TeX (Live) on Debian

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Current status

Etch = Stable

- te\TeX\ 3
- \TeX\ Live 2005

Lenny = Testing

- \TeX\ Live 2007 (ev. 2008)
Current status

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We will provide backports of TeX Live 2007 for Etch.
Debian \TeX\ Live and ‘upstream’

Relation to upstream

- Debian packages are more or less one-to-one the collections of \TeX\ Live
- Some stuff is packaged independently for Debian
- Overlap of contributors between Debian and upstream \TeX\ Live
- Bugs found in Debian packages are fixed from us also upstream
- We include only stuff that it is also in upstream
Debian adaptions

Most adaption regard the handling of configuration:

- must be in `/etc`, in fact all of ‘our’ are in `/etc/texmf`
- upgrades must preserve changes of the administrator
- configuration must be preserved during a removal/reinstallation cycle (not for purge)

Other things changed are the location of various `texmf` trees, font caching, etc.
Various (system) paths

**TEXMFSYSCONFIG** Default location: `/etc/texmf`
Contains system-wide configuration

**TEXMFSYSVAR** Default location: `/var/lib/texmf/`
Contains system-wide generated files

**TEXMFLocal** Default location:
`/usr/local/share/texmf/`
Contains system-wide input files

**TEXMFMAIN** Default location: `/usr/share/texmf/`
Contains system-wide, *dpkg*-managed input files
(\TeX\ add-on packages)

**TEXMFDIST** Default location:
`/usr/share/texmf-texlive`
Contains system-wide, *dpkg*-managed input files
(basic \TeX\ packages)
Various (user) paths

**TEXMFCONFIG**  Default location: 
$HOME/.texmf-config/
Contains user-specific configuration

**TEXMFVAR**  Default location: $HOME/.texmf-var/
Contains user-specific generated files

**TEXMFHOME**  Default location: $HOME/texmf/
Contains user-specific static input files, e.g. new \LaTeX{} packages.
Case studies for changes to Debian \TeX{} (Live)

The following most important task will be discussed from system administrators and users perspective:

- Changing \texttt{TEXMFHOME}
  from \texttt{$HOME/texmf$} to \texttt{$HOME/texlib$}
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The following most important task will be discussed from system administrators and users perspective:

- Changing TEXMFHOME from $\texttt{HOME/texmf}$ to $\texttt{HOME/texlib}$
- Installation/Upgrade of a \LaTeX{} package
  Installation of the \texttt{natbib} package from CTAN
The following most important task will be discussed from system administrators and users perspective:

- Changing TEXMFHOME from $HOME/texmf to $HOME/texlib
- Installation/Upgrade of a LaTeX package
  Installation of the natbib package from CTAN
- Installation of the mtpro2 font package
  Installation and activation of additional fonts for dvips etc.
Adaptions of and additions to `texmf.cnf`

Things to know:

- located in `/etc/texmf/texmf.cnf` (plus a link from `/u/s/texmf/web2c/`)
- generated from snippets in `/etc/texmf/texmf.d/`
- updated by `update-texmf`
Adaptions of and additions to \texttt{texmf.cnf}

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Rationale behind this: different packages can contribute new snippets to \texttt{texmf.cnf}
Changing TEXMFHOME (as root)

Users in my institute traditionally have their input files in $HOME/texlib instead of $HOME/texmf. Instead of moving all the directories one can do this in two ways:

1. Edit /etc/texmf/texmf.d/05TeXMF.cnf
2. know kpathsea and add a file /etc/texmf/texmf.d/01local.cnf with another TEXMFHOME setting, as earlier entries override later entries in texmf.cnf

After this call update-texmf.
Changing TEXMFHOME (as user)

User override of (parts of) texmf.cnf is (currently) not possible. The only way is knowing kpathsea, i.e.

- creating your own texmf.cnf
- setting the environment variable $TEXMFCNF
Upgrade/Installation of the `natbib` package

Assume that some package is missing or too old as shipped by Debian, and it should be available for all users. As system administrator you would do (using `natbib` as an example):

1. Get it from CTAN/macos/latex/contrib/natbib,
2. Run `latex` over all `.ins` and `.dtx` files,
3. Put `.sty` into `$TEXMFLOCAL/tex/latex/natbib`, `.bst` into `$TEXMFLOCAL/bibtex/bst/natbib` (install doc files whereever you want),
4. Call `mktexlsr $TEXMFLOCAL`.

As user do the same with `TEXMFHOME` instead of `TEXMFLOCAL`. 

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Installation of a font package (system wide)

One of the more complicated parts is the installation and activation of new fonts. We will go through the example of the MathTimePro2 font set.
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Installation of the files

Unzip the received zip file mtp2fonts.zip. This package is already shipped as a TEXMF-tree, so just copy all the files under texmf to the same location inTEXMFLOCAL, e.g.,

```bash
cp -a texmf/* /usr/local/share/texmf.
```
Installation of the files (cont.)

If the package is not shipped as a TEXMF-tree you have to install all the files you have obtained as into the right places in TEXMFLOCAL, i.e.,

.sty, .tex, .fd into
$TEXMFLOCAL/tex/latex/foo

.map into
$TEXMFLOCAL/fonts/map/dvips/foo

.tfm into $TEXMFLOCAL/fonts/tfm/
   company/foo

.pfb into $TEXMFLOCAL/fonts/type1/
   company/foo

.vf into
$TEXMFLOCAL/fonts/vf/company/foo

(not all of these files have to be present).
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**Activation of the fonts**

Activation of the fonts are done by adding snippets to `/etc/texmf/updmap.d/` from which the final `updmap.cfg` is generated by `update-updmap`. 
Activation of the fonts – the Debian way

We have to activate the map file \texttt{mtpro2.map}. The best way for this is:

- create a file \texttt{90local-mtpro2.cfg} in \texttt{/etc/texmf/updmap.d/} containing the line \texttt{Map mtpro2.map}.
- call (as root) \texttt{update-updmap}, this recreates \texttt{/var/lib/texmf/web2c/updmap.cfg} from the snippets in \texttt{/etc/texmf/updmap.d/}.
- call \texttt{updmap-sys} as usual to regenerate the configuration files for \texttt{dvips}, etc.

Alternative way would be to put all locally installed map files in one file \texttt{/etc/texmf/updmap.d/99local.cfg}.
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Alternative way would be to put *all* locally installed map files in one file `/etc/texmf/updmap.d/99local.cfg`
Why `update-updmap`?
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- Takes the job of the TeX Live installer which reads the information from the `tpm` files.
Why update-updmap?

- Takes the job of the TeX Live installer which reads the information from the \texttt{tpm} files

- Several packages can ship fonts/map files and it must be possible to independently activate/deactivate them (\texttt{lmodern}, \texttt{cm-super}, \texttt{latex-cjk}, \ldots)
Why `update-updmap`?

- Takes the job of the \TeX{} Live installer which reads the information from the \texttt{tpm} files

- Several packages can ship fonts/map files and it must be possible to independently activate/deactivate them (lmodern, cm-super, latex-cjk, …)

- The format of \texttt{updmap.cfg} cannot carry the necessary information on installation status of a package in Debian (installed, removed, purged)
Problems with `updmap-sys --enable`?

As recommended on the net, in FAQs, etc., many people try to call `updmap-sys --enable`
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As recommended on the net, in FAQs, etc., many people try to call `updmap-sys --enable`, but:

- It changes the `updmap.cfg` file directly

- it keeps no memory of what was added/removed over a removal/reinstallation of TeX Live
Debian solution to `updmap-sys --enable`

The Debian `updmap` is patched such that when it is called with the arguments `--enable` or `--disable` it

- warns the user that this is not the way
- writes changes to `/etc/texmf/updmap.d/99local.cfg`
- calls `update-updmap`
- re-calls itself

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Advantages

▶ upgrade of the \TeX{} system still leaves the locally installed fonts active
▶ recommendations still work
Installation of a font package (for one user)

Installation of a font pack only for yourself and not system wide proceeds along the same lines as above, by first installing the fonts into $TEXMFHOME instead of $TEXMFLOCAL.
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When `update-updmap` is called by a normal user (uid ≠ o) then it acts a bit different:
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When update-updmap is called by a normal user (uid ≠ o) then it acts a bit different:

It merges all snippets present in /etc/texmf/updmap.d/ and $HOME/.texmf-config/updmap.d/, but if there are snippets with the same name, the one on the user directory shadows the system wide one.
Example

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So I create \texttt{latex-sanskrit.cfg} in \texttt{$HOME/.texmf-config/ updmap.d/} and call (as user!) \texttt{update-updmap}.

Files present in \texttt{/etc/texmf/ updmap.d/}:
- \texttt{texlive-base.cfg},
- \texttt{texlive-latex-base.cfg},
- \texttt{latex-sanskrit.cfg}.
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Files present in /etc/texmf/updmap.d/: 10texlive-base.cfg, 10texlive-latex-base.cfg, 10latex-sanskrit.cfg.

Files present in $HOME/.texmf-config/updmap.d/: 10latex-sanskrit.cfg.
Merging of updmap.d snippets

Files used for *system wide* updmap.cfg generation:

/etc/texmf/updmap.d/10texlive-base.cfg,
/etc/texmf/updmap.d/10texlive-latex-base.cfg,
/etc/texmf/updmap.d/10latex-sanskrit.cfg.

Files used for *user specific* updmap.cfg generation:

/etc/texmf/updmap.d/10texlive-base.cfg,
/etc/texmf/updmap.d/10texlive-latex-base.cfg,
$HOME/.texmf-config/updmap.d/10latex-sanskrit.cfg.
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Files used for user specific updmap.cfg generation:

/etc/texmf/updmap.d/10texlive-base.cfg,
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Call updmap.
Problems with user specific **updmap.cfg**

- changes to the system configuration files are not transferred to the user file – the user has to call `update-updmap` and `updmap` after every fundamental change.

- user config file creates problems ("Why does this or that not work?" – Because you have this config file which overrides the good default)
Hyphenation patterns and formats

Definition of hyphenation patterns and formats use the very same system as for map files (in fact there is only one update-* script), with:

- `updmap.d` is replaced by `language.d` or `fmt.d`
- `update-updmap` is replaced by `update-language` or `update-fmtutil`
- `updmap(-sys` is replaced by `fmtutil-sys`
Other things which might be of interest

We are trying to keep the Debian TeX system as up to date as possible, within the precincts of stability for a release:

- TeX Live 2007 is in Debian/unstable, bringing XeTeX to Debian users (and hopefully soon in testing)

- LuaTeX(-snapshot) is in Debian/unstable

- independent ConTeXt packages (independent from the TeX Live packages) are included and updated regularly
The Debian \TeX\ Task Force (debian-tex-maint@lists.debian.org) is currently working on:

- smoothing the upgrade from te\TeX\3 and \TeX\ Live 2005 to \TeX\ Live 2007
- trying to make all packages in Debian currently depending on te\TeX\ only to work with \TeX\ Live (run dependencies are more or less done, build-deps open)
- (planned) creating backports of \TeX\ Live 2007 and other packages for Debian Etch
- drowning in bugs since the upload to unstable ;-)
Conclusion

If you want to help

ML  debian-tex-maint@lists.debian.org
SVN  http://svn.debian.org/wsvn/debian-tex

The Subversion repository contains all the Debian specific code for the following packages: \TeX\ Common (Debian specific), \TeX\ Live, \TeX\info, Latin Modern fonts, CM-Super fonts, Con\TeX\t, Lua\TeX.\n
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Thanks for the attention