

The monthly GNU Column

BRAVE GNU WORLD

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This month, we feature a rather wide variety of topics, finishing with a semi-experimental item that has been developed with Bernhard Reiter.



Georg

TINY

A minimal GNU/Linux distribution is the goal of the TINY project. It was started by Odile Bènassy, the team also consists of Jean-François Martinez, Mathieu Roy and Roger Dingledine. The acronym TINY stands for "Tis Independence N'Yet," which is a pun derived from "Independence Linux," Jean-François Martinez's main project.

The project goes back to the personal experience of a relative of Odile, who tried to introduce GNU/Linux in her school, and the idea of giving developing countries the chance to participate in the information age and letting them profit from Free Software. Keeping hardware requirements as low as possible was necessary in order to achieve this. The current minimum is a 386 DX 33 without hard disk.

Developing countries have many other difficulties and the missing technical infrastructure poses a problem. There are no Internet connections and floppy disks do not survive the climate, very often people do not even have electricity.

But help programs exist to get electricity and phone lines into remote areas. Odile has talked to scientists and physicists helping with such programs on a voluntary basis.

TINY is based on a Slackware 4.0 and uses the glibc2 and kernel 2.2; the license for the distribution is the GNU General Public License. Other than some minimal distributions, TINY is

completely usable and ready for everyday use.

The distribution can be installed successfully as the messages on the home page (available in six languages) show. But a longer and better maintained application list is needed.

The project has been suspended due to the other commitments of the volunteers. Feedback from developing countries is also still lacking. So the current team would like to turn over the project to another group of people, who they would give every help and support to.

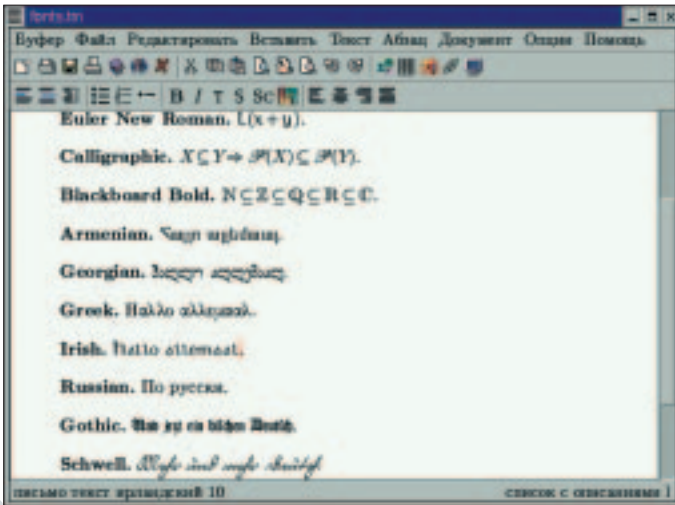
If you're interested in helping others to help themselves, TINY might provide a good basis. If you are simply looking for a minimal distribution, TINY is worth a glance.

GNU TeXmacs

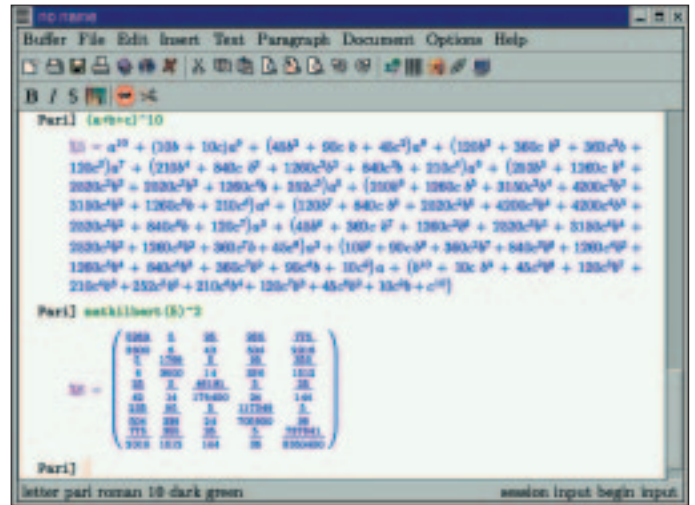
The GNU TeXmacs project works on a Free Software scientific WYSIWYG text editor. As the name suggests, Joris van der Hoeven, author of GNU TeXmacs, was inspired by GNU EMACS and LaTeX.

TINY is not a LaTeX front end but an independent project. The inspiration from LaTeX came in the form of typesetting quality and capabilities for typesetting mathematical expressions – an area in which LaTeX undoubtedly offers the best solution. GNU TeXmacs also uses the TeX fonts and has import/export filters for TeX/LaTeX documents.

The EMACS inspired TINY's extensibility. GNU



TeXmacs in Russian showing font sets



Coloured formulae fonts

TeXmacs is written in C++ with Guile/Scheme as extension language. The user interface and the editor itself can be customised/extended with Guile commands.

GNU TeXmacs also allows the user to perform scientific calculations directly through interfaces to Maxima, Pari GP, GTybal, Yacas, Macaulay 2, Mupad and Reduce. An interface to Scilab should be usable soon and adding more interfaces is relatively easy.

Combined with the planned extension towards becoming a full XML editor, GNU TeXmacs offers interesting possibilities for things like interactive mathematical documents on the Internet.

Thanks to professional typesetting quality, good anti-aliasing of the TeX fonts, the possibility of structured documents and the potential for dynamic macros and style-files, GNU TeXmacs offers a lot of possibilities for the scientific user in particular.

The project is heading towards 1.0 version. Joris van der Hoeven, Andrey Grozin, Thomas Rohwer and others have been working on it for about four years now. Current problems are some incompletely implemented features and LaTeX filters that still offer some room for improvement. The documentation is still too terse.

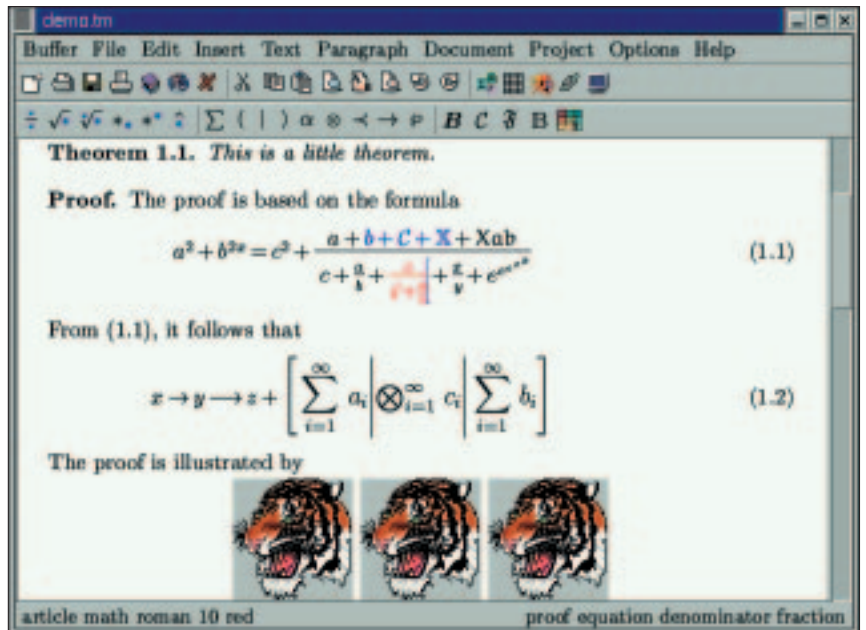
The immediate plans are to get rid of these problems and get version 1.0 released. Spreadsheet support and the XML/HTML extensions are the next steps. Long-term plans involve porting it to non-UNIX platforms and developing technical drawing capabilities.

Help is welcome in any form; from documentation, translation, filter writing, ports to other platforms and Gnome support, to making GNU TeXmacs more widely known and used.

CD-ROM Control

Since the small projects have been neglected a bit, it is time to feature one of them here.

CD-ROM Control by Paul Millar is a small applet to control CD-ROMs. It was written in Tcl/Tk (and a



TeXmacs showing formulae and embedded images in the WYSIWYG display

small part in C). Besides a status display it offers easy possibilities for mounting/unmounting/ejecting a CD-ROM by mouse-click. The GUI can alternatively be Tk or GTK+.

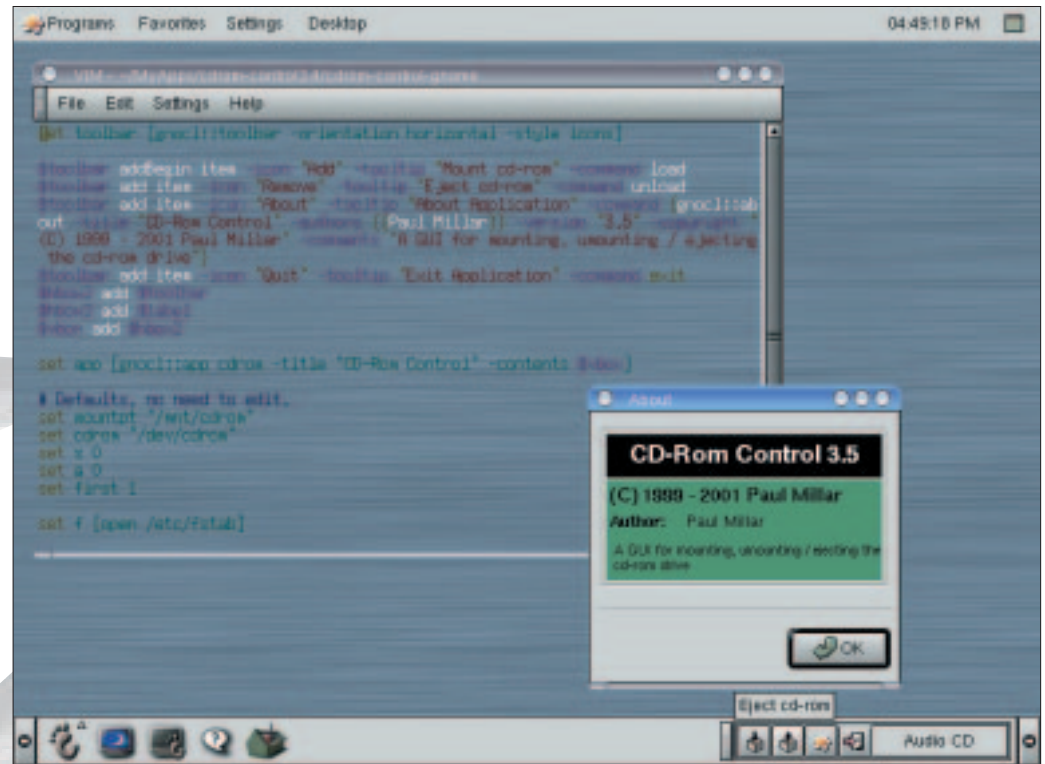
The special feature of CD-ROM control is autostart, which allows the user to automatically start their favourite graphical file manager, Web browser or audio-application when entering a CD.

Even if the integrated desktops offer part of this functionality, this is not true for all window managers, which is why this project might be interesting to some.

Saxogram

Saxogram by Matt Dunford is probably the most unusual project covered this issue. The name is derived from the relatively unknown Danish historian Saxo Grammaticus, whose chronicles are a fanciful reference to Hamlet by Shakespeare.

Saxogram allows the user to create a vocabulary list for documents in foreign languages in order to make learning a new language easier. Like so



CD-ROM Control under Gnome

many people before him, Matt learned Latin and Greek, which very often required looking up every third word. One day, he discovered a Latin dictionary on the Web, which inspired him to begin working on Saxogram.

Saxogram parses a document for words and looks them up automatically in a dictionary. The output collates the words found, together with their explanation. Saxogram is quite successful in dealing with conjugated and declined words correctly.

The accessibility of dictionaries is a sore point: free ones are rare. Although the Internet Dictionary Project concentrates on this problem area, the

dictionaries are not yet stable enough for use. The LEO online dictionary is of limited help, as it can only translate between English and German. As far as Greek dictionaries go, Matt hasn't found a single one and would very much appreciate being pointed to one.

The program was written in Python and is released under the GNU General Public License. Its main problem is execution speed due to many regular expressions and disk accesses. Execution speed was not considered as a feature when the application was written. A solution to this oversight is high on the task list for further developments.

Currently supported are German, Latin and a little Italian, while the working language is English. Adding further languages is another development goal, as is the creation of a GUI.

Most important for further development are

more testers and dictionaries, so anyone interested should get in touch.

GNU libiconv

The GNU libiconv is the character set conversion library of the GNU Project; through the `iconv()` function it offers programs the functionality of converting documents between different character sets.

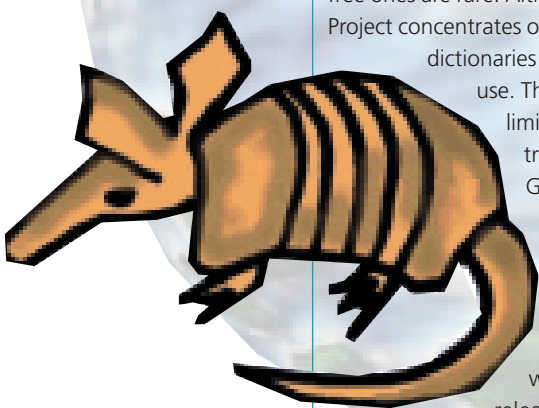
A few words about the background: traditionally, the character set contains 256 values, each of which represents a letter. Thinking about Asiatic languages and local specialties like the umlaute or the euro sign makes it obvious that 256 values are not enough to represent every character on this planet.

So people in the different language areas created modified character sets that would contain the local letters. Because of this, the letter for a certain value has become ambiguous because it depends on the language. Therefore, the selected language is specified by the encoding.

In order to internationalise a program properly, the program must be capable of transliteration. This is a basic requirement for all text-processing programs.

Ulrich Drepper tried to create a standard solution for this problem about two years ago for the `glibc`, but because of portability problems, the solution has not made it into the `glibc`. This resulted in a splintering of the character set conversion libraries. Bruno Haible seeks to change this with `libiconv`.

`Libiconv` supplies the `iconv()` function in the same way as it is supplied by the `glibc 2.2`. `Libiconv` is portable, fast and autonomous, so it can be used to supply the `iconv()` functionality on all systems



without the glibc 2.2.

Authors can now use `iconv()` without fearing for the portability of their programs. Authors of mail programs in particular should do this because a lot of the mail clients don't handle MIME extensions correctly yet.

Like the glibc, `libiconv` is covered by the GNU Lesser General Public License, so it can be linked with proprietary programs if need be. This should hopefully solve the conversion problems for everyone.

The `libiconv` functionality also has an impressive transliteration feature. A character that does not exist in the target character set can be approximated by one or more similar characters if the `"//TRANSLIT"` feature is requested.

Mozart/Oz

Mozart/Oz is a rather interesting development platform. A complete description of all aspects would be too long to cover in any depth here, so we'll merely try to provide an overview to give developers an idea of what it's all about.

Mozart was started 1991 in the European ACCLAIM project and has been developed with cooperative efforts under an X11-like license. Although the license is certainly not optimal, it does qualify as Free Software.

Mozart is a development platform for intelligent, distributed applications. Distributed computing in particular is a great strength of Mozart, as it makes the network transparent. Additionally, it supports multiple paradigms, concurrent programming through lightweight threads (several thousand threads per application are possible), as well as mobile agents and more.

The Oz virtual machine is portable and runs on almost all Unix derivatives as well as MS Windows. For the user interface it supplies an object-oriented library with a high-level, well integrated interface to Tcl/Tk.

The project is usable and the biggest problem now is developers who need to unlearn bad habits. Some things are still being worked on.

Plans for the future include improving reliability, security and network transparency as well as adding more tools.

The Mozart Consortium could use some help, they especially need a volunteer for a Windows IDE. The current IDE is based on GNU EMACS, which is not to everyone's taste. A port to Macintosh is also in the works but this is proceeding rather slowly and help would be welcome.

If you are interested in taking a closer look at



Info

Send ideas, comments and questions to

Brave GNU World column@brave-gnu-world.org

Homepage of the GNU Project <http://www.gnu.org/>

Homepage of Georg's Brave GNU World <http://brave-gnu-world.org>

We run GNU initiative <http://www.gnu.org/brave-gnuworld/rungnu/rungnu.en.html>

TINY GNU/Linux distribution homepage <http://tiny.seul.org/de/>

GNU TeXmacs homepage <http://www.texmacs.org>

LyX homepage <http://www.lyx.org>

CD-ROM control homepage <http://sourceforge.net/projects/crcontrol>

Saxogram homepage <http://saxogram.sourceforge.net/>

Online Latin Dictionary <http://king.tidbits.com/matt/LatinDictReadMe.html>

Internet Dictionary Project <http://www.june29.com/IDPI/>

LEO English/German Dictionary <http://dict.leo.org>

GNU libiconv homepage <http://clisp.cons.org/~haible/packages-libiconv.html>

Mozart/Oz homepage <http://www.mozart-oz.org>

Sound & MIDI Software for GNU/Linux <http://sound.condorow.net>

Mozart/Oz, a visit to their homepage, <http://www.mozart-oz.org>, is recommended.

Free Software and 3D

This feature was initiated by Bernhard Reiter. As the German representative of the FSF Europe and co-founder of the Intevation GmbH – a company which works only with Free Software – he spends a lot of time on the Free Software project.

3D-modelling is a very interesting and important topic, which is also why the last FSF Award has gone to Brian Paul for his work on the Mesa 3D graphics library. But there are still no fully developed Free Software modelling tools available. This is probably due to two causes: First of all, it was not possible to find a good overview Web page about Free 3D software. Very often, not even related projects seem to be aware of each other.

Also, proprietary products that are available at a low price provide an efficient development roadblock. Users are attracted by the low price and do not realise that their choice makes it impossible to maintain software in the future.

As Bernhard says, "This is a classic example that pragmatism and compromises in terms of software freedom slow down a whole software area."

Any non-programmer can use networking to focus development efforts. Dave Phillips has demonstrated this with his *Sound and MIDI Software for UNIX/Linux* page. A comparable Web page for 3D modelling with Free Software would be a substantial contribution to this area.

So much for this Brave GNU World issue. We hope to have provided some interesting ideas and, as usual, we ask you to mail comments, questions, idea and interesting projects to the usual address. Maybe even some Free Software from the 3D area. ■