

ubuntu 下配置 slam 环境

安装前请看说明

- 1 只跑 orbslam 就安装 Eigen, OpenCV, Pangolin, (g2o, DBoW2 库源码有)
- 2 运行 slambook2 里面的所有代码, 都需要安装
- 3 先安装 Eigen3 后才能安装 Sophus (Sophus 分模板和非模板, book2 是模板, book1 是非模板)

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1 安装 Eigen3

```
sudo apt-get install libeigen3-dev
```

2 安装 Sophus

```
cd Sophus  
mkdir build  
cd build  
cmake ..  
make
```

```
#进入 Sophus 库文件目录下  
#新建 build 文件夹  
#进入 build 文件夹  
#build 上一层目录下执行 CMake 命令
```

3 安装 OpenCV

我安装的 3.4.1+contrib

3.1 依赖

[compiler]

```
sudo apt-get install build-essential
```

[required]

```
sudo apt-get install cmake git libgtk2.0-dev pkg-config libavcodec-dev  
libavformat-dev libswscale-dev
```

[optional]

```
sudo apt-get install python-dev python-numpy libtbb2 libtbb-dev libjpeg-dev  
libpng-dev libtiff-dev libjasper-dev libdc1394-22-dev
```

安装上面第三条时，libjasper-dev 会报错，先参考下面链接

https://blog.csdn.net/qq_44830040/article/details/105961295

报错信息：Unable to locate package libjasper-dev 的解决办法（亲测可以解决）

2 完成上面依赖后，cd build 目录下 运行的代码

```
/home/lin/software/opencv/build
```

```
cmake -D CMAKE_BUILD_TYPE=RELEASE -D
```

```
CMAKE_INSTALL_PREFIX=/usr/local D
```

```
OPENCV_EXTRA_MODULES_PATH=~/.software/opencv/opencv_contrib/  
modules/ ..
```

- 3 上面路径参考视频教材自己调整，请修改成自己的路径，如果要用**编译 VTK 报错**的话：用下面的代码重新编译安装：

在这个目录下/home/lin/software/opencv/build

```
lin@lin-pc:~/software/opencv/build$
```

```
cmake -D CMAKE_BUILD_TYPE=RELEASE -D
```

```
CMAKE_INSTALL_PREFIX=/usr/local -D WITH_VTK=ON .. D
```

```
OPENCV_EXTRA_MODULES_PATH=~/software/opencv/opencv_contrib/  
modules/ ..
```

4 安装 Pangolin

依赖一般有 Glew、CMake、 Boost 、 Python2/Python3

sudo apt-get install libglew-dev

sudo apt-get install cmake

sudo apt-get install libboost-dev libboost-thread-dev libboost-filesystem-dev

mkdir build

cd build

cmake ..

make -j

sudo make install

.

5 安装 g2o

安装依赖

```
sudo apt-get install cmake libeigen3-dev libsuitesparse-dev
```

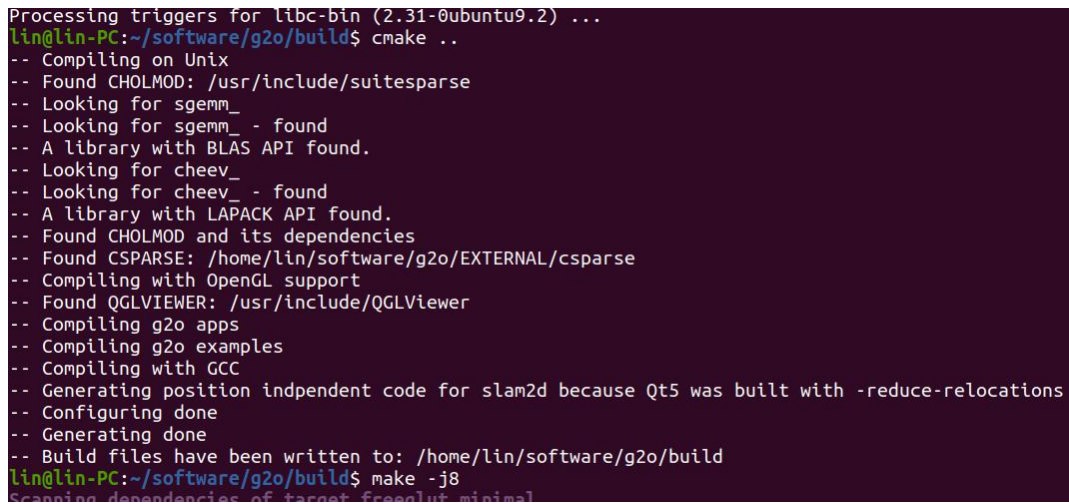
```
sudo apt-get install qtdeclarative5-dev qt5-qmake libqglviewer-dev-qt5
```

```
git clone g2o
```

```
mkdir build
```

```
cd build
```

```
cmake ..
```



```
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
lin@lin-PC:~/software/g2o/build$ cmake ..
-- Compiling on Unix
-- Found CHOLMOD: /usr/include/suitesparse
-- Looking for sgemm_
-- Looking for sgemm_ - found
-- A library with BLAS API found.
-- Looking for cheev_
-- Looking for cheev_ - found
-- A library with LAPACK API found.
-- Found CHOLMOD and its dependencies
-- Found CSPARSE: /home/lin/software/g2o/EXTERNAL/csparse
-- Compiling with OpenGL support
-- Found QGLVIEWER: /usr/include/QGLViewer
-- Compiling g2o apps
-- Compiling g2o examples
-- Compiling with GCC
-- Generating position independent code for slam2d because Qt5 was built with -reduce-relocations
-- Configuring done
-- Generating done
-- Build files have been written to: /home/lin/software/g2o/build
lin@lin-PC:~/software/g2o/build$ make -j8
Scanning dependencies of target freeglut_minimal
```

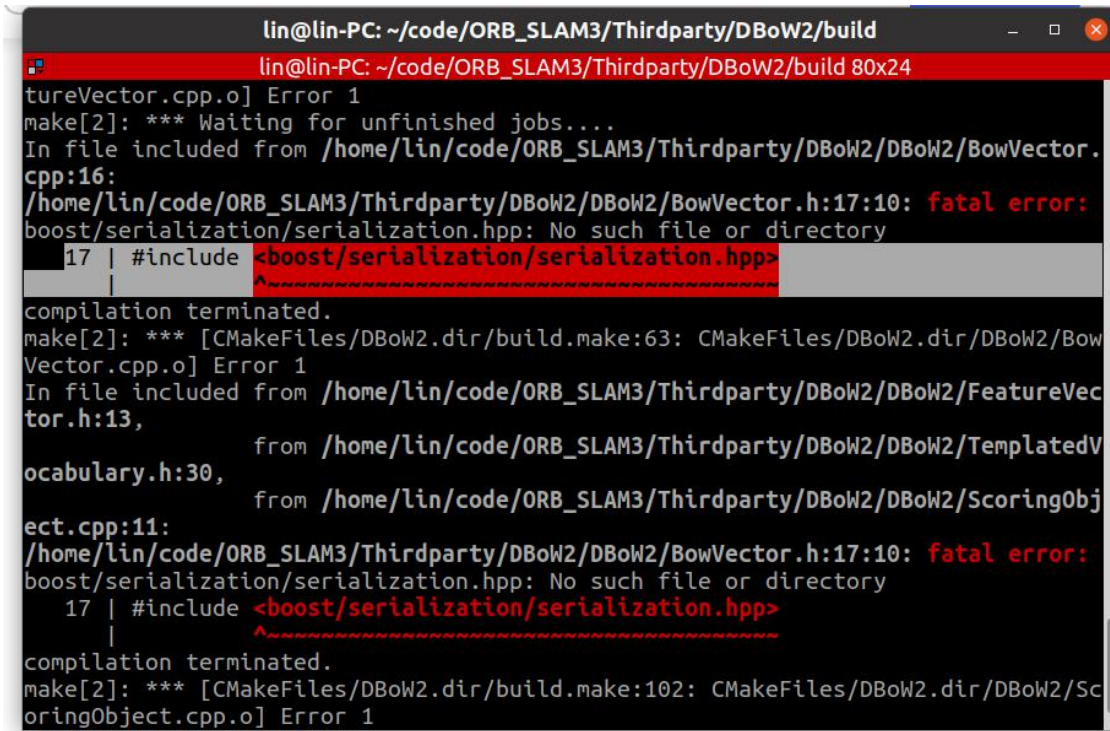
```
make -j8
```

```
sudo make install
```


6 编译 orb3

git clone ORB_SLAM3

先去 Thirdparty 里面编译 DBoW2 与 g2o



```
lin@lin-PC: ~/code/ORB_SLAM3/Thirdparty/DBoW2/build
lin@lin-PC: ~/code/ORB_SLAM3/Thirdparty/DBoW2/build 80x24
tureVector.cpp.o] Error 1
make[2]: *** Waiting for unfinished jobs....
In file included from /home/lin/code/ORB_SLAM3/Thirdparty/DBoW2/DBoW2/BowVector.
cpp:16:
/home/lin/code/ORB_SLAM3/Thirdparty/DBoW2/DBoW2/BowVector.h:17:10: fatal error:
boost/serialization/serialization.hpp: No such file or directory
17 | #include <boost/serialization/serialization.hpp>
    |
compilation terminated.
make[2]: *** [CMakeFiles/DBoW2.dir/build.make:63: CMakeFiles/DBoW2.dir/DBoW2/Bow
Vector.cpp.o] Error 1
In file included from /home/lin/code/ORB_SLAM3/Thirdparty/DBoW2/DBoW2/FeatureVec
tor.h:13,
               from /home/lin/code/ORB_SLAM3/Thirdparty/DBoW2/DBoW2/TemplatedV
ocabulary.h:30,
               from /home/lin/code/ORB_SLAM3/Thirdparty/DBoW2/DBoW2/ScoringObj
ect.cpp:11:
/home/lin/code/ORB_SLAM3/Thirdparty/DBoW2/DBoW2/BowVector.h:17:10: fatal error:
boost/serialization/serialization.hpp: No such file or directory
17 | #include <boost/serialization/serialization.hpp>
    |
compilation terminated.
make[2]: *** [CMakeFiles/DBoW2.dir/build.make:102: CMakeFiles/DBoW2.dir/DBoW2/Sc
oringObject.cpp.o] Error 1
```

sudo apt-get install libboost-all-dev

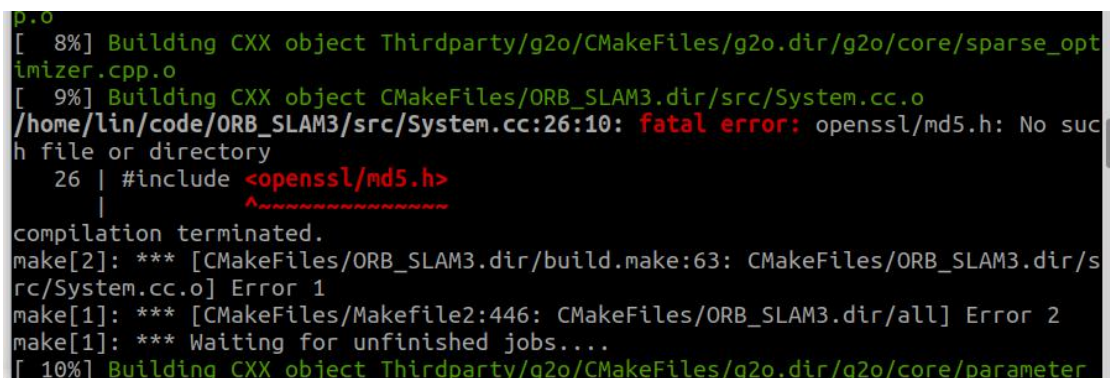
2 在 ORB_SLAM3/目录下

mkdir build

cd build

cmake ..

make -j8



```
p.o
[ 8%] Building CXX object Thirdparty/g2o/CMakeFiles/g2o.dir/g2o/core/sparse_opt
imizer.cpp.o
[ 9%] Building CXX object CMakeFiles/ORB_SLAM3.dir/src/System.cc.o
/home/lin/code/ORB_SLAM3/src/System.cc:26:10: fatal error: openssl/md5.h: No suc
h file or directory
26 | #include <openssl/md5.h>
    |
compilation terminated.
make[2]: *** [CMakeFiles/ORB_SLAM3.dir/build.make:63: CMakeFiles/ORB_SLAM3.dir/s
rc/System.cc.o] Error 1
make[1]: *** [CMakeFiles/Makefile2:446: CMakeFiles/ORB_SLAM3.dir/all] Error 2
make[1]: *** Waiting for unfinished jobs....
[ 10%] Building CXX object Thirdparty/g2o/CMakeFiles/g2o.dir/g2o/core/parameter_
```

apt install libssl-dev

```
-v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=unix$DISPLAY -e GDK_SCALE -e GDK_DPI_SCALE
```

```
sudo docker run --gpus all -it -v /tmp/.X11-unix:/tmp/.X11-unix:rw -e DISPLAY=$DISPLAY -v  
/home/lin/test01/./home --name slam01 slam
```

```
./Examples/Monocular/mono_tum Vocabulary/ORBvoc.txt Examples/Monocular/TUM1.yaml  
/code/rgbd_dataset_freiburg1_xyz
```