1 Web2c under WIN32

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First of all, many thanks to the following people for their patience and good will:

- Karl Berry, for his work on Web2c, and for accepting my WIN32 patches
- Michael Basler and Michael C. Grant for testing the numerous binary beta releases,
- Sebastian Rahtz, also for intensive tests and for integrating this port into the TEX-live CD,
- Bernd Raichle for e-TEX which is in this release,
- Joachim Schrod and Pehong Chen for `makeindex`, which I adapted to kpathsea.

The description of the WIN32 port of Web2c follows: advocating for Web2c, binary distribution, installation, configuration, 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, METAPOST, 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 is 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 4.

1.2 What's in this port

The following programs are given in the binary distribution:

```
 Directory of j:\TeX\bin\win32

[.]                 [..]                afm2tfm.exe         bibtex.exe
dmp.exe             dvicopy.exe         dvihp               dvilj.exe
dvilj2p.exe         dvilj4.exe          dvilj4l.exe         dvips.exe
dvitomp.exe         dvitype.exe         etex.exe            gftodvi.exe
gftopk.exe          gftype.exe          gsftopk.exe         inimf.exe
inimpost.exe        initex.exe          kpathsea.dll        kpsewhich.exe
latex.exe           makeindex.exe       makempx.exe         MakeTeXls-R.exe
MakeTeXmkdir.exe    MakeTeXnames.exe    MakeTeXpk.exe       MakeTeXupdate.exe
mf.exe              mft.exe             mltex.exe           mpost.exe
mpto.exe            msvcirt.dll         msvcrt.dll          MSVCRT10.DLL
msvcrt20.dll        msvcrt40.dll        newer.exe           patgen.exe
pktogf.exe          pktype.exe          pltotf.exe          pooltype.exe
```

```
tangle.exe          tex.exe             tftopl.exe          vftovp.exe
virmf.exe           virmpost.exe        virtex.exe          vptovf.exe
weave.exe
              57 File(s)      4929084 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. The Microsoft files may be removed if you already have them in your system directory.

There lacks exactly:

`MakeTeXTFM.exe, MakeTeXMF.exe, dvihp.exe, xdvi.exe`

from the complete distribution.

The first two will be available very soon. They are easy to write now and they are needed to use the Sauter fonts.

I will not write `dvihp.exe`. If someone volunteers a `dvihp.c` to replace the shell script, I will be glad to add it to the WIN32 specific tree.

I am working on `xdvi.exe`, which is my highest priority now.

You will find eTEX and an adaptation of Makeindex in addition to the standard Web2c distribution.

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-7.0-win32.tar.gz`, 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-win32-7.0.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-7.0.tar.gz` and unpack it with a similar command.

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*⟩ (`j:\TeX` was my compile-time default), we have default locations as follows:

⟨*prefix*⟩/	installation root (`j:/TeX` compile-time default)
`bin/win32 executables`	
`man/`	man pages
`info/`	info files
`lib/`	libraries (`libkpathsea.*`)
`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\win32\bin` directory to your PATH
- if the command `kpsewhichcmr10.tfm` gives you the location of `cmr10.tfm`, there are chances that it is finished.
- if `kpsewhich` failed, or if you have multiple trees, 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={j:\TeX\share\texmf_fr,j:\TeX\share\texmf}`

  if you want to use two texmf trees.
- if `kpsewhich` is not able to locate your favorite files, play with the `debug` option and feel free to report any misbehaviour.

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

The configuration through MakeTeX.site is supported. The following variables may be changed in this file :

`MODE`	`ljfour`
`ps_to_pk`	`gsftopk`
`ecfontdir`	`$TEXMF/fonts/source/jknappen/ec`
`tcfontdir`	`$TEXMF/fonts/source/jknappen/tc`
`sauterfontdir`	`$TEXMF/fonts/source/public/sauter`

Only MakeTeX.site is supported, and not MakeTeXnames.cnf. Permissions on WIN32 do not have the same meaning as on Unix and I didn't think on a way to mimic them.

There is a difference between WIN32 `MakeTeXpk.exe` and the standard one. WIN32 `MakeTeXpk` 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.

Another difference is about MakeTeXls-R. Under WIN32, it accepts 0 or 1 argument. No argument stands for generating ls-R db in all the texmf trees, and 1 argument stands for doing it only in the specified texmf tree.

MakeTeX* programs may have too long filenames for the partition on which they are run. In this case, you can rename any of these `.exe` files, with the following equivalences:

```
MakeTeXls-R.exe   makelsr.exe
MakeTeXmkdir.exe  makemd.exe
MakeTeXnames.exe  makename.exe
MakeTeXpk.exe     makepk.exe
MakeTeXupdate     makeupd.exe
```

If doing this, you need to set:

`set DVIPSMAKEPK=makepk.exe`

in your environment variables otherwise `dvips` won't be able to call the right program to generate pk files.

3 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.

4 How to compile Web2c under WIN32

If you feel adventurous, you can try to get the package `web2c-7.0-win32-src.tar.gz` and unzip it. Edit the files `texk-7.0/win32/nt.make` and `texk-7.0/win32/paths.make` to set the hardwired pathes. Then the following incantation should compile and install all the stuff:

```
cd texk-7.0
nmake -f win32/Makefile.root config.status
nmake all
nmake install
```

You need VC++4.x and a working copy of cat.exe, tr.exe, sed.exe, flex.exe, bison.exe. And I may have forgotten some (like diff.exe, grep.exe, makeinfo.exe) that are not used in the build itself. See the `Makefiles` and `texk-7.0/win32/*.make` files for more information.

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 lot of GNU stuff to make this running. I will put up a Web page about GNU tools useful under NT. But not yet. I have `xdvi.exe` to finish before.