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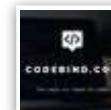
## How to Install OpenCV in Ubuntu 16.04 LTS for C / C++

⌚ July 28, 2017 🚩 admin 📄 C++, opencv 💬 47

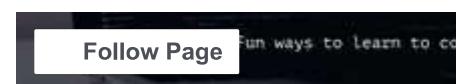
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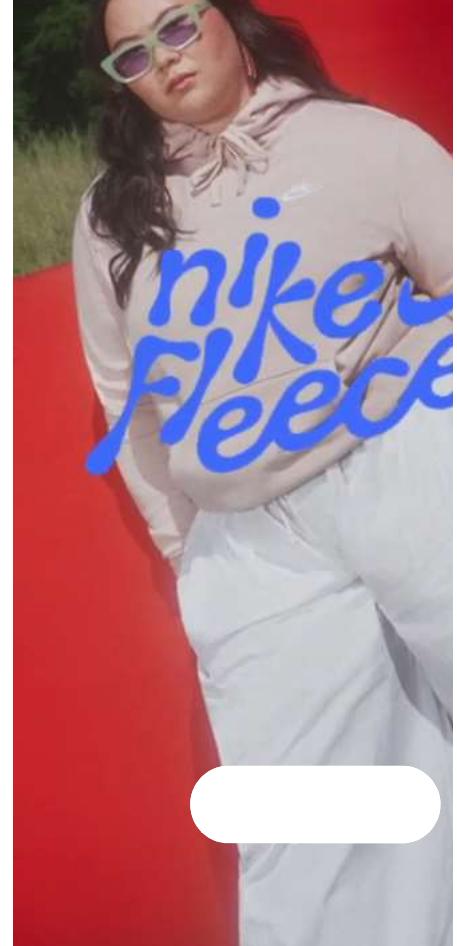
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In this post we will see How to Install OpenCV in Ubuntu for C/C++  
OpenCV is an image processing library created by Intel and later supported by Willow Garage and now maintained by Itseez. OpenCV means Intel® Open Source Computer Vision Library. It is a collection of C functions and a few C++ classes that implement some popular Image Processing and Computer Vision algorithms. OpenCV is Available on Mac, Windows, Linux (Terminal environment).



## Step 1 – Updating Ubuntu

```
$ sudo apt-get update
```

```
$ sudo apt-get upgrade
```

## Step 2 – Install dependencies

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

```
$ sudo apt-get install python3.5-dev python3-numpy libtbb2 libtbb-dev
```

```
$ sudo apt-get install libjpeg-dev libpng-dev
```

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## Step 3 – Get OpenCV

```
$ sudo -s  
  
$ cd /opt  
  
/opt$ git clone https://github.com/Itseez/opencv.git  
  
/opt$ git clone  
https://github.com/Itseez/opencv_contrib.git
```

## Step 4 – build and install OpenCV

```
/opt$ cd opencv  
  
/opt/opencv$ mkdir release  
  
/opt/opencv$ cd release  
  
/opt/opencv/release$ cmake -D BUILD_TIFF=ON -D  
WITH_CUDA=OFF -D ENABLE_AVX=OFF -D WITH_OPENGL=OFF -D  
WITH_OPENCL=OFF -D WITH_IPP=OFF -D WITH_TBB=ON -D  
BUILD_TBB=ON -D WITH_EIGEN=OFF -D WITH_V4L=OFF -D  
WITH_VTK=OFF -D BUILD_TESTS=OFF -D  
BUILD_PERF_TESTS=OFF -D CMAKE_BUILD_TYPE=RELEASE -D  
CMAKE_INSTALL_PREFIX=/usr/local -D  
OPENCV_EXTRA_MODULES_PATH=/opt/opencv_contrib/modules  
/opt/opencv/  
  
/opt/opencv/release$ make -j4  
  
/opt/opencv/release$ make install  
SHARES
```

**Now to check if OpenCV is installed on a machine, run the following commands**

```
$ pkg-config --modversion opencv  
3.2.x
```

We will get the opencv version installed in this case it's 3.2.x

**Online Course** – OpenCV Python Tutorial For Beginners. At the end of this course, you will have a firm grasp of Computer Vision techniques using OpenCV libraries. This course will be your gateway to the world of data science.

[OpenCV Python Tutorial For Beginners 1 - Intr...](#)



## Create a C++ program

Follow the commands

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```
+ cd /home/malay...pp
```

The above command will create a folder called `cpp_test` and create a `main.cpp` file inside it

Now place any `.jpeg` image inside the `cpp_test` folder.

So Now your `cpp_test` folder will contain two files as follows

```
├── sample.jpeg
└── main.cpp
```

Now open the `main.cpp` and add the following code

```
#include <opencv2/highgui.hpp>
#include <iostream>

int main( int argc, char** argv ) {

    cv::Mat image;
    image = cv::imread("sample.jpeg",
CV_LOAD_IMAGE_COLOR);

    if( ! image.data ) {
        std::cout << "Could not open or find the
image" << std::endl ;
        return -1;
    }

    cv::namedWindow( "Display window",
cv::WINDOW_AUTOSIZE );
    cv::imshow( "Display window", image );

    cv::waitKey(0);
    return 0;
}
```

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```
$ ./output
```

press ESC to exit

---

**Video instruction – How to Install OpenCV in Ubuntu 16.04 LTS  
for C / C++**

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**Raul Alexander**

SEPTEMBER 27, 2017 AT 9:05 PM

Package opencv was not found in the pkg-config search path.  
Perhaps you should add the directory containing `opencv.pc'  
to the PKG\_CONFIG\_PATH environment variable  
No package 'opencv' found

[REPLY](#)**Raul Alexander**

SEPTEMBER 27, 2017 AT 9:06 PM

Package opencv was not found in the pkg-config search path.  
Perhaps you should add the directory containing `opencv.pc'  
to the PKG\_CONFIG\_PATH environment variable  
No package 'opencv' found  
<https://uploads.disquscdn.com/images/e079f0ae50f33017e24db8d8690d3d29ce58a8b2fb44994835f2df22ec0a1306.png>

[REPLY](#)

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[REPLY](#)**sadek mostafa**

NOVEMBER 23, 2018 AT 2:09 PM

try this one it works with me

```
sudo apt-get install libopencv-dev
```

[REPLY](#)**nipunasudha**

NOVEMBER 21, 2017 AT 6:08 PM

Thank you, this really helped!

[REPLY](#)**Prashant Singh**

DECEMBER 12, 2017 AT 3:05 PM

Thanks. Can you also show how to use opencv in python using a simple example.

Does this build also work for use in python.

[REPLY](#)**Prashant Singh**

DECEMBER 12, 2017 AT 6:07 PM

I followed the procedure above. For c++ it's running fine but for python its throwing error.

SHARES





...@codebind.com

DECEMBER 12, 2017 AT 8:43 PM

try the python program in

<http://www.codebind.com/python/install-opencv-ubuntu-16-04-its-python/>

↪ REPLY

**陳文遠**

DECEMBER 22, 2017 AT 2:32 PM

Thanks for sharing~ It success on my computer.

↪ REPLY

**Chinmesh Manjrekar**

FEBRUARY 1, 2018 AT 11:16 AM

In step 4, 5th command onwards, the current working directory is  
/opt/opencv/releases, and not /opt/opencv

Its misleading, please correct it.

↪ REPLY

**Yasmine Sidhom**

FEBRUARY 8, 2018 AT 7:06 PM

thanks. that was really helpful

↪ REPLY

SHARES

and turn on the build components in cmake. Also, the path /opt/opencv/ still correct:

```
/opt/opencv/release$ cmake ... -D WITH_EIGEN=ON -D  
WITH_V4L=ON ... /opt/opencv/
```

 REPLY



**Amel**

FEBRUARY 15, 2018 AT 11:03 AM

My Installation was successful but now I have a big Problem, my Computer isn't working anymore.

When I'm starting the login comes up on my Ubuntu 16.04, then I type the right Datas.

It shows me then only quick a Blackscreen with an error message(/dev/nvme0n1p2: clean, 359022/60407808 files, 9919453/241604864 blocks) and then it goes back to the login.

I think something with the screen resolution is wrong. Here I have another error messages:

```
X Error of failed request: BadWindow (invalid Window parameter)  
Major opcode of failed request: 155 (NV-GLX)  
Minor opcode of failed request: 4 ()  
Resource id in failed request: 0x1400003  
Serial number of failed request: 40  
Current serial number in output stream: 40  
gnome-session-check-accelerated: Helper exited with code 256  
gnome-session-binary[25119]: CRITICAL: We failed, but the fail whale  
is dead. Sorry....  
CRITICAL: We failed, but the fail whale is dead. Sorry....
```

Hopefully can someone help me with my Problem.

 REPLY

SHARES



d1c2b651a5a287ac8c32228cb47a88f35d91d915.png

↪ REPLY



**Nic Lorenzo**

MARCH 20, 2018 AT 1:33 AM

Thanks bro!

↪ REPLY



**Shivam Gupta**

MARCH 22, 2018 AT 5:39 AM

Hi. I followed all the steps mentioned above and it was completed successfully.

But I am facing this error now..

Anyone knows the solution for this?

<https://uploads.disquscdn.com/images/a4cca9f1ff04bc913b3d0029b14458886c1fb71e94032d5c09e6ded46c1c89bb.png>

Please help! 😊

↪ REPLY



**Trịnh Minh Toàn**

APRIL 10, 2018 AT 1:50 PM

Plz help me,

when i run .test, i have a problem:

<https://uploads.disquscdn.com/images/42ec1fc2db845c81c8762d60fd1a991517efc34a03e07f5922f0226984423bda.png>

Tks,

SHARES



You have to declare your opencv install system variables.

↪ REPLY



**jamal tavana**

MAY 22, 2018 AT 1:09 AM

hello

<https://uploads.disquscdn.com/images/d44241ab84e000378f7d6450e711d83972c8589ce192f87e61cc9c034f63984d.png>

Why make a mistake?????????????????????????????????????

My Linux version: 18.04 LTS Ubuntu

I failed to install libjasper-dev and python3.5-dev too.

Attached Files CMakeOutput.log and CMakeError.log.

<http://mihanfarm.com/c/CMakeOutput.log>

<http://mihanfarm.com/c/CMakeError.log>

↪ REPLY



**Mkadem Imen**

JULY 15, 2018 AT 8:19 PM

hey same mistake ,how did you solve it?

↪ REPLY



**Diego Carlos do Brasil**

MARCH 21, 2019 AT 3:37 PM

you have to manually install

SHARES





for opencv Version 4.0.0 (v4.0) , you must use -std=c++14:

```
g++ main.cpp -o output `pkg-config --cflags --libs opencv` -std=c++14
```

and change 'CV\_LOAD\_IMAGE\_COLOR' to cv::IMAGE\_COLOR

REPLY



LB

DECEMBER 16, 2018 AT 9:57 PM

when i'm trying "sudo apt-get install build-essential cmake git libgtk2.0-dev pkg-config libavcodec-dev libavformat-dev libswscale-dev", the terminal says:

Lecture des listes de paquets... Fait

Construction de l'arbre des dépendances

Lecture des informations d'état... Fait

Aucune version du paquet pkg-config n'est disponible, mais il existe dans la base

de données. Cela signifie en général que le paquet est manquant, qu'il est devenu obsolète

ou qu'il n'est disponible que sur une autre source

E: Impossible de trouver le paquet libgtk2.0-dev

E: Impossible de trouver de paquet correspondant à l'expression rationnelle « libgtk2.0-dev »

E: Impossible de trouver de paquet correspondant à l'expression rationnelle « libgtk2.0-dev »

E: Le paquet « pkg-config » n'a pas de version susceptible d'être installée

E: Impossible de trouver le paquet libavcodec-dev

E: Impossible de trouver le paquet libavformat-dev

E: Impossible de trouver le paquet libswscale-dev

REPLY

SHARES



Specify -help for usage, or press the help button on the CMake GUI.

I created the directory and I am typing the command from inside it,  
so it's really strange!

 REPLY



### Diego Carlos do Brasil

MARCH 16, 2019 AT 9:27 PM

You must type inside /release bro

 REPLY



### Human#68

JANUARY 28, 2020 AT 4:57 PM

If you copy-paste the compile instruction, it should work. The single quotes need to be from the key above the Tab key, NOT the single quote next to the Enter key.

 REPLY



### Pablo Fonovich

MARCH 18, 2019 AT 2:54 PM

hi, I'm getting this error in ubuntu xenial:

*Package opencv was not found in the pkg-config search path.  
Perhaps you should add the directory containing opencv.pc  
to the PKG\_CONFIG\_PATH environment variable  
No package 'opencv' found*

SHARES



Install the development package as:

```
apt install libopencv-dev
```

 REPLY



**Promod Sampath Elvitigala**

MAY 31, 2019 AT 5:47 PM

Thanks That resolved issue!

 REPLY



**Anas Abdulla**

JUNE 10, 2019 AT 5:52 PM

but it shows installed version is a bit older.2.4.9.any way  
to upgrade that

 REPLY



**The Gravel**

JUNE 13, 2019 AT 1:30 AM

Me too



**Ali Rojas**

JULY 25, 2019 AT 2:18 AM

Thanks, that works! but every time I compile, I get this  
message:

SHARES



MARCH 28, 2019 AT 10:27 AM

Hi everyone,  
I'm getting this error when trying to compile above code.

```
$ pkg-config --modversion opencv
```

```
> 3.4.5
```

```
$ g++ main.cpp -o main `pkg-config --cflags --libs opencv`  
> /tmp/cc4vbYSm.o: In function `main':  
main.cpp:(.text+0x64): undefined reference to `cv::imread(cv::String  
const&, int)'  
main.cpp:(.text+0xfd): undefined reference to  
'cv::namedWindow(cv::String const&, int)'  
main.cpp:(.text+0x154): undefined reference to `cv::imshow(cv::String  
const&, cv::_InputArray const&)'  
/tmp/cc4vbYSm.o: In function `cv::String::String(char const*)':  
main.cpp:(.text._ZN2cv6StringC2EPKc[_ZN2cv6StringC5EPKc]+0x54):  
undefined reference to `cv::String::allocate(unsigned long)'  
/tmp/cc4vbYSm.o: In function `cv::String::~String()':  
main.cpp:(.text._ZN2cv6StringD2Ev[_ZN2cv6StringD5Ev]+0x14):  
undefined reference to `cv::String::deallocate()'  
collect2: error: ld returned 1 exit status
```

Please help.

REPLY

**Rutvik Rathod**

MAY 16, 2019 AT 4:32 PM

its

<https://uploads.disquscdn.com/images/5f476ecd1c8156d269db4eb020b8440375f87ac72a77fae5f196d5e10be91095.png>

SHARES

 REPLY**The Gravel**

JUNE 12, 2019 AT 2:35 PM

<https://github.com/Itseez/opencv.git> in github changed to  
<https://github.com/opencv/opencv.git>. If I use  
<https://github.com/opencv/opencv.git> is it oke?

 REPLY**The Gravel**

JUNE 12, 2019 AT 2:43 PM

I have very slow get clone, and failed suddenly

 REPLY**The Gravel**

JUNE 13, 2019 AT 1:31 AM

I used make -j1. That was worked for me

 REPLY**The Gravel**

JUNE 13, 2019 AT 2:04 AM

```
g++ main.cpp -o output `pkg-config --cflags --libs opencv`  
main.cpp:1:31: fatal error: opencv2/highgui.hpp: No such file or  
directory  
compilation terminated.
```

SHARES



if you are using opencv 4 try this g++ main.cpp -o output `pkg-config --cflags --libs opencv4` -std=c++11

 REPLY



### Mati Haucke

NOVEMBER 15, 2019 AT 6:23 AM

hi, i have the same problem, i solved changing the first include by this

```
#include "highgui.h"
```

why? i check the includes directory and actually there is not any opencv2/highgui.hpp file, instead there is an highgui.h file. and i used that and works great

 REPLY



### KOUCHA

JUNE 13, 2019 AT 11:54 AM

hello,I'm getting this error in debian gnu linux :

```
user@DESKTOP-M1UBACJ:~/cpp_test$ g++ -L/usr/local/lib main.cpp -o output `pkg-config --cflags --libs opencv`  
/usr/bin/ld: warning: libopencv_core.so.3.2, needed by  
/usr/local/lib/libopencv_viz.so, may conflict with libopencv_core.so.4.1  
/usr/bin/ld: /tmp/ccdH6K1Z.o: undefined reference to symbol  
'_ZN2cv6String10deallocateEv'  
//usr/local/lib/libopencv_core.so.3.2: error adding symbols: DSO  
missing from command line  
collect2: error: ld returned 1 exit status  
please help me.
```

 REPLY

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opencv") this appears:

```
pkg-config --modversion opencv
Package opencv was not found in the pkg-config search path.
Perhaps you should add the directory containing `opencv.pc'
to the PKG_CONFIG_PATH environment variable
No package 'opencv' found
```

Please, could you help me?

↪ REPLY



**Ali Rojas**

JULY 25, 2019 AT 2:06 AM

I could solve my problems making this changes:

Step 2

\*2nd command: change "python3.5-dev" by "python3.6-dev" (or  
the version of python that points ubuntu when you use "python3  
-V")

\*3th command: delete "libjasper-dev"

Step 4

\*After all commands and before checking if OpenCV is installed,  
use this command:

`sudo apt-get install libopencv-dev`

↪ REPLY



**Ali Rojas**

JULY 25, 2019 AT 2:13 AM

Despite the solution I have written, every time I compile using, for

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Do you know why this happens and what can I do to avoid it?  
[REPLY](#)

**Yash Chaubey**

DECEMBER 29, 2019 AT 8:30 AM

pkg-config --modversion opencv  
the above code needs

'libopencv-dev' to be installed.

So try 'sudo apt-get install libopencv-dev' before checking the version.

[REPLY](#)**Anchit Agarwal**

JANUARY 24, 2020 AT 11:19 AM

i am facing Segmentation fault because of imshow("Display window",image) function.

I have tried looking at almost everything, but can't find the issue. Any help would be appreciated.

[REPLY](#)

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