

Managing
band-related
tasks using only
free software and
GNU/Linux - a
personal
experience

Peter
Bubestinger

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Peter Bubestinger

The band XBloome

17. April 2010

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Peter Bubestinger

- Working in IT since 13 years
- 11 years experience with GNU/Linux
- Studied information technology at the TU Vienna
- Autodidact audio engineer and drummer since 13 years

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What is this presentation about?

The life and adventures of the band XBloome - which happened to have a GNU/Linux user as their drummer

Today's topics

- Audio recording
- Graphics / Artwork / Printing
- Website
- Licensing

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Things to be aware of:

- I am **not** a trained audio engineer
- I am **not** a trained graphic designer
- We did **not** record in a studio, and we used “affordable” equipment

At the beginning there was...

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From left to right: Fear, Uncertainty and Doubt.

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From left to right: Fear, Uncertainty and Doubt. Oh: and me!

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The wishlist:

- Making electronic music without requiring tons of cracked versions.

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The wishlist:

- Making electronic music without requiring tons of cracked versions.
- ...maybe even requiring only a free operating system?

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The wishlist:

- Making electronic music without requiring tons of cracked versions.
- ...maybe even requiring only a free operating system?
- ...and even record, mix and master that music in excellent sound-quality with Free Software?

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The wishlist:

- Making electronic music without requiring tons of cracked versions.
- ...maybe even requiring only a free operating system?
- ...and even record, mix and master that music in excellent sound-quality with Free Software?
- ...AND go even further and create graphics, artwork, banner and a CMS-driven website - also, exclusively using Free Software?

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“I think it’s possible. Geek to the rescue!”



The goal: Let's rock!

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- Tools
 - JACK / qjackctl
 - Ardour
 - Plugins
 - JAMin
 - FMIT
- Multitrack Audio interface
- Audio formats
 - Recording
 - Archive / Remix
 - Listening
- Audio example

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About JACK:

“JACK is a system for sending audio between applications as well as allowing them to all share an audio interface.

Each application is run in exact sample sync with each other, and the entire system is designed to run at very low latencies (as low as your hardware will allow)”¹

¹<http://jackaudio.org/faq>

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Required for multichannel recording/playback.

Latency: How low can you go?

- Realtime kernel
- Realtime for non-root user: Configure `/etc/security/limits.confa`
- Even without a non-realtime kernel, I've managed 6ms latency on my studio setup

^a<http://jackaudio.org/faq>

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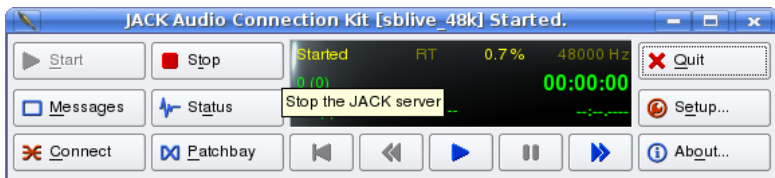
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*"Provides a simple GUI dialog for setting several JACK daemon parameters, which are properly saved between sessions, and a way control of the status of the audio server daemon. With time, this primordial interface has become richer by including a enhanced patchbay and connection control features."*²



Not necessary, but comfortable.

²<http://qjackctl.sourceforge.net/>

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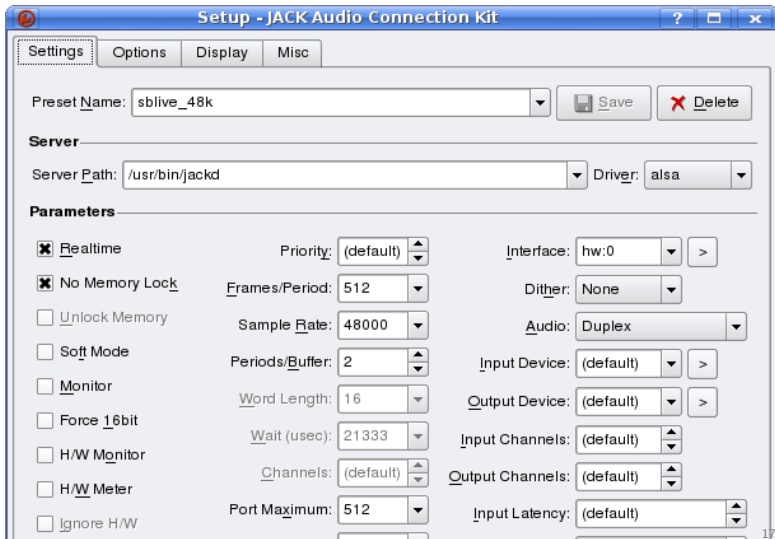
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Configure parameters of jackd:



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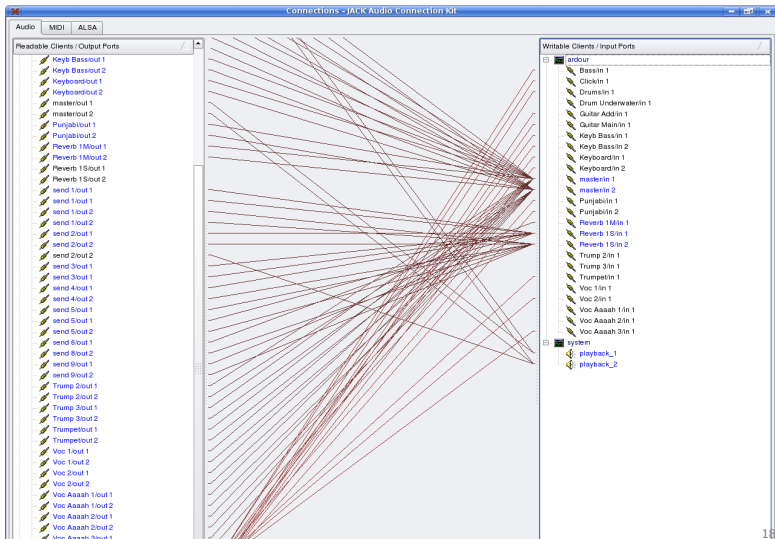
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Manage connections of jack clients:



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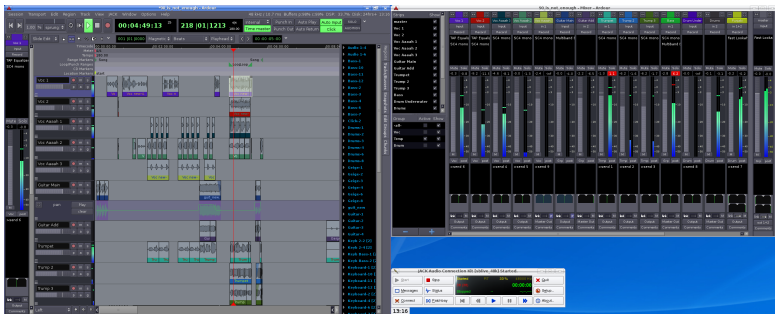
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Feature overview

- Unlimited number of channels
- Non-destructive editing ((cross)fades, duration, ...)
- Channel send/inserts
- Mixbusses
- Audio plugin support
- Control surface support (e.g. Behringer BCF2000)
- Click
- Automation (volume, pan, effect parameter, ...)
- Mixer groups
- And countless more...

Everything a modern DAW has to offer!

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Everyday recording/mixing usage

- Multitrack recording
- Effect handling (per channel/mixbus)
- Input/output mapping
- (Cross)fades

Oh, by the way: XBloome is paying for most of the Free Software we're using.

And it's still cheaper than using proprietary stuff!

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LADSPA

“LADSPA is a standard that allows software audio processors and effects to be plugged into a wide range of audio synthesis and recording packages.”^a

^a<http://www.ladspa.org/>

LV2

*“LV2 is a standard for plugins and matching host applications, mainly targeted at audio processing and generation.
LV2 is a simple but extensible successor of LADSPA, intended to address the limitations of LADSPA which many applications have outgrown.”^a*

^a<http://lv2plug.in/>

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VST, Audio Units

Technically possible, but non-free...

DirectX

Not sure if even technically possible...

But you don't really need them, anyway. :)

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Classical ones, out-of-the-box

- Compressor: SC
- Equalizer: TAP, Multiband EQ
- Reverb: Freeverb, GVerb
- Limiter: Fast Lookahead Limiter

Nice to have

- Calf audio plugin pack^a
- Autotalent^b
- Invada plugins^c

^a<http://calf.sourceforge.net/>

^b<http://web.mit.edu/tbaran/www/autotalent.html>

^c<http://www.invadarecords.com/Downloads.php?ID=00000263>

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The most important plugin sets come in the default distro repositories:

- swh-plugins
- tap-plugins

For a list of plugins included in those default packages, see:

- <http://plugin.org.uk/ladspa-swh/docs/ladspa-swh.html>
- <http://tap-plugins.sourceforge.net/>

“JAMin is the JACK Audio Connection Kit (JACK) Audio Mastering interface. JAMin is an open source application designed to perform professional audio mastering of stereo input streams.”³

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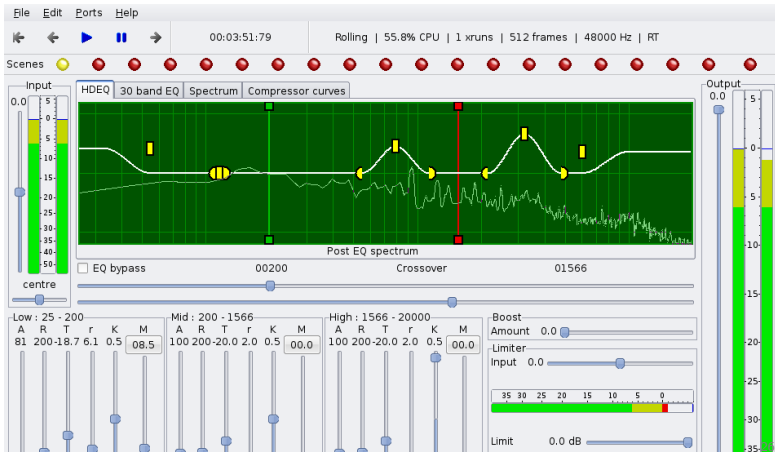
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Tools: Free Music Instrument Tuner (FMIT)

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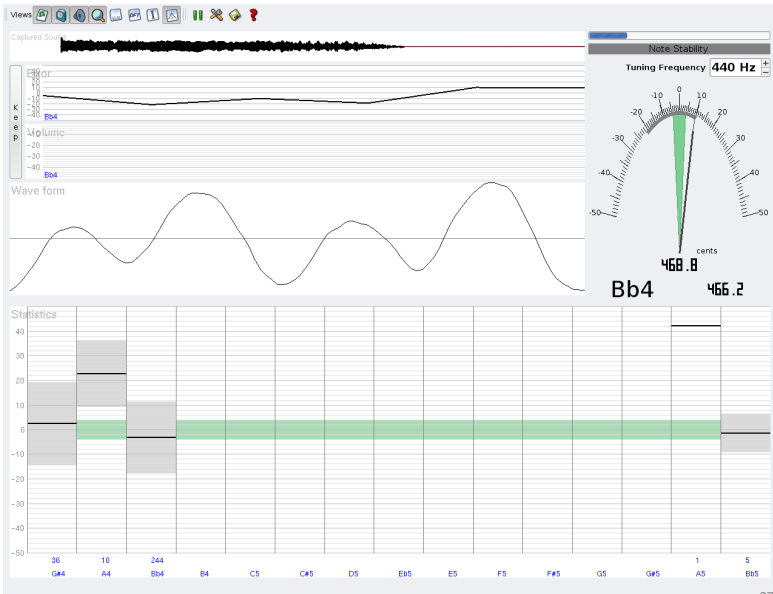
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Features

- Tuning scales
- Microtonal tuning
- Harmonic ratios
- Wave shape
- Discrete Fourier Transform view
- Volume history
- ...

^a

^a<http://home.gna.org/fmit/>

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I'm using a *Terratec Producer Phase88* for example:



...and FFADO to use it with JACK:

FFADO

“The FFADO project aims to provide a generic, open-source solution for the support of FireWire based audio devices for the Linux platform. It is the successor of the FreeBoB project.”^a

^a<http://www.ffado.org/>

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- Recording: WAV (min. 48kHz/24bit)
- Archive / Remix tracks: FLAC, WavPack
- Listening: Ogg/Vorbis, MP3

Note: FLAC is more widespread than WavPack, but it can't handle 32bit float, so you have to use WavPack for this.

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I hope I can play sound in here...
... and I hope it sounds good!

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- Tools
 - GIMP
 - Inkscape
 - Scribus
 - Krita
 - OpenOffice.org Draw
- Preparing for print
 - Templates and final format
 - CMYK & ICC

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*“GIMP is the GNU Image Manipulation Program. It is a freely distributed piece of software for such tasks as photo retouching, image composition and image authoring.”*⁴



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*"An Open Source vector graphics editor, with capabilities similar to Illustrator, CorelDraw, or Xara X, using the W3C standard Scalable Vector Graphics (SVG) file format."*⁵



⁵<http://www.inkscape.org/?lang=en>

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“Scribus is an Open Source program that brings award-winning professional page layout to Linux/UNIX, Mac OS X, OS/2 Warp 4/eComStation and Windows desktops with a combination of ‘press-ready’ output and new approaches to page layout.”⁶



⁶<http://www.scribus.net/>

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Screenshot of designing our new CD inlay with Scribus:

The screenshot displays the Scribus desktop environment with a CD inlay design in progress. The design is a rectangular layout with a blue and white background. On the left, there's a vertical stack of musical instruments: a trumpet, a keyboard, and a guitar. In the center, a woman in a white dress is depicted. To the right, a list of songs is displayed: 1. Depends on the situation, 2. 90 is not enough, 3. Love over systems, 4. Space mushroom, 5. Keep on, 6. Slow motion, 7. You and me, 8. Tonglen, 9. Brea. At the bottom, the title 'Happy Rebel - Loleq Remix' is visible. The Scribus interface includes a menu bar (File, Edit, Style, Item, Insert, Page, View, Extras, Script, Windows, Help), a toolbar, a ruler, and several panels: Properties (showing X, Y, Z coordinates and geometry), Level (set to 1), Shape, and Layers (showing a list of layers like Printing limits / borders, Text, Images, Background).

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"Krita is a creative sketching and painting application based on KOffice technology." ⁷



⁷<http://www.koffice.org/krita/>

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Part of the Office suite *OpenOffice.org*.

Earlier XBloome layouts were made using it, but it is not the best choice for professional layout, and lacks CMYK support.



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Print shops often provide layout templates for download, but in proprietary formats (Indesign, CoreDraw, ...). :(

Not really a problem, since it's often only necessary to know the correct measurements.

They can then easily be entered in Scribus, in order to create a free template.

Upload the “patch” upstream, if possible. If not, just put it somewhere on the web.

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Which formats to send to a print shop?

- For text-focused documents: PDF
- For images, use TIFF

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Challenges

- GIMP still can't handle CMYK, yet
- Inkscape also can't handle CMYK, yet
- ICC profiles

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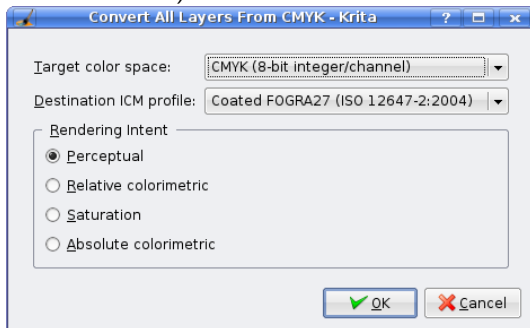
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Krita is quite handy for converting to/from different colorspaces (e.g. RGB to CMYK):



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Downloadable profiles

- European Color Initiative (ECI)^a
 - License unclear.
- Adobe^b
 - Warning: License is non-free (as in “free speech”)!

^a<http://www.eci.org/doku.php?id=de:downloads>

^b<http://www.adobe.com/support/downloads/detail.jsp?ftpID=3680>

For more information, take a look at “OpenICC”⁸

⁸<http://freedesktop.org/wiki/Openlcc/>

Printing example: Banner

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- Design and drawing: Vector graphic in Inkscape
- Export as raster image with proper resolution (≥ 300 dpi)
- Using Krita to convert to CMYK
- Save as CMYK-TIFF
- Send to print shop



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- Artwork & examples
- Ogg/Vorbis vs. MP3

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3rd party artwork used, requires a credit page:

XBloome's official website

About | Media | Tour | Unsorted | Contact

Home » Unsorted » Behind the scenes

Search

Active forum topics

- Tolle Musik
- A classic guestbook
- Time Crisis Musikvideo
- Hi Folks!
- schoooooooooooooon!!!

more

The "Making of" our new website

This page contains credits and background information about our new website.

Homepage graphics

Credits

For our new homepage, some external resources have been used:

- The header image is based on a foto of the Donauesingfest in Vienna by [Christoph Bubestinger](#)
- The background wallpaper uses images from [lovelamp@deviantart](#)
- The torn paper edge on the logo is from [alisonxx24@deviantart](#)
- The flowers made in Inkscape were inspired by an image from [maniac@deviantart](#)

Tools / Programs used

The whole website, including the webserver, the CMS as well as the graphics are powered by completely free (as in "free speech") tools in a GNU/Linux-only environment.

- The website's content is managed by [Drupal](#) and a handful of very useful modules.
- The flowers are made with [Inkscape](#), an incredibly fine vector drawing tool.
- All 2D graphics (background, wallpapers, logo, etc) are created using [The Gimp](#)
- Almost all composite layouts like flyers or CD booklets were made in [OpenOffice.org Draw](#)
- The webserver runs on [Ubuntu Server](#) edition, using [Apache HTTP server](#), [PHP](#), [MySQL Database](#) and [phpMyAdmin](#). Thanks to Denny who lets us host our site on his server.
- The image and media gallery is powered by [Gallery2](#). The most awesome image gallery engine I've ever worked with.

» Add new comment

Unsorted

Random image

Upcoming shows

Denkmal @ Salzburg (AT)	2 weeks 22 hours from now
Quake-Bar @ Waidhofen / Ybbs (AT)	4 weeks 22 hours from now
Venster99 @ Vienna (AT)	5 weeks 22 hours from now

powered by Deviantart, GNU/Linux and Personal Credits

Managing
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tasks using only
free software and
GNU/Linux - a
personal
experience

Peter
Bubestinger



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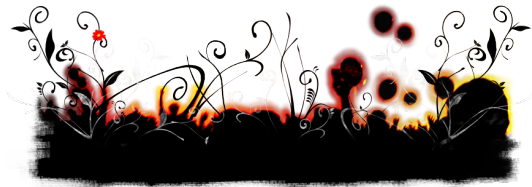
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Difficult issue!

How to deal with it?

- Offer both formats for download
- Provide information about “what’s wrong with MP3”
- Offer links/HowTos about playing Open Standards

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In order to offer work under a free license, you must...

...declare your licensing

- Just putting it on the web for download ain't enough
- Lack of license information defaults to: "no touchy!"
- Properly tag all material somehow: e.g. ID3 tags, note on prints or download page

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Creative Commons license⁹:

Difficult issue for music:

CC-BY-SA vs. CC-BY-SA-NC?

We're currently using "CC-BY-SA-NC" for our work.
Why non-commercial? Why not just CC-BY-SA?

⁹<http://creativecommons.org/>

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Creative Commons license⁹:

Difficult issue for music:

CC-BY-SA vs. CC-BY-SA-NC?

We're currently using "*CC-BY-SA-NC*" for our work.
Why non-commercial? Why not just *CC-BY-SA*?

To be honest: I'm just not sure if the audio world is ready for
CC-BY-SA, yet.

⁹<http://creativecommons.org/>

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- “What? Are you crazy? You can't give your stuff away for free!”
- But in fact: we gained more by doing so!
- CD sales: We're informing everyone when they ask us for a CD, that they have the option of freely downloading it on the web - and that they are allowed to make copies of the CD. Noone (!) ever refused to buy a CD, because of that.
- Being open also inspires others to work together with you
- Free licenses = Less hassle

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Free licenses = less hassle

- No work with preventing “illegal” downloads.
- No work with preventing “illegal” sharing.
- No artificial barriers for people to share and spread your work. They’re promoting you!
- . . .

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What did we learn?

- We have not lost a single cent due to free licensing, but gained a wider audience and our work was used in more 3rd party projects (video, remix, sampler CDs, ...) than that of most other “local and rather unknown” bands in our area.
- We’ve successfully produced high-quality albums, artwork, etc. with Free Software
- If I was able to create stuff with that quality, think about what a skilled person could do!
- Sharing know-how and experience without forcing others to use (usually cracked) proprietary software is good.
- Free Software does the job already, but not many people dare to give it a try

So **YES**, it’s already possible to live a band’s life and be free!

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- www.xbloome.com
- www.fsfe.org
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