1 Web2c under WIN32

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The description of the WIN32 port of Web2c follows: advocating for Web2c, binary distribution, installation, configuration, troubleshooting and compilation.

1.1 Why using Web2c under WIN32

The author of this port takes on it after leaving Linux for NT. Web2c is the most used TEX distribution in the Unix world. Web2c takes you to a high level of TEXnicity : latest versions of TEX, METAFONT, META O T, use of the high speed search kpathsea library to name only some features. Web2c is highly configurable and should satisfy the most demanding users. Moreover, its wide use makes it well tested.

Web2c has been already ported to a wide variety of OS apart from Unixes: VMS, MVS, Amiga, OS/2, DOS. WIN32 has everything of a high-tech OS, so there was no reason for Web2c not to be ported to it. It would make life easier for administrators who have UNIX, Windows (and maybe others) TEX distributions to maintain. So, the main goal of the port was compatibility with the reference platforms (Unixes): administration of TeX sites should be similar. For further details on the WIN32 adaptation, take look at Section 5.

1.2 What's in this port

The the binary distribution is made of the following files:

```
 Directory of e:\Local\TeX\bin\win32

[.]                [..]                a5bookle.bat       access.exe
afm2tfm.exe        bibtex.exe          dmp.exe            doubside.bat
dt2dv.exe          dv2dt.exe           dvibook.exe        dviconcat.exe
dvicopy.exe        dvidvi.exe          dvihp.exe          dvilj.exe
dvilj2p.exe        dvilj4.exe          dvilj4l.exe        dvips.exe
dviselect.exe      dvitodvi.exe        dvitomp.exe        dvitype.exe
elatex.exe         etex.exe            gftodvi.exe        gftopk.exe
gftype.exe         gsftopk.exe         inimf.exe          inimpost.exe
initex.exe         install-info.exe    kpathsea.dll       kpsestat.exe
kpsewhich.exe      lacheck.exe         lambda.exe         latex.exe
libpng.dll         lnexe.exe           mag.exe            makeindex.exe
makeinfo.exe       makempx.exe         mf.exe             mft.exe
mktex.exe          mktexdir.exe        mktexlsr.exe       mktexmf.exe
mktexnam.exe       mktexpk.exe         mktexpk.opt        mktextfm.exe
mktexupd.exe       mltex.exe           mpost.exe          mpto.exe
MSVCIRT.DLL        msvcrt.dll          msvcrt20.dll       msvcrt40.dll
musixflx.exe       newer.exe           odvicopy.exe       odvips.exe
odvitype.exe       ofm2opl.exe         omega.exe          opl2ofm.exe
otangle.exe        otp2ocp.exe         outocp.exe         ovf2ovp.exe
ovp2ovf.exe        oxdviw32.exe        patgen.exe         pdflatex.exe
pdftex.exe         pfb2pfa.exe         pk2bm.exe          pktogf.exe
pktype.exe         pltotf.exe          pooltype.exe       ps2pk.exe
t1ascii.exe        t1asm.exe           t1binary.exe       t1disasm.exe
tangle.exe         tex.exe             tex4ht.exe         texindex.exe
tftopl.exe         tie.exe             ttf2afm.exe        unpost.exe
vftovp.exe         virmf.exe           virmpost.exe       virtex.exe
vptovf.exe         weave.exe           xdviw32.exe        zlib.dll
             108 File(s)      4,947,459 bytes
```

There are some DLLs : the ones that begin with msvc are the Microsoft C library targeted for multi-threaded applications and the kpathsea dynamic-linked library. There are also `zlib.dll` and `libpng.dll` for pdftex.exe. The Microsoft files may be removed if you already have them in your system directory.

1.3 Binary distribution

A precompiled distribution should be found on CTAN archives in the following directory: ⟨*CTAN:*⟩`systems/win32/web2c`

My ftp site is at the following address `ftp://ftp.ese-metz.fr/pub/TeX/win32`, but is quite slow.

Get the binary package `web2c-7.x.y-win32.tar.gz` (`x` and `y` being the highest ones), without forgetting to set binary mode. If you do not have Winzip, get also `tar.exe` and `gzip.exe`.

Choose a directory ⟨*prefix*⟩ (e.g.: `c:\TeX`) and do as follows, assuming that you have downloaded everything in ⟨*tmpdir*⟩:

```
cd <prefix>
gzip -dc <tmpdir>/web2c-7.x.y-win32.tar.gz | tar xf -
```

If you do not have a TDS conformant texmf tree (there is one in teTeX for Unix), get the minimal one in: ⟨*CTAN:*⟩`systems/web2c/texmflib-base.tar.gz` and unpack it with a similar command in `c:\TeX\share`.

All implementation-dependent TEX system files (`.pool`, `.fmt`, `.base`, `.mem`) are stored by default directly in `texmf/web2c`. The configuration file `texmf.cnf` is also stored there. All the binaries are in `.../bin/win32` for compatibility with other distributions.

Given a root directory ⟨*prefix*⟩ (`g:\Local\TeX` was my compile-time default), we have default locations as follows:

⟨*prefix*⟩`/`	installation root (`g:/Local/TeX` compile-time default)
`bin/win32 executables`	
`man/`	man pages
`info/`	info files
`lib/`	libraries (`kpathsea.*`)
`share/`	architecture-independent files
`texmf/`	TDS root
`web2c/`	implementation-dependent files (`.pool`, `.fmt`, `texmf.cnf`, etc.)

This disposition is almost identical to the standard one for Web2c under Unix.

2 Specific WIN32 Configuration

I didn't make any configuration program. The only things to configure are:

- add the `...\TeX\bin\win32` directory to your PATH
- if the command `kpsewhichcmr10.tfm` gives you the location of `cmr10.tfm`, there are chances that it is finished.
- if you have multiple trees, or for any other reason, set `TEXMF` to anything relevant (I assume you do not use the standard and single `...\TeX\share\texmf` tree), by example you can do:

  ```
  set TEXMF=c:/TeX/share/{texmf_fr;texmf}
  ```

  if you want to use two texmf trees.
- if `kpsewhich` is not able to locate your favorite files, see the Troubleshooting section.

You can play with all variables in `$TEXMF/web2c/texmf.cnf`, but *only after a careful reading of the kpathsea manual.*

The configuration through mktex.cnf is supported. The following variables may be changed in this file :

`MT_FEATURES`	`appendonlydir:dosnames` (all features supported)
`MODE`	`ljfour` (any other valid mode)
`BDPI`	`600` (any other valid base dpi resolution)
`ps_to_pk`	`gsftopk` (ps2pk is untested)

Permissions on WIN32 do not have the same meaning as on Unix and I didn't think of a way to mimic them.

There is a difference between WIN32 `mktexpk.exe` and the standard one. WIN32 `mktexpk` will try to put pk files in their right texmf trees if you have more than one. This is guessed by finding where the tfm file needed lies.

The mktex*.exe programs should behave exactly the same way (except faster) as their shell scripts counterparts.

3 Troubleshooting

What to do if `kpsewhich` or `latex` do not find your files?

- kpsewhich is the tool of choice to debug any problem. Unfortunately, kpsewhich outputs debug information to stderr, and the Windows console does not know how to redirect stderr to a file. So you will need to play with the 'pause' key until someone provides me with a better approach.
- assuming the installation has been done in `c:/TeX`, check the following values:

`kpsewhich-expand-path$SELFAUTOPARENT`	`c:/TeX`
`kpsewhich-expand-path$TEXMF`	`c:/TeX/share/texmf`

`kpsewhich-expand-path$TEXMFCNF`	`.;c:/TeX/share/texmf/web2c;`
	`c:/TeX/bin/win32;`
	`c:/TeX/bin;`
	`c:/TeX`

`kpsewhich-expand-var$TEXINPUTS`	`.;c:/TeX/share/texmf/tex//`

- if you have other TEX-related values already set in your environment, please, remove them. They are overriding the ones in texmf.cnf.
- check the values from:

`kpsewhichcmr10.tfm`	`c:/TeX/share/texmf/fonts/tfm/public/cm/cmr10.tfm`
`kpsewhichlatex.fmt`	`c:/TeX/share/texmf/web2c/latex.fmt`

- at this point, if everything is correct, `tex.exe` and co. should work. If it is not the case, you will need to play with the `-debug=n` option from `kpsewhich`, and check back all the values. Try to identify and report the problem.

4 Filesystems considerations

WIN32 supports multiple filesystems:

- DOS FAT, 8.3 and uppercase filenames
- Protected mode Fat, long filenames, but case-insensitive

- NTFS, long filenames and case-sensitive
- ISO9660 CDROM, 8.3 and uppercase filenames

Moreover, WIN32 calls which refer to filenames are case-insensitive. There are several other features in NTFS that WIN32 can't use for the moment. Another dimension is the use of different directory separators: `/` or `\`, but WIN32 calls accept both.

So what difficulties may arise ?

Most likely, you will have some style files with long filenames. If you are running on a filesystem which supports them, there is no problem and you have nothing to do. Otherwise, you will need to use the alias feature of kpathsea (See it in the kpathsea manual). Say for example you are trying to install texmf on a FAT partition and you have the style file named longtable.sty in you tree. The filename will be truncated to its 8.3 form : longtabl.sty. In this case, you will need to create a file named aliases along to the ls-R file in you texmf tree. This file should contain the following line:

```
longtabl.sty longtable.sty
```

There is an example of aliases file in `$TEXMF/aliases`. All references to longtable.sty will be redirected to longtabl.sty as long as the long filename is not found.

Otherwise, if you think you have trouble with filenames, consider doing the following:

- pathes in config files and environment variables are preferred written with `/` rather than `\`;
- ls-R databases should be in lower case, even if you are running on FAT or CD-ROM;
- use the debug feature of `kpathsea` and `kpsewhich` to demonstrate you problem and email me the results of your investigations.

5 How to compile Web2c under WIN32

If you feel adventurous, you can try to get the package `web2c-7.x.y-win32-src.tar.gz` and unzip it. It contains everything to compile the whole thing **under Windows NT**, anf the proceed as follows :

```
cd source
perl ./configure.pl
setvars
nmake NODEBUG=1 install
```

You need VC++5.x

Generally speaking, I will not support this stuff at the source level. Unix uses `autoconf` and has only `Makefile.in`. I have to tweak these `Makefile.in` by hand to get them working. And I had to compile a lot of GNU stuff to make this running. I have taken the others (groff for example) from the Net.