

Compiling csound~ on Windows

Requirements:

Visual C++ 2010 (express or pro)	http://www.microsoft.com/express/windows/
Max 5 SDK	http://cycling74.com/products/sdk/
Csound 5.08+ (normal install, not source code)	http://sourceforge.net/projects/csound/
win32 pthreads	http://sourceware.org/pthreads-win32/
pexports	http://www.emmestech.com/software/pexports-0.43/download_pexports.html
libsndfile (32bit)	http://www.mega-nerd.com/libsndfile/#Download
boost	http://sourceforge.net/projects/boost/files/boost/1.44.0/

After installing/expanding everything listed in the requirements, open command prompt (not Cygwin or MSYS) and type:

```
$ cd \Program Files\Csound\bin
```

(the location of the Csound bin directory may be different on your computer). The type:

```
$ lib.exe
```

If you get an error, add this to your PATH environment variable:

```
C:\Program Files\Microsoft Visual Studio 10.0\VC\bin
```

To permanently add this to your path:

1	Press Windows + R
2	Type <code>sysdm.cpl</code> , press Enter
3	Go to Advanced tab
4	Click Environment Variables...
5	Under System Variables, double-click Path
6	At the end of the string, add: ;C:\Program Files\Microsoft Visual Studio 10.0\VC\bin

(the location may differ on your computer). Or, you can temporarily add it for this session:

```
$ set PATH=%PATH%;C:\Program Files\Microsoft Visual Studio 10.0\VC\bin
```

Copy pexports.exe to the Csound bin directory (or another directory in your PATH). Then type:

```
$ vcvars32.bat
```

```
$ pexports csound64.dll.5.1 > csound64.def
```

```
$ lib /machine:i386 /def:csound64.def
```

(replace 64 with 32 if you have floats version of Csound5). Go to your boost directory and compile boost:

```
$ cd \boost_1_44_0
```

```
$ bootstrap
```

```
$ bjam serialization link=static threading=multi variant=debug,release
```

```
runtime-link=static,shared runtime-debugging=on,off
```

This will compile boost.serialization so that you can build csound~ in either release or debug mode. Now, to make finding the static libraries we just created easier, create a new directory called `_libs` in your boost directory. Then search the boost directory (using Windows Explorer) for all library files by entering this in the search field:

```
*.lib
```

Once you have a list of library files, copy them to the `_libs` directory.

Now, copy the csound~ source code directory to the Max 5 SDK directory. Here's where I put it on my computer:

```
C:\Users\Davis\Code\MaxSDK-5.1.1\examples
```

Please note that some of the paths specified in the VC++ project files are relative and, as such, may not be found if you put the csound~ source code directory somewhere else. If you're confused, just use absolute paths everywhere.

Now, open the csound~ Visual C++ project file: `csound~.sln`

Goto Project → Properties. In the properties window, change the following fields to match the locations of everything you downloaded and compiled above:

C/C++ → General → Additional Include Directories:

```
..\..\c74support\max-includes
..\..\c74support\msp-includes
C:\pthreads\include
C:\Program Files\Csound\include
C:\libsndfile\include
C:\boost_1_44_0
```

Linker → General → Additional Library Directories:

```
D:\boost_1_44_0\_libs
```

Linker → Input → Additional Dependencies:

```
..\..\c74support\max-includes\MaxAPI.lib
..\..\c74support\msp-includes\MaxAudio.lib
C:\pthreads\lib\pthreadGC2.lib
C:\Program Files\Csound\bin\csound64.lib
C:\libsndfile\libsndfile-1.lib
```

Press F7 to compile.

If you receive errors like "stdint.h not found", download stdint.h from:

<http://en.wikipedia.org/wiki/Stdint.h>

and move it to:

```
C:\Program Files\Csound\include
```

If you get an error like "___int64_t not defined", open stdint.h and add this line:

```
typedef __int64 __int64_t;
```

At this point, csound~ should be compiled. Copy Release64\csound~.dll to your Max msp-externals directory and rename it to csound~.mx6.

Compiling csound~ on Mac OSX

Xcode 2.5+	Included on the OSX dvd.
Max 5 SDK	http://cycling74.com/products/sdk/
Csound 5 (normal install, not source code)	http://sourceforge.net/projects/csound/
libsndfile	http://www.mega-nerd.com/libsndfile/#Download
boost	http://sourceforge.net/projects/boost/files/boost/1.44.0/

After installing/expanding everything listed in the requirements, make sure /Library/Frameworks contains the following:

CsoundLib.Framework and/or CsoundLib64.Framework

To build boost, open a terminal window, cd to the boost folder and type these commands:

```
$ ./bootstrap.sh
$ ./bjam serialization variant=debug,release link=static threading=multi
$ mkdir _libs
$ cp bin.v2/libs/serialization/build/darwin-4.0.1/release/link-static/
    threading-multi/libboost_serialization.a ./_libs/
```

To build libsndfile, open a terminal, cd to the libsndfile folder, and type these commands:

```
$ ./configure
$ make
$ make install
```

Assuming that your expanded Max 5 SDK folder is here:

/Users/myname/Code/MaxSDK-5.1.1/

copy the csound~ source code folder to:

/Users/myname/Code/MaxSDK-5.1.1/examples

Now, open csound~.xcodeproj. Under Groups & Files, double-click csound~.

In the Info window, select the Release configuration and proceed to edit the following fields so that the folder paths match the stuff you installed/expanded above:

Search Paths → Header Search Paths

Search Paths → Library Search Paths

Search Paths → Framework Search Paths

Then set where you want the intermediate and final build products:

Build Locations → Build Products Path

Build Locations → Intermediate Build Files Path

Click the Overview button in the main project window, then set Release and float or double (depending on which version of Csound5 you've installed).

Press Cmd + B to build.

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