

NorQualizer V1.50 for Windows

Installation and Use

Note: It is possible to read only the first two pages of this document to install and use the program. The other pages give details, tips and tricks for people interested in advanced use.

Introduction - Purpose

NorQualizer is a smart self-adaptive equalizer / normalizer which automatically processes multimedia files (e.g. videos and audio tracks) to obtain MP3/WAV libraries where all tracks sound similar in terms of audio spectrum (bass/treble profile) and volume level.

Especially useful for preparing audio CDs as well as audio MP3 libraries from various sources, NorQualizer prevents the listener from having to do annoying equalization and volume adjustments each time that he plays a different audio track. Note that NorQualizer is not intended to be an audio FX generator. In other words, it adjusts the track loudness as well as the bass/treble profile, so that you don't have to change your player/equalizer settings again and again to keep it sounding as you want. All tracks will look like from one same album. NorQualizer is user-friendly and much faster than any complex manual process which could be led with a linear audio editor. It also allows you to perform in one user step: The eventual audio extraction of videos, the smart normalization and the final MP3 re-encoding.

Installation

Once the archive containing the present documentation is extracted, copy the entire subfolder "norqualizer" to a place on your hard disk where you want to keep it. (Example: Program Files or Program Files (x86) or another location where you prefer keeping your specific applications). There is no need to run any installation wizard. The folder "advanced" is only useful for advanced users (see at end of document) and you should not need it for a simple use of NorQualizer.

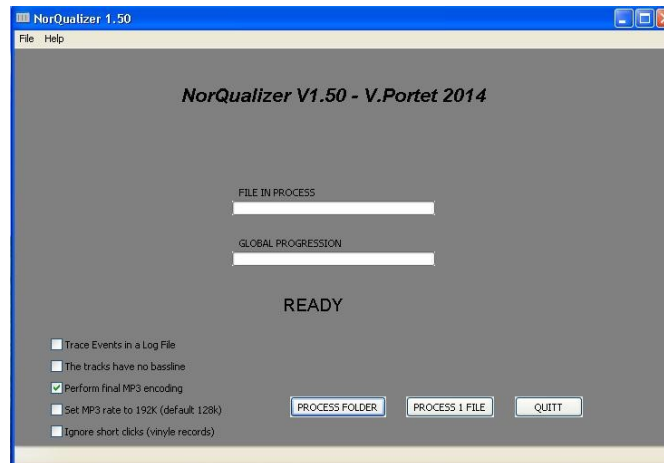
In this "norqualizer" folder, the only executable file to be launched by the user is "norqualizer.exe". The command line utility "ffmpeg.exe" (*) developed by the ffmpeg.org team (Open Source Software) is required by NorQualizer but does not have to be launched by the user.

(*) The executable file "ffmpeg.exe" has been obtained from <http://ffmpeg.zeranoe.com/builds/>

You can create a shortcut on your desktop or in your Start Menu folders by the usual way (first "copy" by right-clicking "norqualizer.exe", then "paste shortcut" on destination). Check that the shortcut (properties) includes as working directory the path of the folder where the program is.

Using NorQualizer - Basics

When launching the program, the following window (user interface) appears:



The program gives you two possibilities:

- Processing source files one by one (one click on “PROCESS 1 FILE” followed by file selection)
- Processing all source files in a folder (one click on “PROCESS FOLDER” + folder selection)

Once the folder or file is selected, a subfolder named “norqualized” is automatically created at the same level than source files and the process starts. The processed files (result) will be created in this subfolder.

As long as the task runs, the progression bars and the label “RUNNING” show the process flow. Once all tasks are completed, the label changes to “DONE !”.

Using NorQualizer options

The checkboxes located on the left side allow you:

- To request the creation of a log file (in the program folder) to check that all source files have been processed as expected and without troubles.
- To request MP3 re-encoding (enabled by default) in addition to the provided WAV files. (Note that these WAV files might be deleted if you do not plan to burn standard audio CDs).
- To request high quality MP3 encoding (192k) instead of default standard quality (128k).
- To specify that source files contain music without any bass line (e.g. “a cappella”). Doing this way, NorQualizer will not emphasize basses in an exaggerated and non-justified way. Note that such files should be processed separately from “common” files (i.e. including bass lines and/or grave instruments, attacks...).
- To specify that the source files come from old vinyl records and feature clicks and pops which do not have to be taken into account for setting the equalization. Note that this option does not enable the removal of clicks and pops, but only prevent them from flawing the process. Do not use this option in other cases otherwise there could be a risk of incorrect treble adjustment.

NorQualizer History

This version of NorQualizer for Windows is derived from a command line utility having the same name and released until 2013 for Windows and Linux by the same author (V.Portet).

This former command line utility has been kept available in the “advanced” archive subfolder under the new name “NORCOM.EXE”. This tool uses the same algorithm as the current program and could be useful for running customized scripts as shown by a few examples of BAT files.

See part “Advanced Information” for details about this tool.

The current package version V1.50 is currently available only for Windows.

FAQ

What is the best way to obtain normalized and equalized audio tracks from video clips downloaded by streaming (for example via YouTube)?

Your available streaming downloader software (e.g. YouTube Downloader) should be able to store original FLV/MP4 files without converting them to another video format (this would be a useless loss of quality).

After the download is complete, clean the file name (often too long and full of weird characters) and directly process it with NorQualizer. This is the easiest and most quality friendly way to extract audio from streamed video clips.

Caution: In case where a song has to be recorded in this way:

Any lead-in or lead-out featuring sounds significantly out of the average song loudness (announcement, ads, etc...) might flaw the audio normalization. You'll be forced to convert first the video to an audio file (choose WAV if possible) and remove the unwanted parts (that you should remove anyway) with an audio editor (e.g Audacity)(*) and finally process the edited WAV file with NorQualizer.

Be careful of not infringing copyright laws and ensure that the content that you are downloading is free of rights.

(*) Audacity at <http://audacity.sourceforge.net/download/windows>

My source file has volume level variations resulting from an annoying dynamic compression caused by improper recording conditions. What can I do?

Norqualizer cannot solve that kind of problem, and this will even disturb it when trying to analyze the acoustic perception of the audio track.

You must first use "WAV audio compressor"

(<http://sourceforge.net/projects/compressor/>), a command line utility called with these parameters (re-compression with fast attack and short decay time):

```
compress <my_extracted_file.wav> 15 8 4
```

This will return: "C<my_extracted_file.wav>"

Then run NorQualizer on "C<my_extracted_file.wav>"

Note that anyway it will never be possible to recover the track as "hi-fi" in that case... (It will sound quite like an FM radio recording)

My source file has clipped audio signals which cause ugly crackling. What can I do?

Unfortunately, you can do nothing.

I processed a terribly treble-less audio track. The result is better but trebles sound bad, metallic, or almost scratchy.

In case of drastically attenuated high frequencies (eg. low encoding bitrate in source file), it will never be possible to recover them correctly, by any existing way.

Can NorQualizer be used to correct stereo asymmetries?

Yes, it does, especially for recordings from cassette tapes where channels are often different in terms of volume and bandwidth. It will not alter true stereo quality since it does not compress. And usual true stereo recordings are not based on bass/treble discrimination.

When I "norqualize" WAV files recorded from analog audio line inputs, the "norqualized" file has no more trebles at all!

Probably you recorded from your analog source with improper parameter settings for your recording software (eg. 32 bits format with a 16 bits input). This has resulted in a right-left swap on each sample, causing a very high amplitude but inaudible high frequency component in your soundtrack.

Note that anyway you must solve this problem to keep your amplifier and tweeters in good conditions, whenever you use NorQualizer or not. You can check for this in an audio editor (e.g. Audacity) by zooming on a very small part of the track.

When I "norqualize" a song digitized from a vinyl record I lose too much trebles, especially when the record is scratchy

Use the appropriate option for vinyl records (Former '-v' parameter in the command line utility). Clicks and pops will be ignored by the normalization process, and their clipping will be allowed.

Does NorQualizer use some psycho-acoustic well known theories, as used in MP3 algorithms?

No. NorQualizer performs a time domain peak and quasi-peak analysis on 3 channels containing pre-filtered bands (Low, medium and high). Considering these levels monitored on the whole track, it applies a correction factor for each channel before re-mixing. This level analysis principle results from experience and observation and has not been justified by any theoretical work, although the use of quasi-peak detection as one of the normalization criteria could be compared to one of the well known perception phenomenon explained by theories of psycho-acoustics.

Advanced Information

The “advanced” subfolder contains:

- The “COMMAND_LINE” folder providing the command line utility “NORCOM.EXE” (former NorQualizer version) and example BAT files for designing batch processing scripts based on “norcom.exe” and “ffmpeg.exe”. A subfolder “SRC” is also present and includes the source code of “norcom.exe”.
- The “SRC” folder which contains the NorQualizer source files under the form of a “Code::Blocks” project based on the wxWidgets 2.8 libraries.

LICENSE INFORMATION

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
3. Altered source versions must be plainly marked as new different versions, and must not be misrepresented as being the original software.
4. In case of use of some code parts provided herein to build a significantly different project, the resulting project must be open source as well, and reference to the original code parts must be done within the new project source.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

V.P. Paris, FR.

vincentportet_95@hotmail.com

NorQualizer for Windows Version 1.50 of the 23rd of December 2013