

# Building CLHEP

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## 2.1.2.4

### windows-i386-32bit-vc90

CLHEP now uses CMake to handle its builds. Please note that while the ReadMe.win directs us to use the command-line version of CMake and build via nmake, this currently produces an error - which might be a CMake bug..or perhaps a deficiency in the CMake set up of CLHEP. I posted a note to the CLHEP bug list. Instead, we use cmake-gui to generate the Visual Studio project, and use VS to compile and install CLHEP.

Tracy found a bug in 2.1.2.2 in RandPoisson that seems to be fixed in this version

1. Download the CLHEP 2.1.2.4 source
2. Ungzip and untar the file using GNU gzip and tar for windows
3. Start up a DOS Command Prompt
4. Run C:\Program Files\Microsoft Visual Studio 9\Common\Tools\vsvars32.bat
5. Start up cmake-gui
6. Point the "Where is the source code:" text box to the CLHEP source
7. Set "Where to build the binaries"
8. Click the Configure box
9. Click Generate
10. Locate the Visual Studio solution file generated and use it to start up Visual Studio
11. Chose Debug or RelWithDebug (the CLHEP default)
12. Build "ALL\_BUILD"
13. It seems the Cast library is built after the test programs in some cases, if there are build failures, just build "ALL\_BUILD" again.
14. Build "Install" to obtain bin, lib, and include directories.

## 2.1.0.1

### windows-i386-32bit-vc90

1. Download the CLHEP 2.1.0.1 source
2. Ungzip and untar the file
3. Build CLHEP from within a directory other than the source directory - so create a new directory such as C:\heather\clhep\debug
4. Start up cygwin and have is set up to use Visual Studio 2008 using the cygwin.bat file
5. create two environment variables:  
export CC=cl  
export CXX=cl
6. ./configure --prefix /cygwin/c/heather/clhep/debug CXX=cl CC=cl
7. for Debug:  
make AM\_CXXFLAGS=" /EHsc /nologo /GR /MDd /Z7 /D \_HAS\_ITERATOR\_DEBUGGING=0 /D \_SECURE\_SCL=0 /D \_DEBUG "  
The /Z7 option should provide debugging info embedded in the static lib, rather than creating a separate pdb file if one used the /Zi or /ZI options
8. For release:  
make
9. make install

## windows-i386-32bit-vc90-debug

1. Download the CLHEP 2.1.0.1 source
2. Ungzip and untar the file
3. Build CLHEP from within a directory other than the source directory
4. Start up a new DOS Command Window
5. set PATH=
6. set LIB=
7. set INCLUDE=
8. Run VC9's setup file:
9. set LIB=C:\Program Files\Microsoft SDKs\Windows\v6.0A\Lib;%LIB%
10. set PATH=C:\WINNT\system32;C:\WINNT;C:\WINNT\System32\Wbem;C:\Program Files\Microsoft SDKs\Windows\v6.0A\bin;%PATH%
11. set INCLUDE=C:\Program Files\Microsoft SDKs\Windows\v6.0A\Include;include;%INCLUDE%
12. Start up cygwin (where you have perl installed) bash --login -i
13. 2.1.0.1/CLHEP/configure --prefix /cygwin/c/clhep"
14. make AM\_CXXFLAGS="-EHsc -nologo -GR -MDd -ZI -D\_HAS\_ITERATOR\_DEBUGGING=0 -D\_SECURE\_SCL=0"  
<http://hypernews.slac.stanford.edu/HyperNews/geant4/get/installconfig/1150/1.html>

## redhat4-x86\_64-64bit-gcc34

Obtain the binaries using "wget [http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/tarFiles/clhep-2.1.0.1-slc4\\_amd64\\_gcc34.tgz](http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/tarFiles/clhep-2.1.0.1-slc4_amd64_gcc34.tgz)"

## redhat5-i686-32bit-gcc41

Obtain the binaries using "wget <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/tarFiles/clhep-2.1.0.1-i686-slc5-gcc41-opt.tgz>"

## redhat5-x86\_64-64bit-gcc41

Obtain the binaries using "wget [http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/tarFiles/clhep-2.1.0.1-x86\\_64-slc5-gcc41-opt.tgz](http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/tarFiles/clhep-2.1.0.1-x86_64-slc5-gcc41-opt.tgz)"

## snowleopard-i386-32bit-gcc42

Obtain the binaries using "wget <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/tarFiles/clhep-2.1.0.1-i386-mac106-gcc42-opt.tgz>"

## redhat7-x86\_64-64bit-gcc48

Obtain 2.1.0.1 source and did:

- ./configure --prefix
- make
- make check
- make install

## 2.0.4.6

### redhat4-i686-32bit-gcc34

1. Download CLHEP 2.0.4.6 from
2. There are 2 packages which have been split off CLHEP but are still needed by Geant4: HepMC, HepPDT
3. Obtain HepMC 2.06.00 from <https://savannah.cern.ch/projects/hepmc/>
  - a. Run configure from the CLHEP directory:  
../HepMC-2.06.00/configure --prefix=/afs/slac/g/glast/ground/GLAST\_EXT/rhel4\_gcc34/CLHEP/2.0.4.6/ --enable-gmake --with-CLHEP=/afs/slac/g/glast/ground/GLAST\_EXT/rhel4\_gcc34/CLHEP/2.0.4.6 --with-momentum=MEV --with-length=MM
  - b. make
  - c. make check
  - d. make install
4. Obtain HepPDT from <http://lcgapp.cern.ch/project/simu/HepPDT/download/>
  - a. Run configure from the CLHEP directory
  - b. make
  - c. make check
  - d. make install

## 1.9.4.2

These are instructions for building CLHEP 1.9.4.2 for the various OSes supported.

## tiger-i386-32bit

These instructions should be performed as the glastrm user on a machine running 32bit version of tiger (bldmac01 as of this writing).

1. Download CLHEP 1.9.4.3 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.4.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.4.2.tgz
4. Change directory to 1.9.4.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/tiger-i386-32bit/CLHEP/1.9.4.2/gcc40
6. Execute make
7. Execute make install
8. Leave and erase the current directory (CLHEP)

## redhat5-i686-64bit

These instructions should be performed as the glastrm user on a machine running 64bit version of rhel5 (noric15 as of this writing).

1. Download CLHEP 1.9.4.2 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.4.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-x86\_64-64bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-x86\_64-64bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.4.2.tgz
4. Change directory to 1.9.4.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-x86\_64-64bit/CLHEP/1.9.4.2/gcc41
6. Execute make
7. Execute make install
8. Leave and erase the current directory (CLHEP)

## redhat5-i686-32bit

These instructions should be performed as the glastrm user on a machine running 32bit version of rhel5 (bldlnx09 as of this writing).

1. Download CLHEP 1.9.4.2 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.4.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-i686-32bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-i686-32bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.4.2.tgz
4. Change directory to 1.9.4.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/redhat5-i686-32bit/CLHEP/1.9.4.2/gcc41
6. Execute make
7. Execute make install
8. Leave and erase the current directory (CLHEP)

## redhat4-x86\_64-64bit

These instructions should be performed as the glastrm user on a machine running 64bit version of rhel4 (noric14 as of this writing).

1. Download CLHEP 1.9.4.3 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.4.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/redhat4-x86\_64-64bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/redhat4-x86\_64-64bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.4.2.tgz
4. Change directory to 1.9.4.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/redhat4-x86\_64-64bit/CLHEP/1.9.4.2/gcc34
6. Execute make
7. Execute make install
8. Leave and erase the current directory (CLHEP)

## redhat4-i686-32bit

These instructions should be performed as the glastrm user on a machine running 32bit version of rhel4 (glastlnx14 as of this writing).

1. Download CLHEP 1.9.4.3 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.4.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.4.2.tgz
4. Change directory to 1.9.4.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/redhat4-i686-32bit/CLHEP/1.9.4.2/gcc34
6. Execute make
7. Execute make install
8. Leave and erase the current directory (CLHEP)

## redhat3-i686-32bit

These instructions should be performed as the glastrm user on a machine running 32bit version of rhel3 (noric02 as of this writing).

1. Download CLHEP 1.9.4.3 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.4.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/redhat3-i686-32bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/redhat3-i686-32bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.4.2.tgz
4. Change directory to 1.9.4.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/redhat3-i686-32bit/CLHEP/1.9.4.2/gcc32
6. Execute make
7. Execute make install
8. Leave and erase the current directory (CLHEP)

## 1.9.2.3

### windows-i386-32bit-vc90-debug

1. Download the CLHEP 1.9.2.3 source
2. Ungzip and untar the file
3. Build CLHEP from within a directory other than the source directory
4. Start up a new DOS Command Window
5. set PATH=
6. set LIB=
7. set INCLUDE=
8. Run VC9's setup file:
9. set LIB=C:\Program Files\Microsoft SDKs\Windows\v6.0A\lib;%LIB%
10. set PATH=C:\WINNT\system32;C:\WINNT;C:\WINNT\System32\Wbem;C:\Program Files\Microsoft SDKs\Windows\v6.0A\bin;%PATH%
11. set INCLUDE=C:\Program Files\Microsoft SDKs\Windows\v6.0A\Include;include;%INCLUDE%
12. Start up cygwin (where you have perl installed) bash --login -i
13. 1.9.2.3/CLHEP/configure --prefix /cygwin/c/clhep
14. make AM\_CXXFLAGS="-EHsc -nologo -GR -MDd -ZI -D\_HAS\_ITERATOR\_DEBUGGING=0 -D\_SECURE\_SCL=0"   
 <http://hypernews.slac.stanford.edu/HyperNews/geant4/get/installconfig/1150/1.html>

## 1.9.2.2

These are instructions for building CLHEP 1.9.2.2 for the various OSes supported.

### leopard-i386-32bit

These instructions should be performed as the glastrm user on a machine running leopard (bldmac02 as of this writing).

1. Download CLHEP 1.9.2.2 from <http://proj-clhep.web.cern.ch/proj-clhep/DISTRIBUTION/distributions/clhep-1.9.2.2.tgz> and save to /afs/slac/g/glast/ground/GLAST\_EXT/leopard-i386-32bit/CLHEP if it doesn't already exist.
2. Change directory to /afs/slac/g/glast/ground/GLAST\_EXT/leopard-i386-32bit/CLHEP
3. Ungzip and Untar the file clhep-1.9.2.2.tgz
4. Change directory to 1.9.2.2/CLHEP
5. Execute ./configure --prefix /afs/slac/g/glast/ground/GLAST\_EXT/leopard-i386-32bit/CLHEP/1.9.2.2/gcc40
6. Edit the following files and uncomment sharedir, lib\_shared (first occurrence), SHFLAGS, SHLINK, SHNAME,
  - Makefile
  - Cast/src/Makefile
  - Evaluator/src/Makefile
  - Exceptions/src/Makefile
  - GenericFunctions/src/Makefile
  - Geometry/src/Makefile
  - HepMC/src/Makefile
  - HepPDT/src/Makefile
  - Matrix/src/Makefile
  - Random/src/Makefile
  - RandomObjects/src/Makefile
  - RefCount/src/Makefile
  - StdHep/src/Makefile
  - Vector/src/Makefile
7. Edit RandomObjects/src/Makefile and append "-L../Random/src -L../Vector/src -L../Matrix/src -ICLHEP-Random-1.9.2.2 -ICLHEP-Matrix-1.9.2.2 -ICLHEP-Vector-1.9.2.2" to line 472
8. Edit StdHep/src/Makefile and append "-L../HepMC/src -L../Vector/src -L../HepPDT/src -ICLHEP-HepMC-1.9.2.2 -ICLHEP-HepPDT-1.9.2.2 -ICLHEP-Vector-1.9.2.2" to line 552
9. Edit Exceptions/src/Makefile and append "-L../RefCount/src -ICLHEP-RefCount-1.9.2.2" to line 484
10. Execute make
11. Execute make install
12. Leave and erase the current directory (CLHEP)