

New front ends for T_EX Live

Siep Kroonenberg

Abstract

The 2018 release of T_EX Live saw new front ends for T_EX Live Manager and for the installer. This article describes tlshell, which is one of the two new T_EX Live Manager front ends, and the new installer GUI.

There is also a new Java-based front end for T_EX Live Manager by Norbert Preining, tlcocpit, but that is not discussed here.

1 Introduction

During 2017 and 2018, a few new GUIs have been built for T_EX Live Manager and for the T_EX Live installer.

The graphical versions of the installer and of T_EX Live Manager date back from the 2008 overhaul of T_EX Live. The Perl/Tk-based GUIs were showing their age, so it was getting to be time for a fresh start, based on more up-to-date technology.

2 Tlshell

The new tlshell GUI for T_EX Live Manager (fig. 1) is a somewhat simpler version of the Perl/Tk GUI mode of T_EX Live Manager. The only option on offer for multiple repositories is a checkbox for adding or removing ‘tcontrib’, which contains packages which cannot be part of T_EX Live for one reason or another.

I hope that tlshell still offers the features that most users need. Anyhow, all features of T_EX Live Manager are still available via the command-line, and tlshell is not confused by multiple repositories configured by other means (fig. 2).

3 Installer

The new installer GUI offers roughly the same configuration options as the old one, the initial basic mode matching the old wizard installer, and the advanced

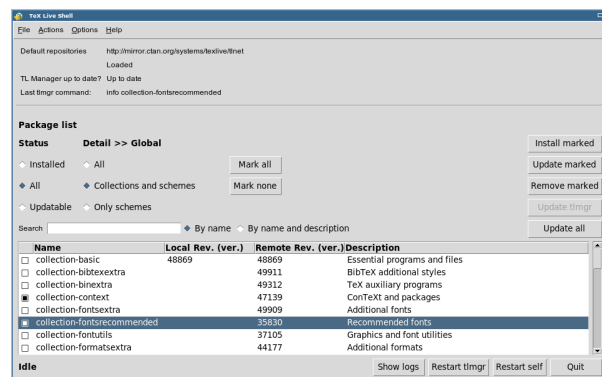


Figure 1: Tlshell, a GUI for T_EX Live Manager

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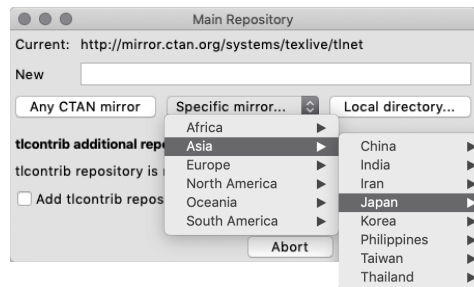


Figure 2: Tlshell configuring repositories (macOS)

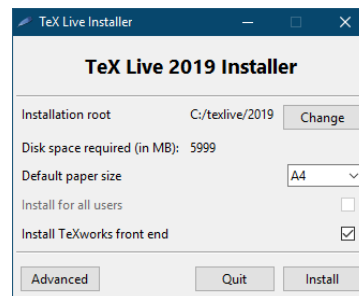


Figure 3: The installer, starting up in basic mode (Windows). Note the ‘Advanced’ button.

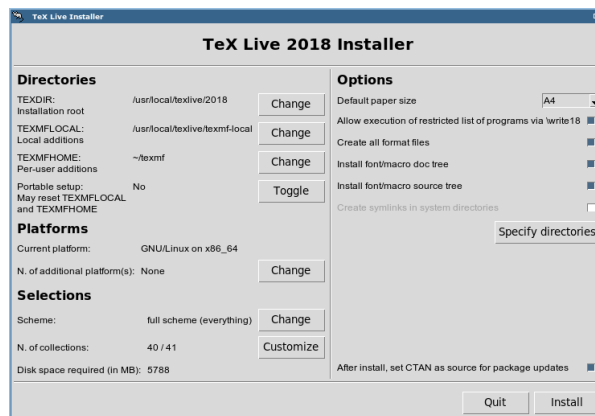


Figure 4: The installer, after pressing the ‘Advanced’ button (GNU/Linux).

mode, triggered by an ‘Advanced’ button, matching the Perl/Tk advanced GUI (figs. 3, 4).

The dialog for selecting the installation root, which was introduced soon after the official 2018 release, has been adapted for the new GUI (fig. 5).

4 Separating front end and back end

For the new GUIs, Norbert and I opted for building GUI front ends as separate programs from a text-mode back end. We were leery of committing ourselves to another Perl extension library which might run out of steam, and hope to have better luck with standalone GUI technology.

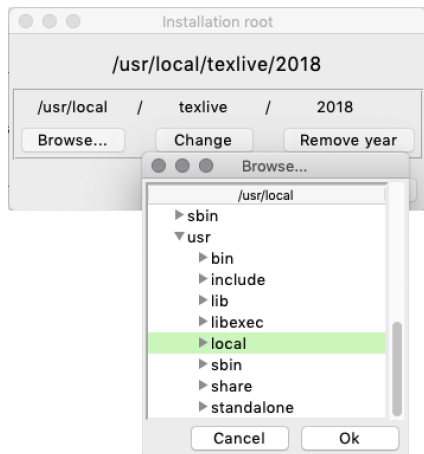


Figure 5: Dialog with directory browser for the installation root (macOS). On Windows the native directory browser is used instead.

4.1 Conversations

If the text mode back end is organized as a conversation, say, consisting of user requests and program responses, then this conversation can be diverted through a graphical front end.

A graphical front end can represent options and commands as buttons, and can display results within the GUI in a variety of ways, e.g. raw text output can go to a scrolling text window, or the output can be interpreted and used to update displayed information.

For \TeX Live Manager, Norbert introduced a new shell mode as such a conversation: users can type their requests within \TeX Live Manager, which typically match normal \TeX Live Manager command-line commands. \TeX Live Manager then carries out those requests, handles the resulting output, and keeps running to receive more requests.

4.2 The installer as a conversation

As to the installer: the text mode installer has been such a conversation from day one. Its text layout mimics the graphical installer, but it is in essence a conversation, with mostly single-letter user commands, and with replies in the form of a rewritten text screen with appropriate changes.

All three old installer menu interfaces load their own Perl include file, which finishes by informing the main installer of the choices made.

A new fourth Perl include file now takes care of communicating with the GUI front end. Only minor changes were needed in the main installer code. In writing this include file I took some cues from the text installer.

4.3 Data

A drawback of a separate front end is that it does not have automatic access to the internals of the back end. The conversation must take care of transmitting data from the back end to the front end and back, not only at the beginning and at the end, but also when the front end wants an update on, for instance, the required disk space. Some duplication between front end and back end is unavoidable, but it was not too much of a problem.

5 Tcl/Tk

I built the new installer GUI and `tlshell` with the Tcl/Tk scripting language. Frankly, I did not do a lot of research into other options. I am familiar with Tcl/Tk and like it: it is simple, small, cross-platform, is well-supported and has good backward compatibility. Plus, I could borrow ideas and solutions from the old Perl/Tk GUIs.¹

As to platform support: Tcl/Tk is already part of macOS, and is packaged for all mainstream GNU/Linux distributions.

For Windows, compiling or cross-compiling Tcl/Tk and adding it to \TeX Live proved to be no particular problem. Even better, thanks to Keene's Kit-Creator project (kitcreator.rkeene.org/fossil), I could build Tcl/Tk as a single-file executable.

6 Localization

The `msgcat` Tcl core package provides localization support. This package tries to determine the system's locale, but it is also possible to set a locale explicitly.

The built-in function for translating strings uses Message Catalogs. Typically, these are generated from `.po` files such as those used by the previous \TeX Live GUIs.

In order to accommodate translators, the Tcl/Tk GUIs use those same `.po` files directly, with help of a tcl version of Norbert Preining's translation function written for \TeX Live. Therefore, any translatable string which was already in the old GUIs will be picked up by the new ones.

◇ Siep Kroonenberg
 siepo (at) bitmuis dot nl
<https://tug.org/texlive>

¹ The Tk in Perl/Tk is a derivative of the Tk from Tcl/Tk, but has not kept up with Tcl/Tk itself. For the 2019 release, Perl/Tk will no longer be present in \TeX Live's built-in distribution of Perl for Windows.