

1) development environment and how to build dependencies

+) ubuntu-18.04.4-desktop-amd64.iso (Linux OS)

+) gcc/g++ 7.5.0 (with std::tr1 support for function, bind, shared_from_this, ...)

+) pthread (multi thread)

+) glog (debug logging)

+) gtest (googletest unit test)

+) valgrind (memory leak)

a) step 1: update ubuntu with command line:

```
sudo apt update
```

b) step 2: install gcc/g++ with command line:

```
sudo apt install gcc g++
```

c) step 3: libpthread.so is available in ubuntu 18.04.4 with path “/usr/lib/x86_64-linux-gnu”

d) step 4: install glog with command line:

```
sudo apt install autoconf libtool make
```

```
tar xvf glog-0.4.0.tar.gz
```

```
cd glog-0.4.0/
```

```
./autogen.sh
```

```
./configure --prefix=$HOME/CocCoc/glog-0.4.0
```

```
make
```

```
make install
```

e) step 5: install gtest with command line:

```
sudo apt install cmake
```

```
tar xvf googletest-release-1.8.1.tar.gz
```

```
cd googletest-release-1.8.1/
```

```
mkdir mybuild
```

```
cd mybuild/
```

```
cmake ../ -DCMAKE_INSTALL_PREFIX=$HOME/CocCoc/googletest-release-1.8.1
```

```
make
```

```
make install
```

f) step 6: install valgrind with command line:

```
sudo apt install valgrind
```