The TEX Live Guide, 4th edition

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1 Introduction

This documentation describes the main features of the **TEX Live** 4 CD-ROM—a TEX/LATEX distribution for Unix and Windows32 systems that includes TEX, LATEX 2ε, METAFONT, MetaPost, Makeindex, and BIBTEX; and a wide-ranging set of macros, fonts and documentation conforming to the *TEX Directory Standard* (TDS)—which can be used with nearly every TEX setup.

This TEX package uses the Web2c (version 7.3) implementation of the programs, which tries to make TEXing as easy as possible, and takes full advantage of the efficient and highly customizable Kpathsea library from Karl Berry and Olaf Weber. It can be run either directly from the CD-ROM or installed on a hard disk.

Most of the runnable systems on the CD-ROM include a large set of drivers and support programs for TEX, including dvips (PostScript driver), xdvi (X Windows previewer), dvilj (HP LaserJet driver), lacheck (LATEX syntax checker), tex4ht (TEX to HTML converter), dviconcat and dviselect, dv2dt and dt2dv (`dvi` to ASCII and vice versa), and Angus Duggan's PostScript utilities.

1.1 Extensions to TEX

The **TEX Live** runnable systems contain three experimental extensions to standard TEX:

1. ε-TEX, which adds a small but powerful set of new primitives, and the TEX--XET extensions for left to right typesetting; in default mode, ε-TEX is 100% compatible with ordinary TEX. See `texmf/doc/etex/base/etex_man.pdf` on the CD-ROM for details.

2. pdfTEX, which can optionally write Acrobat PDF format instead of DVI. You will find the user manual in `texmf/doc/pdftex/pdftex-l.pdf`. The file `texmf/doc/pdftex/example.tex` shows how it is used. The LATEX hyperref package has an option '`pdftex`', which turns on all the program features.

3. Ω (Omega), which works internally with 16-bit characters, using Unicode; this allows it to directly work with almost all the world's scripts simultaneously. It also supports dynamically loaded 'Ω Translation Processes' (OTPs), which allow the user to define complex transformations to be performed on arbitrary streams of input. See `texmf/doc/omega/base/doc2.tex` for documentation.

ε-TEX (version 2.1) is stable, although subsequent releases will add new functionality. pdfTEX (version 0.13c) and Ω (version 1.7) are under continual development; the versions on this CD-ROM are those current as of mid March 1999.

1.2 Other packages

The following complete packages are included on the CD-ROM:

- CMacTeX for Macintosh.
- emTeX for DOS and OS/2.
- emTeX/TDS for OS/2
- The DJGPP version of the Web2c TEX system, which works under DOS and all Windows versions.
- A shareware TEX shell for Windows (Winedt)

These are provided unchanged from CTAN, and have not been integrated in any way with the rest of the CD-ROM. To use the packages, go to the relevant directory and follow the installation instructions.

2 Structure and contents of the CD-ROM

The important CD-ROM top-level directories are listed below.

bin The TEX family programs, arranged in separate platform directories.

tldoc Documentation for **TEX Live**.

FAQ Frequently Asked Questions, in English, French, and German.

info Documentation in GNU 'info' format for the TEX system.

man Documentation in the form of Unix man pages for the TEX system.

source The source of all programs, including the main Web2c TEX and METAFONT distributions. These are stored in a compressed tar archive.

support Various bits of TEX-related software which are *not* installed by default, such as MusixTEX, support programs, and a complete distribution of Ghostscript version 5.50.

systems Packaged TEX systems which are separate from the main **TEX Live**. Subdirectories in here are:

macintosh The CMacTeX package ready to install

msdos DOS TEX package emTeX

os2 The Os/2 TEX package emTeX/TDS and the EPMTFE TEX shell for the EPM editor.

texmf The main support tree of macros, fonts and documentation;

usergrps Material about TEX User Groups

There are also two installation scripts for Unix systems, `install-cd.sh` and `install-pkg.sh`; we discuss them on in section 3 on p. 5.

2.1 The TDS tree

The **TEX Live** `texmf` tree consists of various 'collections', each of which has a set of 'packages', of which there are over 400 on the CD-ROM. Normal installation allows the user to copy all of a collection to a local hard disk from the CD-ROM, but it is also possible to install just one package of a collection. The collections are:

ams The American Mathematical Society macro packages and fonts.

bibtex BIBTEX styles and databases.

doc General guides and documentation in various formats, including HTML and PDF.

dvips Support for Rokicki's DVI-to-PostScript driver.

etex Support for ε-TEX.

fonts Font sources, metrics, PostScript and bitmap forms.

formats Eplain, RevTEX, phyzzx, texsis, alatex, text1, lollipop, etc.

generic Extra macros for use with any format.

graphics Macro packages for graphics.

lang Support for non-English languages.

latex LATEX, including official tools and all LATEX 2ε contributed packages.

metapost Support for MetaPost.

omega Support for Ω.

pdftex Support for pdfTEX

plain Macros for plain TEX.

systems Binaries for Unix and Win32 platforms.

texlive Basic material for the distribution.

Each of the collections is divided into *basic* (1), *recommended* (2) and *other* (3). The appendix starting on page 37 lists all the packages in alphabetical order with the collection they are found in, and a brief description. Thus all packages in collection `latex1` are what one must have to get started with LATEX, packages in `latex2` are recommended for most users, and `latex3` contains optional packages. The directory `texmf/lists` contains lists of all files in each package (used by the installation programs).

Warning: This CD-ROM is in ISO 9660 (High Sierra) format, with Rock Ridge and Joliet extensions. In order to take full advantage of the CD-ROM on a Unix system, your system needs to be able to use the Rock Ridge extensions. Please consult the documentation for your mount command to see if it is possible. If you have several different machines on a local network, see if you can mount the CD-ROM on one which *does* support Rock Ridge, and use this with the others.

Linux, FreeBSD, Sun, SGI and DEC Alpha systems should be able to use the CD-ROM with no problems. We would appreciate receiving detailed advice from other system users who also succeed, for future versions of this documentation.

The discussion below about installation assumes you have been able to mount the CD-ROM with full Rock Ridge compatibility.

3 Installation and use under Unix

You can use the **TEX Live** CD-ROM in three ways:

1. You can mount the CD-ROM on your file system, adjust your `PATH`, and run everything off the CD-ROM; this takes very little disk space, and gives you immediate access to everything on the CD-ROM; although the performance will not be optimal, it is perfectly acceptable on, for instance, PCs running Linux.

2. You can install all or part of the system to your local hard disk; this is the best method for many people, if they have enough disk space to spare (a minimum of about 10 megabytes, or 100 megabytes for a recommended good-sized system).

3. You can install selected packages to work either with your existing TEX system or a **TEX Live** system you installed earlier.

Each of these methods is described in more detail in the following sections.

3.1 Running TEX Live from the CD-ROM

The organisation of Web2c means that you can run programs simply by adding the appropriate directory under `bin` on the CD-ROM to your `PATH`, and the support files will all be found with no further ado. The following shows the list of available systems and the corresponding directories.

DEC Alpha OSF/1 (4.0)	`alpha-osf4.0`	
HP9000 HPUX 10.10	`hppa11-hpux10.10`	
Linux (on Intel Pentium)	`i386-linux`	`i386-linux-libc5`
SGI IRIX (6.2)	`mips-irix6.2`	
IBM RS 6000 AIX (4.1.4)	`rs6000-aix4.1.1`	
Sun Sparc Solaris (2.5.1)	`sparc-solaris2.5.1`	
Windows 95 or NT (Intel machines)	`win32`	

You may worry that when you subsequently make fonts or change configuration, things will go wrong because you cannot change files on the CD-ROM. However, you can maintain a parallel, writeable, TEX

tree on your hard disk; this is searched before the main tree on the CD-ROM. The default location is `texmf-localconfig` on the CD (which does not exist!), so you *must* override this by setting the `VARTEXMF` environment variable.

Thus *sh* or *bash* users on an Intel PC running Linux can mount the **TEX Live** CD-ROM on `/cdrom` by issuing the command:

```
>> mount -t iso9660 /dev/cdrom /cdrom
```

Then they should include the directory containing the binaries for the given architecture into the search path by updating the `PATH` variable.

```
PATH=/cdrom/bin/i386-linux:$PATH
export PATH
VARTEXMF=/usr/TeX.local
export VARTEXMF
```

For convenience, these statements can also be entered into the `.profile` script.

If in doubt, ask your local system support guru to help you work out how to mount your CD-ROM or which directory to use for your system.

Appropriate support files will be installed on your hard disk the first time you need them. It is a good idea to immediately run the `texconfig` script to initialize things, and check it all works.

3.2 Installing TEX Live to a hard disk

All of the necessary steps to install all or part of the distribution on your hard disk are achieved by mounting the CD-ROM, changing to the top-level directory, and typing:

```
>> sh install-cd.sh
```

(On some Unix systems, you may need to use sh5 or bash.) This script works by accessing lists of collections and packages from the CD-ROM, and trying to guess what sort of computer system you are on. It should start by displaying the following:

```
nitializing collections... Done initializing.
Counting selected collections... Done counting.
Calculating disk space requirements for collections...Done calculating that.
Initializing system packages... Done initializing system.
```

It will then show the main control screen (Figure 1), which lets you change four things:

1. the type of system you are on, or want to install for;
2. the collections you want to install, at the *basic*, *recommended* or *other* level;
3. the location on your hard disk to put the files;
4. some runtime behaviour features.

You choose options by typing a letter or number and pressing ‘return’. In the example, a Linux ELF system has been detected, the default of all collections to *recommended* level has been chosen, and the default installation directory is `/usr/local`; note that the disk space required for the current installation configuration is also displayed. If you make a suggested setup, you need about 100 megabytes of disk

free; however, the basic setup will only take about 10 megabytes, and you can enhance it with selected packages as you need them.

Under the directory you choose for installation, the installation script will put the binaries in a subdirectory of `bin`, and the support tree in `texmf`.

The `options` item lets you decide whether to make new fonts be created in another location (if you want the main package mounted read-only for most users), and whether to make symbolic links for the man and GNU info pages in the 'standard' locations; you'll need 'root' permissions for tasks to do this, of course.

When you choose `<C>` for 'collections', you will see the display of available collections, the level of installation selected, and the disk space required (Figure 2). You can set alternative levels of installation for each collection, ranging from *none* to *all*. You can either set this for all collections at once, or choose a particular collection and set its level (Figure 3).

When you are finished, return to the main screen, and ask the installation to start. It will take each of the collections and systems that you requested, consult the list of files on the CD-ROM, and build a master list of files to transfer. These will then be copied to your hard disk. If you installed a system, an initialization sequence is now run (creating format files, etc.). When this has finished, all you need do is add the correct subdirectory of `bin` in the TEX installation to your path, and start using TEX. If you want, you can move the binaries up one level, e.g. from `/usr/local/bin/alpha-osf3.2` to `/usr/local/bin`; if you do this, however, you must edit `texmf/web2c/texmf.cnf` (see Appendix 10) and change the line near the start which reads

```
TEXMFMAIN = $SELFAUTOPARENT
```

to

```
TEXMFMAIN = $SELFAUTODIR
```

If you move the whole installation to another directory tree entirely, you need to edit `TEXMFMAIN` to specify the support tree explicitly, and set `TEXMFCNF` in your environment to `$TEXMFMAIN/texmf/web2c`.

3.3 Installing individual packages from TEX Live to a hard disk

You may want to use the **TEX Live** CD-ROM to either update an existing setup, or add features to an earlier installation from the CD-ROM. The main installation program is intended for the first time only, and subsequently you should use the `install-pkg.sh` script on the CD-ROM. Run this by mounting the CD-ROM, changing to the mounted directory, and typing

```
>> sh install-pkg.sh options
```

The script supports nine options; the first four let you set the individual package you want to install, the whole collection (i.e., `ams2`), the name of the mounted CD-ROM directory, and the name of the directory containing the list files (normally these latter two will be set automatically):

`--package=`*name*
`--collection=`*name*
`--cddir=`*name*
`--listdir=`*name*

What actually happens is controlled by four more switches; the first two allow you to exclude documentation or source files from the installation, the third stops the default action of running `mktexlsr` on completion to rebuild the file database, and the last does nothing but list the files that would be installed:

```
--nodoc
--nosrc
--nohash
--listonly
```

Finally, you can specify that, instead of installing the files, the script should make a tar archive in a specified location:

`--archive=`*name*

Thus, if we simply wanted to see the files that make up the package fancyhdr before we installed it, our command and output would be as follows:

```
>> sh install-pkg.sh --package=fancyhdr --listonly

texmf/doc/latex/fancyhdr/fancyhdr.dvi
texmf/doc/latex/fancyhdr/fancyhdr.tex
texmf/lists/free/latex3/fancyhdr
texmf/source/latex/fancyhdr/README
texmf/source/latex/fancyhdr/fancyheadings.new
texmf/tex/latex/fancyhdr/extramarks.sty
texmf/tex/latex/fancyhdr/fancyhdr.sty
texmf/tex/latex/fancyhdr/fixmarks.sty
```

Other examples of usage are:

- Install the LaTeX package `natbib`:

  ```
  >> sh install-pkg.sh --package=natbib
  ```

- Install the LaTeX package `alg` with no source files and no documentation:

  ```
  >> sh install-pkg.sh  --package=alg --nosrc --nodoc
  ```

- Install all the packages available in the *other* Plain TeX collection:

  ```
  >> sh install-pkg.sh --collection=plain3
  ```

- Place all files which are needed for PSTricks in a tar file in `/tmp`:

  ```
  >> sh install-pkg.sh --package=pstricks --archive=/tmp/pstricks.tar
  ```

3.4 The texconfig program

After the installation program has copied all files to their final locations, you can use a program called texconfig that allows you to configure the system to fit your local needs. This can be called at any other time to change your setup, with a full-screen (which requires the dialog program, included as part of the binary packages) or command-line interface. It should be used for all maintenance, such as changes of installed printers, or rebuilding the file database. Both modes have help text to guide you through the facilities.

4 Installation and use under Windows

This section only applies to systems running Windows 9x or NT. If you run Windows 3.1, you will have to install `emTeX`, or `DJGPP` TEX (from the top level `systems` directory) by hand.

It is also necessary to have your Windows set up so that it uses the Microsoft Joliet extensions for reading CD-ROMs; simply look at the CD-ROM in Explorer and see whether it shows long, mixed-case, file names. If it does not, you cannot use the ready-to-run system on the CD-ROM.

This Win32 TEX systems includes a `dvi` previewer, Windvi, which is similar in usage to the established Unix xdvi. The documentation can be found in `texmf/doc/windvi/windvi.html`.

4.1 Running from the CD-ROM

You can run all the TEX programs directly off the CD-ROM, and have access to all the macros and fonts immediately, at the price of a slower performance than if you install on the hard disk. To do this, you must add the `bin/win32` directory of the CD-ROM to your PATH, using the Windows configuration software. Now you can run the programs at a command prompt, or use the shareware WinEdt editor, which runs the programs from convenient menus.

4.2 Installing to your hard disk

Installation is started by letting the CD autostart, or by running the program `setup.exe` in the `setupw32/setup` directory, which works by accessing lists of collections and packages from the CD-ROM. It will allow you to select the level at which each collection is installed (see section 2.1 for a description of 'collections' and 'packages', and permits you to omit the documentation and/or source segments of the packages if your disk space is limited. You will be prompted for directories in which to install the main distribution, and your local configuration. In addition, you will be able to install a shareware TEX editor, WinEdt, and the PostScript viewer Ghostscript.

Please respect the shareware status of WinEdt and register your copy if you intend to carry on using it.

Please be aware that the choice of cluster size on DOS disk partitions can radically affect the size of your TEX installation. The support tree has hundreds of small files, and it is not unusual for a complete installation to take up to 4 times the amount of space used on the CD-ROM.

When installation is complete, you will have to restart Windows, and then you can either run the TEX programs from a command prompt, or via WinEdt's menus (if you opted to install it).

5 Building on a new Unix platform

If you have a platform for which we have not provided binary sources, you will need to compile TEX and friends from scratch. This is not as hard as it sounds. What you need is all in the directory `source` on the CD-ROM.

You should first install the support tree from the **TEX Live** CD-ROM (do a basic install, with no system binaries chosen).

5.1 Prerequisites

You will need about 100 megabytes of disk space to compile all of TEX and its support programs. You'll also need an ANSI C compiler, a make utility, a lexical scanner, and a parser generator. The GNU utilities (gcc, GNU make, m4, flex, bison) are the most widely tested on different platforms. gcc-2.7.* flex-2.4.7 and GNU make-3.72.1 or newer should work well. You may be able to work with other C compilers and make programs, but you will need a good understanding of building Unix programs to sort out problems. The command `uname` must return a sensible value.

5.2 Configuration

First, unpack the source from the compressed `tar` file in the directory `source` to your disk and change directory to where you placed it. Decide where the 'root' of the installation will be, e.g. `/usr/local` or `/usr/local/TeX`. Obviously you should use the same location that you specified when you installed the support tree.

Now, start the build process by running configure with a command-line like

```
>> ./configure -prefix=/usr/local/TeX
```

The 'prefix' directory is the one where you installed the support tree; the directory layout that will be used is as follows (where $TEXDIR stands for the directory you chose):

`$TEXDIR/man`	Unix manual pages
`$TEXDIR/share/texmf`	main tree with fonts, macros, etc
`$TEXDIR/info`	GNU style info manuals
`$TEXDIR/bin/$PLATFORM`	binaries

You can omit the use of '`share/`' part for the `texmf` directory if you want, as `$TEXDIR/share/texmf` and `$TEXDIR/texmf` are auto-detected by configure. If you choose something different, you have to specify that directory with the `--datadir` option of configure.

If you want to leave out the `$PLATFORM` directory level (i.e. put the binaries directly into `$TEXDIR/bin`), specify the `--disable-multiplatform` option for configure.

Have a look at the output of `./configure -help` for more options you can use (such as omitting optional packages such as Ω or ε-TEX).

5.3 Running make

Make sure the shell variable `noclobber` is not set, and then type

```
>> make world
```

and relax....

It could also be useful to log all the output, e.g. by typing

```
>> sh -c "make world >world.log 2>&1" &
```

Before you think that everything is ok, please check the log file for errors (GNU make always uses the string "`Error:`" whenever a command returns an error code) and check if all binaries are built:

```
>> cd /usr/local/TeX/bin/i586-pc-linux-gnu
>> ls | wc
```

The result should be 204. `make world` is equivalent to `make all install strip`

If you need special privileges for `make install`, you can run two make jobs in separate runs:

```
>> make all
>> su
>> make install strip
```

5.4 Final configuration steps

Set up your `PATH` to include the directory containing the just-installed binaries (e.g. `/usr/local/TeX/bin/mips-sgi-irix6.3`); similarly, `MANPATH` and `INFOPATH` to include the relevant newly installed subdirectories, i.e. `$TEXDIR/man` and `$TEXDIR/info`.

The program texconfig allows you to set the defaults for hyphenation, paper size, print command, METAFONT mode, etc. You can run this command interactively and see what options it offers, or type

```
>> texconfig help
```

For example, if you are not using A4 format paper, you can make 'lettersize' the default using:

```
>> texconfig dvips paper letter
>> texconfig xdvi paper us
```

6 A user's guide to the Web2c system

Web2c contains a set of TEX-related programs, i.e., TEX itself, METAFONT, MetaPost, BIBTEX, etc. The original implementation was by Tomas Rokicki who, in 1987, developed a first TEX-to-C system adapting change files under Unix, which were primarily the work of Howard Trickey and Pavel Curtis. Tim Morgan became the maintainer of the system, and during this period the name changed to Web-to-C. In 1990, Karl Berry took over the work, assisted by dozens of additional contributors, and in 1997 he handed the baton to Olaf Weber. The latest result is Web2c Version 7.3, which was released in March 1999, and forms the basis of the present **TEX Live** CD-ROM.

The Web2c 7.3 system runs on Unix, Windows 3.1, 9x/NT, DOS, and other operating systems. It uses Knuth's original sources for TEX and other basic programs written in `web` and translates them into C source code. Moreover, the system offers a large set of macros and functions developed to augment the original TEX software. The core TEX family components are:

bibtex Maintaining bibliographies.

dmp troff to MPX (MetaPost pictures).

dvicopy Produces modified copy of DVI file.

dvitomp DVI to MPX (MetaPost pictures).

dvitype DVI to human-readable text.

gftodvi Generic font proofsheets.

gftopk Generic to packed fonts.

gftype GF to human-readable text.

makempx MetaPost label typesetting.

mf Creating typeface families.

mft Prettyprinting METAFONT source.

mpost Creating technical diagrams.

mpto MetaPost label extraction.

newer Compare modification times.

patgen Creating hyphenation patterns.

pktogf Packed to generic fonts.

pktype PK to human-readable text.

pltotf Property list to TFM.

pooltype Display `web` pool files.

tangle `web` to Pascal.

tex Typesetting.

tftopl TFM to property list.

vftovp Virtual font to virtual property list

vptovf Virtual property list to virtual font.

weave `web` to TEX.

The precise functions and syntax of these programs are described in the documentation of the individual packages or of Web2c itself. However, knowing a few principles governing the whole family of programs will help you to benefit optimally from your Web2c installation.

All programs honor the standard GNU options:

`-help` print basic usage summary.

`-verbose` print detailed progress report.

`-version` print version information, then exit.

For locating files the Web2c programs use the path searching library Kpathsea. This library uses a combination of environment variables and a few configuration files to optimize searching the TEX directory tree. Web2c 7.3 can handle more than one directory tree simultaneously, which is useful if one wants to maintain TEX's standard distribution and local extensions in two distinct trees. To speed up file searches the root of each tree has a file `ls-R`, containing an entry showing the name and relative pathname for all files "hanging" under that root.

6.1 Kpathsea path searching

Let us first describe the generic path searching mechanism of the Kpathsea library.

We call a *search path* a colon- or semicolon-separated list of *path elements*, which are basically directory names. A search path can come from (a combination of) many sources. To look up a file "`my-file`" along a path "`.:/dir`", Kpathsea checks each element of the path in turn: first `./my-file`, then `/dir/my-file`, returning the first match (or possibly all matches).

In order to adapt optimally to all operating systems' conventions, on non-Unix systems Kpathsea can use filename separators different from "colon" ("`:`") and "slash" ("`/`").

To check a particular path element *p*, Kpathsea first checks if a prebuilt database (see "Filename database" on page 16) applies to *p*, i.e., if the database is in a directory that is a prefix of *p*. If so, the path specification is matched against the contents of the database.

If the database does not exist, or does not apply to this path element, or contains no matches, the filesystem is searched (if this was not forbidden by a specification starting with "`!!`" and if the file being searched for must exist). Kpathsea constructs the list of directories that correspond to this path element, and then checks in each for the file being sought.

The "file must exist" condition comes into play with "`.vf`" files and input files read by TEX's `\openin` command. Such files may not exist (e.g., `cmr10.vf`), and so it would be wrong to search the disk for them. Therefore, if you fail to update `ls-R` when you install a new "`.vf`" file, it will never be found. Each path element is checked in turn: first the database, then the disk. If a match is found, the search stops and the result is returned.

Although the simplest and most common path element is a directory name, Kpathsea supports additional features in search paths: layered default values, environment variable names, config file values, users' home directories, and recursive subdirectory searching. Thus, we say that Kpathsea *expands* a path element, meaning it transforms all the specifications into basic directory name or names. This is described in the following sections in the same order as it takes place.

Note that if the filename being searched for is absolute or explicitly relative, i.e., starts with "`/`" or "`./`" or "`../`", Kpathsea simply checks if that file exists.

6.1.1 Path sources

A search path can come from many sources. In the order in which Kpathsea uses them:

1. A user-set environment variable, for instance, `TEXINPUTS`. Environment variables with a period and a program name appended override; e.g., if "`latex`" is the name of the program being run, then `TEXINPUTS.latex` will override `TEXINPUTS`.
2. A program-specific configuration file, for example, a line "`S /a:/b`" in dvips's `config.ps`.
3. A Kpathsea configuration file `texmf.cnf`, containing a line like "`TEXINPUTS=/c:/d`" (see below).
4. The compile-time default.

You can see each of these values for a given search path by using the debugging options (see "Debugging actions" on page 21).

6.1.2 Config files

Kpathsea reads *runtime configuration files* named `texmf.cnf` for search path and other definitions. The search path used to look for these files is named `TEXMFCNF` (by default such a file lives in the `texmf/web2c` subdirectory). *All* `texmf.cnf` files in the search path will be read and definitions in earlier files override those in later files. Thus, with a search path of `.:$TEXMF`, values from `./texmf.cnf` override those from `$TEXMF/texmf.cnf`.

While reading the description of the format of the file `texmf.cnf` below, please also refer to appendix 10, starting on page 26, which lists the `texmf.cnf` file on the CD-ROM.

- Comments start with "%" and continue to the end of the line.
- Blank lines are ignored.
- A \ at the end of a line acts as a continuation character, i.e., the next line is appended. Whitespace at the beginning of continuation lines is not ignored.
- Each remaining line has the form:

  variable`[.`*progname*`] [=]` *value*

  where the "=" and surrounding whitespace are optional.
- The "*variable*" name may contain any character other than whitespace, "=", or ".", but sticking to "`A-Za-z_`" is safest.
- If "`.`*progname*" is present, the definition only applies if the program that is running is named *progname* or *progname*`.exe`. This allows different flavors of TEX to have different search paths, for example.
- "*value*" may contain any characters except "%" and "@". The "$*var*.*prog*" feature is not available on the right-hand side; instead, you must use an additional variable. A ";" in "*value*" is translated to ":" if running under Unix; this is useful to be able to have a single `texmf.cnf` for Unix, MSDOS and Windows systems.
- All definitions are read before anything is expanded, so variables can be referenced before they are defined.

A configuration file fragment illustrating most of these points is shown below:

```
TEXMF              = {$TEXMFLOCAL;!!$TEXMFMAIN}
TEXINPUTS.latex    = .;$TEXMF/tex/{latex;generic;}//
TEXINPUTS.fontinst = .;$TEXMF/tex//;$TEXMF/fonts/afm//
% e-TeX related files
TEXINPUTS.elatex   = .;$TEXMF/{etex;tex}/{latex;generic;}//
TEXINPUTS.etex     = .;$TEXMF/{etex;tex}/{eplain;plain;generic;}//
```

6.1.3 Path expansion

Kpathsea recognizes certain special characters and constructions in search paths, similar to those available in Unix shells. As a general example, the complex path, `~$USER/{foo,bar}//baz`, expands to all subdirectories under directories `foo` and `bar` in `$USER`'s home directory that contain a directory or file `baz`. These expansions are explained in the sections below.

6.1.4 Default expansion

If the highest-priority search path (see "Path sources" on page 13) contains an *extra colon* (i.e., leading, trailing, or doubled), Kpathsea inserts at that point the next-highest-priority search path that is defined. If that inserted path has an extra colon, the same happens with the next highest. For example, given an environment variable setting

```
>> setenv TEXINPUTS /home/karl:
```

and a `TEXINPUTS` value from `texmf.cnf` of

```
.:$TEXMF//tex
```

then the final value used for searching will be:

```
/home/karl:.:$TEXMF//tex
```

Since it would be useless to insert the default value in more than one place, Kpathsea changes only one extra "`:`" and leaves any others in place: it checks first for a leading "`:`", then a trailing "`:`", then a doubled "`:`".

6.1.5 Brace expansion

A useful feature is brace expansion, which means that, for instance, `v{a,b}w` expands to `vaw:vbw`. Nesting is allowed. This can be used to implement multiple TEX hierarchies, by assigning a brace list to `$TEXMF`. For example, in `texmf.cnf`, you find the following definition:

```
TEXMF = {$HOMETEXMF,$TEXMFLOCAL,!!$VARTEXMF,!!$TEXMFMAIN}
```

Using this you can then write something like

```
TEXINPUTS = .;$TEXMF/tex//
```

which means that, after looking in the current directory, the `$HOMETEXMF/tex`, `$TEXMFLOCAL/tex`, `$VARTEXMF/tex` and `$TEXMFMAIN/tex` trees *only*) will be searched (the last two use using `ls-R` data base files). It is a convenient way for running two parallel TEX structures, one "frozen" (on a CD-ROM, for instance) and the other being continuously updated with new versions as they become available. By using the `$TEXMF` variable in all definitions, one is sure to always search the up-to-date tree first.

6.1.6 Subdirectory expansion

Two or more consecutive slashes in a path element following a directory *d* is replaced by all subdirectories of *d*: first those subdirectories directly under *d*, then the subsubdirectories under those, and so on. At each level, the order in which the directories are searched is *unspecified*.

If you specify any filename components after the "`//`", only subdirectories with matching components are included. For example, "`/a//b`" expands into directories `/a/1/b`, `/a/2/b`, `/a/1/1/b`, and so on, but not `/a/b/c` or `/a/1`.

Multiple "`//`" constructs in a path are possible, but "`//`" at the beginning of a path is ignored.

6.1.7 List of special characters and their meaning: a summary

The following list summarises the meaning of special characters in Kpathsea configuration files.

`:` Separator in path specification; at the beginning or the end of a path it substitutes the default path expansion.

`;` Separator on non-Unix systems (acts like `:`).

`$` Variable expansion.

`~` Represents the user's home directory.

`{...}` Brace expansion, e.g., `a{1,2}b` will become `a1b:a2b`.

`//` Subdirectory expansion (can occur anywhere in a path, except at its begining).

`%` Start of comment.

`\` Continuation character (allows multi-line entries).

`!!` Search *only* database to locate file, *do not* search the disk.

6.2 Filename databases

Kpathsea goes to some lengths to minimize disk accesses for searches. Nevertheless, at installations with enough directories, searching each possible directory for a given file can take an excessively long time (this is especially true if many hundreds of font directories have to be traversed.) Therefore, Kpathsea can use an externally-built "database" file named `ls-R` that maps files to directories, thus avoiding the need to exhaustively search the disk.

A second database file `aliases` allows you to give additional names to the files listed in `ls-R`. This can be helpful to adapt to DOS-like "8.3" filename conventions in source files.

6.2.1 The filename database

As explained above, the name of the main filename database must be `ls-R`. You can put one at the root of each TEX hierarchy in your installation that you wish to be searched (`$TEXMF` by default); most sites have only one hierarchy. Kpathsea looks for `ls-R` files along the `TEXMFDBS` path.

The recommended way to create and maintain "`ls-R`" is to run the `mktexlsr` script included with the distribution. It is invoked by the various "`mktex`"... scripts. In principle, this script just runs the command

```
cd /your/texmf/root && ls -LAR ./ >ls-R
```

presuming your system's `ls` produces the right output format (GNU's `ls` is all right). To ensure that the database is always up to date, it is easiest to rebuild it regularly via `cron`, so that for changes in the installed files—perhaps after installing or updating a LATEX package—the file `ls-R` is automatically updated.

If a file is not found in the database, by default Kpathsea goes ahead and searches the disk. If a particular path element begins with "`!!`", however, *only* the database will be searched for that element, never the disk.

6.2.2 kpsewhich: Standalone path searching

The `kpsewhich` program exercises path searching independent of any particular application. This can be useful as a sort of `find` program to locate files in TEX hierarchies (this is used heavily in the distributed "`mktex`..." scripts).

>> `kpsewhich` *option... filename...*

The options specified in "*option*" can start with either "`-`" or "`--`", and any unambiguous abbreviation is accepted.

Kpathsea looks up each non-option argument on the command line as a filename, and returns the first file found. There is no option to return all the files with a particular name (you can run the Unix "`find`" utility for that).

The more important options are described next.

`-dpi=num` Set the resolution to "*num*"; this only affects "`gf`" and "`pk`" lookups. "`-D`" is a synonym, for compatibility with dvips. Default is 600.

`-format=name`
Set the format for lookup to "*name*". By default, the format is guessed from the filename. For formats which do not have an associated unambiguous suffix, such as MetaPost support files and dvips configuration files, you have to specify the name as found in the first column of Table 1, which lists currently recognized names, a description, associated environment variables[1], and possible file extensions.

Table 1: Kpathsea file types

Name	*Description*	*Variables*	*Suffixes*
`afm`	Adobe font metrics	`AFMFONTS`	`.afm`
`base`	Metafont memory dump	`MFBASES, TEXMFINI`	`.base`
`bib`	BIBTEX bibliography source	`BIBINPUTS, TEXBIB`	`.bib`
	bitmap fonts	`GLYPHFONTS, TEXFONTS`	
`bst`	BIBTEX style files	`BSTINPUTS`	`.bst`
`cnf`	Runtime configuration files	`TEXMFCNF`	`.cnf`
`dvips config`	dvips configuration files, e.g., `config.ps` and `psfonts.map`	`TEXCONFIG`	`.map`
`fmt`	TEX memory dump	`TEXFORMATS, TEXMFINI`	`.fmt, .efmt, .efm`
`gf`	generic font bitmap	`GFFONTS`	`.gf`
`graphic/figure`	Encapsulated PostScript figures	`TEXPICTS, TEXINPUTS`	`.eps, .epsi`
`ist`	makeindex style files	`TEXINDEXSTYLE, INDEXSTYLE`	`.ist`
`ls-R`	Filename databases	`TEXMFDBS`	
`map`	Fontmaps	`TEXFONTMAPS`	`.map`
`mem`	MetaPost memory dump	`MPMEMS, TEXMFINI`	`.mem`
`mf`	Metafont source	`MFINPUTS`	`.mf`
`mfpool`	Metafont program strings	`MFPOOL, TEXMFINI`	`.pool`

[1] You can find definitions for these environment variables in the file `texmf.cnf` (page 26)

Kpathsea file types *continued*

Name	*Description*	*Variables*	*Suffixes*
mft	MFT style file	MFTINPUTS	.mft
	miscellaneous fonts	MISCFONTS	
mp	MetaPost source	MPINPUTS	.mp
mppool	MetaPost program strings	MPPOOL, TEXMFINI	.pool
MetaPost support	MetaPost support files, used by DMP	MPSUPPORT	
ocp	Ω compiled process files	OCPINPUTS	.ocp
ofm	Ω font metrics	OFMFONTS, TEXFONTS	.ofm, .tfm
opl	Ω property lists	OPLFONTS, TEXFONTS	.opl
otp	Ω translation process files	OTPINPUTS	.otp
ovf	Ω virtual fonts	OVFFONTS, TEXFONTS	.ovf
ovp	Ω virtual property lists	OVPFONTS, TEXFONTS	.ovp
pk	packed bitmap fonts	*program*FONTS (*program* being XDVI, etc.), PKFONTS, TEXPKS, GLYPHFONTS, TEXFONTS	.pk
PostScript header	downloadable PostScript	TEXPSHEADERS, PSHEADERS	.pro, .enc
tex	TEX source	TEXINPUTS	.tex, .cls, .sty, .clo, .def
TeX system documentation	Documentation files for the TEX system	TEXDOCS	
TeX system sources	Source files for the TEX system	TEXSOURCES	
texpool	TEX program strings	TEXPOOL, TEXMFINI	.pool
tfm	TEX font metrics	TFMFONTS, TEXFONTS	.tfm
Troff fonts	Troff fonts, used by DMP	TRFONTS	
truetype fonts	TrueType outline fonts	TTFONTS	.ttf, .ttc
type1 fonts	Type 1 PostScript outline fonts	T1FONTS, T1INPUTS, TEXPSHEADERS, DVIPSHEADERS	.pfa, .pfb
type42 fonts	Type 42 PostScript outline fonts	T42FONTS	
vf	virtual fonts	VFFONTS, TEXFONTS	.vf
web2c files	Web2c support files	WEB2C	
other text files	text files used by 'foo'	FOOINPUTS	
other binary files	binary files used by 'foo'	FOOINPUTS	

The last two entries in Table 1 are special cases, where the paths and environment variables depend on the name of the program: the variable name is constructed by converting the program name to upper case, and then appending INPUTS.

The environment variables are set by default in the configuration file texmf.cnf. It is only when you want to override one or more of the values specified in that file that you might want to set them explicitly in your execution environment.

Note that the "-format" and "-path" options are mutually exclusive.

`-mode=string`
: Set the mode name to "*string*"; this only affects "`gf`" and "`pk`" lookups. No default: any mode will be found.

`-must-exist`
: Do everything possible to find the files, notably including searching the disk. By default, only the `ls-R` database is checked, in the interest of efficiency.

`-path=string`
: Search along the path "*string*" (colon-separated as usual), instead of guessing the search path from the filename. "`//`" and all the usual expansions are supported. The options "`-path`" and "`-format`" are mutually exclusive.

`-progname=name`
: Set the program name to "*name*". This can affect the search paths via the "*.progname*" feature in configuration files. The default is "`kpsewhich`".

`-show-path=name`
: shows the path used for file lookups of file type "*name*". Either a filename extension ("`.pk`", "`.vf`", etc.) or a name can be used, just as with "`-format`" option.

`-debug=num`
: sets the debugging options to "*num*".

6.2.3 Examples of use

Let us now have a look at Kpathsea in action.

```
>> kpsewhich  article.cls
/usr/local/texmf/tex/latex/base/article.cls
```

We are looking for the file `article.cls`. Since the "`.cls`" suffix is unambiguous we do not need to specify that we want to look for a file of type "tex" (TEX source file directories). We find it in the subdirectory `tex/latex/base` below the "`TEXMF`" root directory. Similarly, all of the following are found without problems thanks to their unambiguous suffix.

```
>> kpsewhich array.sty
   /usr/local/texmf/tex/latex/tools/array.sty
>> kpsewhich latin1.def
   /usr/local/texmf/tex/latex/base/latin1.def
>> kpsewhich size10.clo
   /usr/local/texmf/tex/latex/base/size10.clo
>> kpsewhich small2e.tex
   /usr/local/texmf/tex/latex/base/small2e.tex
>> kpsewhich tugboat.bib
   /usr/local/texmf/bibtex/bib/beebe/tugboat.bib
```

The latter is a BIBTEX bibliography database for *TUGBoat* articles.

```
>> kpsewhich cmr10.pk
```

Font bitmap glyph files of type `.pk` are used by display programs like dvips and xdvi. Nothing is returned in this case since there are no pre-generated Computer Modern "`.pk`" files on our system (since we use the Type1 versions on the CD-ROM).

```
>> kpsewhich ecrm1000.pk
   /usr/local/texmf/fonts/pk/ljfour/jknappen/ec/ecrm1000.600pk
```

For the extended Computer Modern files we had to generate "`.pk`" files, and since the default METAFONT mode on our installation is `ljfour` with a base resolution of 600 dpi (dots per inch), this instantiation is returned.

```
>> kpsewhich -dpi=300 ecrm1000.pk
```

In this case, when specifying that we are interested in a resolution of 300dpi (`-dpi=300`) we see that no such font is available on the system. In fact, a program like dvips or xdvi would go off and actually build the `.pk` files at the required resolution using the script mktexpk.

Next we turn our attention to dvips's header and configuration files. We first look at one of the commonly used files, the general prolog `tex.pro` for TEX support, before turning our attention to the generic configuration file (`config.ps`) and the PostScript font map `psfonts.map`. As the "`.ps`" suffix is ambiguous we have to specify explicitly which type we are considering ("`dvips config`") for the file `config.ps`.

```
>> kpsewhich tex.pro
   /usr/local/texmf/dvips/base/tex.pro
>> kpsewhich --format="dvips config" config.ps
   /usr/local/texmf/config/config.ps
>> kpsewhich psfonts.map
   /usr/local/texmf/dvips/base/psfonts.map
```

We now take a closer look at the URW Times PostScript support files. The name for these in Berry's font naming scheme is "`utm`". The first file we look at is the configuration file, which contains the name of the map file:

```
>> kpsewhich --format="dvips config" config.utm
/usr/local/texmf/dvips/psnfss/config.utm
```

The contents of that file is

```
  p +utm.map
```

which points to the file `utm.map`, which we want to locate next.

```
>> kpsewhich --format="dvips config" utm.map
   /usr/local/texmf/dvips/psnfss/utm.map
```

This map file defines the file names of the Type1 PostScript fonts in the URW collection. Its contents look like (we only show part of the lines):

```
utmb8r  NimbusRomNo9L-Medi    ... <utmb8a.pfb
utmbi8r NimbusRomNo9L-MediItal... <utmbi8a.pfb
utmr8r  NimbusRomNo9L-Regu    ... <utmr8a.pfb
utmri8r NimbusRomNo9L-ReguItal... <utmri8a.pfb
utmbo8r NimbusRomNo9L-Medi    ... <utmb8a.pfb
utmro8r NimbusRomNo9L-Regu    ... <utmr8a.pfb
```

Let us, for instance, take the Times Regular instance `utmr8a.pfb` and find its position in the `texmf` directory tree by using a search for Type1 font files:

```
>> kpsewhich utmr8a.pfb
   /usr/local/texmf/fonts/type1/urw/utm/utmr8a.pfb
```

It should be evident from these few examples how you can easily locate the whereabouts of a given file. This is especially important if you suspect that the wrong version of a file is picked up somehow, since kpsewhich will show you the first file encountered.

6.2.4 Debugging actions

Sometimes it is necessary to investigate how a program resolves file references. To make this feasible in a convenient way Kpathsea offers various debug levels:

`1` `stat` calls (file tests). When running with an up-to-date `ls-R` database this should almost give no output.

`2` References to hash tables (like `ls-R` database, map files, configuration files).

`4` File open and close operations.

`8` General path information for file types searched by Kpathsea. This is useful to find out where a particular path for the file was defined.

`16` Directory list for each path element (only relevant for searches on disk).

`32` File searches.

A value of `-1` will set all the above options; in practice you will probably always use these levels if you need any debugging.

Similarly, with the dvips program, by setting a combination of debug switches, one can follow in detail where files are being picked up from. Alternatively, when a file is not found, the debug trace shows in which directories the program looks for the given file, so that one can get an indication what the problem is.

Generally speaking, as most programs call the Kpathsea library internally, one can select a debug option by using the `KPATHSEA_DEBUG` environment variable, and setting it to (a combination of) values as described in the above list.

Let us consider, as an example, a small LaTeX source file, `hello-world.tex`, which contains the following input.

```
\documentclass{article}
\begin{document}
Hello World!
\end{document}
```

This little file only uses the font `cmr10`, so let us look how dvips prepares the PostScript file (we want to use the Type1 version of the Computer Modern fonts, hence the option `-Pcms`).

```
>> dvips -d4100 hello-world -Pcms -o
```

In this case we have combined dvips's debug class 4 (font paths) with Kpathsea's path element expansion (see dvips Reference Manual, texmf/doc/html/dvips/dvips_toc.html). The output (slightly rearranged) appears in Figure 4. dvips starts by locating its working files. First, `texmf.cnf` is found, which gives the definitions of the search paths for the other files, then the file database `ls-R` (to optimize file searching) and the file `aliases`, which makes it possible to declare several names (e.g., a short DOS-like "8.3" and a more natural longer version) for the same file. Then dvips goes on to find the generic configuration file `config.ps` before looking for the customization file `.dvipsrc` (which, in this case is *not found*). Finally, dvips locates the config file for the Computer Modern PostScript fonts `config.cms` (this was initiated with the `-Pcms` option on the dvips command). This file contains the list of the "map" files which define the relation between the TEX, PostScript and file system names of the fonts.

```
>> more /usr/local/texmf/dvips/cms/config.cms
   p +ams.map
   p +cms.map
   p +cmbkm.map
   p +amsbkm.map
```

dvips thus goes on to find all these files, plus the generic map file `psfonts.map`, which is always loaded (it contains declarations for commonly used PostScript fonts; see the last part of Section 6.2.3 for more details about PostScript map file handling).

At this point dvips identifies itself to the user...

```
This is dvips 5.78 Copyright 1998 Radical Eye Software (www.radicaleye.com)
```

...and then goes on to look for the prolog file `texc.pro`,

```
kdebug:start search(file=texc.pro, must_exist=0, find_all=0,
  path=.:~/tex/dvips//:!!/usr/local/texmf/dvips//:
       ~/tex/fonts/type1//:!!/usr/local/texmf/fonts/type1//).
kdebug:search(texc.pro) => /usr/local/texmf/dvips/base/texc.pro
```

After having found the file in question, dvips outputs date and time, and informs us that it will generate the file `hello-world.ps`, then that it needs the font file `cmr10`, and that the latter is declared as "resident":

```
TeX output 1998.02.26:1204' -> hello-world.ps
Defining font () cmr10 at 10.0pt
Font cmr10 <CMR10> is resident.
```

Now the search is on for the file `cmr10.tfm`, which is found, then a few more prolog files (not shown) are referenced, and finally the Type1 instance `cmr10.pfb` of the font is located and included in the output file (see last line).

```
kdebug:start search(file=cmr10.tfm, must_exist=1, find_all=0,
  path=.:~/tex/fonts/tfm//:!!/usr/local/texmf/fonts/tfm//:
       /var/tex/fonts/tfm//).
kdebug:search(cmr10.tfm) => /usr/local/texmf/fonts/tfm/public/cm/cmr10.tfm
kdebug:start search(file=texps.pro, must_exist=0, find_all=0,
   ...
<texps.pro>
kdebug:start search(file=cmr10.pfb, must_exist=0, find_all=0,
  path=.:~/tex/dvips//:!!/usr/local/texmf/dvips//:
       ~/tex/fonts/type1//:!!/usr/local/texmf/fonts/type1//).
kdebug:search(cmr10.pfb) => /usr/local/texmf/fonts/type1/public/cm/cmr10.pfb
<cmr10.pfb>[1]
```

6.3 Runtime options

Another of the nice features of Web2c 7.3 is its possibility to control a number of memory parameters (in particular, array sizes) via the runtime file `texmf.cnf` read by Kpathsea. The listing of `texmf.cnf` is shown in Appendix 10, starting on page 26; the settings of all parameters can be found in Part 3 of that file. The more important control variables are (line numbers refer to the file `texmf.cnf`):

`main_memory` Total words of memory available, for TEX, METAFONT and MetaPost. You must make a new format file for each different setting. For instance, you could generate a "huge" version of TEX, and call the format file `hugetex.fmt`. Using the standard way of specifying the program name used by Kpathsea, the particular value of the `main_memory` variable will then be read from `texmf.cnf` (compare the generic value and the "huge" one instantiated by `hugetex`, etc.).

`extra_mem_bot` Extra space for "large" TEX data structures: boxes, glue, breakpoints, etc. Especially useful if you use PICTEX (line 300).

`font_mem_size` Number of words for font information available for TEX. This is more or less the total size of all TFM files read.

`hash_extra` Additional space for the hash table of control sequence names. Approximately 10,000 control sequences can be stored in the main hash table; if you have a large book with numerous cross-references, this might not be enough. You can see that both the hugetex and pdflatex program invocations ask for an extra 15,000 control sequences (the default value of `hash_extra` is zero).

Of course, this facility is no substitute for truly dynamic arrays and memory allocation, but since this is extremely difficult to implement in present TEX, these runtime parameters provide a practical compromise allowing some flexibility.

7 Other TEX systems on the CD-ROM

While the main portion of **TEX Live** (the fonts, macros and documentation) can be used on any TEX system, the set of runnable binaries is not suitable for everyone. To make the disk as widely useful as possible, we have included the original distributions of two complete TEX systems: one for Macintosh (CMacTEX) and one for DOS and OS/2 (emTEX).

7.1 CMacTeX[2]

CMacTeX is an implementation of TEX for the Macintosh by Thomas Kiffe (tom@tkiffe.com). It includes the three main parts of any TEX installation—TEX, METAFONT and dvips. It also includes two DVI previewers, a utility for printing DVI files on a non PostScript printer, a PostScript previewer and numerous utilities for manipulating TEX fonts. Full support for the automatic generation of pk font files is an integral part of the distribution. CMacTeX can be configured to work in an integrated fashion with BBEdit, Alpha, and MPW. It will run on any Macintosh with 8 MB of RAM and System 7.

CMacTeX is shareware. The registration fee is US$35 for a single-user license and US$150 for a site license.

Installation instructions can be found in the file systems/macintosh/cmactex/ReadMeFirst

7.2 emTeX

The emTeX distribution for DOS and OS/2 is written by Eberhard Mattes (mattes@azu.informatik.uni-stuttgart.de). It includes the TEX typesetter, the METAFONT font generation program, printer drivers, screen previewers, and tools like BIBTEX and MakeIndex. It also includes the macro packages LATEX 2.09 and LATEX 2ε. Fonts are included as pixel files and METAFONT source files.

Installation instructions can be found in the file systems/msdos/emtex/README.ENG.

7.3 emTeX/TDS

emTeX/TDS is an emTeX-based TeX system for OS/2 Warp. In contrast to the original emTeX distribution its file structure complies with the TDS specifications, it comes with many additional packages and fonts, with full PostScript support, and with support for many languages. emTeX/TDS has been put together by Walter Schmidt (wschmi@ibm.net).

Installation instructions can be found in the file systems/os2/emtexTDS/install.eng.

8 History and acknowledgements

This CD-ROM distribution is a joint effort by the TEX Users Group, the UK TEX Users Group, the French TEX Users (GUTenberg), and the German TEX Users (DANTE e.V.), with the support of the Czech/Slovak, Dutch, Indian and Polish user groups. Discussion began in late 1993 when the Dutch TEX Users Group was starting work on its 4AllTEX CD-ROM for MS-DOS users, and it was hoped at that time to issue a single, rational, CD-ROM for all systems. This was far too ambitious a target, but it did spawn not only the very successful 4AllTEX CD-ROM, but also the TUG Technical Council working group on a *TEX Directory Structure*, which specified how to create consistent and manageable collections of TEX support files. The final draft of the TDS was published in the December 1995 issue of *TUGboat*, and it was clear from an early stage that one desirable product would be a model structure on CD-ROM. The CD-ROM you now have is a very direct result of the working group's deliberations. It was also clear that the success of the 4AllTEX CD-ROM showed that Unix users would benefit from a similarly easy system, and this is the other main strand of **TEX Live**.

We undertook to make a new Unix-based TDS CD-ROM in the autumn of 1995, and quickly identified Thomas Esser's teTEX as the ideal setup, as it already had multi-platform support and was built with

[2] This section is taken from the CMacTeX documentation.

portability across file systems in mind. Thomas agreed to help, and work began seriously at the start of 1996. The first edition was released in May 1996. At the start of 1997, Karl Berry completed a major new release of his Web2c package, which included nearly all the features which Thomas Esser had added in teTeX, and we decided to base the 2nd edition of the CD-ROM on the standard Web2c, with the addition of teTeX's `texconfig` script. The 3rd edition of the CD-ROM was based on a major revision of Web2c, 7.2, by Olaf Weber; at the same time, a new revision of teTeX was being made, and **TeX Live** shares almost all of its features. The 4th edition follows the same pattern, using a new version of teTeX, and a new release of Web2c (7.3). Almost all parts of the CD-ROM have been revised and checked, with particular attention being paid to removing duplicate files, and the package classification.

We are particularly grateful to:

- Karl Berry, who provided the original Web2c distribution, and has continued to give invaluable advice, encouragement, and help;
- Mimi Burbank, who arranged access at the Florida State University Supercomputer Research Institute to a slew of different computers to compile TeX on, and acted as an essential guinea-pig whenever asked;
- Kaja Christiansen, who provided essential feedback and documentation preparation;
- Thomas Esser, without whose marvellous teTeX package this CD-ROM would certainly not exist, and whose continual help makes it a better product;
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- Petr Olsak, who coordinated and checked all the Czech/Slovak material very carefully;
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- Walter Schmidt, who checked the emTeX and OS/2 material, and found other horrors;
- Staszek Wawrykiewicz, who provided great checking feedback, and co-ordinated the Polish contributions;
- Olaf Weber, for his patient assembly and maintenance of Web2c 7.3;
- Graham Williams, on whose work the catalogue of packages depends.

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The TeXLive 4 Award for 1999 goes to Fabrice Popineau as some small recompense for his unceasing struggles with the Win32 install setup!

9 Future versions

This CD-ROM is not a perfect product! We plan to re-issue it once a year, and would like to provide more help material, more utilities, more installation programs, and (of course) an ever-improved and checked tree of macros and fonts. This work is all done by hard-pressed volunteers in their limited spare time, and a great deal remains to be done. If you can help, don't hesitate to put your name forward!

Corrections, suggestions and additions for future revisions should be sent to:

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Updates, notes, and suggestions will be made available on CTAN in `info/texlive`. A WWW page for information and ordering details is at http://www.tug.org/tex-live.html.

10 The texmf.cnf file

```
% TeX Live texmf.cnf
%
%  Part 1: Search paths and directories.

% You can set an environment variable to override TEXMF if you're testing
% a new TeX tree, without changing anything else.
%
% You may wish to use one of the $SELFAUTO... variables here so TeX will
% find where to look dynamically.  See the manual and the definition
% below of TEXMFCNF.

% The main tree, which must be mentioned in $TEXMF, below:
TEXMFMAIN = $SELFAUTOPARENT/texmf

% A place for local additions to a "standard" texmf tree.
TEXMFLOCAL = $SELFAUTOPARENT/texmf-local

% User texmf trees can be catered for like this...
HOMETEXMF=$HOME/texmf

% A place where texconfig stores modifications (instead of the TEXMFMAIN
% tree).  texconfig relies on the name, so don't change it.
VARTEXMF = $SELFAUTOPARENT/texmf-var

% Now, list all the texmf trees. If you have multiple trees,
% use shell brace notation, like this:
%   TEXMF = {$HOMETEXMF,!!$VARTEXMF,!!$TEXMFLOCAL,!!$TEXMFMAIN}
% The braces are necessary.
TEXMF = {$HOMETEXMF,$TEXMFLOCAL,!!$VARTEXMF,!!$TEXMFMAIN}

% The system trees.  These are the trees that are shared by all the users.
SYSTEXMF = $TEXMF

% Where generated fonts may be written.  This tree is used when the sources
% were found in a system tree and either that tree wasn't writable, or the
% varfonts feature was enabled in MT_FEATURES in mktex.cnf.
VARTEXFONTS = /var/tmp/texfonts

% Where to look for ls-R files.  There need not be an ls-R in the
% directories in this path, but if there is one, Kpathsea will use it.
TEXMFDBS = $TEXMF;$VARTEXFONTS
```

```
42
43  % It may be convenient to define TEXMF like this:
44  %   TEXMF = {$HOMETEXMF,!!$TEXMFLOCAL,!!$TEXMFMAIN,$HOME}
45  % which allows users to set up entire texmf trees, and tells TeX to
46  % look in places like ~/tex and ~/bibtex.  If you do this, define TEXMFDBS
47  % like this:
48  %   TEXMFDBS = $HOMETEXMF;$TEXMFLOCAL;$TEXMFMAIN;$VARTEXFONTS
49  % or mktexlsr will generate an ls-R file for $HOME when called, which is
50  % rarely desirable.  If you do this you'll want to define SYSTEXMF like
51  % this:
52  %   SYSTEXMF = $TEXMFLOCAL;$TEXMFMAIN
53  % so that fonts from a user's tree won't escape into the global trees.
54  %
55  % On some systems, there will be a system tree which contains all the font
56  % files that may be created as well as the formats.  For example
57  %   VARTEXMF = /var/lib/texmf
58  % is used on many Linux systems.  In this case, set VARTEXFONTS like this
59  %   VARTEXFONTS = $VARTEXMF/fonts
60  % and do not mention it in TEXMFDBS (but _do_ mention VARTEXMF).
61
62
63  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
64  % Usually you will not need to edit any of the other variables in part 1. %
65  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
66
67  % WEB2C is for Web2C specific files.  The current directory may not be
68  % a good place to look for them.
69  WEB2C = $TEXMF/web2c
70
71  % TEXINPUTS is for TeX input files -- i.e., anything to be found by \input
72  % or \openin, including .sty, .eps, etc.
73
74  % LaTeX-specific macros are stored in latex.
75  TEXINPUTS.latex = .;$TEXMF/tex/{latex,generic,}//
76  TEXINPUTS.hugelatex = .;$TEXMF/tex/{latex,generic,}//
77
78  % Fontinst needs to read afm files.
79  TEXINPUTS.fontinst = .;$TEXMF/{tex{/fontinst,},fonts/afm}//
80
81  % Plain TeX.  Have the command tex check all directories as a last
82  % resort, we may have plain-compatible stuff anywhere.
83  TEXINPUTS.tex = .;$TEXMF/tex/{plain,generic,}//
84  % other plain-based formats
85  TEXINPUTS.amstex = .;$TEXMF/tex/{amstex,plain,generic,}//
86  TEXINPUTS.ftex = .;$TEXMF/tex/{formate,plain,generic,}//
87  TEXINPUTS.texinfo = .;$TEXMF/tex/{texinfo,plain,generic,}//
88  TEXINPUTS.eplain  = .;$TEXMF/tex/{eplain,plain,generic,}//
89  TEXINPUTS.jadetex = .;$TEXMF/tex/{jadetex,generic,plain,}//
90  TEXINPUTS.pdfjadetex = .;$TEXMF/{pdftex,tex}/{jadetex,generic,plain,}//
91
92  % e-TeX.
93  TEXINPUTS.elatex   = .;$TEXMF/{etex,tex}/{latex,generic,}//
94  TEXINPUTS.etex     = .;$TEXMF/{etex,tex}/{generic,plain,}//
95
96  % PDFTeX.  This form of the input paths is borrowed from teTeX.  A certain
97  % variant of TDS is assumed here, unaffected by the build variables.
98  TEXINPUTS.pdftexinfo = .;$TEXMF/{pdftex,tex}/{texinfo,plain,generic,}//
99  TEXINPUTS.pdflatex = .;$TEXMF/{pdftex,tex}/{latex,generic,}//
100 TEXINPUTS.pdftex   = .;$TEXMF/{pdftex,tex}/{plain,generic,}//
101 TEXINPUTS.pdfelatex = .;$TEXMF/{pdfetex,pdftex,etex,tex}/{latex,generic,}//
102 TEXINPUTS.pdfetex   = .;$TEXMF/{pdfetex,pdftex,etex,tex}/{plain,generic,}//
103
104 % Omega.
105 TEXINPUTS.lambda = .;$TEXMF/{omega,tex}/{lambda,latex,generic,}//
106 TEXINPUTS.omega = .;$TEXMF/{omega,tex}/{plain,generic,}//
107
108 % Context macros by Hans Hagen:
109 TEXINPUTS.context   = .;$TEXMF/{pdfetex,pdftex,etex,tex}/{context,plain,generic,}//
```

```
110
111 % cstex, from Petr Olsak
112 TEXINPUTS.cslatex = .;$TEXMF/tex/{cslatex,csplain,latex,generic,}//
113 TEXINPUTS.csplain = .;$TEXMF/tex/{csplain,plain,generic,}//
114 TEXINPUTS.pdfcslatex = .:$TEXMF/{pdftex,tex}/{cslatex,csplain,latex,generic,}//
115 TEXINPUTS.pdfcsplain = .:$TEXMF/{pdftex,tex}/{csplain,plain,generic,}//
116
117 % Polish
118 TEXINPUTS.platex  = .;$TEXMF/tex/{platex,latex,generic,}//
119 TEXINPUTS.pdfmex   = .;$TEXMF/{pdftex,tex}/{mex,plain,generic,}//
120
121 % french
122 TEXINPUTS.frtex   = .;$TEXMF/{mltex,tex}/{plain,generic,}//
123 TEXINPUTS.frlatex = .;$TEXMF/{mltex,tex}/{frlatex,latex,generic,}//
124
125 % MLTeX
126 TEXINPUTS.mltex = .;$TEXMF/{mltex,tex}/{plain,generic,}//
127 TEXINPUTS.mllatex = .;$TEXMF/{mltex,tex}/{latex,generic,}//
128
129 % odd formats  needing their own paths
130 TEXINPUTS.lollipop = .;$TEXMF/tex/{lollipop,generic,plain,}//
131 TEXINPUTS.lamstex  = .;$TEXMF/tex/{lamstex,generic,plain,}//
132
133 % Earlier entries override later ones, so put this last.
134 TEXINPUTS = .;$TEXMF/tex/{generic,}//
135
136 % Metafont, MetaPost inputs.
137 MFINPUTS = .;$TEXMF/metafont//;{$TEXMF/fonts,$VARTEXFONTS}/source//
138 MPINPUTS = .;$TEXMF/metapost//
139
140 % Dump files (fmt/base/mem) for vir{tex,mf,mp} to read (see web2c/INSTALL),
141 % and string pools (.pool) for ini{tex,mf,mp}.  It is silly that we have six
142 % paths and directories here (they all resolve to a single place by default),
143 % but historically ...
144 TEXFORMATS = .;$TEXMF/web2c
145 MFBASES = .;$TEXMF/web2c
146 MPMEMS = .;$TEXMF/web2c
147 TEXPOOL = .;$TEXMF/web2c
148 MFPOOL = .;$TEXMF/web2c
149 MPPOOL = .;$TEXMF/web2c
150
151 % Device-independent font metric files.
152 VFFONTS = .;$TEXMF/fonts/vf//
153 TFMFONTS = .;{$TEXMF/fonts,$VARTEXFONTS}/tfm//
154
155 % The $MAKETEX_MODE below means the drivers will not use a cx font when
156 % the mode is ricoh.  If no mode is explicitly specified, kpse_prog_init
157 % sets MAKETEX_MODE to /, so all subdirectories are searched.  See the manual.
158 % The modeless part guarantees that bitmaps for PostScript fonts are found.
159 PKFONTS = .;{$TEXMF/fonts,$VARTEXFONTS}/pk/{$MAKETEX_MODE,modeless}//
160
161 % Similarly for the GF format, which only remains in existence because
162 % Metafont outputs it (and MF isn't going to change).
163 GFFONTS = .;$TEXMF/fonts/gf/$MAKETEX_MODE//
164
165 % A backup for PKFONTS and GFFONTS. Not used for anything.
166 GLYPHFONTS = .;$TEXMF/fonts
167
168 % For texfonts.map and included map files used by mktexpk.
169 % See ftp://ftp.tug.org/tex/fontname.tar.gz.
170 TEXFONTMAPS = .;$TEXMF/fontname
171
172 % BibTeX bibliographies and style files.
173 BIBINPUTS = .;$TEXMF/bibtex/{bib,}//
174 BSTINPUTS = .;$TEXMF/bibtex/{bst,}//
175
176 % PostScript headers, prologues (.pro), encodings (.enc) and fonts;
177 % this is also where pdftex finds included figures files!
```

```
178
179   TEXPSHEADERS.pdflatex   = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
180   TEXPSHEADERS.pdfelatex  = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
181   TEXPSHEADERS.pdftexinfo = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
182   TEXPSHEADERS.pdfcslatex = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
183   TEXPSHEADERS.pdfcsplain = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
184   TEXPSHEADERS.pdfetex    = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
185   TEXPSHEADERS.pdfjadetex = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
186   TEXPSHEADERS.pdfmex     = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
187   TEXPSHEADERS.pdftex     = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
188   TEXPSHEADERS.pdftexinfo = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
189   TEXPSHEADERS.cont-de    = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
190   TEXPSHEADERS.cont-en    = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
191   TEXPSHEADERS.cont-nl    = .;$TEXMF/{tex,pdftex,dvips,fonts/type1}//
192   TEXPSHEADERS.context    = .;$TEXMF/{etex,tex,pdftex,dvips,fonts/type1}//
193   TEXPSHEADERS = .;$TEXMF/{dvips,fonts/type1,pdftex}//
194
195   % PostScript Type 1 outline fonts.
196   T1FONTS = .;$TEXMF/fonts/type1//
197
198   % PostScript AFM metric files.
199   AFMFONTS = .;$TEXMF/fonts/afm//
200
201   % TrueType outline fonts.
202   TTFONTS = .;$TEXMF/fonts/truetype//
203
204   % Type 42 outline fonts.
205   T42FONTS = .;$TEXMF/fonts/type42//
206
207   % A place to puth everything that doesn't fit the other font categories.
208   MISCFONTS = .;$TEXMF/fonts/misc//
209
210   % Dvips' config.* files (this name should not start with 'TEX'!).
211   TEXCONFIG = .;$TEXMF/dvips//
212
213   % Makeindex style (.ist) files.
214   INDEXSTYLE = .;$TEXMF/makeindex//
215
216   % Used by DMP (ditroff-to-mpx), called by makempx -troff.
217   TRFONTS = /usr/lib/font/devpost
218   MPSUPPORT = .;$TEXMF/metapost/support
219
220   % For xdvi to find mime.types and .mailcap, if they do not exist in
221   % $HOME.  These are single directories, not paths.
222   % (But the default mime.types, at least, may well suffice.)
223   MIMELIBDIR = c:/TeX/etc
224   MAILCAPLIBDIR = c:/TeX/etc
225
226   % TeX documentation and source files, for use with kpsewhich.
227   TEXDOCS = .;$TEXMF/doc//
228   TEXSOURCES = .;$TEXMF/source//
229
230   % Omega-related fonts and other files.  The odd construction for OFMFONTS
231   % makes it behave in the face of a definition of TFMFONTS.  Unfortunately
232   % no default substitution would take place for TFMFONTS, so an explicit
233   % path is retained.
234   OFMFONTS = .;{$TEXMF/fonts,$VARTEXFONTS}/{ofm,tfm}//;$TFMFONTS
235   OPLFONTS = .;{$TEXMF/fonts,$VARTEXFONTS}/opl//
236   OVFFONTS = .;{$TEXMF/fonts,$VARTEXFONTS}/ovf//
237   OVPFONTS = .;{$TEXMF/fonts,$VARTEXFONTS}/ovp//
238   OTPINPUTS = .;$TEXMF/omega/otp//
239   OCPINPUTS = .;$TEXMF/omega/ocp//
240
241   %% TeX4ht utility, sharing files with TeX4ht
242   T4HTINPUTS = .;$TEXMF/tex4ht//
243
244   %% The mktex* scripts rely on KPSE_DOT. Do not set it in the environment.
245   KPSE_DOT = .
```

```
246
247 % This definition isn't used from this .cnf file itself (that would be
248 % paradoxical), but the compile-time default in paths.h is built from it.
249 % The SELFAUTO* variables are set automatically from the location of
250 % argv[0], in kpse_set_progname.
251 %
252 % About the /. construction:
253 % 1) if the variable is undefined, we'd otherwise have an empty path
254 %    element in the compile-time path.  This is not meaningful.
255 % 2) if we used /$VARIABLE, we'd end up with // if VARIABLE is defined,
256 %    which would search the entire world.
257 %
258 % The TETEXDIR stuff isn't likely to be relevant unless you're using teTeX,
259 % but it doesn't hurt.
260 %
261 TEXMFCNF = .;{$SELFAUTOLOC,$SELFAUTODIR,$SELFAUTOPARENT}\
262 {,{/share,}/texmf{.local,}/web2c};c:/TeX/texmf/web2c
263
264
265
266 %  Part 2: Non-path options.
267
268 % Write .log/.dvi/etc. files here, if the current directory is unwritable.
269 % TEXMFOUTPUT = /tmp
270
271 % If a dynamic file creation fails, log the command to this file, in
272 % either the current directory or TEXMFOUTPUT.  Set to the
273 % empty string or  0  to avoid logging.
274 MISSFONT_LOG = missfont.log
275
276 % Set to a colon-separated list of words specifying warnings to suppress.
277 % To suppress everything, use TEX_HUSH = all; this is equivalent to
278 % TEX_HUSH = checksum:lostchar:readable:special
279 TEX_HUSH = none
280
281 % Enable system commands via \write18{...}?
282 shell_escape = f
283
284 % Allow TeX \openout/\openin on filenames starting with `.' (e.g., .rhosts)?
285 % a (any)        : any file can be opened.
286 % r (restricted) : disallow opening "dotfiles".
287 % p (paranoid)   : as 'r' and disallow going to parent directories, and
288 %                  restrict absolute paths to be under $TEXMFOUTPUT.
289 openout_any = p
290 openin_any = a
291 % Allow TeX, MF, and MP to parse the first line of an input file for
292 % the %&format construct.
293 parse_first_line = t
294
295 % Enable the mktex... scripts by default?  These must be set to 0 or 1.
296 % Particular programs can and do override these settings, for example
297 % dvips's -M option.  Your first chance to specify whether the scripts
298 % are invoked by default is at configure time.
299 %
300 % These values are ignored if the script names are changed; e.g., if you
301 % set DVIPSMAKEPK to `foo', what counts is the value of the environment
302 % variable/config value `FOO', not the `MKTEXPK' value.
303 %
304 % MKTEXTEX = 0
305 % MKTEXPK = 0
306 % MKTEXMF = 0
307 % MKTEXTFM = 0
308 % MKOCP = 0
309 % MKOFM = 0
310
311 % What MetaPost runs to make MPX files.  This is passed an option -troff
312 % if MP is in troff mode.  Set to `0' to disable this feature.
313 MPXCOMMAND = makempx
```

```
314
315
316 %  Part 3: Array and other sizes for TeX (and Metafont and MetaPost).
317 %
318 % If you want to change some of these sizes only for a certain TeX
319 % variant, the usual dot notation works, e.g.,
320 % main_memory.hugetex = 20000000
321 %
322 % If a change here appears to be ignored, try redumping the format file.
323
324 % Memory. Must be less than 8,000,000 total.
325 %
326 % main_memory is relevant only to initex, extra_mem_* only to non-ini.
327 % Thus, have to redump the .fmt file after changing main_memory; to add
328 % to existing fmt files, increase extra_mem_*.  (To get an idea of how
329 % much, try \tracingstats=2 in your TeX source file;
330 % web2c/tests/memtest.tex might also be interesting.)
331 %
332 % To increase space for boxes (as might be needed by, e.g., PiCTeX),
333 % increase extra_mem_bot.
334 %
335 % For some xy-pic samples, you may need as much as 700000 words of memory.
336 % For the vast majority of documents, 60000 or less will do.
337 %
338 main_memory = 263000 % words of inimemory available; also applies to inimf&mp
339 extra_mem_top = 0    % extra high memory for chars, tokens, etc.
340 extra_mem_bot = 0    % extra low memory for boxes, glue, breakpoints, etc.
341
342 % Words of font info for TeX (total size of all TFM files, approximately).
343 font_mem_size = 200000
344
345 % Total number of fonts. Must be >= 50 and <= 2000 (without tex.ch changes).
346 font_max = 1000
347
348 % Extra space for the hash table of control sequences (which allows 10K
349 % names as distributed).
350 hash_extra = 0
351
352 % Max number of characters in all strings, including all error messages,
353 % help texts, font names, file names, control sequences.
354 % These values apply to TeX and MP.
355 pool_size = 125000
356
357 % Minimum pool space after TeX/MP's own strings; must be at least
358 % 25000 less than pool_size, but doesn't need to be nearly that large.
359 string_vacancies = 25000
360 max_strings = 15000               % max number of strings
361 pool_free = 5000                % min pool space left after loading .fmt
362
363 % Hyphenation trie. As distributed, the maximum is 65535; this should
364 % work unless 'unsigned short' is not supported or is smaller than 16
365 % bits.  This value should suffice for UK English, US English, French,
366 % and German (for example).  To increase, you must change
367 % 'ssup_trie_opcode' and 'ssup_trie_size' in tex.ch (and rebuild TeX);
368 % the trie will then consume four bytes per entry, instead of two.
369 %
370 % US English, German, and Portuguese: 30000.
371 % German: 14000.
372 % US English: 10000.
373 %
374 trie_size = 64000
375
376 % Buffer size.  TeX uses the buffer to contain input lines, but macro
377 % expansion works by writing material into the buffer and reparsing the
378 % line.  As a consequence, certain constructs require the buffer to be
379 % very large.  As distributed, the size is 50000; most documents can be
380 % handled within a tenth of this size.
381 buf_size = 50000
```

```
% These are Omega-specific.
ocp_buf_size = 20000        % character buffers for ocp filters.
ocp_stack_size = 10000        % stacks for ocp computations.
ocp_list_size = 1000        % control for multiple ocps.

% These work best if they are the same as the I/O buffer size, but it
% doesn't matter much.  Must be a multiple of 8.
dvi_buf_size = 16384    % TeX
gf_buf_size = 16384     % MF

% It's probably inadvisable to change these. At any rate, we must have:
% 45 < error_line      < 255;
% 30 < half_error_line < error_line - 15;
% 60 <= max_print_line;
% These apply to Metafont and MetaPost as well.
error_line = 79
half_error_line = 50
max_print_line = 79
stack_size = 300        % simultaneous input sources
save_size = 4000        % for saving values outside current group
param_size = 500        % simultaneous macro parameters
max_in_open = 15        % simultaneous input files and error insertions
hyph_size = 1000        % number of hyphenation exceptions, >610 and <32767
nest_size = 100                % simultaneous semantic levels (e.g., groups)


main_memory.context = 1100000
hash_extra.context = 25000
pool_size.context = 750000
string_vacancies.context = 45000
max_strings.context = 55000
pool_free.context = 47500
nest_size.context = 500
param_size.context = 1500
save_size.context = 5000
stack_size.context = 1500

main_memory.hugetex = 1100000
param_size.hugetex = 1500
stack_size.hugetex = 1500
hash_extra.hugetex = 15000
string_vacancies.hugetex = 45000
pool_free.hugetex = 47500
nest_size.hugetex = 500
save_size.hugetex = 5000
pool_size.hugetex = 500000
max_strings.hugetex = 55000

main_memory.hugelatex = 1100000
param_size.hugelatex = 1500
stack_size.hugelatex = 1500
hash_extra.hugelatex = 15000
string_vacancies.hugelatex = 45000
pool_free.hugelatex = 47500
nest_size.hugelatex = 500
save_size.hugelatex = 5000
pool_size.hugelatex = 500000
max_strings.hugelatex = 55000

main_memory.jadetex = 1500000
param_size.jadetex = 1500
stack_size.jadetex = 1500
hash_extra.jadetex = 50000
string_vacancies.jadetex = 45000
pool_free.jadetex = 47500
nest_size.jadetex = 500
save_size.jadetex = 5000
```

```
pool_size.jadetex = 500000
max_strings.jadetex = 55000

main_memory.pdfjadetex = 2500000
param_size.pdfjadetex = 1500
stack_size.pdfjadetex = 1500
hash_extra.pdfjadetex = 50000
string_vacancies.pdfjadetex = 45000
pool_free.pdfjadetex = 47500
nest_size.pdfjadetex = 500
save_size.pdfjadetex = 5000
pool_size.pdfjadetex = 500000
max_strings.pdfjadetex = 55000

main_memory.pdflatex = 1500000
param_size.pdflatex = 1500
stack_size.pdflatex = 1500
hash_extra.pdflatex = 15000
string_vacancies.pdflatex = 45000
pool_free.pdflatex = 47500
nest_size.pdflatex = 500
pool_size.pdflatex = 500000
save_size.pdflatex = 5000
max_strings.pdflatex = 55000

main_memory.pdfelatex = 1500000
param_size.pdfelatex = 1500
stack_size.pdfelatex = 1500
hash_extra.pdfelatex = 15000
string_vacancies.pdfelatex = 45000
pool_free.pdfelatex = 47500
nest_size.pdfelatex = 500
pool_size.pdfelatex = 500000
save_size.pdfelatex = 5000
max_strings.pdfelatex = 55000

```

```
==================> TeX Live installation procedure <==================

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

    Proposed platform: Intel x86 with GNU/Linux
    <P> over-ride system detection and choose platform
    <C> collections:    24 out of 34, disk space required: 9812099 kB
    <S> systems:         1 out of  8, disk space required:   7925 kB
                                total disk space required: 9820024 kB
    <L> install level (1: basic, 2: recommended, 3: all): 2
    <D> directories:
      TEXDIR     (The main TeX directory)            : /usr/TeX
      TEXMFLOCAL (TeX directory for local styles etc): /var/TeX-local
    <O> options:
       [ ] alternate directory for generated fonts ()
       [ ] alternate directory for configuration ()
       [ ] create symlinks in standard directories
       [ ] do not install macro/font doc tree
       [ ] do not install macro/font source tree
       [ ] only install free software
    <I> start installation,  <H> help,  <Q> quit
Enter command:
```

Figure 1: Main control screen

```
       name            selection         size
  <1>  bibtex    [recommended]     7597 kB
  <2>  doc       [recommended]    21152 kB
  <3>  dvips     [recommended]      430 kB
  <4>  etex      [recommended]      102 kB
  <5>  fonts     [recommended]    51447 kB
  <6>  formats   [recommended]    14651 kB
  <7>  generic   [recommended]      459 kB
  <8>  graphics  [recommended]     9674 kB
  <9>  lang      [recommended]    19618 kB
  <U>  latex     [recommended]    23429 kB
  <V>  metapost  [recommended]     1443 kB
  <W>  omega     [recommended]     4986 kB
  <X>  pdftex    [recommended]      471 kB
  <Y>  plain     [recommended]     1113 kB
  <Z>  texlive   [recommended]    10155 kB
                           SUM:   166829 kB
================================================================================
  global commands: select <N>one / <B>asic / R<E>commended / <A>ll
                   for all collections
  <R>  return to platform menu
  <Q>  quit
```

Figure 2: Selecting collections

```
Collection: Fonts
================================================================================

Fonts, including metrics, virtual fonts and sources

================================================================================
  <N>  No packages
  <B>  Basic packages                [  1023 kB]
  <E>  Basic + Recommended packages  [ 51447 kB]
  <A>  All packages                  [127417 kB]

================================================================================
  <R>   return to collection menu
  <Q>   quit

Enter command:
```

Figure 3: Customizing a collection

```
    debug:start search(file=texmf.cnf, must_exist=1, find_all=1,
      path=.:/usr/local/bin/texlive:/usr/local/bin:
           /usr/local/bin/texmf/web2c:/usr/local:
           /usr/local/texmf/web2c:/.:/./teTeX/TeX/texmf/web2c:).
    kdebug:start search(file=ls-R, must_exist=1, find_all=1,
      path=~/tex:/usr/local/texmf).
    kdebug:search(ls-R) =>/usr/local/texmf/ls-R
    kdebug:start search(file=aliases, must_exist=1, find_all=1,
      path=~/tex:/usr/local/texmf).
    kdebug:search(aliases) => /usr/local/texmf/aliases
    kdebug:start search(file=config.ps, must_exist=0, find_all=0,
      path=.:~/tex:!!/usr/local/texmf/dvips//).
    kdebug:search(config.ps) => /usr/local/texmf/dvips/config/config.ps
    kdebug:start search(file=/root/.dvipsrc, must_exist=0, find_all=0,
      path=.:~/tex:!!/usr/local/texmf/dvips//).
    search(file=/home/goossens/.dvipsrc, must_exist=1, find_all=0,
      path=.:~/tex/dvips//:!!/usr/local/texmf/dvips//).
    kdebug:search($HOME/.dvipsrc) =>
    kdebug:start search(file=config.cms, must_exist=0, find_all=0,
      path=.:~/tex/dvips//:!!/usr/local/texmf/dvips//).
    kdebug:search(config.cms)
    =>/usr/local/texmf/dvips/cms/config.cms
```

Figure 4: Finding configuration files

```
  kdebug:start search(file=texc.pro, must\_exist=0, find\_all=0,
    path=.:~/tex/dvips//:!!/usr/local/texmf/dvips//:
         ~/tex/fonts/type1//:!!/usr/local/texmf/fonts/type1//).
  kdebug:search(texc.pro) => /usr/local/texmf/dvips/base/texc.pro
```

Figure 5: Finding the prolog file

```
kdebug:start search(file=cmr10.tfm, must\_exist=1, find\_all=0,
  path=.:~/tex/fonts/tfm//:!!/usr/local/texmf/fonts/tfm//:
       /var/tex/fonts/tfm//).
kdebug:search(cmr10.tfm) => /usr/local/texmf/fonts/tfm/public/cm/cmr10.tfm
kdebug:start search(file=texps.pro, must\_exist=0, find\_all=0,
   ...
<texps.pro>
kdebug:start search(file=cmr10.pfb, must\_exist=0, find\_all=0,
  path=.:~/tex/dvips//:!!/usr/local/texmf/dvips//:
       ~/tex/fonts/type1//:!!/usr/local/texmf/fonts/type1//).
kdebug:search(cmr10.pfb) => /usr/local/texmf/fonts/type1/public/cm/cmr10.pfb
<cmr10.pfb>[1]
```

Figure 6: Finding the font file

11 Catalogue of Packages

Table 2: **TEX Live** packages

Package	*License*	*Collection*	*Description*
a0poster	unknown	latex3	Provides fonts in sizes of 12pt up to 107pt. Provides fonts in sizes of 12pt up to 107pt and also makes sure that in math formulas the symbols appear in the right size. Can also creates a PostScript header file for dvips which ensures that the poster will be printed in the right size. Supported sizes are DIN A0, DIN A1, DIN A2 and DIN A3.
aaai	unknown	latex3	AAAI style.
abstyles	unknown	bibtex3	No description available.
accfonts	free	fonts3	Includes mkt1font, vpl2vpl, CSX.def, and Norman.def.
achemso	unknown	latex3	LaTeX and BibTeX style for American Chemical Society.
acronym	unknown	latex3	Expand acronyms at least once. This package ensures that all acronyms used in the text are spelled out in full at least once. It also provides an environment to build a list of acronyms.
adfathesis	unknown	latex3	Australian Defence Force Academy thesis format.
adobeother	unknown	fonts3	Font metrics for Adobe non-standard fonts.
adobestd	unknown	fonts1	Font metrics for Adobe 'standard' fonts.
adrlist	unknown	latex3	Using address lists in LaTeX.
ae	free	fonts2	A set of virtual fonts which emulates T1 coded fonts using the standard CM fonts. The package is called AE fonts (for Almost European). The main use of the package is to produce PDF files using Type 1 versions of the CM fonts instead of the bitmapped EC fonts.
aguplus	lppl	latex3	Styles for American Geophysical Union.
aiaa	lppl	latex3	American Institute of Aeronautics and Astronautics. A bundle of LaTeX/BibTeX files and sample documents to aid those producing papers and journal articles according to the guidelines of the American Institute of Aeronautics and Astronautics (AIAA).
akletter	unknown	latex3	An advanced letter document class which extends LaTeX's usual letter class, providing support for building your own letterhead and marking fold points for window envelopes.
alatex	free	formats3	An extended LaTeX with better modularity.
algorithms	unknown	latex3	Defines a floating algorithm environment designed to work with the algorithmic package.
alg	unknown	latex3	LaTeX environments for typesetting algorithms.
alphaev5-osf4.0d	free	systems1	System binaries for Alphaev5 running OSF 4.0d.
altfont	gpl	latex3	A generalised replacement for some parts of psnfss and mfnfss. Similar to psfont with the PostScript specific code removed.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
amsfonts	lppl	fonts2	A set of TEX fonts from the American Mathematical Society augmenting the standard set normally distributed with TEX, including: extra mathematical symbols; blackboard bold letters (uppercase only); fraktur letters; subscript sizes of bold math italic and bold Greek letters; subscript sizes of large symbols such as sum and product; added sizes of the Computer Modern small caps font; cyrillic fonts (from the University of Washington); Euler math fonts.
amslatex	lppl	latex2	A collection of loosely related files that are distributed together by the American Mathematical Society. These files are miscellaneous enhancements to LATEX whose aim is superior information structure of mathematical documents and superior printed output.
amstex	lppl	plain2	American Mathematical Society plain TEX macros.
answers	unknown	latex3	Styles for setting questions (or exercises) and answers.
antyktor	pd	fonts3	Antykwa Toruńska is a serif font designed by the Polish typographer Zygfryd Gardzielewski which have been reconstructed and digitized as Type 1.
apa	unknown	latex3	A LATEX class to format text according to the American Psychological Association Publication Manual (4th ed.) specifications for manuscripts or to the APA journal look found in journals like the Journal of Experimental Psychology etc. In addition, it provides regular LATEX-like output with a few enhancements and APA-motivated changes.
apl	unknown	fonts3	Fonts for typesetting APL programs.
appendix	unknown	latex3	Provides various ways of formatting the titles of appendices. The word 'Appendix' or similar can be prepended to the appendix number for article class documents. The word 'Appendices' or similar can be added to the table of contents before the appendices are listed. The word 'Appendices' or similar can be typeset as a `\part`-like heading (page) in the body. An appendices environment is provided which can be used instead of the `\appendix` command.
arabtex	nocommercial	lang3	Macros and fonts for typesetting Arabic.
arydshln	lppl	latex3	Draws horizontal and vertical dashed lines in LATEX's `array` and `tabular` environments
ar	unknown	fonts3	METAFONT files and a LATEX 2ε package for producing and using the capital A and capital R ligature, used for the symbol of the "aspect ratio" by scientists and engineers in the field of aeronautics.
asaetr	unknown	latex3	An attempt to mimic Transactions of the ASAE.
ascii	unknown	fonts3	Support for IBM extended ASCII font.
astro	unknown	fonts3	Astronomical (planetary) symbols.
aurora	unknown	dvips3	Header files for dvips to make colour separations.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
authorindex	unknown	latex3	A package to generate a list of all authors cited in a document along with a list of pages where these citations occur.
autotab	unknown	latex3	Generating tabular setups.
babel	lppl	generic2	Multilingual support for LaTeX.
backgammon	unknown	fonts3	Style for typesetting backgammon boards.
bakoma	free	fonts2	A TeX package intended for preparing Electronic Publications. The system works under MS-Windows 3.1/9X/NT (with ATM installed). The system includes a complete extendable GUI (Text editor, DVI Viewer, Help system), an updated version of the BaKoMa Fonts Collection, the TeXprocessor with friends (BibTeX MakeIndex, MetaPost, DVIPS, DVICopy), a standard compliant TDS, and an installation program. The system supports the use of scalable fonts (PostScript Type 1 and Type 3 font formats) and the importing of PostScript graphics into documents. The system supports generation of PDF and printing on any printer supported by a driver under MS Windows. The system efficiently supports multiple TEXMF trees.
barcode2	unknown	fonts3	No description available.
barcodes	unknown	fonts3	Fonts for making barcodes.
barr	unknown	graphics3	Diagram macros by Michael Barr.
bbding	lppl	fonts3	An NFSS-interface to the symbol font bbding containing many of the Zapf dingbats fonts.
bbm	unknown	fonts3	Blackboard variant fonts for Computer Modern, with LaTeX support.
bbold	unknown	fonts3	A geometric sans serif blackboard bold font, for use in mathematics
bbtbase	free	bibtex1	Basic BibTeX support files.
bbtdoc	free	bibtex2	Basic BibTeX documentation.
beebe	unknown	bibtex2	Nelson Beebe's collection of TeX-related bibliographies and BibTeX style files.
belleek	unknown	fonts2	Free replacement for basic MathTime fonts
beton	unknown	latex3	Typeset a LaTeX 2ε document with the Concrete fonts designed by Don Knuth and used in his book "Concrete Mathematics".
bez123	unknown	latex3	A package providing additional facilities for drawing linear, cubic, and rational quadratic Bezier curves. The multiply package provides a command for multiplication of a length without numerical overflow.
bezos	unknown	latex3	Unrelated packages by Javier Bezos: tools for math accents; tensorial indexes; tools for easy entry of Spanish index entries.
bibarts	unknown	bibtex3	A package to assist in making bibliographical lists common in the arts.
biblist	unknown	latex3	BibTeX styles by Joachim Schrod.
bluesky	free	fonts1	Computer Modern family in Type 1 format.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
blue	shareware	formats3	Kees van der Laan's BLUe format, a concise but expressive document preparation system modelled on Knuth's manmac.
booktabs	unknown	latex2	Nicer layout of tables.
borceux	unknown	graphics3	Diagram macros by Francois Borceux.
bosisio	unknown	latex3	A collection of packages including: dblfont; graphfig; mathcmd; mathenv; quotes; sobolev.
bridge	unknown	latex3	Macros for typesetting bridge diagrams.
brushscr	unknown	fonts3	BrushScript fonts including pbsi, a Type-1 PostScript font containing BrushScript Italic characters.
c-pascal	unknown	generic3	A TEX macro package for typesetting programs in C and Pascal. Program sources in C and Pascal can also be input.
calendar	unknown	latex3	A package for calendars and timetables. Includes, for example, a package which organizes date items in a format suitable for conference schedules, itineraries, academic teaching timetables and the like.
calligra	unknown	fonts3	Calligraphic font in the handwriting style of the author, Peter Vanroose.
calrsfs	unknown	latex3	Nicer calligraphic letters.
camel	unknown	latex3	Comprehensive bibliography manager (prototype citation engine for LATEX3). Will become BIBTEX 1.0 on release. Under development.
caption	unknown	latex2	Extends caption capabilities for figures and tables, such as the caption width, style, font. Many aspects are tunable as options.
carlisle	lppl	latex2	Miscellaneous small packages by David Carlisle.
casyl	unknown	lang3	Typeset Cree/Inuktitut in Canadian Aboriginal Syllabics.
catalog	free	doc2	Graham Williams' Catalogue of TEX packages.
cbgreek	lppl	fonts3	METAFONT source files for a complete set of Greek fonts.
cc-pl	pd	fonts2	Polish METAFONT sources for variants of Computer Concrete.
ccaption	unknown	latex3	A package providing commands for 'continuation' headings and also a non-specific legend for floats. Also provided are methods to define captions for use outside float (e.g., figure and table) environments, and to define new float environments.
ccfonts	lppl	latex3	LATEX font definition files for the Concrete fonts and a LATEX package for typesetting documents using Concrete as the default font family. The files support OT1, T1, TS1 and Concrete math including AMS fonts (Ulrik Vieth's concmath).
cchess	unknown	fonts3	Macros and fonts for typesetting Chinese Chess board diagrams.
cdcover	gpl	latex3	Typeset CD covers.
cellular	unknown	plain3	Cellular table construction.
changebar	lppl	latex2	Generate changebars in LATEX documents.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
chemcono	lppl	latex3	A LaTeX style file for using compound numbers in chemistry documents. It works like `\cite` and the `\thebibliography`, using `\fcite` and `\theffbibliography` instead. It allows compound names in documents to be numbered and does not affect the normal citation routines.
chemsym	unknown	latex3	Macros for typing chemical symbols.
cheq	unknown	fonts3	Adobe chess font.
cherokee	unknown	fonts3	Fonts for Cherokee scripts.
chess	unknown	fonts3	Fonts for typesetting chess boards.
china2e	unknown	latex3	A LaTeX package to produce Chinese calendar symbols of the old Chinese lunisolar calendar.
circ	unknown	graphics3	Macros for typesetting circuit diagrams. Several electrical symbols like resistor, capacitor, transistors etc., are defined. The symbols can be connected with wires.
cirth	unknown	fonts3	Fonts for Cirth.
cite	free	latex2	Supports compressed, sorted lists of numerical citations.
cjk	unknown	lang3	A macro package which enables the use of Chinese/Japanese/Korean with LaTeX 2ε.
cmbright	unknown	fonts2	A family of sans serif fonts for TeX and LaTeXbased on Donald Knuth's CM fonts. It comprises OT1, T1 and TS1 encoded text fonts of various shapes as well as all the fonts necessary for mathematical typesetting incl. AMS symbols. This collection provides all the necessary files for using the fonts with LaTeX.
cmcyralt	unknown	latex3	Alternative Russian encoding support.
cmcyr	pd	fonts3	Computer Modern fonts extended with Russian letters, in METAFONT sources and ATM Compatible Type 1.
cmdtrack	unknown	latex2	Check used commands. Aids in the task of checking whether a command defined in a document preamble is actually used somewhere in the document. If you add a statement to use the package cmdtrack to the preamble of your document, all 'newcommand' and similar statements between that point and the beginning of the document will be marked for logging. At the end of the document a report of the command usage will be printed in the TeX log, for example: mdash was used on line 25; ndash was never used.
cmextra	unknown	fonts2	Extra Computer Modern fonts, from the American Mathematical Society.
cmpica	unknown	fonts3	A Computer Modern Pica variant.
cmpk	free	fonts3	Computer Modern fonts in PK format.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
cmsd	lppl	latex3	A package including additional fd files. Its purpose is to provide an alternative interface to the CM Sans Serif boldface fonts. The EC (T1, Cork) encoded versions of the 'CM Sans Serif boldface extended' fonts differ considerably from the traditionally (OT1) encoded ones: At large sizes > 10pt, they have thinner strokes and are much wider. At 25pt they are hardly to be recognized as being 'boldface'. This package attempts to make these T1 fonts look like the traditional ones did. You do not need any new fonts; the package just changes the way LaTeX makes use of the current ones.
cm	unknown	fonts1	Computer Modern fonts.
codepage	unknown	latex3	Support for variant code pages.
colorsep	unknown	dvips3	Support for colour separation when using dvips.
colortab	unknown	plain3	Lets you shade or color the cells in the alignment environments such as `\halign` and LaTeX's tabular and array environments.
comment	unknown	latex3	Selectively include/exclude pieces of text, allowing the user to define new, separately controlled, comment versions.
concmath	lppl	fonts3	Concrete math fonts derived from Computer Modern math fonts using parameters from Concrete text fonts. A LaTeX package providing the necessary font definition code is included.
concrete	unknown	fonts3	Concrete fonts.
context	gpl	formats2	A full featured, parameter driven macro package, which fully supports advanced interactive documents. ppchtex is a module that can be used to typeset chemical formulas.
covington	unknown	latex3	A LaTeX macro package for linguistics which supports a convenient way of putting multiple accents on a single letter.
croatian	unknown	lang3	Fonts for typesetting Croatian scripts.
crop	unknown	latex3	A package providing corner marks for camera alignment as well as for trimming paper stacks, and additional page information on every page if required. Most macros are easily adaptable to personal preferences.
crossword	unknown	latex3	Macros for typesetting crossword puzzles.
crosswrd	unknown	latex3	Brian Hamilton Kelly's crosswrd package updated to run with LaTeX 2ε.
csfonts	unknown	fonts2	Czech/Slovak-tuned METAFONT Computer Modern fonts.
cslatex	unknown	lang2	LaTeX support for Czech/Slovak typesetting.
csplain	lppl	lang2	Plain TeX support for Czech/Slovak typesetting.
cspsfonts	unknown	fonts2	No description available.
cstug	unknown	doc3	No description available.
cursor	unknown	latex3	Creates a simple L-shaped 'cursor' in a math environment to mimic what one might see on a computer screen.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
curves	unknown	graphics3	Draws curves in the LaTeX picture environment using parabolas between points with continuous slope at points. Equivalent to technical pens with compasses and French curves.
custom-bib	lppl	bibtex2	Package generating customized BibTeX bibliography styles from a generic file using docstrip.
cyrillic	unknown	lang2	
dancers	unknown	fonts3	Font for the Sherlock Holmes 'Dancing Men'.
deleq	unknown	latex3	Provides a more flexible numbering of equations subequations, and 'recycled' equations, including 'partial' equation numbers ('3a', '3b', etc.).
devanagari	unknown	lang3	Fonts for typesetting Velthuis Devanagari.
dialogl	unknown	latex3	Macros for constructing interactive LaTeX scripts.
dinbrief	nosell	latex3	German letter DIN style.
directory	unknown	bibtex3	A package for LaTeX and BibTeX that facilitates the construction, maintenance and exploitation of an address book-like database.
dotseqn	unknown	latex3	Flush left equations with dotted letters to the numbers.
draftcopy	lppl	latex3	Places the word DRAFT (or other words) in light grey diagonally across the background (or at the bottom) of each (or selected) pages of the document.
dratex	unknown	graphics3	General drawing macros entirely in TeX.
dropping	unknown	latex3	A LaTeX 2ε macro for dropping the first character(s) (or word(s)) of a paragraph, extending the LaTeX 2.09 package dropcaps and automatically taking care of finding the font name.
dstroke	unknown	fonts3	doublestroke font for typesetting the mathematical symbols for the natural numbers (N), whole numbers (Z), rational numbers (Q), real numbers (R) and complex numbers (C)
dtk	free	latex3	Macros for the DANTE publication.
duerer	unknown	fonts3	Computer Duerer fonts.
dvipdfm	unknown	doc2	A dvi driver to produce PDF directly.
dvipsbase	free	dvips1	Basic support files for dvips.
dvipsdoc	unknown	dvips2	No description available.
ean	gpl	generic3	Font for making EAN barcodes.
easy	unknown	latex3	Easy macros.
ecc	lppl	fonts3	The METAFONT sources and tfm files of the European Concrete Fonts. This is the EC implementation of Knuth's Concrete fonts, including also the corresponding text companion fonts.
ecltree	unknown	latex2	No description available.
eco	unknown	fonts3	A set of font metric files and virtual fonts for using the ec fonts with oldstyle numerals. These files can only be used together with the standard ec fonts. The style file eco.sty is sufficient to use the eco fonts but if you intend to use other font families as well, e.g. PostScript fonts, try altfont.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
ecpk	unknown	fonts3	No description available.
ec	lppl	fonts2	The European Computer Modern Fonts supporting the complete LaTeX T1 encoding defined at the 1990 TUG conference hold at Cork/Ireland. These fonts are intended to be stable with no changes being made to the tfm files. Also contains a Text Companion Symbol font, called tc, featuring many useful characters needed in typesetting, for example oldstyle digits, currency symbols (including the newly created Euro symbol), the permille sign, copyright, trade mark and servicemark as well as a copyleft sign, and many others. Recent releases of LaTeX 2ε support the ec fonts. The ec fonts supersede the preliminary version released as the dc fonts.
edmac	unknown	plain3	A macro package for typesetting scholarly critical editions.
eepic	free	graphics2	Extensions to epic and the LaTeX picture drawing environment, including the drawing of lines at any slope, the drawing of circles in any radii, and the drawing of dotted and dashed lines much faster with much less TeX memory, and providing several new commands for drawing ellipses, arcs, splines, and filled circles and ellipses.
egplot	unknown	latex3	A package to encapsulate gnuplot commands in a LaTeX source file and thus include figures generated with gnuplot.
eiad	unknown	fonts3	Macros and EIAD fonts.
eijkhout	unknown	generic3	Several unrelated packages: `DB_process`, to parse and process database output; `CD_labeler`, to typeset user text to fit on a CD label; `repeat.tex`, a nestable, generic loop macro.
elsevier	nosell	latex3	Preprint style for Elsevier Science journals.
elvish	unknown	fonts3	Font for typesetting Tolkien Elvish script.
emp	free	latex3	A package for encapsulated MetaPost pictures in LaTeX. Useful for keeping illustrations in sync with the text. It also frees the user from inventing descriptive names for PostScript files that fit into the confines of file system conventions.
emulateapj	lppl	latex3	LaTeX style files to produce preprints with the page layout similar to that of the Astrophysical Journal.
encodings	unknown	omega2	No description available.
endfloat	free	latex3	Place all figures on pages by themselves at the end of the document with markers like "[Figure 3 about here]" appearing in the text (by default) near to where the figure (or table) would normally have occurred.
engwar	unknown	fonts3	Font for typesetting Tolkien Engwar script, by Michael Urban.
envbig	unknown	latex3	Printing addresses on envelopes.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
envlab	unknown	latex3	A LaTeX 2ε package for producing mailing envelopes and labels, including barcodes and address formatting according to the US Postal Service rules. Redefines the standard `\makelabels` command of the LaTeX 2ε letter documentclass.
epigraph	unknown	latex3	A package for typesetting epigraphs—the pithy quotations often found at the start (or end) of a chapter. Both single epigraphs and lists of epigraphs are catered for. Various aspects are easily configurable.
eplain	free	formats2	Simple but powerful extended version of the plain format adding support for bibliographies, tables of contents enumerated lists, verbatim input of files, numbered equations, tables, two-column output, footnotes and commutative diagrams.
eqname	unknown	latex3	Style for different equation numbering.
eqnarray	unknown	latex3	More generalised equation arrays with numbering.
esieecv	unknown	latex3	Curriculum vitæ for French.
etexbase	unknown	etex2	No description available.
etruscan	gpl	fonts3	Fonts for the Etruscan script which was in use between approximately 1000 BC to 100 AD. The font comes in mirrored forms suitable for writing either left-to-right or right-to-left (as the Etruscans did)
euler	unknown	latex3	Provides a setup for using the AMS Euler family of fonts for math in LaTeX documents. "The underlying philosophy of Zapf's Euler design was to capture the flavor of mathematics as it might be written by a mathematician with excellent handwriting." [concrete-tug] The euler package is based on Knuth's macros for the book "Concrete Mathematics". The text fonts for the Concrete book are provided by the beton package.
euro2	unknown	latex3	This package typesets national currency values and their Euro values automatically and in customizable format.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
eurofont	unknown	fonts2	Provides a command that prints a euro symbol. The particular symbol printed by `\euro` will in general change depending on the font family, weight, and shape in use at the time. This symbol can come from any source and the package user has complete control over which euro symbol is used in any given situation. The package is pre-configured to behave sensibly with many common text fonts and available euro symbols. The `\euro` command can print 'faked' euro symbols from a C with two lines across it when no suitable real euro symbol is available; the package also includes code for printing fake bold euro symbols for use when no real bold symbol exists, as well as pre-configured support for a faked italic version of the marvosym font. Eurofont comes set up to use euro symbols from Adobe's Eurofonts, the marvosym font, the Eurosym font, and any available Text Companion fonts. The selection between these can be done using options passed to the package. The eurofont package knows about the China2e font's euro symbol, and can be configured to use it.
europs	unknown	fonts2	Provides access to Adobe's Euro currency symbol fonts from LaTeX. The fonts are named using Karl Berry's naming scheme, providing fd files and a style file to use the fonts directly, and providing four macros: `\EURtm` `\EURhv`, `\EURcr` and `\EUR` (from marvosym). The actual symbol they produce depends on the currently active font, i.e., they follow font changes caused by `\text..` and other NFSS commands. The actual Type 1 fonts are not included as they have to be fetched from Adobe's web or ftp server.
eurosans	unknown	latex3	Provides a convenient interface for using the free Adobe Euro fonts in Type 1 (PostScript) format. Loading the package defines a new command `\euro` which typesets a Euro symbol. The symbol is always taken from the 'EuroSans' family, with the weight (medium or boldface) and shape (normal or oblique) varying according to the font currently selected. This Euro symbol meets the official design and matches almost any font family very well, except for typewriter fonts.
eurosym	unknown	fonts2	The new European currency symbol for the "Euro" implemented in Metafont, using the official European Commission dimensions, and providing several shapes (normal, slanted, bold, outline). The package also includes a LaTeX style file which defines the macro € pre-compiled tfm files, and documentation.
euro	unknown	fonts2	No description available.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
euxm	unknown	fonts3	Like EUSM but with two more characters needed for Concrete Math
examdesign	unknown	latex3	Package for typesetting exams.
exam	unknown	latex3	Package for typesetting exam scripts.
expdlist	unknown	latex3	Expanded description environments.
expl3	unknown	latex3	Experimental packages to allow experienced TEX programmers to experiment with, and comment on, a proposed set of syntax conventions and basic data-types that might form the basis for programming large scale projects in TEX.
export	unknown	latex3	This package allows the user to export/import the values of LATEX registers (counters, rigid and rubber lengths only). It is definitely NOT for faint-hearted users.
fancybox	unknown	latex2	Provides variants of `\fbox`: `\shadowbox`, `\doublebox` `\ovalbox`, `\Ovalbox`, with helpful tools for using box macros and flexible verbatim macros. You can box mathematics, floats, center, flushleft, and flushright lists, and pages.
fancyhdr	unknown	latex2	Support for sophisticated control of page headers and footers in LATEX 2ε.
fancyref	gpl	latex2	A LATEX package for fancy cross-referencing.
fancyvrb	unknown	latex2	Sophisticated handling of verbatim text including: verbatim commands in footnotes; a variety of verbatim environments with many parameters; ability to define new customized verbatim environments; save and restore verbatim text and environments; write and read files in verbatim mode; build "example" environments (showing both result and verbatim text).
fax	unknown	latex3	Document class for preparing faxes.
fc	unknown	fonts3	Fonts for African languages, complementary to Computer Modern.
feynmf	free	graphics3	Macros and fonts for creating Feynman (and other) diagrams.
finbib	unknown	bibtex3	No description available.
floatfig	nosell	latex3	Allows text to be wrapped around figures.
floatflt	nosell	latex3	Float text around figures and tables which do not span the full width of a page, improving upon floatfig, allowing tables/figures to be set left/right or alternating on even/odd pages.
float	nosell	latex2	Improves the interface for defining floating objects such as figures and tables. Introduces the boxed float and the ruled float. You can define your own floats and improve the behaviour of the old ones. Also incorporates the H option of the superseded here package. You can select this as automatic default with `\floatplacement{figure}{H}`.
fltpage	unknown	latex3	Defines new environments for placing captions of tables and figures on the facing/following page.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
fncychap	unknown	latex3	This package provides six predefined chapter headings. Each can be modified using a set of simple commands. Optionally one can modify the formatting routines in order to create additional chapter headings. This package was previously known as FancyChapter.
foilhtml	lppl	latex3	Provides integration between FoilTeX and LaTeX2HTML, adding sectioning commands and elements of logical formatting to FoilTeX and providing support for FoilTeX commands in LaTeX2HTML.
foiltex	nocommercial	latex3	A LaTeX 2ε class for overhead transparencies. Can be used with fancybox to place a variety of borders around the slides.
fontinst	unknown	generic2	TeX macros for converting Adobe Font Metric files to TeX metric and virtual font format.
fontname	unknown	doc2	Karl Berry's scheme for naming fonts in TeX.
footbib	unknown	latex3	A package to put bibliographic references as footnotes.
footmisc	unknown	latex2	Footnotes package for LaTeX capturing as package options much (if not all) of the functionality of the various other footnote packages.
footnpag	gpl	latex3	Allows footnotes on individual pages to be numbered from 1, rather than being numbered sequentially through the document.
formats	unknown	texlive2	Prebuilt TeX format and METAFONT base files.
formula	unknown	latex3	Support for physical symbols, ensuring the same shape in text and math mode, including some predefined physical units.
fp	unknown	latex3	Provides an extensive collection of arithmetic operations for fixed point real numbers of high precision.
frankenstein	gpl	latex3	A collection of 14 LaTeX tools and a BibTeX bibliography style
french	nosell	lang2	Style for French typography.
fribrief	unknown	latex3	A LaTeX class for writing letters.
fullblck	unknown	latex3	Used with the letter documentclass to set the letter in a fullblock style (everything at the left margin).
fullpict	unknown	latex3	Full page pictures.
fundus	unknown	latex3	Providing LaTeX access to various font families.
futhark	unknown	fonts3	Fonts for the Older Futhark script.
g-brief	free	latex3	A document class for LaTeX 2ε. Serves for formatting formless letters in german or english language.
gb4e	unknown	latex3	Government Binding styles.
genealogy	lppl	fonts3	A simple compilation of the genealogical symbols found in the 'wasy' and 'gen' font, essentially adding the male and female symbols to Knuth's 'gen' font, and so avoiding loading two fonts when you need only genealogical symbols.
general	free	doc1	Useful general documentation.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
genmisc	unknown	generic3	Miscellaneous small files for all formats, specific to the **TEX Live** CD-ROM.
geometry	free	latex3	Provides an easy and flexible user interface to customize page layout, implementing auto-centering and auto-balancing mechanisms so that the users have only to give the least description for the page layout.
geomsty	unknown	latex3	Provides: inclusion of PostScript figures, and of TEX text within figures; automatic creation of index entries and cross-references where appropriate; no need to worry about fragile commands in almost all situations; greater versatility in defining theorem-like environments; proofing aids such as version numbers and a running index.
german	nosell	lang2	Support for German typography, supporting the new German orthography (neue deutsche Rechtschreibung).
germbib	unknown	bibtex2	German variants of standard BIBTEX styles.
germdoc	unknown	doc2	No description available.
gloss	unknown	latex3	A glossary package modelled on BIBTEX with `\cite` replaced by `\gloss`.
gn-logic	unknown	latex3	No description available.
gothic	unknown	fonts3	Gothic and ornamental initial fonts by Yannis Haralambous.
go	unknown	fonts3	Fonts and macros for typesetting go games.
graphics	lppl	latex1	The primary LATEX package for the support of the inclusion of graphics generally produced with other tools. This package aims to give a consistent interface to including the file types that are understood by your printer driver. For documentation see grfguide.
greek6cbc	gpl	fonts3	A Greek font typical of those used in the 6th century BC
grnumalt	unknown	latex3	A package which implements a numbering system used in ancient Athens, producing the 'Athenian' numeral for any positive arabic numeral. The package can be used as a means to provide alternative counters.
grtimes	unknown	lang3	Typeset Greek text with the Times New Roman Greek. Enables users who use the Greek option of the Babel package to typeset monotonic Greek text with the Times New Roman Greek, Arial Greek and Courier Greek fonts. Does not include the fonts.
guides	free	doc2	Guides to using LATEX, in English, German, French, Greek and Polish.
gustlib	unknown	plain2	Various small utility packages for typesetting in plain TEX, with a Polish perspective.
hands	unknown	fonts3	Pointing hand fonts.
hanging	unknown	latex3	The hanging package facilitates the typesetting of hanging paragraphs. It also enables typesetting with hanging punctuation (this is probably best regarded as a curiosity).
harpoon	unknown	latex3	Extra harpoons, using the graphics package.
harvard	unknown	bibtex2	The Harvard bibliography style family.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
harvmac	unknown	plain3	Paul Ginsparg's Harvard macros for scientific articles.
hh	unknown	latex3	Fancy boxing effects.
hilowres	unknown	latex3	A package to simplify the inclusion of low resolution versions of high resolution images, if each pair of files have the same basename (e.g., bird.low.eps and bird.eps). The package is a simple wrapper around the `\includegraphics` command of the graphicx package.
histogr	unknown	latex3	Drawing histograms with the LaTeX picture environment.
hoekwater	unknown	fonts2	Fonts originally created in METAFONT, transformed to PostScript Type 1 by Taco Hoekwater; includes logo, manfnt, rsfs, stmaryrd, wasy, wasy2, xipa.
hppa1.1-hpux10.10	free	systems1	System binaries for HP running hpux10.10.
html	unknown	doc2	Various TeX documentation converted to HTML.
hvmaths	unknown	fonts3	Typesetting text and math using Helvetica PostScript fonts
hyperref	lppl	latex2	Support for HyperTeX drivers. Redefines LaTeX cross-referencing commands to insert `\special` commands for HyperTeX dvi viewers, or for translation to Adobe's PDF (Portable Document Format) for viewing on the Web with Acroread.
hyper	lppl	latex3	Redefines LaTeX cross-referencing commands to insert `\special` commands for HyperTeX dvi viewers, such as recent versions of xdvi.
hyphenat	free	latex3	Disable/enable hypenation. This package can disable all hyphenation or enable hyphenation of non-alphabetics or monospaced fonts. Enables hyphenation within 'words' that contain non-alphabetic characters (e.g., that include underscores), and hyphenation of text typeset in monospaced (e.g., cmtt) fonts.
hyphen	free	lang1	Collection of hyphenation patterns.
i386-linux-libc5	free	systems1	System binaries for Intel machines running Linux, with libc5
i386-linux	free	systems1	System binaries for Intel machines running Linux.
ibm	unknown	fonts3	No description available.
ieeepes	unknown	latex3	Allows typesetting of transactions, as well as discussions and closures, for the IEEE Power Engineering Society Transactions journals.
ifacmtg	unknown	latex3	Elsevier Science preprint style for IFAC meetings.
imac	unknown	latex3	A set of files for producing correctly formatted documents for the International Modal Analysis Conference.
indxcite	unknown	latex3	A package to automatically generate an Author Index based on citations made using BibTeX. It requires the use of the harvard and index packages and LaTeX 2ε.
info	unknown	doc2	Documentation in GNU info form.
ini	free	texlive1	Startup files for building formats.
insbox	unknown	generic3	A TeX macro for inserting pictures/boxes into paragraphs.
ipa	unknown	latex3	No description available.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
isostds	unknown	latex3	Class and package files for typesetting ISO International Standard documents. Several standard documents have been printed by ISO from camera-ready copy prepared using LaTeX and these files. One set of files is for generic ISO typesetting and the other is an extension set of packages for typesetting ISO 10303 standards.
jadetex	unknown	formats2	Macro package on top of LaTeX to typeset TeX output of Jade DSSSL implementation.
jhep	latex-like	latex3	A LaTeX class file used to typeset manuscripts in JHEP style.
jknappen	unknown	latex2	Miscellaneous macros, mostly for making use of extra fonts, by Jörg Knappen.
jsmisc	unknown	plain3	Miscellaneous useful macros by Joachim Schrod.
jura	gpl	latex3	A document class for German law students. Includes alphanum that permits alphanumeric section numbering (e.g., A. Introduction; III. International Law).
kalender	unknown	latex3	Style file for creating a calendar; in German.
karnaugh	unknown	latex3	Typeset Karnaugh-Veitch-maps.
kdgreek	unknown	fonts3	Greek fonts.
kluwer	unknown	latex3	A LaTeX 2ε class file for submissions of journal articles to Kluwer Academic Publishers, Dordrecht, the Netherlands.
knuth	unknown	doc3	Knuth's own documentation, including the TeXbook and the METAFONTbook.
koma-script	nosell	latex3	A drop-in replacement for the article/report/book classes with emphasis on European rules of typography and paper formats as laid down by Jan Tschichold. The article class for example, becomes scrartcl.
kuvio	lppl	graphics3	Drawing macros and fonts for diagrams.
labels	free	latex3	Support for printing sheets of sticky labels (but could also be used for business cards). The number of rows and columns of labels, and their size, can be changed.
lamstex	unknown	formats3	A merge of the best in AMS-TeX and LaTeX.
lastpage	nosell	latex3	Reference the number of pages in your LaTeX document (as in a page footer that says: Page N of M).
latexfonts	unknown	latex1	No description available.
layouts	unknown	latex3	Display various elements of a document's layout. This includes: text positioning on a page; disposition of floats; layout of paragraphs, lists, footnotes, table of contents, and sectional headings; font boxes. Facilities are provided for a document designer to experiment with the layout parameters.
leaflet	unknown	latex3	A document class to create small hand-outs that fit on a single sheet of paper which is then folded twice, with a script to rearrange pages so that they print correctly (on a PostScript printer) on a single sheet.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
leftidx	lppl	latex3	This package enables left subscripts and superscripts in math mode. These subscripts and superscripts are automatically raised for better fitting to the symbol they belong to.
lettrine	lppl	latex3	A package to typeset dropped capitals in various ways typically those described in the French typographic books.
levy	unknown	latex3	Macros for using Silvio Levy's Greek fonts.
lgc	free	doc3	Examples from the *LaTeX Graphics Companion*.
lgreek	unknown	latex3	Macros for using Silvio Levy's Greek fonts.
lhcyr	unknown	latex3	A collection of three LeTeX 2e styles intended for typesetting Russian and bilingual English-Russian documents: lhcyralt, lhcyrkoi, and lhcyrwin.
lh	unknown	fonts2	The lh fonts for the 'T2'/X2 encodings (for cyrillic languages).
lineno	lppl	latex3	Adds line numbers to selected paragraphs with reference possible through the LaTeX `\ref` and `\pageref` cross reference mechanism.
linguex	unknown	latex3	A package to facilitate the formatting of linguist examples, automatically taking care of example numbering indentations, indexed brackets, and the "*" in grammaticality judgments.
listings	unknown	latex3	A package for typesetting listings using LaTeX 2ε. The source code is read directly by TeX. Keywords, comments and strings can be typeset using different styles, e.g. default is bold for keywords, italic for comments and no special style for strings.
lkort	unknown	doc3	No description available.
localloc	free	latex3	Macros for localizing TeX register allocations.
logic	unknown	fonts3	A METAFONT font for drawing logic diagrams.
lollipop	nocommercial	formats3	A new generation format.
ltablex	unknown	latex3	Modifies the tabularx environment to combine the features of the tabularx package (auto-sized columns in a fixed width table) with those of the longtable package (multi-page tables).
ltx2rtf	unknown	texlive2	A conversion program from LaTeX to Rich Text Format.
ltxbase	unknown	latex1	The core LaTeX.
ltxdoc	unknown	latex1	Class for documented LaTeX 2ε classes.
ltxmisc	unknown	latex2	Miscellaneous LaTeX styles.
lucida	unknown	fonts2	Package to make Lucida Bright fonts usable with LaTeX.
ly1	unknown	latex3	Support for LY1 LaTeX encoding, i.e. the Y&Y texnansi (TeX'n ANSI) encoding.
mailing	lppl	latex3	Macros for mail merging.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
makeindex	unknown	doc1	A general purpose hierarchical index generator; it accepts one or more input files (often produced by a text formatter such as TEX or troff), sorts the entries, and produces an output file which can be formatted. The formats of the input and output files are specified in a style file; by default, input is assumed to be an idx file, as generated by LATEX.
malayalam	unknown	lang3	Fonts for typesetting Malayalam, with a pre-processor.
malvern	unknown	fonts3	A new sans-serif font family.
mapcodes	unknown	latex3	Support for multiple character sets and encodings.
maple	unknown	latex3	Styles and examples for the MAPLE newsletter.
margbib	unknown	latex3	A package for displaying bibliography tags in the margins.
marvosym	unknown	fonts3	Martin Vogel's Symbol (marvosym) font is a Type 1 font containing: the Euro currency symbol as defined by the European commission; Euro currency symbols in typefaces Times, Helvetica and Courier; Symbols fur structural engineering; Symbols for steel cross-sections; Astronomy signs (Sun, Moon, planets); The 12 signs of the zodiac; Scissor symbols; CE sign and others.
mathcomp	lppl	latex2	A package which provides access to some interesting characters of the Text Companion fonts (TS1 encoding) in math mode.
mathematica	lppl	fonts3	Virtual TEX fonts that can be used with the PostScript fonts distributed with Mathematica 3.0. The archives use a TDS conforming directory structure. A style file for LATEX 2ε is included, that enables use of the fonts and the new symbols from LATEX 2ε.
mathpple	unknown	fonts3	A package to define the PostScript font family 'Palatino' (ppl) as the default roman font and then uses the 'mathpple' fonts for typesetting math. These virtual fonts have been created for typesetting math in a style that suits the Palatino text fonts. The AMS fonts, when used additionally, will be scaled to fit Palatino.
mcite	free	latex3	Support for collapsing multiple citations into one, as customary in physics journals.
mdwtools	free	latex3	Miscellaneous tools by Mark Wooding. This collection of tools includes support for `@`, a doafter command footnotes, mathenv for various alignment in maths, list handling, trivial maths oddments, rewrite of LATEX's `tabular` and `array` environments, verbatim handling and syntax diagrams.
metasupp	free	texlive1	MetaPost support files.
method	lppl	latex3	Typeset method and variable declarations. This LATEX package supports the typesetting of programming language method and variable declarations. It includes an option to typeset in French.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
mex	pd	lang2	MeX is an adaptation of Plain TEX and LATEX209 formats to the Polish language and to the Polish printing customs. It contains a complete set of METAFONT sources of Polish fonts, hyphenation rules for the Polish language and sources of formats.
mff	unknown	latex3	A package to provide something similar to 'multiple master' fonts, but using METAFONT; you specify a font by a set of METAFONT parameters, and TEX makes up an mf file to generate the required font; this package is not integrated with NFSS (or MakeTeXTFM) yet fun.
mflogo	unknown	latex2	LATEX interface for METAFONT and MetaPost logo fonts. LATEX package and font definition file to access the Knuthian 'logo' fonts described in 'The METAFONTbook' and the METAFONT and MetaPost logos in LATEX documents.
mfmisc	free	fonts1	Small support files for METAFONT.
mfnfss	lppl	latex2	Font description files to use extra fonts like yinit and ygoth.
mfpic	unknown	graphics3	Macros which generate METAFONT code for drawing pictures.
mftoeps	unknown	fonts3	Converts MF to EPS.
mft	free	texlive1	Support files for MFT.
mhs	unknown	latex3	No description available.
midnight	unknown	generic3	A set of useful macro tools.
minitoc	unknown	latex3	Produce a table of contents for each chapter.
mips-irix6.2	free	systems1	System binaries for SGI running Irix 6.2
misc209	free	latex2	Miscellaneous small macro files for LATEX2.09.
mltex	unknown	latex2	Support for MLTEX, the multilingual TEX extension from Michael J. Ferguson.
mnras	unknown	plain3	Styles for the Monthly Notices of the Royal Astronomical Society.
monotype	unknown	fonts3	Font metrics, and macro support in LATEX 2ε, for a large set of Monotype fonts.
montex	nocommercial	lang3	MonTeX provides Mongolian support for LATEX 2ε (now Cyrillic, but soon also Classical Mongolian).
morehelp	other	latex3	A package to enhance LATEX 2ε error messages by providing descriptions of the possible causes including those that may not be obvious. This style is effectively an online substitute for error lists found in the LATEX books although it cannot completely replace them. Only true LATEX errors are included; TEX errors are beyond the reach of ordinary macros.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
moresize	unknown	latex3	A LaTeX 2ε package for using font sizes up to 35.88pt for example with the new EC fonts. New commands `\HUGE` and `\ssmall` for selecting font sizes are provided together with some options working around current LaTeX 2ε shortcomings in using big font sizes. The package also provides options for improving the typesetting of paragraphs (or headlines) with embedded math expressions at font sizes above 17.28pt.
moreverb	unknown	latex3	A verbatim mode that can handle TABs properly, can number lines, can number lines in an included file, can produce boxed verbatims, etc.
morse	unknown	fonts3	A package for printing Morse code signs.
mpattern	unknown	metapost2	A package for defining and using patterns in MetaPost using the Pattern Color Space available in PostScript Level 2.
mpbase	free	metapost1	Basic MetaPost support files.
mpfnmark	unknown	latex3	A package which provides the command `\mpfootnotemark` which can be used in the same way as `\footnotemark`. The difference between these two macros is that within minipage environments the latter uses the standard footnote marker style (defined by `\thefootnote`), while the new command uses the minipage footnote marker style (defined by `\thempfootnote`).
mslapa	unknown	latex3	LaTeX and BibTeX style files for a respectably close approximation to APA (American Psychological Association) citation and reference style.
ms	unknown	latex3	Various LaTeX packages by Martin Schröder.
mtbe	unknown	plain3	Examples from *Mathematical TeX by Example* by Arvind Borde.
multenum	unknown	latex3	Multi-column enumerated lists.
multirow	unknown	latex3	Creates tabular cells spanning multiple rows. Includes an option for specifying multirows with a "natural" column width.
multi	free	dvips3	dvips header for making n-up pages.
musictex	unknown	generic3	Typesetting music with TeX.
musixtex	unknown	generic3	Extended MusicTeX, with better slurs.
nassflow	unknown	latex3	Drawing Nassi-Schneidermann diagrams.
natbib	lppl	bibtex2	A bibliography style that handles author-year and numbered references.
ncctools	unknown	latex2	Various LaTeX packages written and supported by Alexander Rozhenko.
newalg	unknown	latex3	Format algorithms like Cormen, Leiserson and Rivest.
newlfm	latex-like	latex3	A new letter, fax, and memo document class for LaTeX
newsletr	unknown	plain3	Macros for making newsletters.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
newthm	unknown	latex3	A modified version of the theorem-style which provides generation of lists of theorems. This has been superseded by ntheorem.
niceframe	unknown	latex3	Support for fancy framing of pages.
nomencl	lppl	latex3	Nomenclature package for producing lists of symbols using the capabilities of the MakeIndex program.
nrc	unknown	latex3	Macros to prepare submissions for the NRC Canadian Journal of Physics.
ntgclass	lppl	latex2	Versions of the standard LaTeX article and report classes, rewritten to reflect a more European design, by the Dutch TeX Users Group.
ntg	free	doc3	Dutch TeX Users Group information.
ntheorem	unknown	latex3	Enhancements for theorem-like environments: easier control of layout; proper placement of endmarks even when the environment ends with `\end{enumerate}` or `\end{displaymath}` (including support for amsmath displayed-equation environments); and support for making a list of theorems like `\listoffigures`.
numline	unknown	latex3	Macros for numbering lines.
objectz	unknown	latex3	Macros for typesetting Object Z.
oca	unknown	fonts3	OCR font.
ocr-a	unknown	fonts3	Fonts for OCR-A.
ogham	unknown	fonts3	Fonts for typesetting Ogham script.
ogonek	unknown	latex3	Support for Polish typography and the ogonek.
oldstyle	unknown	latex3	Font information needed to load the `cmmi` and `cmmib` fonts for use to produce oldstyle numbers.
omegabase	unknown	omega2	Basic support files for Omega.
omegafonts	unknown	omega2	Omega Type 1 fonts.
osmanian	unknown	fonts3	Osmanian fonts by Alan Stanier for writing Somali.
ot2cyr	unknown	fonts2	Macros to use the OT2 Cyrillic encoding.
overpic	lppl	latex3	The overpic environment is a cross between the LaTeX picture environment and the `\includegraphics` command of graphicx. The resulting picture environment has the same dimensions as the included eps graphic. LaTeX commands can be placed on the graphic at defined positions. A grid for orientation is available.
pacioli	gpl	fonts3	Fonts designed by Fra Luca de Pacioli in 1497. The font is uppercase letters together with punctuation and some analphabetics; no lowercase or digits.
pageno	unknown	latex3	A LaTeX package that can re-define the plain page style under the control of options, so you can have page numbers: at the top or bottom of the page; in the inside corner, outside corner, or in the middle. It was inspired by Axel Sommerfeldt's rplain package.
pandora	unknown	fonts3	The Pandora font family.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
paper	unknown	latex3	A class derived from article, tuned for producing papers for journals. Introduces new layout options and font commands for sections/parts. Defines a new keywords environment, and subtitle and institution commands for the title section. New commands for revisions. And more.
paralist	unknown	latex3	Provides enumerate and itemize environments that can be used within paragraphs and format the items either as running text or as separate paragraphs with a preceding number or symbol.
parallel	unknown	latex3	Provides a parallel environment which allows two columns of text to be typeset. Useful for typesetting two languages side-by-side.
patch	unknown	latex2	Macros for package management.
pawpict	gpl	latex3	Using graphics from PAW. Support for the easy inclusion of graphics made by PAW (Physics Analysis Workstation). You need to have PAW installed on your system to benefit from this package. This package is now obsolete and will not be supported anymore.
pb-diagram	free	latex3	A diagram package using LAMSTEX or Xy-pic fonts.
pdcmac	unknown	plain3	Damian Cugley's macro tools.
pdfscreen	lppl	latex3	An extension of the `hyperref` package to provide a screen-based document design
pdftex	unknown	pdftex2	An extension of TEX which directly generates PDF documents instead of DVI. This is under development and regarded as beta software.
permute	unknown	latex3	A package for symmetric groups, allowing you to input output, and calculate with them.
phoenician	gpl	fonts3	Fonts for the semitic script in use from about 1600 BC, and which formed the basis for all the world's alphabets. Mirrored forms are provided for typesetting either left-to-right or right-to-left (as the Phoenicians did)
phonetic	unknown	fonts3	METAFONT Phonetic fonts, based on Computer Modern.
physe	unknown	formats3	PHYSE format.
phyzzx	unknown	formats3	A TEX format for physicists.
picinpar	unknown	latex3	Insert pictures into paragraphs. (NOTE: Piet van Oostrum does not recommend this package. Picins is recommended instead.)
picins	unknown	latex3	Insert pictures into paragraphs.
pictex	unknown	graphics2	Picture drawing macros for (La)TEX.
piff	unknown	latex3	Macro tools by Mike Piff.
pl-qx	unknown	fonts2	LaTeX support for extra Polish fonts (Antyktor etc.).
plainmisc	unknown	plain1	Miscellaneous useful macros for plain TEX.
plaintex	unknown	plain1	Basic Plain TEX macros.
plari	free	latex3	A document class for typesetting stageplay scripts.
platex	unknown	lang2	Tools to typeset documents in Polish using LATEX 2ε with Polish fonts (so-called PL fonts), EC fonts, and CM fonts.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
play	gpl	fonts3	A package and a class for typesetting plays and versed plays
plcalendar	unknown	plain3	Plain macros for making nice calendars.
plfonts	pd	fonts2	Polish fonts.
plgraph	unknown	generic3	LaTeX graphics package with wrapper to allow it to be used with generic plain TeX.
plpatch	unknown	plain3	No description available.
pl	unknown	latex3	Literate Programming for Prolog with LaTeX.
pmgraph	unknown	latex3	A set of extensions to LaTeX picture environment including a wider range of vectors, and a lot more box frame styles.
poligraf	pd	generic3	Page preparation for prepress, color separation cropmarks, color and gray scale bars, booklet preparation etc.
polish	unknown	doc3	General TeX and LaTeX documentation in Polish.
polyglot	unknown	latex3	A package for LaTeX 2ε multilingual support.
prettyref	unknown	latex3	Additional functionality for the LaTeX 2ε label–reference mechanism allowing the "preformat" of all types of labels. This package is compatible with hyperref and other packages.
progkeys	unknown	latex3	The file 'programs.sty' is intended to allow a parameterized way of typesetting programs with TeX/LaTeX commands inside. The file 'keywords.sty' allows definition and use of sets of keywords that will be typeset with different fonts, according to the wish of the user.
program	free	latex3	Typesetting programs and algorithms.
proofs	unknown	latex3	Macros for building proof trees.
protex	lppl	generic3	Literate programming package
psafm	free	fonts3	AFM files for PostScript fonts.
psfig	unknown	generic3	No description available.
psfrag	free	graphics2	Allows LaTeX constructions (equations, picture environments, etc.) to be precisely superimposed over Encapsulated PostScript figures, using your own favorite drawing tool to create an EPS figure and placing simple text "tags" where each replacement is to be placed, with PSfrag automatically removing these tags from the figure and replacing them with a user specified LaTeX construction, properly aligned, scaled, and/or rotated.
psizzl	unknown	formats3	A TeX format from SLAC.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
pslatex	lppl	latex2	A small package that makes LaTeX default to 'standard' PostScript fonts. It is basically a merger of the times and mathptm styles from the psnfss suite of packages. You must have installed standard LaTeX and the psnfss PostScript fonts to use this package. The main novel feature is that the pslatex package tries to compensate for the visual differences between the Adobe fonts by scaling Helvetica by 90%, and 'condensing' Courier (i.e. scaling horizontally) by 85%. The package is supplied with a (unix) shell file for a 'pslatex' command that allows standard LaTeX documents to be processed, without needing to edit the file.
psnfssx	unknown	latex2	Extra styles and encodings for PS fonts, including Y&Y encoding support.
psnfss	unknown	latex1	Font definition files, macros and font metrics for common PostScript fonts.
pspicture	unknown	latex2	Replacement for core LaTeX picture macros to use PostScript `\special` commands.
pstricks	unknown	graphics2	An extensive collection of PostScript macros that is compatible with most TeX macro packages, including Plain TeX, LaTeX, AMS-TeX, and AMS-LaTeX. Included are macros for color, graphics, pie charts, rotation, trees and overlays. It has many special features, including: a wide variety of graphics (picture drawing) macros, with a flexible interface and with color support. There are macros for coloring or shading the cells of tables.
punk	unknown	fonts3	Donald Knuth's punk font
qfonts	pd	fonts2	Public domain Adobe Type 1 fonts including Quasi-Palladio (regular, italic, bold and bold italic), based on URW's Palladio, and Quasi-Times.
qobitree	unknown	graphics3	LaTeX macros for typesetting trees.
qsymbols	free	latex3	For defining systematic mnemonic abbreviations, starting with ` for math symbols and `\"` for arrows, from the amssymb and stmaryrd packages.
quotchap	unknown	latex3	A package for creating decorative chapter headings with quotations, a PostScript output device and the psnfss package are needed, the color package and a greyscale output device are recommended.
r-und-s	bsd	latex3	This package decodes the german 'R- und S-Sätze', which are numerically coded security advice for chemical substances into plain text. This is, e.g., used to compose security sheets or lab protocols and especially useful for students of chemistry.
rcsinfo	unknown	latex3	Support for the revision control system. A package to extract RCS (Revision Control System) information and use it in a LaTeX document. For users of LaTeX2HTML rcsinfo.perl is included.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
rcs	unknown	latex3	Use RCS (revision control system) tags in LaTeX documents.
realcalc	unknown	generic3	Macros for real arithmetic calculations.
refcheck	lppl	latex3	Intended to check references in a document, looking for numbered but unlabelled equations, for labels which are not used in the text, for unused bibliography references. It can also display label names in text near corresponding numbers of equations and/or bibliography references.
refman	unknown	latex3	Variant report and article styles.
relenc	unknown	latex3	LaTeX package providing a relaxed font encoding to make available to a font designer more slots for insertion of ligatures and accented characters.
revtex	nosell	latex2	Styles for American Physical Society, American Institute of Physics, and Optical Society of America. Only works in compatibility mode under LaTeX 2ε.
rlepsf	lppl	generic3	A macro package for use with epsf.tex which allows PostScript labels in an eps file to be replaced by TeX labels.
rmpage	unknown	latex3	A package to help change page layout parameters in LaTeX. It lets you change page layout parameters in small steps over a range of values using options. It can set `\textwidth` appropriately for the main fount, and ensure that the text fits inside the printable area of a printer. An rmpage-formatted document can be typeset identically without rmpage after a single cut and paste operation. Local configuration can set defaults: for all documents; and by class, by printer, and by paper size. The geometry package is better if you want to set page layout parameters to particular measurements.
rotating	lppl	latex2	A package built on the standard LaTeX graphics package to perform all the different sorts of rotation one might like, including complete figures and tables and captions.
rotfloat	unknown	latex3	Rotate floats.
rplain	unknown	latex3	Redefines the 'plain' pagestyle. The page numbers are now in the lower right corner.
rs6000-aix4.1.4.0	free	systems1	System binaries for RS6000 running AIX 4.1.4.0
rsfs	lppl	fonts2	Contains METAFONT sources for fonts of uppercase script letters for use as symbols in scientific and mathematical typesetting, in contrast to the informal script fonts such as that used for the 'calligraphic' symbols in the TeX math symbol font.
ruhyphen	unknown	lang1	A collection of Russian hyphenation patterns supporting a number of Cyrillic font encodings, including T2, UCY (Omega Unicode Cyrillic), LCY, LWN (OT2), and koi8-r.
runic	gpl	fonts3	Fonts for Anglo-Saxon the futharc script, used in England until just after printing was established

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
sanskrit	lppl	fonts3	A font and pre-processor suitable for the production of documents written in Sanskrit.
sauterfonts	unknown	latex3	A package providing font definition files (plus a replacement for the package exscale) to access many of the fonts in Sauter's (Knappen's, Holin's) collection. These fonts are available in all point sizes and look nicer for such "intermediate" document sizes as 11pt. The package sbbm is an alternative to access the bbm fonts, a nice collection of blackboard bold symbols.
scale	unknown	latex3	A package to scale a document by $\sqrt{2}$ (or by `\magstep{2}`). This is useful if you are preparing a document on e.g. A5 paper and want to print on A4 paper to achieve a better resolution.
schedule	unknown	latex3	A package intended to automatically format weekly schedules using LaTeX's picture environment. It requires the packages calc and color. Its main feature is the accuracy with which appointments are represented: boxes drawn to represent a particular appointment are accurate to the minute – i.e., a 31 minute appointment will have a box 1/60th longer than a 30 minute appointment. A number of features are included to allow the user to customize the output.
script	unknown	latex3	Variant report / book styles.
sectsty	unknown	latex3	A LaTeX 2ε package to help change the style of any or all of LaTeX's sectional headers in the article, book or report classes. Examples include the addition of rules above or below a section title.
semantic	lppl	latex3	Eases the typesetting of notation of semantics and compilers. Includes T-diagrams, various derivation symbols and inference trees.
seminar	nosell	latex2	Produce overhead slides (transparencies) with bells and whistles.
setspace	unknown	latex3	Support for double, one-and-a-half, and other line spacings based on pt size.
shadbox	unknown	latex3	A tool to shade the background of any box – text, figure table etc. – using Plain (La)TeX.
shadethm	unknown	latex3	Package that allows declarations of the form `\newshadetheorem{thm}{Theorem}` or `\newshadetheorem{}[]{}` or `\newshadetheorem{}{}[]` to produce shaded boxes from the usual command `\begin{theorem}` ... `\end{theorem}`. The color package is required.
shortlst	unknown	latex3	Provides four environments for typesetting lists of short items which may be layout horizontally as well.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
shorttoc	unknown	latex3	A package to create another table of contents with a different depth, useful in large documents where a detailed table of contents should be accompanied by a shorter one giving only a general overview of the main topics in the document.
showdim	unknown	latex3	A package for LaTeX providing a number of commands for printing the value of a TeX dimension. For example `\tenthpt{\baselineskip}` yields the current value of `\baselineskip` rounded to the nearest tenth of a point.
showlabels	unknown	latex3	Show label commands in the margin.
siam	unknown	generic3	Styles for SIAM publications.
sidecap	unknown	latex3	Defines environments called SCfigure and SCtable (analogous to figure and table) to typeset captions sideways. Options include outercaption, innercaption leftcaption and rightcaption.
siggraph	unknown	latex3	Document class for formatting papers according to the specifications for submission to the annual ACM Siggraph conference.
simpsons	unknown	fonts3	METAFONT source for Simpsons characters.
siunits	lppl	latex3	A package to typeset physical units following the rules of the International System of Units (SI).
slashbox	unknown	latex3	Draw an oblique (slash) line in a 'tabular' column in LaTeX.
slidenotes	unknown	latex3	A class package for the easy production of a slide collection with annotations. Builds on the report style (or variants).
smallcap	unknown	latex3	Support for all 4 shapes of small caps in DC1.3 where SC becomes a family, rather than a shape (`\scshape` is replaced by `\scfamily`). Thus you can write `\bf\scfamily\slshape` to get small caps bold slanted.
songbook	unknown	latex3	Package for typesetting song lyrics.
soul	unknown	latex3	Provides hyphenateable spacing out (letterspacing) underlining, striking out, etc., using the TeX hyphenation algorithm to find the proper hyphens automatically. The package also provides a mechanism that can be used to implement similar tasks, that have to treat text syllable by syllable. This is shown in two examples.
sparc-solaris2.5.1	free	systems1	System binaries for Sun Sparc running Solaris 2.5.1.
sprite	unknown	graphics3	Macros to set bitmaps with TeX.
ssqquote	unknown	latex3	LaTeX package and font definition file to access the 'cmssq' fonts, i.e. Computer Modern Sans Serif Quotation Style. The LaTeX package also defines a `chapterquotes` environment as an example application.
startex	unknown	formats3	A TeX format designed to help students write short reports and essays. It provides the user with a suitable set of commands for such a task. It is also more robust than plain TeX and LaTeX.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
stdclsdv	unknown	latex3	The stdclsdv package is designed for package writers who need to know what sectioning divsions are provided by the document's class. It also provides a version of `\CheckCommand` that sets a flag rather than printing a warning.
stmaryrd	nosell	fonts2	St Mary Road symbols for functional programming.
subeqnarray	lppl	latex3	Equation array with sub numbering.
subeqn	lppl	latex3	Package for subequation numbering.
subfigure	free	latex3	Figures divided into subfigures.
supertabular	lppl	latex3	A multi-page tables package. Generally longtable is a little easier to use and more flexible.
synttree	unknown	latex3	A package to typeset syntactic trees such as those used in Chomsky's Generative grammar, based on a description of the structure of the tree.
t2	unknown	lang3	No description available.
tabbing	unknown	latex3	A package offering a variant of the tabbing environment which allows accented letters.
tap	pd	generic2	An advanced, however easy table package. With PostScript allows shaded/coloured tables with diagonal rules. Plain, LaTeX, etc.
taylor	unknown	graphics3	Diagram macros by Paul Taylor.
tbe	unknown	plain3	Examples from Arvind Borde's *TeX by Example*.
tcx	unknown	texlive1	No description available.
tds	unknown	doc1	The TeX Directory Structure documentation.
tengwar	free	fonts3	Font for typesetting Tolkien Tengwar script, by Michael Urban.
tetex	unknown	doc1	A TeX distribution for Unix/Linux. This distribution is particulalry designed to be very easy to install (20 minutes) and customise with a well organised inputs tree and fast file searching.
tex-ps	unknown	generic2	TeX to PostScript generic macros and add-ons: transformations of EPS files, prepress preparation, color separation, mirror, etc.
tex4ht	unknown	latex2	A converter from TeX and LaTeX to hypertext (HTML, XML, etc.), provide a configurable (La)TeX-based authoring system for hypertext.
texdraw	free	graphics3	Graphical macros, using embedded PostScript.
texinfo	free	plain2	Texinfo documentation system. Produces online or printed output from a single source.
texip	unknown	formats3	Macros from *TeX in Practice*.
texlive	free	texlive1	Basic material for **TeX Live**.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
texsis	nocommercial	formats3	A Plain TEXmacro package along the lines of LATEX. TEXsis is a Plain TEX macro package which provides useful features for typesetting research papers and related documents. For example, it includes support specifically for: Automatic numbering of equations figures, tables and references; Simplified control of type sizes, line spacing, footnotes, running headlines and footlines, and tables of contents, figures and tables; Specialized document formats for research papers preprints and "e-prints," conference proceedings theses, books, referee reports, letters, and memoranda; Simplified means of constructing an index for a book or thesis; Easy to use double column formatting; Specialized environments for lists, theorems and proofs, centered or non-justified text, and listing computer code; Specialized macros for easily constructing ruled tables. TeXsis was originally developed for physicists, but others may also find it useful. It is completely compatible with Plain TEX.
text1	nocommercial	formats3	TEX format from the University of Washington.
textfit	free	latex3	Package to support fitting of text to a given width or height by scaling the font.
textmerg	nosell	latex3	Merge text in TEX and LATEX. Useful, for example, in mail merge.
textpos	unknown	latex3	Place boxes absolutely. A package to facilitate placement of boxes at absolute positions on the LATEX page, and useful for large-format conference posters, for example.
thesis	unknown	latex3	A class for producing a thesis based on the report class for a more European and more flexible look. Supports options like noindent, noitemization, headline, nocenter crosshair, and chapterbib.
threed	unknown	metapost2	3D animations. Create animations of 3-dimensional objects (such as polyhedra) in MetaPost.
thumbpdf	lppl	latex3	Thumbnails for pdfTeX. Provides support for thumbnails in pdfTeX using ghostscript to generate the thumbnails which get represented in a TeX readable file that is read by the package thumbpdf.sty to automatically include the thumbnails. Works with both plain TEX and LATEX.
thumb	gpl	latex3	Thumb marks in documents. Can be used to place thumb marks in books, manuals,and reference maunals.
timesht	unknown	latex3	Package for typesetting time sheets.
timing	unknown	latex3	Fonts and macro package for drawing timing diagrams.
tipa	unknown	fonts2	Fonts and macros for IPA phonetics characters.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
titlefoot	lppl	latex3	Provides the capability of adding keywords (with a `\keywords` command), a running title (`\runningtitle`) AMS subject classifications (`\amssubj`), and an "authors footnote" as footnotes to the title or first page of a document. Works with any class for which the `\thanks` macro works (e.g., article).
titlesec	unknown	latex3	Select alternative section titles. A package providing an interface to sectioning commands for selection from various title styles. E.g., marginal titles and to change the font of all headings with a single command, also providing simple one-step page styles.
tmmaths	unknown	fonts3	Typesetting text and math using 'Times' PostScript fonts
tocbibind	unknown	latex3	Automatically adds the bibliography and/or the index and/or the contents, etc., to the Table of Contents listing.
tocloft	unknown	latex3	Provides control over the typography of the Table of Contents, List of Figures and List of Tables. The package requires the stdclsdv package.
tocvsec2	unknown	latex3	Provides control over sectional numbering (without recourse to starred sectional commands) and/or the entries in the Table of Contents on a section by section basis.
tools	lppl	latex1	Standard LaTeX 2ε tools, for extended tabular, verbatim and theorem support.
tracking	unknown	latex3	Automatically adjust spaces between symbols in words or phrases to fit them into a specified length. Any chain of symbols (including spaces) in the current font may be treated.
treesvr	unknown	latex3	Tree macros.
treetex	unknown	plain3	Allows the automatic layout of n-ary trees with arbitrary node sizes in LaTeX, using an external C program to do much of the hard work.
ttf2pk	unknown	texlive2	This tool rasterizes the glyph outlines of a TrueType font into a bitmap font in PK format. It is part of the FreeType package.
tugboat	unknown	generic2	LaTeX macros for TUGboat articles.
tug	free	doc3	TeX Users Group information.
type1cm	lppl	latex3	A package that removes the restriction when using scalable versions of the cm fonts (Type 1 Bakoma, or versions from BSR/Y&Y, or True Type versions from Kinch, PC-TeX, etc.) where LaTeX restricts the cm fonts to discrete sizes.
type1	unknown	fonts2	Public domain PostScript Type 1 fonts, including the URW fonts distributed with Ghostscript.
typespec	unknown	plain3	Creates a type specimen page with useful information about the typeface.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
uaclasses	unknown	latex3	This package provides a LaTeX 2ε document class named 'ua-thesis' for typesetting theses and dissertations in the official format required by the University of Arizona. Moreover, there is a fully compatible alternative document class 'my-thesis' for private "nice" copies of the dissertation, and the respective title pages are available as separate packages to work with "any" document class.
ucthesis	unknown	latex3	A modified version of the standard LaTeX report style that is accepted for use with University of California PhD dissertations and Masters theses.
ulsy	unknown	latex3	Extra mathematical characters.
umlaute	unknown	latex3	An interface to inputenc for using alternate input encodings.
umrand	unknown	fonts3	Package for page frames.
underlin	unknown	latex3	Package for underlining. Be advised that underlining is considered bad style in typesetting. See also ulem which is a specific package for LaTeX.
units	free	latex3	Includes two packages for typesetting fractions and physical units.
universa	unknown	fonts3	An implemnatation of Herbert Bayers 'universal' font with LaTeX support.
uni	gpl	fonts3	The Universal font. An implementation of the universal font by Herbert Bayer of the Bauhaus school for METAFONT. It is supported in LaTeX with a package and font definition file.
unsupported	unknown	fonts3	METAFONT sources from Knuth, unsupported
urwstd	unknown	fonts2	No description available.
useful	free	doc2	Useful documentation; various LaTeX guides, FAQ, fontname docs, etc.
ut-thesis	unknown	latex3	University of Toronto thesis style.
utthesis	unknown	latex3	LaTeX package for preparation of a thesis that meets the requirements of the Graduate School of the University of TeXas at Austin.
uwthesis	unknown	latex3	University of Washington thesis style.
vdm	unknown	latex3	Typesetting VDM schemas.
vector	unknown	latex3	Macros for more convenient representation of vectors in LaTeX 2ε, both symbolically and as implicit or explicit rows/columns of elements.
vertex	unknown	plain3	Styles for economics working papers and journals.
vita	unknown	latex3	This class provides necessary macros to prepare your Curriculum Vitae or Resume.
vrb	unknown	latex3	Verbatim macros via plain TeX.
vrsion	unknown	latex3	Defines a command which produces a version number in the dvi-file when LaTeX is run.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
warpcol	unknown	latex3	Defines a tabular column type for formatting numerical columns in LaTeX. The column type enables numerical items to be right justified relative to each other, while centred beneath the column label. In addition, macros are provided to enable variations on this column type to be defined. Usage of the package is superficially similar to that of dcolumn; however, the alignment scheme is different, and the packages have different though overlapping, applications.
wasysym	nosell	latex2	Makes some additional characters available that come from the wasy fonts (Waldis symbol fonts). These fonts are not automatically included in NFSS2/LaTeX 2ε since they take up important space and often aren't necessary if one makes use of the packages amsfonts or amssymb. Symbols include: join box, diamond, leadsto, sqsubset, lhd, rhd, apple, ocircle invneg, logof, varint, male, female, phone, clock lightning, pointer, sun, bell, permil, smiley, various electrical symbols, shapes, music notes, circles, signs astronomy, etc.
wasy	unknown	fonts2	The wasy fonts (Waldis symbol fonts).
williams	unknown	latex3	Miscellaneous macros by Peter Williams.
win32	free	systems1	System binaries for Windows 32.
windvi	unknown	doc1	No description available.
wnri	unknown	fonts3	METAFONT fonts for Old English, Indic languages in transcription, and American Indian languages.
wntamil	unknown	lang3	Fonts (METAFONT) and support for Tamil, created at the University of Washington.
wsuipa	unknown	fonts2	Style for using International Phonetic Alphabet fonts.
xtab	unknown	latex3	An extended version of supertabular to automatically break tables accross pages.
xtcapts	unknown	latex3	Defining language-dependent text macros.
xymtex	unknown	latex3	Typesetting chemical structures.
xypic	free	graphics2	A package for typesetting a variety of graphs and diagrams with TeX. Xy-pic works with most formats (including LaTeXAMS-LaTeX, AMS-TeX, and plain TeX), in particular Xy-pic is provided as a LaTeX 2ε 'supported package'.
yannisgr	unknown	fonts3	Greek fonts by Yannis Haralambous.
yfonts	unknown	latex3	A LaTeX interface to the old-german fonts designed by Yannis Haralambous: Gotisch, Schwabacher, Fraktur and the baroque initials.
yhmath	unknown	latex3	Extended maths fonts for LaTeX.
yi4latex	unknown	lang3	Package to provide support in LaTeX for writing all standardized Yi characters. Yi (also known as Lolo) is spoken in Southern China; the script is syllabic, based on an older, ideographic system.

Catalogue of Packages *continued*

Package	*License*	*Collection*	*Description*
youngtab	unknown	latex3	A package for typesetting Young-Tableaux, mathematical symbols for the representations of groups, providing two macros, `\yng(\#1)` and `\young(\#1)` to generate the whole Young-Tableaux.
ytex	unknown	formats3	Macro package developed at MIT.
zed-csp	unknown	latex3	Typesetting Z and CSP format specifications.
zefonts	unknown	fonts2	Virtual T1 encoded Computer Modern fonts based on (OT1) Computer Modern, Times, and Helvetica fonts, intended to simulate 'dc' fonts. (Wayne Sullivan's 'dm' fonts are another approach to the substitution of 'dc' fonts by virtual ones.)