

A new installer for T_EX Live

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Abstract

T_EX Live has a new package infrastructure, primarily developed by Norbert Preining, and inspired by the Debian GNU/Linux packaging system.

We shall present a new T_EX Live installer, based on the new package infrastructure. It includes a text based as well a graphical user interface. Among other new features, installing T_EX Live from the Internet is now possible. It should work on all platforms supported by T_EX Live.

1 Introduction

In this paper we introduce the new T_EX Live installer. Its creation was necessitated by the new package infrastructure, which is described elsewhere in these proceedings.

However, there is more news, also from a user's point of view. In particular:

- It will be possible to install T_EX Live from the Internet.
- The Windows version is much more in line with Unix versions.
- There is just one installer, which can run either in text mode, emulating the former `install-tl.sh` shell script, or in GUI mode, emulating the former `tlpogui`.

2 `texlua`

Nowadays T_EX contains a customized copy of Lua as embedded scripting language. When called as `texlua`, it acts as a standalone Lua interpreter, customized for a T_EX environment. This is a very attractive scripting solution:

- no version worries: `texlua` scripts should simply match the T_EX version they are part of.
- `texlua` has `kpathsea` compiled in. In a `texlua` script `kpathsea` file searching happens within the same process, which can speed things up a lot.
- An embedded scripting language is immune from the kind of bloat suffered by popular scripting languages such as Perl and Ruby.

Under Windows, the `.texlua` extension is made an executable file type.

3 Install T_EX Live from the Internet

It is now possible to install T_EX Live from a remote server. Thanks to the new infrastructure, the package database which tells the installer which packages have to be downloaded and how to install them, is a single file.

Two installers for network downloads are provided. `install-tl-unx.tar.gz` supports Unix only. `install-tl.zip` additionally contains a small subset of Perl for Windows which is required to bootstrap the system. The latter works on all platforms

```

===== TeX Live installation procedure <=====
==> Note: Letters/digits in <angle brackets> indicate menu items <==
==>         for commands or configurable options         <==

Proposed platform: Intel x86_64 with GNU/Linux

<B> binary systems: 1 out of 15

<S> Installation scheme (scheme-full)

Customizing installation scheme:
<C> standard collections
<L> language collections
83 collections out of 84, disk space required: 1426 MB

<D> directories:
  TEXDIR (The main TeX directory):
    /usr/local/texlive/2008
  TEXMFLOCAL (Directory for local styles etc):
    /usr/local/texlive/texmf-local
  TEXMFSYSVAR (Directory for local config):
    /usr/local/texlive/2008/texmf-var

<O> options:
[ ] use letter size instead of A4 by default
[ ] create all format files
[X] install macro/font doc tree
[X] install macro/font source tree
[ ] create symlinks in standard directories

Other options:
=====
<I> start installation
<H> help
<Q> quit

Enter command:

```

Figure 1: Main menu of the text mode installer

supported by T_EX Live. The sole reason for providing a separate package for Unix is its significantly smaller size.

4 A new compression Algorithm

Using `.tar.lzma` compression instead of `.zip` reduces the size of the compressed packages by 20%. It cannot be assumed that `lzma` decompressors are available on any platform, hence they have to be provided for all platforms supported by T_EX Live. Fortunately there is a program ‘`lzmdec`’ available for all platforms. The size of the executable file is only 12 kB.

5 Bringing Windows in line with Unix

T_EX Live 2008 supports Windows 2000 and later. By dropping older Windows versions, there is much less need to treat Windows specially.

5.1 \$HOME and multi-user support

Under Windows 2000 and later, users have a real home directory, viz. `%USERPROFILE%`, usually `C:\Documents and Settings\username`.

This is now reflected in tilde expansion by `kpathsea`, thanks to Karl Berry: `~/texmf` is expanded to `%USERPROFILE%\texmf` under Windows and to `$HOME/texmf` under Unix.

It is also possible to differentiate between system settings and user settings. Now there is no reason any more to have a different set of `texmf` trees or to leave out scripts such as `fmtutil-sys` and `updmap-sys`. It also shares the Unix `texmf.cnf`.

5.2 Scripting

We cannot count on the presence of the usual Unix scripting languages. We deal with this by including a limited subset of Perl for Windows, which contains just enough modules to run the installer and the Perl scripts which are part of T_EX Live.

To prevent interference with any pre-existing Perl, we make it invisible to the system by not placing it on the searchpath and by not creating or changing any Perl-related settings. Instead, the T_EX Live Perl scripts are called via wrapper scripts that know how to find Perl and that create the environment variables it needs for the duration of the job. In the case of the installer itself, the wrapper is a simple batchfile (but not so simple that it would have worked under earlier Windows versions). But in most cases, the wrapper is written in `texlua`; see section 2.

Most likely, there won’t be a Bourne-compatible shell either. But in the new T_EX Live, most shell scripts have been replaced by Perl- and `texlua` scripts, which also work under Windows. So we just about got rid of `.exe` files replacing Unix scripts.

5.3 Ghostscript

T_EX Live for Windows also includes a hidden copy of Ghostscript, another fixture of Unix systems that is usually absent from Windows. The most important batch files provided by Ghostscript have been ported to `texlua`, see 2.

6 Testing with virtual machines

We do much of our testing with virtual machines. With programs such as VirtualBox or VMware you can run a guest operating system as a program inside a host operating system.

Even if host and guest are the same operating system, it is a huge advantage that the host will be unaffected, and that the guest is free from the idiosyncrasies of the host.

Normally, the filesystem of the guest is on a virtual disk, which is a very large file on the host system. An installation can simply be reverted by making a fresh copy from backup of this very large file.

The guest can access the T_EX Live files via e.g. a shared folder or Samba, using a virtual network interface. An Internet install can be simulated with a webserver or ftp server on the host, also via a virtual

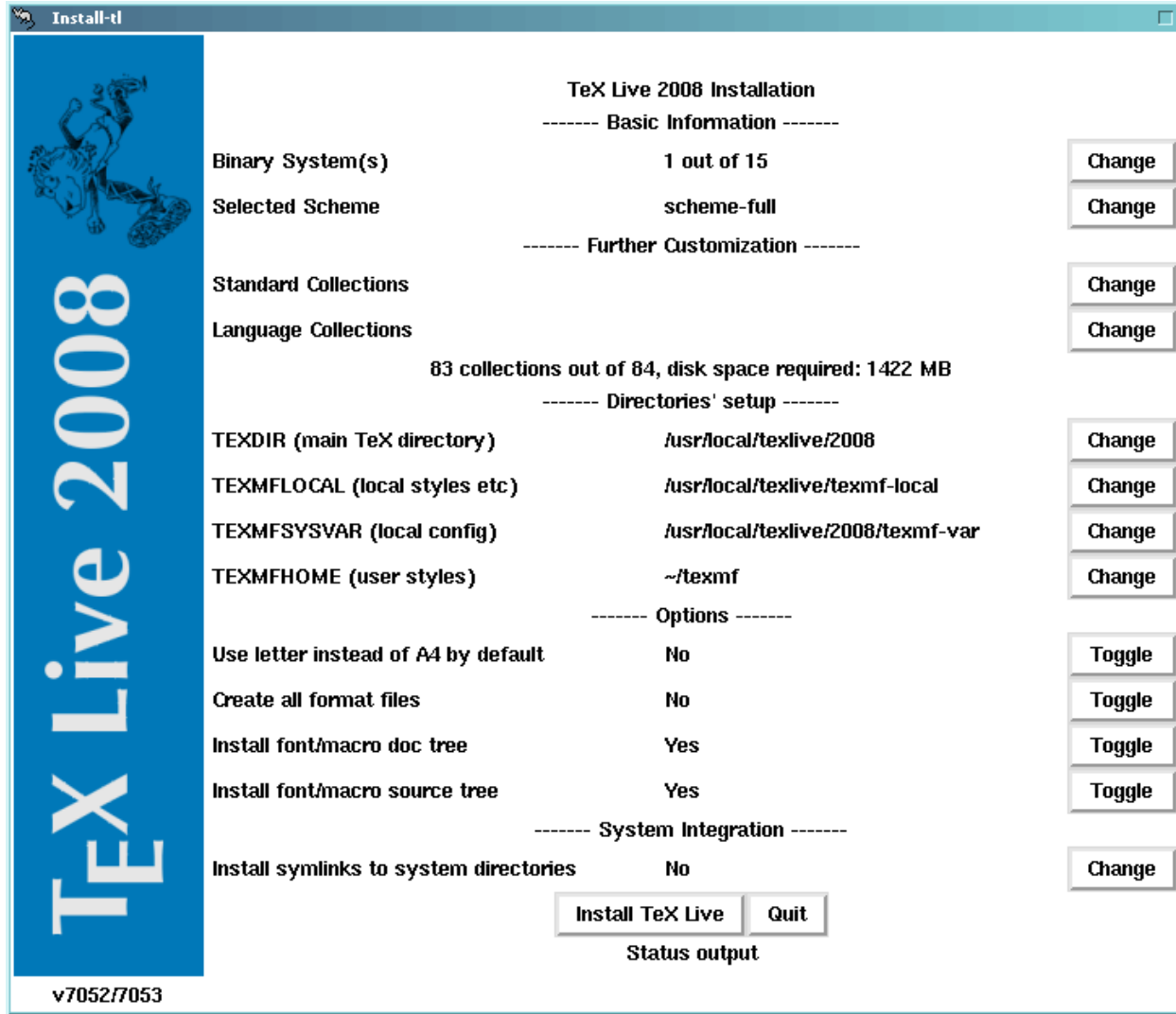


Figure 2: The main menu of the GUI installer

network interface. These server programs can simply use the T_EX Live working copy.

References

- [1] Norbert PREINING *The new T_EX Live Infrastructure and Installer* Talk held at BachoT_EX 2008.