

## 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 T<sub>E</sub>X distribution in the Unix world. Web2c takes you to a high level of T<sub>E</sub>Xnicity : latest versions of T<sub>E</sub>X, METAFONT, METAFONT, 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) T<sub>E</sub>X 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	mktexfm.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.esz-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  $\langle prefix \rangle$  (e.g.: `c:\TeX`) and do as follows, assuming that you have downloaded everything in  $\langle tmpdir \rangle$ :

```
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:  $\langle CTAN \rangle$ /systems/web2c/texmflib-base.tar.gz and unpack it with a similar command in `c:\TeX\share`.

All implementation-dependent T<sub>E</sub>X 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  $\langle prefix \rangle$  (`g:\Local\TeX` was my compile-time default), we have default locations as follows:

$\langle prefix \rangle$ /	installation root ( <code>g:/Local/TeX</code> compile-time default)
bin/win32	executables
man/	man pages
info/	info files
lib/	libraries ( <code>kpathsea.*</code> )
share/	architecture-independent files
texmf/	TDS root
web2c/	implementation-dependent files ( <code>.pool</code> , <code>.fmt</code> , <code>texmf.cnf</code> , 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 your 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 your 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:

- paths 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 your 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**, and 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.