Overwiew

- The teTEX distribution: aims, motivation, overview, features.
- The TEX Live CDROM: a “plug-and-use” TEX system for 21 UNIX platforms.
- The future of Web2C and teTEX.

Aims and Motivation (1)

- easy to install and maintain
- high level of run-time configurability
- a complete system for all “basic” functionality
- multi-platform setup for use in herogenous networks
- fast file searching facility

Aims and Motivation (2)

- provide much documentation for the end user
- installation without special priviliges on the system anywhere in the file system
- a consistent and well tested stable environment
- following standards where possible: $\LaTeX\,2_\varepsilon$, TDS, fontname.
- do free software and give something back to "the net"

Installation and Maintenance

- shell scripts for installation and configuration
- installation script is menue driven

```
===================> teTeX 0.3.3 installation procedure <====================

    <P> this platform: Linux Intel x86 (ELF)

    <S> series:
          binaries:            1 out of 17, disk space required:  2976 kB
          other (summary):    29 out of 29, disk space required: 26296 kB
                                                total disk space: 29272 kB

    <D> directories:
          TETEXDIR = /usr/local/teTeX
          TEXMF    = /usr/local/teTeX/texmf

    <O> options:
          [ ] alternate directory for automatically generated fonts
          [ ] create symlinks in standard directories
          [ ] save space for manpages
          [ ] update

    Other commands:
          <I> start installation,  <H> help,  <Q> quit

Enter command:
```

```
+-------------------------- teTeX setup utility ----------------------------+
|                                                                            |
|  Hint: all output of external commands (e.g. initex) is logged into       |
|  a file. You can look at this file using LOG. If cursor keys make          |
|  trouble, you may have more luck with +/- and TAB.                         |
|                                                                            |
|                                                                            |
| +------------------------------------------------------------------------+ |
| |                PREF    personal preferences                            | |
| |                CONF    show configuration                              | |
| |                REHASH  rebuild ls-R database                           | |
| |                HYPHEN  hyphenation table (tex/latex)                   | |
| |                MODE    default mode (xdvi/dvips/mf)                    | |
| |                XDVI    xdvi configuration                              | |
| |                DVIPS   dvips configuration                             | |
| |                FONT    directories for font creation                   | |
| |                LOG     view logfile                                    | |
| |                EXIT    exit                                            | |
| +------------------------------------------------------------------------+ |
|                                                                            |
+----------------------------------------------------------------------------+
|                        <  OK  >      <Cancel>                              |
+----------------------------------------------------------------------------+
```

```
+--------------------------- teTeX setup utility ----------------------------+
|  Choose a default mode for xdvi, dvips and metafont. As a rule             |
|  of thumb, choose the most commonly mode used for printing at your site.   |
| +------------------------------------------------------------------------+ |
| |         agfafzz   AGFA 400PS (406dpi)                                  | |
| |         amiga     Commodore Amiga (100dpi)                             | |
| |         aps       Autologic APS-Micro5 (723dpi)                        | |
| |         apssixhi  Autologic APS-Micro6 (1016dpi)                       | |
| |         atariezf  Atari ST SLM 804 printer (300dpi)                    | |
| |         atarinf   Atari 95dpi previewer (95dpi)                        | |
| |         atarins   Atari 96x96 previewer (96dpi)                        | |
| |         atariotf  Atari ST SM 124 screen (101dpi)                      | |
| |         bitgraph  BBN Bitgraph at 118dpi (118dpi)                      | |
| |         bjtenex   Canon BubbleJet 10ex (360dpi)                        | |
| |         boise     HP 2680A (180dpi)                                    | |
| |         canonex   CanonEX in LaserWriter Pro 630 (600dpi)              | |
| |         canonlbp  e.g., Symbolics LGP-10 (240dpi)                      | |
| |         cg        Compugraphic 8600 (1301dpi)                          | |
| +---------v(+)-----------------------------------------------------------+ |
|                                                                            |
+----------------------------------------------------------------------------+
|                          <  OK  >      <Cancel>                            |
+----------------------------------------------------------------------------+
```

```
+--------------------------- teTeX setup utility ----------------------------+
|                                                                            |
|  Select options for MakeTeX scripts.                                       |
|                                                                            |
| +------------------------------------------------------------------------+ |
| | [X] dosnames   dpiNNN/NAME.pk instead of NAME.NNNpk                    | |
| | [ ] nomode     strip off the mode directory (e.g. ljfour)              | |
| | [ ] strip      leave out SUPPLIER/TYPEFACE (e.g. ams/euler)            | |
| | [X] varfonts   use $VARFONTS instead of $TEXMF/fonts                   | |
| | [X] stickydir  set stick bit on newly created directories (recommended) | |
| +------------------------------------------------------------------------+ |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+
|                           <  OK  >      <Cancel>                           |
+----------------------------------------------------------------------------+
```

```
+------------------------- teTeX setup utility ----------------------------+
|                                                                          |
|  Set up target directories for font creation.                            |
|                                                                          |
|  Example: current settings for font eufm10 with default mode             |
|           are (tfm resp. pk):                                            |
|                                                                          |
|   /tmp/texfonts/tfm/eufm10.tfm                                           |
|   /tmp/texfonts/pk/ljfour/dpi600/eufm10.pk                               |
|                                                                          |
|                                                                          |
| +----------------------------------------------------------------------+ |
| |       DBDIR    location of filename database                         | |
| |       VARDIR   directory for new fonts (if varfonts option active)   | |
| |       OPTIONS  set up options for MakeTeX scripts                    | |
| |       LOG      view logfile                                          | |
| |       RETURN   back to main menu                                     | |
| +----------------------------------------------------------------------+ |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+
|                       <  OK  >      <Cancel>                             |
+--------------------------------------------------------------------------+
```

Runtime Configuration

Examples. A) file `$TETEXDIR/texmf.cnf`:

```
...
TEXINPUTS.latex209 = $KPSE_DOT:!!$TEXMF/tex/latex209//:!!$TEXMF/tex//
TEXINPUTS.latex = $KPSE_DOT:!!$TEXMF/tex/latex//:!!$TEXMF/tex//
TEXINPUTS       = $KPSE_DOT:!!$TEXMF/tex//:!!$FONTDIR/afm//
...
VFFONTS         = !!$FONTDIR/vf//:$KPSE_DOT
TFMFONTS        = !!$FONTDIR/tfm//:$VARFONTS/tfm//:$KPSE_DOT
BIBINPUTS       = $KPSE_DOT:$TEXMF/bibtex/bib
BSTINPUTS       = $KPSE_DOT:$TEXMF/bibtex/bst
...
```

B) file `$TEXMF/xdvi/XDvi`:

```
XDvi*mfmode: ljfour
XDvi*pixelsPerInch: 600
XDvi*shrinkFactor: 8
XDvi*paper: a4
```

Multi-Platform Setup

- all files outside `$TETEXDIR/bin` can be shared between different platforms
- binaries are put into `$TETEXDIR/bin/`*system*
- the `texmf`-tree can even be used for other TEX implementations, e.g. emTEX.
- teTEX directory can be mounted at different mount points at the same time, e.g. `/opt/teTeX` on machine A and `/usr/local/teTeX` on machine B

The Filename Database

- is read into a hashtable
- speed up the mapping of filanames into directories
- basically the output of `ls -LAR`:

```
...
./fonts/pk/cx/public/cm:
cmbx10.300pk
cmbx12.300pk
...
./fonts/source/ams/cyrillic:
cyrcsc.mf
cyrfont.mf
...
```

- relative directory names are a new feature added independendly by Karl Berry and me

Documentation

Available documentation in teTEX includes:

- UNIX manpages, GNU infopages for installed programmes
- teTEX user manual, teTEX-FAQ, TUG FAQ, some manuals from `CTAN:info`
- user documentation ($>$ 120 `.dvi` files) and examples for macros/fonts
- automatically generated index to browse through the documentation with any html-viewer

The $\TeX$ Directory Structure Standard (TDS)

- defines a unique location for all implementation independend files
- aims to be generally applicable, not only for implementations on UNIX

TDS Overview

TeX macros	texmf/tex/⟨*format*⟩/⟨*package*⟩/
font files	texmf/fonts/⟨*type*⟩/⟨*supplier*⟩/⟨*typeface*⟩/
METAFONT files	texmf/metafont/⟨*package*⟩/
documentation	texmf/doc/⟨*package*⟩/
sources	texmf/⟨*package*⟩/
BibTeX files	texmf/bibtex/{bst,bib}/⟨*package*⟩/

The TeX Live CDROM

- build on top of the teTeX distribution
- completely usable from the CD
- more supported systems than current teTeX
- much enhanced fonts and macros tree
- TDS tree usable for other implementations as well
- GUTenberg distributions for DOS, WIndows, Macintosh included

TeX Live: Platforms (1)

- Linux on Intel and m68k platforms;
- Irix 5.2, 5.3 on MIPS (SGI Indy/Indigo)
- SunOS 4.1.3 on SPARC (sun4c-architecture)
- Solaris 2.3, 2.4, 2.5 on SPARC
- HPUX 9.01, 10.01 for HP workstations

TeX Live: Platforms (2)

- Alpha OS 2.0, 3.2 for DEC Alpha machines
- FreeBSD and NetBSD on Intel platforms
- Ultrix 4.3, for DEC Decstation machines
- AIX 3.2, 4.1.1, for IBM RS6000 machines
- NeXTStep on Intel platforms

“Making of”: the easy side

- teTEX was designed with the idea of such a CDROM in mind
- it was already prepared for a multi-platform setup
- it had scripts to generate lots of fonts in a batch job
- relative paths in the filename database allow to mount the CD at any point
- the “selfdir” feature of teTEX automatically detects where the files are rooted
- the font generation scripts in teTEX are easy to custimize

“Making of”: the problems

- symbolic links are transformed into copies on the ISO filesystem, taking much more space
- the CD is not writable: font generation scripts needed to be adjusted
- customization (e.g. printer setup for dvips) must be done locally on the disk: “texconfig” had to be adjusted
- a new installation utility was necessary
- some systems can not use the rock-ridge extensions and see ISO names instead

teTEX versus Web2C

- teTEX's modifications to the sources will (fully?) be incorporated into the next Web2C release:
  - bug fixes
  - extensions: new script for font generation, "selfdir"-feature
- Web2C does not have precompiled binaries
- Web2C has a less complete TDS tree (only the very basic things)
- teTEX offers "user-friendly" installation and maintenance

The Future: Web2C-7.0

- support for multiple TDS trees:
  - search path for the filename database
  - extended syntax for specification of the search paths
- METAPOST included
- more run-time configuration: array sizes for TEX, METAFONT and METAPOST
- MLTeX extensions