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Installing OpenCV on a Raspberry Pi

By [Robert Castle](#) • February 22, 2014 • [Computer Vision](#), [How To](#), [Raspberry Pi](#) • Comments Off

This guide assumes you are using Raspbian Linux, you have ssh enabled and are doing everything through the terminal. This install was done on a fresh Raspbian install.

Update

Make sure Raspbian is up to date:

```
sudo apt-get update
sudo apt-get upgrade
```

Install dependencies

First do this:

```
sudo apt-get -y install build-essential cmake cmake-curses-gui pkg-config libpng12-0 libpng12-
```

you can add in `cmake-qt-gui` if you want a GUI for `cmake`, and don't like `ccmake`.

Then do

```
v swig libv4l-0 libv4l-dev python-numpy libpython2.6 python-dev python2.6-dev libgtk2.0-dev
```

You don't need the lib1394 libraries as there is no FireWire on the Raspberry Pi, but something in this list will grab them anyway (sigh). We install in two stages as there is a possibility of broken package errors if the install order is wrong. It may be fine, but why risk having to fix it.

Install OpenCV

Download OpenCV from http://opencv.org/downloads.html
e.g. the latest download link at time of writing

```
wget http://sourceforge.net/projects/opencvlibrary/files/opencv-unix/2.4.8/opencv-2.4.8.zip/do
```

Or get the latest snapshot from the git repo:

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

Unzip and prepare for build

```
unzip opencv-2.4.8.zip
cd opencv-2.4.8
mkdir release
cd release
ccmake ../
```

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Configuring

Accept

press 'c' to configure

once done toggle the options you want. This were mine:

```
ANT_EXECUTABLE              ANT_EXECUTABLE-NOTFOUND
BUILD_DOCS                  ON
BUILD_EXAMPLES              ON
BUILD_JASPER                ON
BUILD_JPEG                  ON
BUILD_OPENEXR               ON
BUILD_PACKAGE               ON
BUILD_PERF_TESTS            ON
BUILD_PNG                   ON
BUILD_SHARED_LIBS           ON
BUILD_TBB                   OFF
BUILD_TESTS                 ON
BUILD_TIFF                  ON
BUILD_WITH_DEBUG_INFO       ON
BUILD_ZLIB                  ON
BUILD_opencv_apps           ON
BUILD_opencv_calib3d        ON
BUILD_opencv_contrib        ON
BUILD_opencv_core           ON
BUILD_opencv_features2d     ON
BUILD_opencv_flann          ON
BUILD_opencv_gpu            ON
BUILD_opencv_highgui        ON
BUILD_opencv_imgproc        ON
BUILD_opencv_legacy         ON
BUILD_opencv_ml             ON
BUILD_opencv_nonfree        ON
BUILD_opencv_objdetect      ON
BUILD_opencv_ocl            ON
BUILD_opencv_photo          ON
BUILD_opencv_python         ON
```

```
BUILD_opencv_stitching            ON
BUILD_opencv_superres             ON
BUILD_opencv_ts                   ON
BUILD_opencv_video                ON
BUILD_opencv_videostab            ON
BUILD_opencv_world                OFF
CLAMDBLAS_INCLUDE_DIR             CLAMDBLAS_INCLUDE_DIR-NOTFOUND
CLAMDBLAS_ROOT_DIR                CLAMDBLAS_ROOT_DIR-NOTFOUND
CLAMDFFT_INCLUDE_DIR              CLAMDFFT_INCLUDE_DIR-NOTFOUND
CLAMDFFT_ROOT_DIR                 CLAMDFFT_ROOT_DIR-NOTFOUND
CMAKE_BUILD_TYPE                  Release
CMAKE_CONFIGURATION_TYPES         Debug;Release
CMAKE_INSTALL_PREFIX              /usr/local

CMAKE_VERBOSE                     OFF
CUDA_BUILD_CUBIN                  OFF
CUDA_BUILD_EMULATION              OFF
CUDA_HOST_COMPILER                /usr/bin/gcc
CUDA_SDK_ROOT_DIR                 CUDA_SDK_ROOT_DIR-NOTFOUND
CUDA_SEPARABLE_COMPILATION        OFF
CUDA_TOOLKIT_ROOT_DIR             CUDA_TOOLKIT_ROOT_DIR-NOTFOUND
CUDA_VERBOSE_BUILD                OFF
EIGEN_INCLUDE_PATH                /usr/include/eigen3
ENABLE_NEON                       OFF
ENABLE_NOISY_WARNINGS             OFF
ENABLE_OMIT_FRAME_POINTER         ON
ENABLE_PRECOMPILED_HEADERS        ON
ENABLE_PROFILING                  OFF
ENABLE_SOLUTION_FOLDERS           OFF
ENABLE_VFPV3                      OFF
EXECUTABLE_OUTPUT_PATH            /home/pi/opencv-2.4.8/release/bin
GIGEAPI_INCLUDE_PATH              GIGEAPI_INCLUDE_PATH-NOTFOUND
GIGEAPI_LIBRARIES                 GIGEAPI_LIBRARIES-NOTFOUND
INSTALL_CREATE_DISTRIB            OFF
INSTALL_C_EXAMPLES                OFF
INSTALL_PYTHON_EXAMPLES           OFF
INSTALL_TO_MANGLED_PATHS          OFF
OPENCV_CONFIG_FILE_INCLUDE_DIR    /home/pi/opencv/opencv-2.4.8/release
OPENCV_EXTRA_MODULES_PATH
OPENCV_WARNINGS_ARE_ERRORS        OFF
OPENEXR_INCLUDE_PATH              OPENEXR_INCLUDE_PATH-NOTFOUND
PVAPI_INCLUDE_PATH                PVAPI_INCLUDE_PATH-NOTFOUND
PYTHON_NUMPY_INCLUDE_DIR          /usr/lib/pymodules/python2.7/numpy/core/include
PYTHON_PACKAGES_PATH              lib/python2.7/dist-packages
SPHINX_BUILD                      SPHINX_BUILD-NOTFOUND
WITH_1394                         OFF
WITH_CUBLAS                       OFF
WITH_CUDA                         OFF
WITH_CUFFT                        OFF
WITH_EIGEN                        ON
WITH_FFMPEG                       ON
WITH_GIGEAPI                      OFF
WITH_GSTREAMER                    ON
WITH_GTK                          ON
WITH_JASPER                       ON
WITH_JPEG                         ON
WITH_LIBV4L                       ON
WITH_NVCUVID                      OFF

WITH_OPENCL                       ON
WITH_OPENCLAMDBLAS                ON
WITH_OPENCLAMDFFT                 ON
WITH_OPENEXR                      ON
WITH_OPENGL                       ON
WITH_OPENMP                       OFF
```

```
WITH_OPENNI                     OFF
WITH_PNG                        ON
WITH_PVAPI                      ON
WITH_QT                         OFF
WITH_TBB                        OFF
WITH_TIFF                       ON
WITH_UNICAP                     OFF
WITH_V4L                        ON
WITH_XIMEA                      OFF
WITH_XINE                       OFF
```

press 'c' again to configure with your new settings

press 'g' to generate the Makefile

And finally, build. This will take a long time (about 10 hours!).

```
make
sudo make install
```

Other install guides

Here are a few of other install guides that may be helpful

- http://docs.opencv.org/doc/tutorials/introduction/linux_install/linux_install.html#linux-installation
- http://mitchtech.net/raspberry-pi-opencv/
- http://miloq.blogspot.co.uk/2012/12/install-opencv-ubuntu-linux.html

Tags: Computer Vision, How To, OpenCV, Raspberry Pi

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