[OpenCV](https://help.ubuntu.com/community/OpenCV)

Introduction

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OpenCV (open source computer vision) is released under a BSD license and hence it’s free for both academic and commercial use. It has C++, C, Python and Java interfaces and supports Ubuntu Linux. OpenCV was designed for computational efficiency and with a strong focus on real-time applications.

OpenCV is the most popular and advanced code library for Computer Vision related applications today, spanning from many very basic tasks (capture and pre-processing of image data) to high-level algorithms (feature extraction, motion tracking, machine learning). It is free software and provides a rich API in C, C++, Java and Python. Other wrappers are available. The library itself is platform-independent and often used for real-time image processing and computer vision.

Version Note

Ubuntu's latest incarnation, Utopic Unicorn, comes with a new version of libav, and opencv sources will fail to build with this new library version. Likewise, some packages required by the script no longer exist (libxine-dev, ffmpeg) in the standard repositories. The procedures and script described below will therefore not work at least since Ubuntu 14.10!

Installation

Many people are having problem with installing OpenCV even from Ubuntu Software Centre. Here a simple .sh script file get all dependancy files from internet and compile the source finally install opencv on your system. So that users can easily write their CV files from C,C++, and Python

Step 1

Download the latest opencv.sh from <https://github.com/jayrambhia/Install-OpenCV/blob/master/Ubuntu/> or Copy the following script to gedit and save as opencv.sh

[Toggle line numbers](https://help.ubuntu.com/community/OpenCV)

[1](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_1) version="$(wget -q -O - http://sourceforge.net/projects/opencvlibrary/files/opencv-unix | egrep -m1 -o '\"[0-9](\.[0-9]+)+' | cut -c2-)"

[2](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_2) echo "Installing OpenCV" $version

[3](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_3) mkdir OpenCV

[4](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_4) cd OpenCV

[5](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_5) echo "Removing any pre-installed ffmpeg and x264"

[6](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_6) sudo apt-get -qq remove ffmpeg x264 libx264-dev

[7](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_7) echo "Installing Dependenices"

[8](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_8) sudo apt-get -qq install libopencv-dev build-essential checkinstall cmake pkg-config yasm libjpeg-dev libjasper-dev libavcodec-dev libavformat-dev libswscale-dev libdc1394-22-dev libxine-dev libgstreamer0.10-dev libgstreamer-plugins-base0.10-dev libv4l-dev python-dev python-numpy libtbb-dev libqt4-dev libgtk2.0-dev libfaac-dev libmp3lame-dev libopencore-amrnb-dev libopencore-amrwb-dev libtheora-dev libvorbis-dev libxvidcore-dev x264 v4l-utils ffmpeg cmake qt5-default checkinstall

[9](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_9) echo "Downloading OpenCV" $version

[10](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_10) wget -O OpenCV-$version.zip http://sourceforge.net/projects/opencvlibrary/files/opencv-unix/$version/opencv-"$version".zip/download

[11](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_11) echo "Installing OpenCV" $version

[12](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_12) unzip OpenCV-$version.zip

[13](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_13) cd opencv-$version

[14](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_14) mkdir build

[15](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_15) cd build

[16](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_16) cmake -D CMAKE\_BUILD\_TYPE=RELEASE -D CMAKE\_INSTALL\_PREFIX=/usr/local -D WITH\_TBB=ON -D BUILD\_NEW\_PYTHON\_SUPPORT=ON -D WITH\_V4L=ON -D INSTALL\_C\_EXAMPLES=ON -D INSTALL\_PYTHON\_EXAMPLES=ON -D BUILD\_EXAMPLES=ON -D WITH\_QT=ON -D WITH\_OPENGL=ON ..

[17](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_17) make -j2

[18](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_18) sudo checkinstall

[19](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_19) sudo sh -c 'echo "/usr/local/lib" > /etc/ld.so.conf.d/opencv.conf'

[20](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_20) sudo ldconfig

[21](https://help.ubuntu.com/community/OpenCV#CA-9506d7c8869d133c61d609b5e563a3acdd214403_21) echo "OpenCV" $version "ready to be used"

Note: If you are running 13.10 and you don't have a nvidia card then ensure you install ocl-icd-libopencl1 (sudo apt-get install ocl-icd-libopencl1) before running this script. Ubuntu 13.10 will install nvidia-319-updates as a dependency for libopencv-dev by default if ocl-icd-libopencl1 is not installed (see [bug report](https://bugs.launchpad.net/ubuntu/+source/opencv/+bug/1245260)).

Note: As of Utopic (14.10) libxine-dev is replaced with libxine2-dev

Step 2

Open terminal.

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[1](https://help.ubuntu.com/community/OpenCV#CA-a23ce93ca3e4e770fb0022db051ec3dd3d3af3e2_1) $ chmod +x opencv.sh

[2](https://help.ubuntu.com/community/OpenCV#CA-a23ce93ca3e4e770fb0022db051ec3dd3d3af3e2_2) $ ./opencv.sh

This will complete opencv installation

Running OpenCV

Python

Loading an image in Python

[Toggle line numbers](https://help.ubuntu.com/community/OpenCV)

[1](https://help.ubuntu.com/community/OpenCV#CA-f062485902cf1637431f70a5b06f53f71528c512_1) from cv2.cv import \*

[2](https://help.ubuntu.com/community/OpenCV#CA-f062485902cf1637431f70a5b06f53f71528c512_2)

[3](https://help.ubuntu.com/community/OpenCV#CA-f062485902cf1637431f70a5b06f53f71528c512_3) img = LoadImage("/home/USER/Pictures/python.jpg")

[4](https://help.ubuntu.com/community/OpenCV#CA-f062485902cf1637431f70a5b06f53f71528c512_4) NamedWindow("opencv")

[5](https://help.ubuntu.com/community/OpenCV#CA-f062485902cf1637431f70a5b06f53f71528c512_5) ShowImage("opencv",img)

[6](https://help.ubuntu.com/community/OpenCV#CA-f062485902cf1637431f70a5b06f53f71528c512_6) WaitKey(0)

[Toggle line numbers](https://help.ubuntu.com/community/OpenCV)

[1](https://help.ubuntu.com/community/OpenCV#CA-2b194a9fd353b7b7c975935a3e4cbb257cc1c046_1) $ python filename.py

Note that the test program waits for a key press to end.

in C

Loading an image file in C

[Toggle line numbers](https://help.ubuntu.com/community/OpenCV)

[1](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_1) #include

[2](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_2) #include<opencv2/highgui/highgui.hpp>

[3](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_3)

[4](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_4) int main()

[5](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_5) {

[6](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_6) IplImage\* img = cvLoadImage("/home/USER/Pictures/python.jpg",CV\_LOAD\_IMAGE\_COLOR);

[7](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_7) cvNamedWindow("opencvtest",CV\_WINDOW\_AUTOSIZE);

[8](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_8) cvShowImage("opencvtest",img);

[9](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_9) cvWaitKey(0);

[10](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_10) cvReleaseImage(&img);

[11](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_11) return 0;

[12](https://help.ubuntu.com/community/OpenCV#CA-0ffc8bfdedf4887dfc51bea944c0aead0d14aea9_12) }

To compile C program, Let’s assume the file is opencvtest.c

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[1](https://help.ubuntu.com/community/OpenCV#CA-5ea679cc2fb7ea8e3dce955c6df16d4c63adc234_1) $ gcc -ggdb `pkg-config --cflags opencv` -o `basename opencvtest.c .c` opencvtest.c `pkg-config --libs opencv`

[2](https://help.ubuntu.com/community/OpenCV#CA-5ea679cc2fb7ea8e3dce955c6df16d4c63adc234_2) $ ./opencvtest

In C++

Loading an image file in C++

[Toggle line numbers](https://help.ubuntu.com/community/OpenCV)

[1](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_1) #include<opencv2/highgui/highgui.hpp>

[2](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_2) using namespace cv;

[3](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_3)

[4](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_4) int main()

[5](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_5) {

[6](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_6)

[7](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_7) Mat img = imread("/home/USER/Pictures/python.jpg",CV\_LOAD\_IMAGE\_COLOR);

[8](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_8) imshow("opencvtest",img);

[9](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_9) waitKey(0);

[10](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_10)

[11](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_11) return 0;

[12](https://help.ubuntu.com/community/OpenCV#CA-d2efa03aea27c7c1b1fc9f8f9105406a5ceb5e0f_12) }

to compile in C++

[Toggle line numbers](https://help.ubuntu.com/community/OpenCV)

[1](https://help.ubuntu.com/community/OpenCV#CA-92a2290858c980de9ae77f07b319a56f82d2a776_1) $ g++ -ggdb `pkg-config --cflags opencv` -o `basename opencvtest.cpp .cpp` opencvtest.cpp `pkg-config --libs opencv`

[2](https://help.ubuntu.com/community/OpenCV#CA-92a2290858c980de9ae77f07b319a56f82d2a776_2) $ ./opencvtest

Note: Always include OpenCV header files in C and C++ as

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[1](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_1) #include "opencv2/core/core\_c.h"

[2](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_2) #include "opencv2/core/core.hpp"

[3](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_3) #include "opencv2/flann/miniflann.hpp"

[4](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_4) #include "opencv2/imgproc/imgproc\_c.h"

[5](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_5) #include "opencv2/imgproc/imgproc.hpp"

[6](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_6) #include "opencv2/video/video.hpp"

[7](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_7) #include "opencv2/features2d/features2d.hpp"

[8](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_8) #include "opencv2/objdetect/objdetect.hpp"

[9](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_9) #include "opencv2/calib3d/calib3d.hpp"

[10](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_10) #include "opencv2/ml/ml.hpp"

[11](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_11) #include "opencv2/highgui/highgui\_c.h"

[12](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_12) #include "opencv2/highgui/highgui.hpp"

[13](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_13) #include "opencv2/contrib/contrib.hpp"

[14](https://help.ubuntu.com/community/OpenCV#CA-373f1087b803db7b896e5dc2b2d0f63a9bd6fab0_14)

A bash script to compile opencv programs.Making a Bash Script to Compile OpenCV:

It’s kind of boring typing all this stuff. So, A bash file to compile OpenCV programs. Name it .compile\_opencv.sh and keep it in your home directory.

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[1](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_1) #!/bin/bash

[2](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_2) echo "compiling $1"

[3](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_3) if [[ $1 == \*.c ]]

[4](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_4) then

[5](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_5) gcc -ggdb `pkg-config --cflags opencv` -o `basename $1 .c` $1 `pkg-config --libs opencv`;

[6](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_6) elif [[ $1 == \*.cpp ]]

[7](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_7) then

[8](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_8) g++ -ggdb `pkg-config --cflags opencv` -o `basename $1 .cpp` $1 `pkg-config --libs opencv`;

[9](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_9) else

[10](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_10) echo "Please compile only .c or .cpp files"

[11](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_11) fi

[12](https://help.ubuntu.com/community/OpenCV#CA-e9f416a313de91f6fd31f63cf94e6585ad4415f9_12) echo "Output file => ${1%.\*}"

Add an alias in .bashrc or .bash\_aliases

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[1](https://help.ubuntu.com/community/OpenCV#CA-0c5e45a2a41bf2ef7e2a825e9025ecf2d9ead6d7_1) $ alias opencv="~/.compile\_opencv.sh"

[2](https://help.ubuntu.com/community/OpenCV#CA-0c5e45a2a41bf2ef7e2a825e9025ecf2d9ead6d7_2) $ opencv opencvtest.c

[3](https://help.ubuntu.com/community/OpenCV#CA-0c5e45a2a41bf2ef7e2a825e9025ecf2d9ead6d7_3) $ ./opencvtest

Note that the .bashrc is a hidden file in the $HOME directory (cd ~ to access the home directory). Do not include the '$' characters at the beginning of each line. The alias will work after you log out and back. You can type the alias opencv... command at the prompt to set the alias for the current session.

[CategoryProgramming](https://help.ubuntu.com/community/CategoryProgramming) [CategoryInstallation](https://help.ubuntu.com/community/CategoryInstallation)

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