

Cling Windows port – building instructions

1. Install MinGW (e.g. <http://gnutoolchains.com/mingw32/>)
2. Install CMake for Windows (<http://www.cmake.org/cmake/resources/software.html>)
3. Create a directory for cling (e.g. e:\temp\cling).
4. Checkout llvm, clang and cling from git using the latest stable versions to the “src” subdirectory of the cling directory, e.g.:

```
• git clone http://root.cern.ch/git/llvm.git src
• cd src
• git checkout 2bc5930947795fce3869a02b1e8573d6766cde27
• cd tools
• git clone http://root.cern.ch/git/cling.git
• cd cling && git checkout decffc8c2145da69a0c3b3cf45f932f76134aac7
• git clone http://root.cern.ch/git/clang.git
• cd ../clang && git checkout 0eab60b987b15767be9aab69f3b392c9bdf4290d
```

Warning: as of 19 Aug 2014, the CERN clang repository appears to be broken. A snapshot of the related clang source can be found here: <https://s3.amazonaws.com/sysprogs2infusion/clang.7z>

5. Apply the provided cling.patch file (**patch -p1 < cling.patch** in the directory containing src and build directories).

Warning! The patch contains proof-of-concept workarounds intended to simply demonstrate that cling can run on Windows. Do not use them as a reference design!

6. Make a build directory inside the cling directory (e.g. e:\temp\cling\build)
7. Ensure the MinGW binary directory is inside %PATH%
8. Run cmake with explicitly enabling the C++11 standard:
 - set CXXFLAGS=-std=gnu++11
 - <path-to-cmake.exe> -G “MinGW Makefiles” ..\src
9. Build cling and clang by running MinGW make (note that multi-thread option may fail):
 - mingw32-make clang
 - mingw32-make cling
10. Go to the <build>\bin directory and ensure cling.exe and clang.exe exist.
11. Create a QueryABI.bat file in the bin directory with the following contents:
 - @echo "#include <vector>" | g++ -xc++ -dM -E - | grep "define %1" | awk '{print \$3}';
12. Create a QueryCpplIncludes.bat file in the bin directory with the following contents:
 - @set LC_ALL=C
 - @echo | g++ -xc++ -E -v - 2>&1 >nul | awk "/^#include </,/^End of search /{if (!/^#include </ && !/^End of search/){ print }}"
13. Run “nm cling.exe > _funcmap.txt” in the bin directory. Ensure that **_funcmap.txt** contains a line below (with a different address):

```
0045b6b9 T __ZN5cling7runtime8internal17setValueWithAllocEPvS2_S2_S2_
```
14. Now you can try out cling with some basic commands. If you encounter problems, ensure that QueryCpplIncludes.bat returns the include list correctly, e.g.:

```
c:\sysgcc\mingw32\bin\..\lib\gcc\mingw32\4.7.2\include\c++
c:\sysgcc\mingw32\bin\..\lib\gcc\mingw32\4.7.2\include\c++\mingw32
c:\sysgcc\mingw32\bin\..\lib\gcc\mingw32\4.7.2\include\c++\backward
c:\sysgcc\mingw32\bin\..\lib\gcc\mingw32\4.7.2\include
c:\sysgcc\mingw32\bin\..\lib\gcc\mingw32\4.7.2\..\..\..\include
c:\sysgcc\mingw32\bin\..\lib\gcc\mingw32\4.7.2\include-fixed
```

In case of problems with grep/awk, replace the contents of QueryCpplIncludes.bat with hardcoded @echo statements printing the lines above adjusted to your MinGW location.