TeXmacs – A convenient layout program for your text documents

TYPE TOOL

If you need to lay out a text document, you can opt for a WYSIWYG application, like OpenOffice, or a genuine layout system such as TeX. TeXmacs combines the advantages of both approaches: premium document quality and intuitive controls. **BY HAGEN HÖPFNER**

Text-based document markup systems such as LaTeX play a leading role in creating premium-quality scientific documents. LaTeX, which is based on the TeX typesetting program, lets the author focus on the content without having to worry about the layout. However, learning the layout language involves a considerable learning curve.

At the opposite end of the typesetting scale are graphics-based WYSIWYG editors, such as OpenOffice. The WYSIWYG interface makes common functions like type formatting, table layouts, or image placement much more easily accessible. However, features such as the typeface quality are typically inferior to the alternatives that are produced by a tool such as LaTeX.

The TeXmacs editing tool closes the gap between these two worlds. TeXmacs is a WYSIWYG editor that uses fonts provided by TeX (Figure 1).

Ready for Layout

The TeXmacs project homepage [1] has an RPM package, *TeXmacs-1.0.6.6-1. i386.rpm*, for i386-based distributions like Fedora, Mandriva, or SUSE. After downloading, you can install as follows, assuming you have already installed teTeX [2]:

```
rpm -Uhv ⤷
TeXmacs-1.0.6.6-1.i386.rpm
```

teTeX is a TeX distribution that any recent Linux distribution should have. As previously mentioned, TeXmacs relies on the teTex fonts. The TeXmacs page also has a *TeXmacs-extra-fonts-1.0-1.noarch.*

Figure 1: TeXmacs offers an intuitive interface, similar to that you would expect from a word processor.

rpm package with additional fonts. Unfortunately, I was unable to install the RPM package on SUSE 10.1 because SUSE uses different package names, and the dependency on *tetex-fonts* could not be resolved.

The source code section of the TeXmacs homepage has a solution. Besides the TeXmacs source code, you will also find the *TeXmacs-extra-fonts-1.0-noarch.tar.gz* font archive, which you can install on SUSE as follows:

```
mkdir ~/.TeXmacs && tar -C ⏎
~/.TeXmacs/ -xvzf ⏎
TeXmacs-extra-fonts-1.0-⏎
noarch.tar.gz
```

This command line creates a *.TeXmacs* folder below your home directory and drops the package into it. TeXmacs will automatically discover the new fonts when you launch the program and integrate them. Users with Debian-based distributions can install TeXmacs with *apt-get install texmacs*.

Getting Started

After launching TeXmacs (by entering *texmacs*), you should see the dialog shown in Figure 1. As the name suggests, TeXmacs controls are based on the popular Emacs editor, and most Emacs shortcuts will work.

GLOSSARY

Scheme: The Scheme programming language, a LISP dialect, uses lists as a basic structure element to represent data and programs.

If you prefer to point and click, you'll find a menu bar, along with a number of toolbars, for critical tasks. Bubble help is available for the various icons, so if you don't understand what a button does, you can just let your mouse hover over the icon to find out.

To load a document, you select *File | Load*, click the icon (the second from the left), and press the Emacs keyboard shortcut Ctrl + X + F or use the TeXmacs shortcut, F2.

As I mentioned, TeXmacs lends itself to intuitive use. After creating a new document, you can start typing. To set attributes like font color, italics, or bold type, you just select the passage you

want to change: you can hold down the left mouse button and drag the mouse over the text or double-click a word to select it. In contrast to most other editors, TeXmacs does not change the background color to highlight the selection but draws a red frame around the selection instead (Figure 2). If you click a text block again after applying an attribute, a turquoise frame will show you how far underlining, for example, goes.

Users who are familiar with LaTeX can keep to their preferred style of writing. For instance, Shift + 4 ("$") toggles TeXmacs to math mode, in which you can type \alpha (for example) and then press Enter to display the first letter of the Greek alphabet.

Tables, Images, and Source Code

Of course, TeXmacs can handle more than simple text. The menu below *Insert* has a number of items for inserting tables, images, links, animations, mathematical formulas, or even interactive source code. When you need to edit an
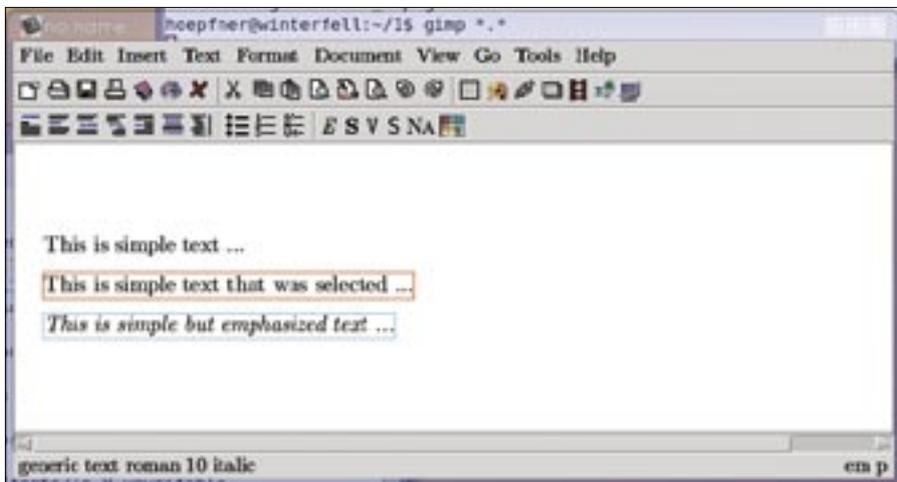

Figure 2: A red frame is drawn around selected text, and a turquoise rectangle marks the border of a text block you have modified.

Figure 3: When you edit a table, TeXmacs automatically displays additional icons for inserting and manipulating table cells.
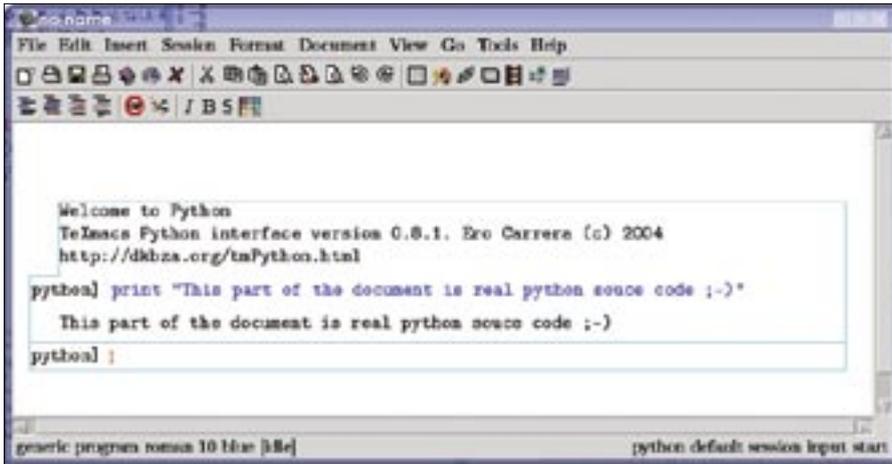
Figure 4: TeXmacs not only displays the source code but can run it within a document.

object of this kind, TeXmacs switches to an appropriate special mode.

For example, *Insert | Table | Large Table* will first create a container with the table caption, but without creating a single cell. You can then select *Insert | Table | Normal tabulator mode* to create a column in the table within the container. At the same time, TeXmacs switches to table mode, as demonstrated by the appearance of more buttons in the button bar (Figure 3).

The same principle applies to inserting images, which can be in EPS, FIG, JPG, PDF, PNM, PNG, PPM, PS, SVG, TIF, or XMP format. After creating an image container, by selecting *Insert | Image | Small image,* you need to select *Insert |*

Image | Link to image… to actually display the image in the document. You can select a large or small container for both text and images. A large container will take up the whole width of the document, whereas a small container will just take up whatever space it needs. TeXmacs also has a small drawing program, which you can enable by selecting *Insert | Image | Draw Image.*

Developers in particular will love the TeXmacs session feature. The session feature gives programmers the ability to copy text in a variety of programming languages, including Bash, Scheme, and Python. You can also run scripts in an interactive session while you are typing. To do this, you need to launch a session

from within the document by selecting *Insert | Session | Python* (Figure 4).

Import and Export

Although the internal TeXmacs file format is well-documented [3], it is not really used anywhere apart from in TeXmacs. If you need to manipulate existing documents from other sources with TeXmacs, the *File* menu has two items for importing and exporting documents.

Because TeXmacs cooperates with (La)TeX, it will export to the PDF and Postscript formats. You can also export files to HTML, text only (via *File | Export | Literal*), LaTeX source code, or Scheme notation. On the import side, you'll find support for HTML, Text, Scheme, and LaTeX, but not for PDF or PS.

Because the LaTeX world is so colorful, vast, and variable, importing from LaTeX format often entails some manual repairs. This is particularly true of LaTeX documents that do not use a standard document type.

Conclusions

TeXmacs gives users the ability to create high-quality layouts without sacrificing the convenience of icons and menus. Although Lyx [4] does something similar and has been around much longer, TeXmacs has some neat extras, such as interactive editing of source code in integrated sessions.

For more information on TeXmacs, you can examine the user manual online [3] or select *Help | Manual.* ∎
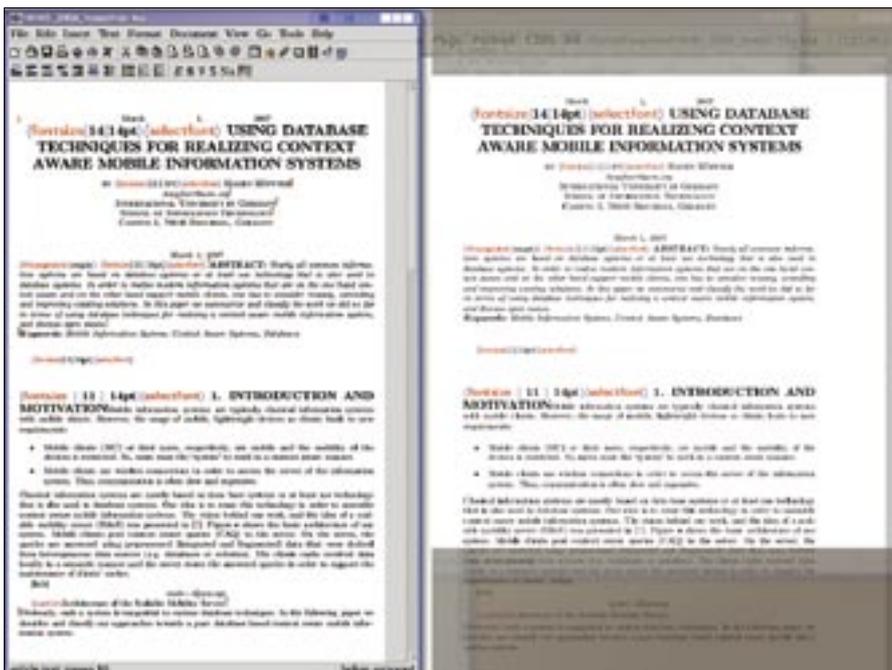
Figure 5: You might need to manually polish imported LaTeX documents (left). Exported PS files have excellent type quality (right).

THE AUTHOR

Dr. Hagen Höpfner is a Lecturer for Databases and Information Systems at the International University in Germany (*http://www. i-u.de*) in Bruchsal, and coauthored the only German-language book on mobile databases and information systems.