

software

Introducing V_TE_X/Linux

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abstract

This document is a short introduction to V_TE_X for Linux, a partial port of V_TE_X that is free for non-commercial use. The most interesting feature of the compiler is the use of PDF as a backend instead of DVI.

keywords

V_TE_X, Linux, port, MicroPress

What is V_TE_X/Linux

V_TE_X/Linux is a *partial* port of the V_TE_X/Win T_EX compiler. It does not include the shell and/or Visual Tools and there is currently no intention to port those to Linux.

Even the port of the compiler itself is partial. Out of the three modes of V_TE_X/Win, only two are supported (PDF and DVI, but not HTML); the DVI mode is essentially useless, since the main advantages of V_TE_X's DVI mode under Windows rely on V_TE_X DVI drivers which are not being ported.

Thus, for all practical purposes, V_TE_X/Linux should be viewed as the PDF-mode compiler only.

Of the bitmap graphics filters that are supported by the Windows version of V_TE_X, only three have been ported to Linux at this time: the filters for PCX, TARGA and BMP files. Other filters that are used by the Windows version (currently consisting of filters for GIF, JPEG, PNG and TIFF) may be made available in the future.

On the other hand, V_TE_X/Linux includes the full PostScript support (GeX) of the Windows version. This includes both the EPS inclusion and inline PostScript, including support for PStricks, PSfrag, and GeXX.

The port requires Linux version 2.0, and at least 16Mb physical memory (without X11) or 32Mb (with X11). Below this limit performance will be unacceptably slow.

What is V_TE_X

V_TE_X is a full T_EX GUI development environment for Windows. It features various visual tools to simplify input of

formulas and L_AT_EX pictures; a built-in editor with syntax highlighting and an integrated previewer; T_EX DVI and PDF backends; an optional HTML backend; direct inclusion of EPS pictures and various bitmapped file formats; support for IF4, PFB, TTF and PK/MF fonts; virtual fonts; an in-line postscript interpreter (GeX); and a number of other extensions to the T_EX language.

V_TE_X's current version number is 6.30. An (outdated) review of version 5.10 by Erik Frambach appeared in MAPS #20, page 142–145.

Direct PDF-generating mode

Starting at version 6.0, the V_TE_X Typesetter supports PDF output generating mode. Since PDF has become the de-facto standard for publishing scientific documents online, this advance feature should prove of great benefit to users. Creation of PDF files from existing documents in T_EX and L_AT_EX is transparent. Various types of graphics, hyperlinks and outlines are fully supported.

Unlike other T_EX systems supporting PDF output, V_TE_X builds the PDF directly from the T_EX/L_AT_EX source by the typesetter. There is no need for indirect conversion procedures like

$$\text{T_EX} \rightarrow \text{DVI} \rightarrow \text{PostScript} \rightarrow \text{PDF}$$

or

$$\text{T_EX} \rightarrow \text{DVI} \rightarrow \text{PDF}.$$

The typesetter incorporates Type1 and IF4 fonts with font subsetting (only the actually used characters are included in the PDF file). This generally results in compact and good PDF output. To ensure high quality of the produced files, the distribution comes with many standard T_EX fonts in Type1 format.

GeX: Direct PostScript Graphics

Version 6.2 of V_TE_X introduces another major enhancement to T_EX: an integrated PostScript processor/PDF translator. This extension (called GeX for 'Graphics eX-tension') allows easy one-pass handling of Encapsulated PostScript files (.eps).

As of version 6.3, there is also direct support for the PStricks and PSfrag packages. There is more information on GeX in a separate article in this MAPS issue.

The most important feature of GeX is that in most cases there is nothing new to learn: GeX will take graphic[sx],

PStricks, PSfrag or seminar code without any changes. But there is more to GeX: with PostScript feedback, entirely new macro packages become possible.

Huge TeX

VT_EX uses a HugeT_EX version of the typesetter, which does away with many of traditional TeX limits. For example, the string, pool, and hyphenation space sizes are now limited only by the available memory. Perhaps the most irritating of TeX limits is the 256-font limit, which is no longer present: you can easily produce documents with thousands of fonts.

Installation and usage

A minimal working VT_EX system is provided by MicroPress. It consists of several archive files. The web-pages mentioned below contain detailed up-to-date instructions on how to install VT_EX/Linux.

A large portion of the VT_EX distribution contains usual TeX files (for instance macros and font metrics). There are, however, some differences between the VT_EX files and the ‘standard’ files, and you will be better off by using the MicroPress’ supplied files.

Only the most essential components are duplicated to assure that the crucial packages function as tested by us. GeX relies on very recent corrections of PStricks, seminar and graphicx; these corrections may not yet be available in your TeX distribution. You can supplement the distribution with other standard packages available on CTAN as you desire.

General layout and configuration files

VT_EX uses a file hierarchy that can be installed anywhere on your system. The default directory layout under Linux currently mimics the Windows version, with a number of subdirectories under one central directory called “vtex”. It is very easy to adopt the system to your specific requests.

Unlike most other versions of TeX, VT_EX does not rely on environment variables, but rather on a configuration file, `vtexlnx.rc` (in the user’s home directory). This file uses a typical Windows `.ini` file syntax; it is divided onto several sections, each defining its variables. The only other needed configuration file is a font mapping file called `type1.rc`.

Both files are text; the exact description of these files needed for the customization is provided on the Web pages.

PDF Links and commands

One of the advantages of `.pdf` files is the ability to produce hyperlinks. VT_EX supports both external and internal links. On the low level, this is accomplished by VT_EX `\special` commands. Several other commands are available to add information to the PDF document like Creation Date and Outlines. On the high level, all of the features are

supported by S. Rahtz’s `hyperref`; most features are also supported by a smaller and faster `pdf.sty`.

EPS file inclusion

The PDF backend supports `.eps` file inclusion. Prior to version 6.2, this inclusion was based on using GhostScript for some of the work. You had to install and set up GhostScript and ask VT_EX to use it— otherwise the included file will be blank.

Starting at version 6.2, VT_EX/Win includes the GeX converter which usually does a much cleaner job. VT_EX/Linux does not support GhostScript piping at all since the use of GhostScript currently offers no advantages over GeX.

To activate GeX make sure to specify the `-ox` switch in the command line.

Unsupported VT_EX syntax

Due to the limitations of the `.pdf` format, some VT_EX extensions will not work. Specifically

- Grey rules are not supported (but colored rules using specials are).
- Font effects, except for `slant`, `aspect`, and the simplest form of `outline` are not supported on Type 1 fonts. All font effects are supported on `.if4` fonts.

License Terms

VT_EX/Linux is currently available at no charge for *personal non-commercial use*. To use VT_EX/Linux for any commercial purposes, you must obtain a commercial license from MicroPress.

At this time the software cannot be placed on any other server or on CD’s.

Support and availability

VT_EX/Linux is distributed on the internet from the following URL:

<http://www.micropress-inc.com/linux>

and by special permit also from the NTG’s web server:

<http://www.ntg.nl/VTeX>.

The NTG has set up a mailing list where you can turn to for help and discussion. The list is called `ntg-vtex@ntg.nl`. You can subscribe to this list by sending a message to `majordomo@ntg.nl` with body “subscribe ntg-vtex”.