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fmtutil and updmap – past & future changes (or: cleaning up the mess)

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Once upon a time ...

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... there was only updmap and fmtutil

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... and the world was good ...

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... and ONE.

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Until the introduction of sys-scripts!

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Overview

- ▶ Repetition: What does `updmap` and `fmtutil` do?
- ▶ Repetition: Multi-layered `updmap.cfg` and `fmtutil.cnf`
- ▶ Modus operandi till TL2016
- ▶ What is the pain?
- ▶ New modus operandi from TL2017
- ▶ Secret item

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What does updmap do?

font map definition maps a T_EX internal name to an external font with optional additional transformations

font map file a collection of font map definitions, normally one per 'package' collecting all fonts shipped by that package

updmap config file list of font map files (and some options)

generated files updmap generates configuration files for various output drivers (dvips, pdftex, dvipdfmx, pxdvi)

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What does `fmtutil` do?

Dumps formats specified in `fmtutil.cnf`, which contains for each format the following information

- `name` the name of the format, also the program name
- `engine` the engine used to dump the format
- `options` command line options
- `patterns` the hyphenation pattern file used

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Example formats: `aleph`, `latex`, `dviluatex`, ...

```
explain pdftex language.dat -translate-file=cp227.tcx
*explain.ini
```

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Multi-layered configuration files

all `updmap.cfg` [`fmtutil.cnf`] files are read in a stacked mode: later entries override former.

System mode

TEXMFSYSCONFIG	\$TEXLIVE/YYYY/texmf-config/web2c/updmap.cfg
TEXMFSYSVAR	\$TEXLIVE/YYYY/texmf-var/web2c/updmap.cfg
TEXMFLOCAL	\$TEXLIVE/texmf-local/web2c/updmap.cfg
TEXMFMAIN	\$TEXLIVE/YYYY/texmf/web2c/updmap.cfg
TEXMFDIST	\$TEXLIVE/YYYY/texmf-dist/web2c/updmap.cfg

User mode

TEXMFCONFIG	\$HOME/.texliveYYYY/texmf-config/web2c/updmap.cfg
TEXMFVAR	\$HOME/.texliveYYYY/texmf-var/web2c/updmap.cfg
TEXMFHOME	\$HOME/texmf/web2c/updmap.cfg
TEXMFSYSCONFIG	\$TEXLIVE/YYYY/texmf-config/web2c/updmap.cfg
TEXMFSYSVAR	\$TEXLIVE/YYYY/texmf-var/web2c/updmap.cfg
TEXMFLOCAL	\$TEXLIVE/texmf-local/web2c/updmap.cfg
TEXMFMAIN	\$TEXLIVE/YYYY/texmf/web2c/updmap.cfg
TEXMFDIST	\$TEXLIVE/YYYY/texmf-dist/web2c/updmap.cfg



Practical example: mtpro fonts

Assume you have purchased mtpro2 fonts and want to use them with your T_EX Live installation. Problem: T_EX Live ships belleek fonts/maps defining the same fonts.

- ▶ put the files in TEXMFLOCAL
- ▶ edit (or create) TEXMFLOCAL/texmf/web2c/updmap.cfg
- ▶ disable the belleek map file by adding
 #! Map belleek.map
- ▶ enable the mtpro2 map file by adding Map mtpro2.map
- ▶ run updmap-sys

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Modus operandi till TL 2016 – sys/user mode

System mode

Invoked by using `updmap-sys` or `fmtutil-sys`
(or pass in the `-sys` option)

Generated files go into `TEXMFSYSVAR`.

User mode

Invoked by using `updmap` or `fmtutil`
without the `-sys` option

Generated files go into `TEXMFVAR`.

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What is the problem?

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Google for 'latex font installation' ...



Problems arising from using the user mode

- ▶ if a user once calls `updmap`, he will have local copies of the config files for the output drivers, that shadow the system wide
- ▶ after changes on the system side, the config files of that user are not update, so the user has to run `updmap` again
- ▶ reason: output drivers don't read stacked config files



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- ▶ reason: output drivers don't read stacked config files

Consequence: loads of bug reports of fonts not found, formats not updated, etc. In 99.99% the above was the explanation.

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We had enough of it ...

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New modus operandi (TL 2017)

System mode

Invoked by using `updmap-sys` or `fmtutil-sys`
(or pass the `-sys` option)

User mode

Invoked by using `updmap-user` or `fmtutil-user`
(or pass the `-user` option)

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New modus operandi [TL 2017]

System mode

Invoked by using `updmap-sys` or `fmtutil-sys`
(or pass the `-sys` option)

User mode

Invoked by using `updmap-user` or `fmtutil-user`
(or pass the `-user` option)

Calling `updmap` or `fmtutil` without `-sys` or `-user` results in an error (with link to web site).

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Does it help?

- ▶ We hope ...
- ▶ invalidating wrong documentation on the web
- ▶ make people more aware, require explicit decision

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Does it help?

- ▶ We hope ...
- ▶ invalidating wrong documentation on the web
- ▶ make people more aware, require explicit decision
- ▶ ask me at BachoT_EX 2018

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Best practice

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Use system mode. Full stop.

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Use cases

<http://tug.org/texlive/scripts-sys-user.html>



Single user computer – add fonts

- ▶ put the fonts into `TEXMFLOCAL` with the full subdirectory structure, following the TDS by default, this is `/usr/local/texlive/texmf-local`
- ▶ Add the font map to the file `TEXMFLOCAL/web2c/updmap.cfg`
- ▶ run [once] `updmap-sys` [no options needed].

Advantages: upgrades to new T_EX Live releases pick up the fonts automatically

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Multi-user computer – add system-wide fonts

A common need in a department or company with organization-specific fonts, which all users should have access to:

Follow use case above. That is all!

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Multi-user computer – private user fonts

This is the only case where user mode is required!

Thus TEXMFHOME is used instead of TEXMFLOCAL:

- ▶ Put fonts into TEXMFHOME, following the TDS,
- ▶ add the font map lines to
TEXMFHOME/web2c/updmap.cfg,
- ▶ run updmap-user once.



Multi-user computer – private user fonts

This is the only case where user mode is required!

Thus TEXMFHOME is used instead of TEXMFLOCAL:

- ▶ Put fonts into TEXMFHOME, following the TDS,
- ▶ add the font map lines to
TEXMFHOME/web2c/updmap.cfg,
- ▶ run updmap-user once.

Warnings:

- ▶ Changes in the font setup of the system invisible!
- ▶ Run updmap-user regularly!

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New/changed format definitions

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Single user computer – add fonts

- ▶ adjust `TEXMFLOCAL/web2c/fmtutil.cnf`
- ▶ run [once] `fmtutil-sys` [no options needed].



Switching back to system mode

Remove (backup first) the following files to switch back to system mode:

- ▶ for updmap: `TEXMFVAR/fonts/map`
- ▶ for fmtutil: `TEXMFVAR/web2c`

`TEXMFVAR` is normally `~/.texliveYYYY/texmf-var`.

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Conclusion

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Conclusion

We hope for the best!

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Conclusion

We hope for the best!

Thanks

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Secret item



My new toy: tlmgr shell

```
$ tlmgr shell
protocol 1
tlmgr> load local
OK
tlmgr> get repository
repository = /home/norbert/public_html/tlptest
OK
tlmgr> load remote
tlmgr: package repository /home/norbert/public_html/tlptest
OK
```

```
tlmgr> update --list
tlmgr: saving backups to /home/norbert/tl/2017/tlpkg/backups
update: arabxuatex      [635k]: local: 43739, source: 44102
update: babel           [951k]: local: 40706, source: 44101
update: jllreq          [83k]: local: 43693, source: 44117
update: langsci         [167k]: local: 44063, source: 44096
update: latexindent     [568k]: local: 43326, source: 44120
update: lwrap           [1593k]: local: 43857, source: 44119
update: markdown        [389k]: local: 43737, source: 44118
update: reledmac        [3026k]: local: 43946, source: 44099
update: stage           [153k]: local: 15878, source: 44100
update: tex4ebook       [89k]: local: 40199, source: 44103
update: tex4ht          [872k]: local: 43982, source: 44105
update: texlive-docindex [227k]: local: 44071, source: 44111
update: texlive-scripts [100k]: local: 44031, source: 44108
autoinst: childdoc     [246k]: local: <absent>, source: 44098
update: collection-latexextra [6k]: local: 43964, source: 44098
OK
tlmgr> update --all
tlmgr: saving backups to /home/norbert/tl/2017/tlpkg/backups
[ 1/15, ??:??/??:??] update: arabxuatex [635k] (43739 -> 44102) ... done
[ 2/15, 00:02/00:28] update: babel [951k] (40706 -> 44101) ... done
[ 3/15, 00:06/00:34] update: jllreq [83k] (43693 -> 44117) ... done
[ 4/15, 00:07/00:38] update: langsci [167k] (44063 -> 44096) ... done
...
```

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Supported operations

- ▶ set, get: for most command line switches to T_EX Live Manager
- ▶ all actions as is
- ▶ Load local and remote databases

WIP installation of T_EX Live via tlmgr

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Why?

- ▶ allow for new GUI to be written in arbitrary languages (communication via pipes)
- ▶ unifying installer and T_EX Live Manager

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Why?

- ▶ allow for new GUI to be written in arbitrary languages (communication via pipes)
- ▶ unifying installer and T_EX Live Manager

Now really finished ... Thanks!