has not been configured to select the input that your external audio equipment (eg. turntable) is connected to. Ensure that in the Devices menu, the correct Input Device is selected, ensure that you specified the correct input (eg. Line In) when you started the capture, and ensure that the RECORDING volume for that input is turned up. The last point is accomplished by starting the Windows Volume Control, clicking on Options – Properties, Recording. Then locate the Line In slider (assuming your turntable is connected to the Line In jack) and adjust the slider.
- 5. In what order should I do the repairs?**

Usually the best order is:

 - Repair clicks
 - Listen to the result, and if there are large thumps remaining (which may not have been detected due to reasons explained earlier), then:
 - o Force detection of a thump, then repair that thump
 - o Repeat, if more thumps are still present
 - Repair rumble (if needed)
 - Repair hiss (if needed)
 - Re-open the file to re-detect the maximum amplitude (which may now have changed), then perform Amplitude Normalization
- 6. Why does Groove Mechanic detect more clicks if I repair clicks then re-open and re-analyze the repaired file?**

Often, a small click will be "hidden" by the presence of a large click nearby. When the large click is repaired, the small one then becomes audible, so Groove Mechanic detects it. Sometimes you can get a minor improvement by processing a file twice (sometimes even three times) but normally the first pass accomplishes 99.9% of the possible improvement.
- 7. Why do I hear a 2-second gap between songs when I listen to the CD I recorded?**

CD players will pause for 2 seconds at the start of each track if the CD was recorded in "track at once" mode. You can avoid this by recording the CD in "disc at once" mode, but not all CD recorders and CD-burning software packages support this mode.
- 8. Why don't you add this great feature....**

I'll consider it! Coyote Electronics is always looking for ways to improve Groove Mechanic, and many of the new features and enhancements made over the past years were suggested by users.

Technical Support

If you have a problem using Groove Mechanic, please first try to resolve it by looking in this help file under the relevant usage section ([Working with Files](#), [Analysis](#), [Repairing](#), [Track Marking and Splitting](#)), or menu reference ([File](#), [Capture](#), [Audition](#), [Repair](#), [Tracks](#), [Devices](#), or [Options](#)). If you cannot find the information to resolve your problem, next check the Answers to Common Questions.

If there is still not enough information provided to resolve your problem, please contact Coyote Electronics Technical Support by e-mailing info@coyotes.bc.ca. We will respond to you promptly (usually within a day) and ensure that your problem gets resolved.

You may also wish to visit the Coyote Electronics website (<http://www.coyotes.bc.ca>) to see if there is a newer release of the software, the help file, or the Frequently Asked Questions on the website.

Appx A - Performance Considerations

Working with audio files places great demand on your CPU and disk. The following are some tips to ensure that processing can run as fast as possible, with minimal problems.

Ensure you have enough free disk space

Audio files can be very large (eg. a 20-minute LP side requires about 212 MB), and usually there are two copies of the file that is being worked on – the original, plus a temporary file into which all repairs are made. Please ensure that you have enough free space to accommodate this. If not, you may need to delete or compress some files, or perhaps to install a bigger disk drive. Note that using disk-compression products such as DriveSpace will not necessarily help, as audio files do not compress significantly.

Defragment your disk

Any disk will get fragmented after enough files are created, deleted and updated. Fragmentation results in much slower disk operation, and may result in missing chunks of audio when recording or playing back. To defragment your disk, refer to your Windows user documentation. Most versions of Windows have a built-in defragmenter, which can be accessed by right-clicking on the disk in the Windows Explorer and selecting Properties and/or Tools.

Special considerations for compressed disks

If you are using a disk compression product such as DriveSpace, your disk access may be slow, because the CPU must do a considerable amount of processing for every disk access, in order to do the compression and decompression. Furthermore, since audio files do not compress well, the disk compression achieves little benefit.

Minimize the use of other applications

Especially while recording, do not run other applications that may use significant amounts of CPU or disk bandwidth. Examples:

- Screensavers
- Indexing activities, such as is performed at by Microsoft Office at scheduled intervals
- Word processors
- Other audio applications
- Web browsers

Appx B – Using Groove Mechanic with WINE under Linux

Although this is not officially supported, users have reported some success in using Groove Mechanic under Linux, with the WINE emulator. Try the following:

- Install Groove Mechanic under Windows
- Boot to Linux. RedHat 7.2 seems to work, but only the latest CVS version of WINE (as of January, 2002) works with Groove Mechanic (a bug in mmio.dll which prevented dirty buffers from being written to disk was just patched in December 2001).
- Remove any WINE packages which may have come with the distribution.
- Download the latest CVS build (<http://www.winehq.org>) and build.
- Properly configure WINE so that it can play MSHEARTS, etc.
- From a Linux shell, cd to the Groove Mechanic directory (e.g. C:\Prog*\Coy*\Gro*)
- Type "wine -managed GrooveMech.exe"