

LLVM 3.8.1 Installation Guide

I. System Configuration

System configuration: **Ubuntu 14.04 LTS**, Memory 7.7GB, Processor Intel Xeon CPU E5-1620v3 @3.50GHz x8(x86-64 architecture), OS type 64-bit.

Author's system configuration: Ubuntu, Main memory size 48GB, Intel Xeon X5670 @2.93GHz, # of processors 2, Cores per processor 6, Hyperthreading two-way, last level cache size 12MB

Here I make a comparison about the platform. The lowest requirement of memory size should be around 8GB. Also, 50GB should be left in disk for the installation of LLVM, since Clang and LLVM itself can take up really huge space. (i.e. /dev/sda1 in Ubuntu Linux system).

II. Installation of Basic Tools

If hardware meets the lowest requirement, I would like to check out the versions of basic tools at the very beginning, such as gcc, g++, cmake.

sudo apt-get install gcc

sudo apt-get install g++

The default latest version in Ubuntu 14.04 LTS is 4.8.4. (gcc 4.7 or later)

Next, install cmake:

cd where/you/want/to/put/compressed/src

wget https://github.com/Kitware/CMake/releases/download/v3.11.4/cmake-3.11.4.tar.gz

tar -xvf cmake-3.11.4.tar.gz

rm cmake-3.11.4.tar.gz

cd cmake-3.11.4

./bootstrap

make

make install

(option) cd /usr/bin

(option) sudo ln -s /usr/local/cmake/cmake

Then check the version to make sure cmake has been installed correctly.

cmake -version

Also, zlib is required during the installation of LLVM.

cd where/you/want/to/put/compressed/src

wget https://www.zlib.net/zlib-1.2.11.tar.gz

tar -xvf zlib-1.2.11.tar.gz

rm zlib-1.2.11.tar.gz

cd zlib-1.2.11

./configure

make

make install

Next, Contech may also need Gold linker as LLVM Gold plugin so as to get better linking performance.

However, try gold only if GNU ld cannot work!

sudo apt-get install binutils-gold binutils-dev

cd /usr/bin

sudo rm ld (please backup ld first!)

sudo ln -s gold ld

Check whether you have gold running ***/usr/bin/ld -v***. It will report "GNU gold".

III. Installation of LLVM

Now we can install LLVM. Due to compatibility, we choose LLVM 3.8.1. Download src from <http://llvm.org>.

cd where/you/want/llvm/src/to/live

wget http://releases.llvm.org/3.8.1/llvm-3.8.1.src.tar.xz

tar -xvf llvm-3.8.1.src.tar.xz

rm llvm-3.8.1.src.tar.xz

Install Clang:

cd llvm-3.8.1/src/tools

wget http://releases.llvm.org/3.8.1/cfe-3.8.1.src.tar.xz

tar -xvf cfe-3.8.1.src.tar.xz

rm cfe-3.8.1.src.tar.xz

mv cfe-3.8.1.src clang

Install OpenMP support and compiler-rt support:

cd ../projects

wget http://releases.llvm.org/3.8.1/openmp-3.8.1.src.tar.xz

tar -xvf openmp-3.8.1.src.tar.xz

rm openmp-3.8.1.src.tar.xz

wget http://releases.llvm.org/3.8.1/compiler-rt-3.8.1.src.tar.xz

tar -xvf compiler-rt-3.8.1.src.tar.xz

rm compiler-rt-3.8.1.src.tar.xz

Do not install libc++ or libc++abi unless they are necessary since they can lead to problems while building LLVM.

Then build and install LLVM.

cd where/you/want/llvm/to/be/built

mkdir build

cd build

cmake -G "Unix Makefiles" -DLLVM_BINUTILS_INCDIR=~/.source/binutils/include/

-DCMAKE_BUILD_TYPE=RelWithDebInfo -DLLVM_ENABLE_CXX1Y=ON where/you/put/llvm/src

sudo make (you can use ***make -j4*** to speed up but it may lead to errors due to race. If that happens, just run ***make*** again)

sudo make install