4TEX5.0: TDS, Web2C, and Windows 95/NT

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1   Introduction

4TEX started of as a workbench for TEX under MS-DOS. Making a workbench for TEX, all its friends and many other useful programs needed for text processing, the 4TEX team decided to make the 4TEX systems as open as possible. This means that users could change the workbench, update the used files/programs and add new stuff whenever the user felled necessary (or when bugs had to be resolved). These conditions resulted in the decision to write 4TEX with the 4DOS batch programming language. Since 1991 4TEX has been enthusiastically used by people who needed a tool for writing letters, articles, reports, and books...

WINDOWS 95/NT gradually took over MS-DOS and many people asked for a Windows version of 4TEX. In December 1997 the 4TEX team (Erik Frambach and Wietse Dol) decided to (re)write a 4TEX for Windows that should have the same functionality as the MS-DOS version. The 4TEX for WINDOWS 95/NT also should be an open system, i.e. users should be able to add utilities and make changes to the system they prefer. The 4TEX for Windows is at this moment under beta testing and we hope that in a few months time Addison Wesley will publish the book and double CD-rom.

The 4TEX main program was written with Borlands Delphi 3.0 and uses Windows programs/screens whenever possible. However, 4TEX still uses the MS-DOS COM-MAND.COM substitute 4DOS(4DOS.COM). There are two reasons for this:

- 4TEX now uses the Windows Web2C TEX distribution (written by Fabrice Popineau). This is a 32-bits distribution with the possibility to use the TEX Directory Structure (TDS) but the executables still use a MS-DOS session to run. This immediately gives 4TEX the possibility to start 4DOS instead of MS-DOS and use the 4DOS batch command language to do extra checks, set some environment variables etc.
- When creating an open system, the user should be able to change/add programs. This isn't fully possible with the Delphi part of 4TEX (you need a lot of programming knowledge and the complete commercial Delphi environment). Using 4DOS still offers WINDOWS 95/NT users the same possibilities as with the (old)

MS-DOS version. 4DOS comes with a complete help menu and digging through this and looking at the examples 4TEX supplies, you can learn to do advanced programming within 4DOS.

In the following sections we will specify and explain some features of 4TEX for windows.

2   The main menu

In figure 1 the main menu of 4TEX is shown. You can simply choose the TEX file you want to create/edit. 4DOS saves for each TEX file the 4TEX options you have selected (i.e. printer options, previewer options, TEX format,spellchecker language, bibTEX file etc.). When selecting a main TEX file these options are loaded (from the file with the file extension .PAR).

The first example of how 4TEX makes it possible to add/change the functionality of the menu without any programming is when selecting a TEX format. Pressing the "choose format" button a menu appears as shown in figure 2. This menu is the result of a file called US_FRM.LST. This .LST file contains plain ASCII text. Two lines in the file define a format, i.e. the first line is the title that is displayed in the format selection menu, the second line is the program (with options) that is executed when pressing the "compile" button. So this means if you want to add/change formats you only need to change the US_FRM.LST file.
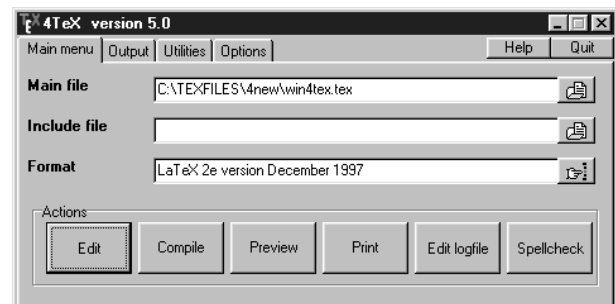

Figure 1. The 4TEX main menu

The method explained for format files also works for the user utilities menu, the select printer menu, the select previewer menu etc. The second way to configure 4TEX to your own taste is by changing the 4TEX.INI file. In this ini-file all path settings, program preferences (e.g. the editor)
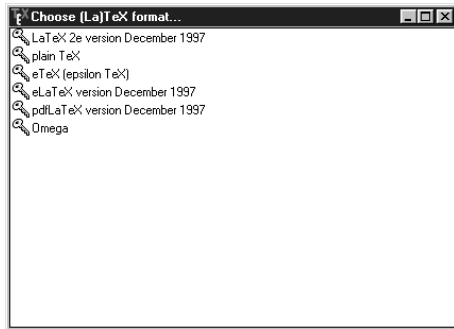
Figure 2. The 4TEX format menu

etc. can be changed.

4TEX tries to be multilingual, i.e. in the options menu (or when installing 4TEX) you can switch to another language. Switching to another language will result in a 4TEX menu with text/buttons etc. in the selected language. At the moment we support: English, German, and Dutch. We are working on: Polish, French, Russian,...

Of course the main menu has a lot of nice windows tricks like: clicking with the right-mouse button on the "select main TEX" file will result in a popdown list of the last 10 selected files (makes it possible to quickly get recently edited files). Under windows there is of course a windows help file with hypertext facilities. You can only open one-instance of 4TEX (i.e. you can not have multiple copies of 4TEXrunning) etc.

3   Editor

The editor that is by default used by 4TEX is the PFE editor (written by Alan Phillips). This editor is freeware and has all the functionality you need from an editor (except perhaps syntax coloring..). When starting the editor, also the program LATEX macros (written by Juan Aguirregabiria) is started. This LATEX macros tool makes is easy to insert LATEX commands, text commands, Greek letters, mathematics etc. by simply pressing a button. Figure 3 shows you an example of the PFE editor in combination with the macro tool.

The PFE editor has extensive macro possibilities and has the possibility to use Dynamic Data Exchange (DDE). This DDE feature is used when pressing the "compile" button in 4TEX. By pressing this button a DDE command is issued to save the file in the PFE editor, and hence you do not have to save the file before you compile it. Also the DDE is used for block compilation, i.e. marking a block in your text and by right-clicking the "compile" button, only the marked block is compiled and previewed. This block-compilation makes it easy to check complex mathematics and tables without compiling the whole document. When
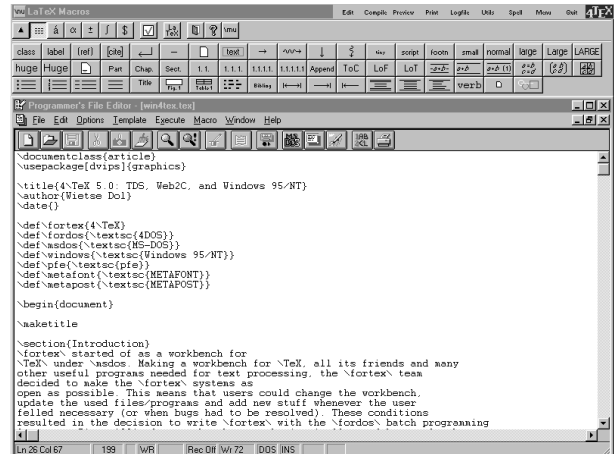

Figure 3. The PFE editor in combination with the LATEX macro tool

an error occurs during compilation you can jump to the line of the error by typing the 'e' and pressing the "enter".

Of course you can change the complete functionality of the editor and the LATEX macro tool by changing the 4TEX.INI file.

4   Printers and previewers

At the moment the following previewers are supported:

☐ XDVIWIN or WINDVI by Fabrice Popineau. Complete functionality of Web2C distribution, still under development but useful to view DVI files.

☐ DVIWIN 2.9 by H. Sendoucas. Virtual fonts are automatically replaced and automatic font generation is supported under 4TEX. Viewer has nice \special commands to include graphics but is not well suited for TDS structure and VF fonts.

☐ GSview by Russel Lang. Ghostscript (GNU-ware) in combination with GSview makes it possible to view/print PostScript and PDF files under windows. An extremely useful tool and the best viewer/printer approach when your TEX document has graphics (EPS as well as bitmaps).When this previewer is selected 4TEX will automatically generate a .PS or .PDF file from the .DVI file.

4TEX supports many printers (specified in the file US_PRN.LST). The best functionality/printer support is for PS printers and Ghostscript printing. For all printers the 4TEX printer options screen can be used to easily set all kind of printer options/parameters (e.g. page range, printer resolution, paper size etc.).

5   Utilities

The utilities/tools for TEX like bibTEX, MAKEINDEX, METAFONT, and METAPOST are all handled by windows screens. This makes entering the parameters and running the programs easy.

Under MS-DOS 4TEX had some useful tools like "automatic format generation" and "conversion tools". Of course this functionality also can be found in 4DOS under WINDOWS 95/NT. 4TEX uses windows screens and can be extended by updating some .LST files or by adding some extra 4DOS batch files to a "utility" directory.

6   Conclusion

Our years of experience with TEX under MS-DOS makes it possible to write/create a system under WINDOWS 95/NT with the same functionality (and more...). Together with you we can extend this functionality even further and offer experienced as well as new TEXies a tool/workbench for making TEX-documents.

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