g e m a l . d k - g e m a l ' s p s y c h e d s i t e

Build Mozilla Thunderbird/Firefox/Sunbird on Microsoft Windows

I'm a Mozilla fan! And being able to build Mozilla Thunderbird   and/or Mozilla Firefox on my Windows XP machine sounded cool.

I didn't have Microsoft Visual C++ so I needed to build without any tools from Microsoft, aside from Windows XP of couse.

So here we go: **Build Mozilla Thunderbird   and/or Mozilla Firefox   and/or Mozilla Sunbird in 14 easy steps!**

The versions that you're building will be debug versions. This means that a console will appear with some debug messages. They will also run slower than the versions that you can obtain from mozilla.org   .

1. Disk space requirements

Be sure you have enough disk space available. **You must have 3.7GB free disk space** available. The building tools are around 110MB. The Mozilla source before building it is around 200Mb.

2. Create main directory

All tools and code will be located in `c:\mozilla\`. Therefore start by creating this directory. Start a Command Prompt and do:

```
mkdir c:\mozilla\
```

3. Get GNU Tools for Microsoft Windows (Cygwin)

Install the GNU Tools for Microsoft Windows (also called Cygwin) : Direct download   - Info

Install into : `c:\mozilla\cygwin\`. Remeber to choose Unix as "Default Text File Type". Besides the default modules, install the following modules:

- cvs
- cygutils
- make
- patch
- patchutils
- perl
- unzip
- zip

You do this by pressing the `View` button in the Select Packages part of the installer. Click here to see the screenshots.

The following modules should be installed per default. But make sure that they are selected:

- ash
- diffutils
- fileutils
- findutils

- gawk
- grep
- sed
- sh-utils
- textutils

4. Get Netscape wintools

Netscape has modified a handful of the GNU command-line tools to solve some problems mostly for makefile compatibility with the GNU-styled UNIX builds.

Get Netscape wintools : [Direct download](#)

Unpack the zip file into a temporary directory. Then start a Command Prompt in the temporary directory and do:

```
set MOZ_TOOLS=c:\mozilla\moztools
mkdir c:\mozilla\moztools
cd buildtools\windows
install.bat
```

5. Get MinGW

Get the following [MinGW](#) packages:

- [gcc-core](#)
- [gcc-g++](#)
- [binutils](#)
- [w32api](#)
- [mingw-runtime](#)

Unpack all of the tar.gz files in `c:\mozilla\mingw\`. You can do this by placing all the tar.gz files in `c:\mozilla\mingw\` and then Start a Command Prompt and do:

```
cd c:\mozilla\mingw\
c:\mozilla\cygwin\bin\gzip -d *.tar.gz
c:\mozilla\cygwin\bin\tar -xvf binutils-*
c:\mozilla\cygwin\bin\tar -xvf gcc-core-*
c:\mozilla\cygwin\bin\tar -xvf gcc-g++-*
c:\mozilla\cygwin\bin\tar -xvf mingw-runtime-*
c:\mozilla\cygwin\bin\tar -xvf w32api-*
del *.tar
```

6. Set up

Create a file called `mozset.bat` in `c:\mozilla\`. The file should contain the following lines:

```
@echo off
set MOZ_TOOLS=c:\mozilla\moztools
set PATH=c:\mozilla\mingw\bin;c:\mozilla\cygwin\bin;%MOZ_TOOLS%\bin;%PATH%
set HOME=c:\mozilla
set CVSROOT=:pserver:anonymous@cvs-mirror.mozilla.org:/cvsroot
```

7. Run mozset.bat

Get ready for to get the Mozilla source code. Do:

```
cd c:\mozilla\
mozset.bat
```

Keep the Command Prompt open.

8. Header convert

Since we're on a Windows platform we have to convert the Netscape wintools header files into Unix format.

```
cd c:\mozilla\moztools\include\
dos2unix.exe *.h
cd libIDL\
dos2unix.exe *.h
```

9. Now login to the CVS server

Log into the Mozilla CVS server.

```
cd c:\mozilla\
cvs login
```

Enter anonymous as password. You might get a warning like:

```
cvs login: warning: failed to open /cygdrive/c/mozilla/.cvspass for reading: No
such file or directory
```

Just ignore it.

10. Get client.mk

Get the client.mk file which does all the magic:

```
cd c:\mozilla\
cvs checkout mozilla/client.mk
```

If you want to build Mozilla Firefox do

```
cd c:\mozilla\
cvs checkout mozilla/browser/config
```

If you want to build Mozilla Thunderbird do

```
cd c:\mozilla\
cvs checkout mozilla/mail/config
```

If you want to build Mozilla Sunbird do

```
cd c:\mozilla\
cvs checkout mozilla/calendar/sunbird/config
```

11. Create .mozconfig

Now you have to create a file called `.mozconfig` in `c:\mozilla\mozilla\`
It should contain the following lines:

To build **Mozilla Thunderbird in optimized mode**:

```
. $topsrcdir/mail/config/mozconfig
CC=gcc
CXX=g++
CPP=cpp
AS=as
LD=ld
ac_add_options --disable-accessibility
```

To build **Mozilla Thunderbird in debug mode**, that's with the debug information and console window:

```
. $topsrcdir/mail/config/mozconfig
CC=gcc
CXX=g++
CPP=cpp
AS=as
LD=ld
ac_add_options --disable-accessibility
ac_add_options --enable-debug
ac_add_options --disable-optimize
```

To build **Mozilla Firefox in optimized mode**:

```
. $topsrcdir/browser/config/mozconfig
CC=gcc
CXX=g++
CPP=cpp
AS=as
LD=ld
ac_add_options --disable-accessibility
```

To build **Mozilla Firefox in debug mode**, that's with the debug information and console window:

```
. $topsrcdir/browser/config/mozconfig
CC=gcc
CXX=g++
CPP=cpp
AS=as
LD=ld
ac_add_options --disable-accessibility
ac_add_options --enable-debug
ac_add_options --disable-optimize
```

To build **Mozilla Sunbird in optimized mode**:

```
. $topsrcdir/calendar/sunbird/config/mozconfig
CC=gcc
CXX=g++
CPP=cpp
AS=as
```

```
LD=ld
ac_add_options --disable-accessibility
```

To build **Mozilla Sunbird in debug mode**, that's with the debug information and console window:

```
. $topsrcdir/calendar/sunbird/config/mozconfig
CC=gcc
CXX=g++
CPP=cpp
AS=as
LD=ld
ac_add_options --disable-accessibility
ac_add_options --enable-debug
ac_add_options --disable-optimize
```

12. Get the source

Now you are ready to pull the source. This will take a long time! It took me around 2 hours!

```
cd c:\mozilla\mozilla\
make -f client.mk pull_all
```

It's **much** faster to download the source directly. You could get the source by downloading a tar.gz file containing all the source files : <u>Direct download</u>   - <u>Info</u>

13. Build

Now build the bird! This will take a even longer time! It took me around 4 hours!

```
cd c:\mozilla\mozilla\
make -f client.mk build_all
```

If you want to log all warnings and errors to a file you can do it by doing:

```
cd c:\mozilla\mozilla\
make -f client.mk build_all > c:\mozilla\build.log 2>&1
```

The next time if want to update and build you can do this by doing:

```
cd c:\mozilla\mozilla\
make -f client.mk pull_and_build_all
```

14. Start it

To start **Mozilla Thunderbird**:

```
cd c:\mozilla\mozilla\thunderbird\bin\
thunderbird.exe -console
```

To start **Mozilla Firefox**:

```
cd c:\mozilla\mozilla\dist\bin\
firefox.exe -console
```

Moving on...

Now that you have build Mozilla Thunderbird you can now start to modify code. Fx if you want to change some IMAP code, go to `c:\mozilla\mozilla\mailnews\imap\src\` change the code and do:

```
cd c:\mozilla\mozilla\mailnews\imap\
make
cd build
make
```

You can now launch thunderbird.exe again and your code changes should be there.

If you want to get the updated Mozilla source files into your directory and build it do:

```
cd c:\mozilla\
mozset.bat
cd mozilla
make -f client.mk
```

Problems

Make sure that your tools are correct
First of all make sure that you're using the correct tools.

Test gcc

```
cd c:\mozilla\
mozset.bat
gcc -v
```

This should say `gcc version 3.2.3 (mingw special 20030504-1)`. If it doesn't something is wrong.

Test make

```
cd c:\mozilla\
mozset.bat
make -v
```

This should say `GNU Make 3.80`. If it doesn't something is wrong.

Test uname

```
cd c:\mozilla\
mozset.bat
uname --version
```

This should say `uname (sh-utils) 2.0.15`. If it doesn't something is wrong. Double check that the path to your Cygwin binary directory is set up correctly in mozset.bat.

Other problems
I encountered the following problems while trying to compile Mozilla Thunderbird:

exec: cl: not found
`make[4]: Entering directory `/cygdrive/c/mozilla/mozilla/nsprpub/config' sh`

```
/cygdrive/c/mozilla/mozilla/nsprpub/build/cygwin-wrapper cl -Fonow.obj -c -W3 -
nologo -GF -Gy -MDd -Od -Z7 -UNDEBUG -DDEBUG_hege -UWINNT -DMOZILLA_CLIENT=1 -
DDEBUG=1 -DXP_PC=1 -DWIN32=1 -D_DEBUG=1 -DWIN95=1 -D_PR_GLOBAL_THREADS_ONLY=1 -
D_X86_=1 -DFORCE_PR_LOG /cygdrive/c/mozilla/mozilla/nsprpub/config/now.c
exec: cl: not found
```

Basically it complains that it can't find the file `cl`. The `cl` file is the Microsoft Visual C++ compiler. You use the gcc compiler instead of the MinGW compiler.

Solution: Double check that the path to your Cygwin binary directory is set up correctly in mozset.bat. Also make sure that the mingw path is **before** the MOZ_TOOLS path.

Problems with cdefs.h
If you're getting: `sys/cdefs.h: No such file or directory`

Solution: Make sure that the mingw path is **before** the cygwin path.

Problems with glib.h

Solution: Convert the moztools headers files with dos2unix.

Parse error
You see errors like this `parse error before '*' token`

Solution: Convert the moztools headers files with dos2unix.

Missing midl
If you get "midl" `c:/mozilla/mozilla/accessible/public/msaa/ISimpleDOMNode.idl` "midl" not found

Solution: The following options don't yet work under gcc-on-win32 so you have to disable them

```
ac_add_options --disable-accessibility
ac_add_options --disable-activex
```

Currently the mingw headers and libraries don't emulate accessibility. Perhaps at a some point mingw will.

Problems with "vtable cant be auto-imported"
Some people have been having "vtable" problems when compiling. It says something like "variable vtable cant be auto-imported".

Solution: To fix this problem try adding following to your .mozconfig

```
LDFLAGS="-mwindows -Wl,--enable-runtime-pseudo-reloc"
```
Problems with missing icons
If you're having problem with the icons not being shown in the Mozilla Thunderbird, it's because you didn't choose Unix as the default file type when installing cygwin.

```
cd c:\mozilla\
mozset.bat
mount
```

Then it most say:
```
C:\mozilla\cygwin\bin on /usr/bin type system (binmode)
C:\mozilla\cygwin\lib on /usr/lib type system (binmode)
C:\mozilla\cygwin on / type system (binmode)
c: on /cygdrive/c type user (binmode,noumount)
```
The important thing is that it says binmode and not textmode. Otherwise you're icons are trashed!

Solution: Copy the `chrome` directory over from a "real" Mozilla Thunderbird build.

No build ID

If you build Mozilla and dont get an build ID you should add the following to your mozset.bar file

```
set MOZILLA_OFFICIAL=1
set BUILD_OFFICIAL=1
```

More resources...

- Building Mozilla Thunderbird Mail
- Mozilla Thunderbird
- How to build Mozilla on a Microsoft Windows System
- Getting Mozilla source code via cvs
- Mozilla Build FAQ
- How to get Mozilla source code
- Mozilla Thunderbird Build forum
- Building A Mozilla Distribution

Relevant bugs...

- xul preprocessor dies with certain define values
- cl not found when compiling under gcc with no MSVC

Take back the web