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Installing OpenCV in Ubuntu for Python 3

WK

Installing OpenCV in linux for Python 3 is not that straight forward, so in this tutorial, we'll go through the steps on how do we do it. We'll be using a 64 bit Ubuntu 16.04 system, and Python 3.5 in this tutorial. (It should also work for Ubuntu 12.04++ onwards and Python 3.x)

(While copying the code over, **do not** include the >>> in the terminal: It's just used to represent the python input.)

Packages Required

Before compiling OpenCV, we have to download some packages for compilation.

Update the repository before installing the necessary packages.

Once the update is done, we'll proceed on to downloading the required packages to compile OpenCV.

- GCC
- CMake
- Git
- GTK+2.x or higher, including headers (libgtk2.0-dev)

- pkg-config
- ffmpeg or libav development packages: libavcodec-dev, libavformat-dev, libswscale-dev

```
sudo apt-get install build-essential cmake
git libgtk2.0-dev pkg-config libavcodec-dev
```

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

Next, we will install the developer packages for python3. If you are using a different version of python, change it to python3.x-dev. (E.g. If you are using Python 3.3, use this instead: python3.3-dev)

```
sudo apt-get install python3.5-dev
```

sudo apt-get install python3.5-dev

Copying the Python dev file

(If you using Python 3.2 or below, you can skip to the next step.)

As the pycofig.h header file is not in the typical place, we would have to copy the file to the expected location. Run the following code below:

```
python3.5-config --includes
```

python3.5-config --includes

The output would look something similar below:

```
-I/usr/include/python3.5m -I/usr/include
/x86_64-linux-gnu/python3.5m
```

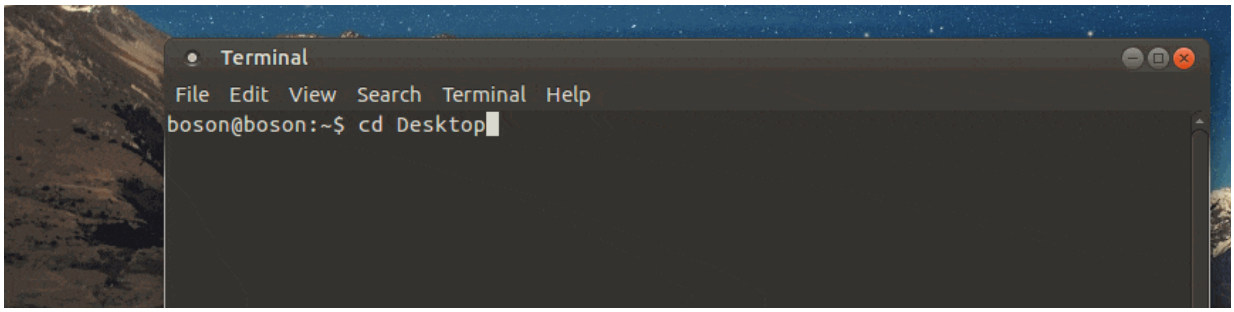
-I/usr/include/python3.5m -I/usr/include/x86_64-linux-gnu/python3.5m

The first part of the output is the expected location & the second part shows the current location of the config file. To solve this problem, we'll copy the file from the current location to the expected location.

```
sudo cp /usr/include/x86_64-linux-
gnu/python3.5m/pyconfig.h /usr/include
```

sudo cp /usr/include/x86_64-linux-gnu/python3.5m/pyconfig.h /usr/include/python3.5m/

Downloading the OpenCV Source Code



Make a new directory *OpenCV-tmp* in your Desktop, then change the directory into *OpenCV-tmp*. We will be using cloning the OpenCV source from Github into this folder.

```
mkdir OpenCV-tmp
cd OpenCV-tmp
```

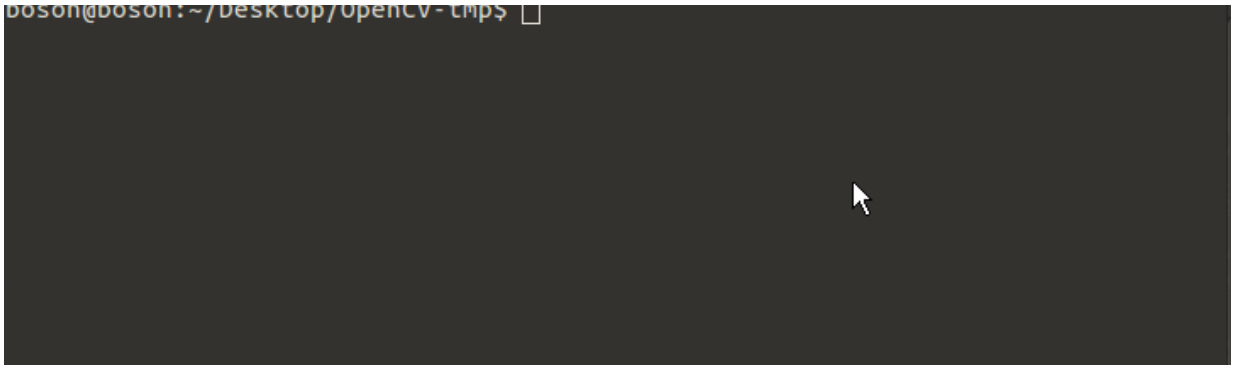
mkdir OpenCV-tmp

cd OpenCV-tmp

git clone https://github.com/Itseez/opencv.git

A *opencv* directory will be created in *OpenCV-tmp*. Rename *opencv* to *opencv-3*.

Building



Before compiling the source, we have to generate the make file, so we will be using cmake.

Create a new directory *build*, which we will build the makefile in. Change the directory into it.

After that, run the cmake utility:

```
cmake -D CMAKE_BUILD_TYPE=RELEASE -D
CMAKE_INSTALL_PREFIX=/usr/local ../opencv-3
```

cmake -D CMAKE_BUILD_TYPE=RELEASE -D CMAKE_INSTALL_PREFIX=/usr/local ../opencv-3

After the makefile is generated, we will build the installation files:

This may take some time depending on your computer.

Installing

Once the build is complete, we'll install OpenCV by running the make file:

Checking

After OpenCV have finished installing, we have to check to ensure that OpenCV have been properly installed .

To do this, we'll enter Python 3 and import *cv2*, and also check it's version. If there are no errors, the output should look something like this:

```
>>> import cv2
>>> cv2.__version__
```

>>> import cv2

>>> cv2.__version__

'3.1.0-dev'

With this, you have successfully installed OpenCV for Python 3!

Python Libraries

Here are some of the python libraries that are commonly used in conjunction with OpenCV:

Numpy: Fundamental package for scientific computing

```
sudo apt-get install python3-numpy
```

sudo apt-get install python3-numpy

Matplotlib: 2D Plotting Library

```
sudo apt-get install python3-matplotlib
```

```
sudo apt-get install python3-matplotlib
```

Troubleshooting

ImportError: No module named 'cv2'

- Did you miss the "Copying the Python dev file" step? (If you are running Python3.3+)?
- Make sure that you downloaded the correct python-dev packages. If you are not running Python 3.5, please change the dev packages accordingly. (E.g. Python 3.4 would be *python3.4-dev*)
- Recompile the makefile of the build directory. Make sure that you delete everything in the build directory before recompiling the makefile.
- If it still does not work, try reinstalling the required packages.

References

- http://docs.opencv.org/2.4/doc/tutorials/introduction/linux_install/linux_install.html
- http://stackoverflow.com/questions/20953273/install-opencv-for-python-3-3