How to Install CMake on Ubuntu 20.04 LTS

CMake is an open-source, cross-platform family of tools designed to build, test, and package software. CMake is used to control the software compilation process using simple platform and compiler-independent configuration files, and generate native makefiles and workspaces that can be used in the compiler environment of your choice. The suite of CMake tools was created by Kitware in response to the need for a powerful, cross-platform build environment for open-source projects such as ITK and VTK.

In this article, we will describe how you can install CMake to your Ubuntu both through the UI and the command line.

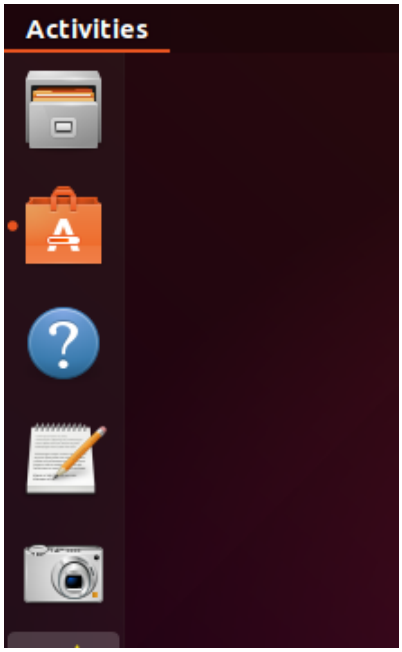
We have run the commands and procedures mentioned in this article on a Ubuntu 20.04 LTS system.

Install CMake through the Ubuntu UI

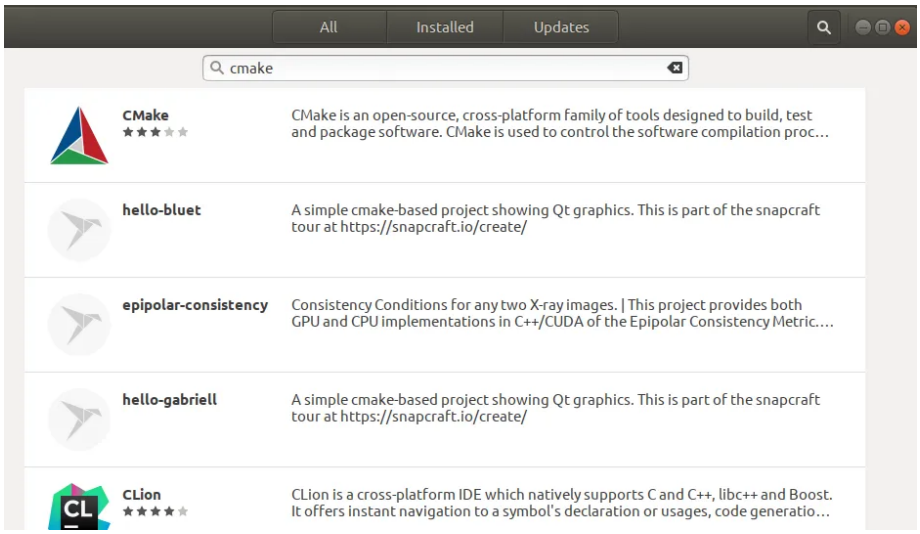
The latest version of CMake at the time of writing this article was 3.20.0 and luckily available through the Snap Store. Here, we will explain how you can install it through the Ubuntu Software Manager.

Installation

For a person who does not want to open the Command Line much, installing software present in the Ubuntu repository through the UI is very simple. On your Ubuntu desktop Activities toolbar, click the Ubuntu Software icon.



In the following view, click on the search icon and enter “CMake” in the search bar. The search results will display Cmake as follows:



The first package listed in the search result is the one maintained by the Snap Store. From the Software Manager, click on the CMake entry to open the following view:

Search

Search

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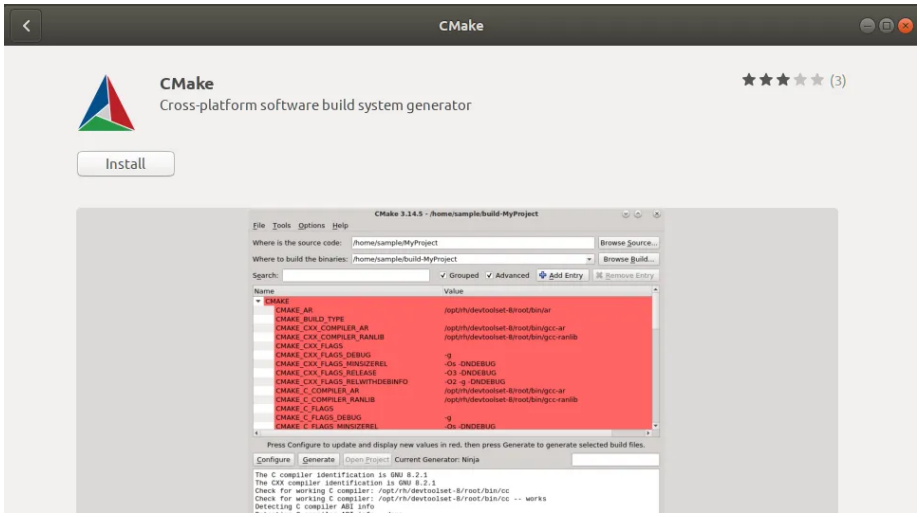
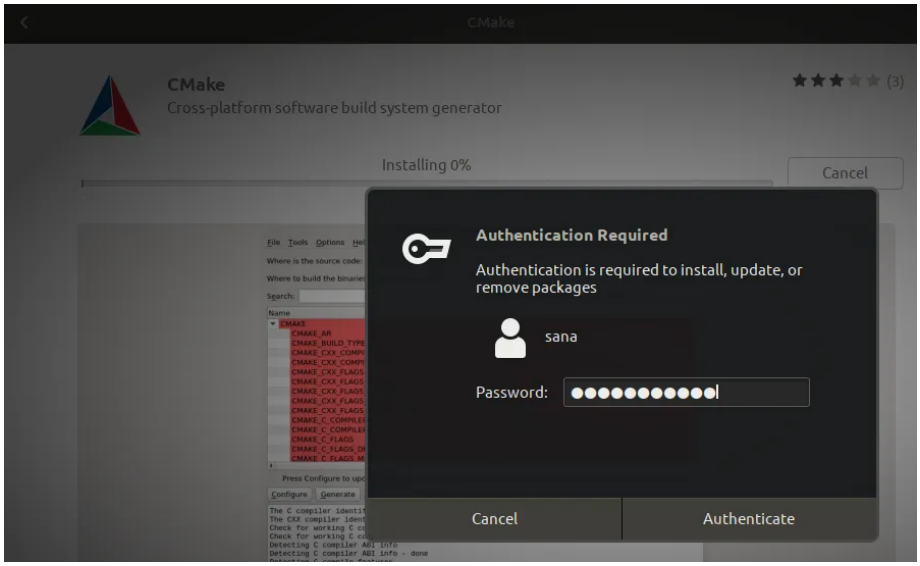
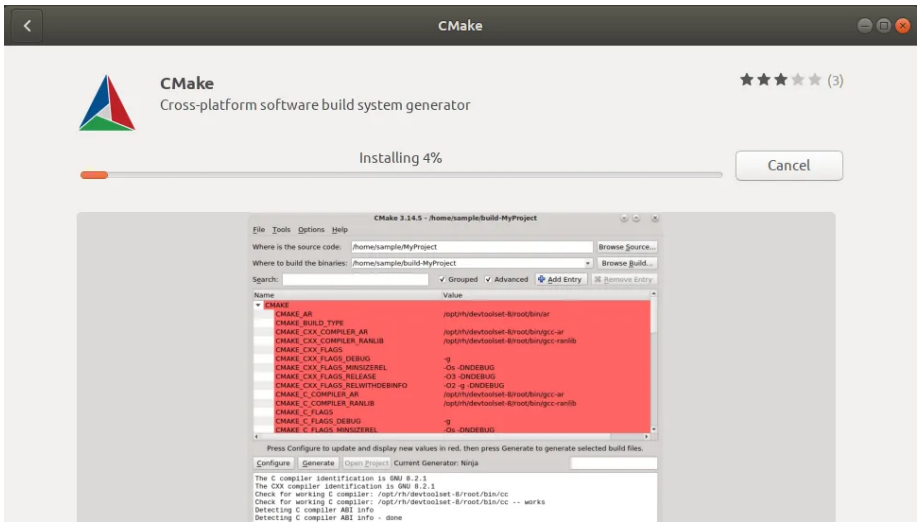


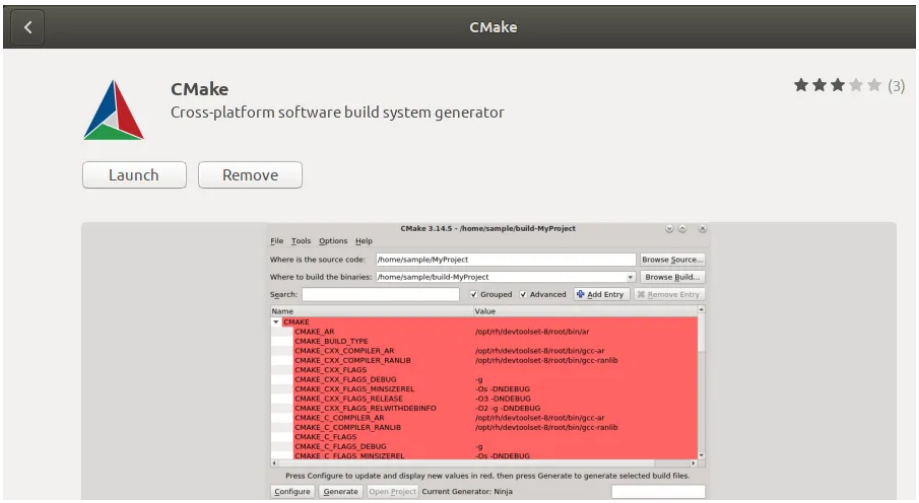
Click the Install button to begin the installation process. The following authentication dialog will display for you to provide your authentication details as only an authorized user can install software on Ubuntu.



Enter your password and click the Authenticate button. After that, the installation process will begin, displaying a progress bar as follows.



CMake will then be installed to your system and you will get the following message after a successful installation:



Through the above dialog, you can choose to directly launch CMake and even Remove it immediately for whatever reason.

Note: The same version of the software can be installed through the command line using the following command:

```
$ sudo snap install cmake
```

Remove CMake

If you want to remove CMake that was installed using the above method, you can remove it from your system as follows:

Open the Ubuntu Software Manager and search for CMake. You will see the “Installed” status in the search entry. Click this entry and then click Remove from the following view:

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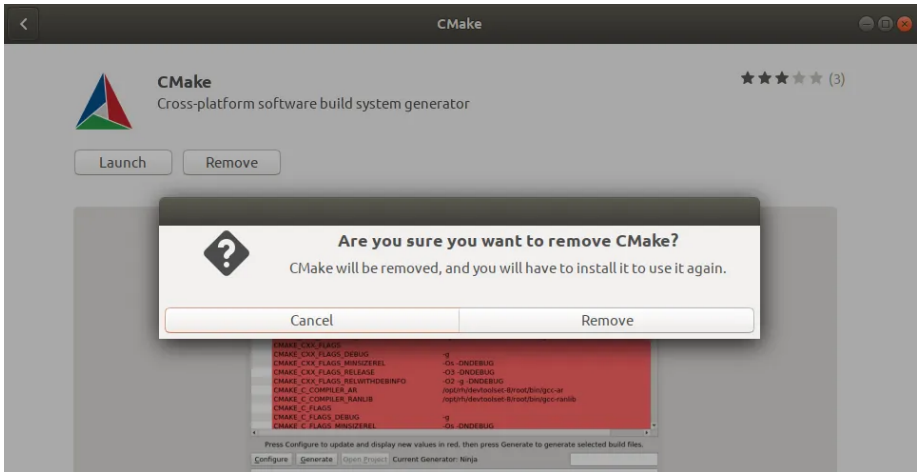


Then, the system will prompt you with an Authentication dialog. The software will be removed when you provide the password for the sudo user and click Authenticate on the dialog.

Install CMake through the Ubuntu Command Line

If you prefer the command line over the UI, here is the method you will need to follow in order to install the latest version of CMake. I also tried installing CMake through default Ubuntu repositories and also through PPA but none of them gave me the latest version. The only workable method involves downloading the source code from the Official CMake website "https://cmake.org/download/", compiling it and then installing CMake through it.

Open the Ubuntu command line, the Terminal either through the ***Ctrl+Alt+T*** shortcut or through the Application launcher search.

Install build tools and libraries that CMake depends on:

```
$ sudo apt-get install build-essential libssl-dev
```

Go to the temp directory:

```
$ cd /tmp
```

Then, enter the following command to download the source code:

```
$ wget
https://github.com/Kitware/CMake/releases/download/v3.2
0.0/cmake-3.20.0.tar.gz
```

Once the tar.gz file is downloaded, enter the following command to extract it:

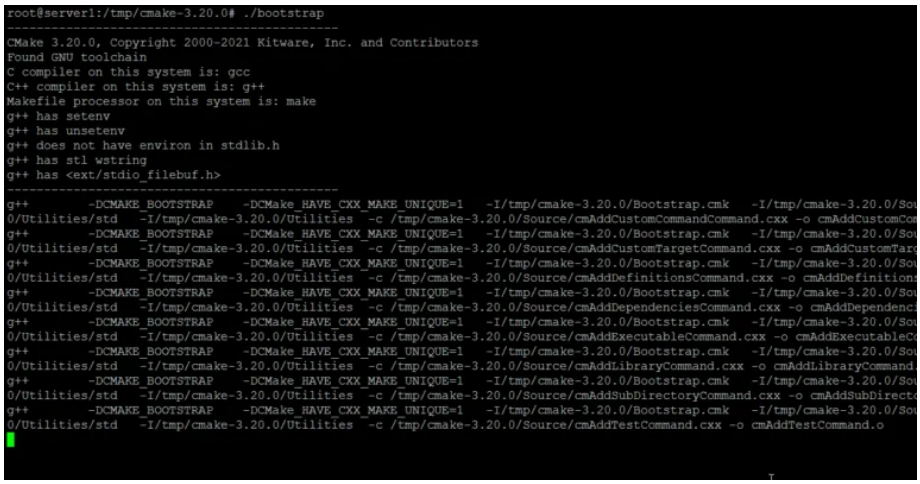
```
$ tar -zxvf cmake-3.20.0.tar.gz
```

Then move to the extracted folder as follows:

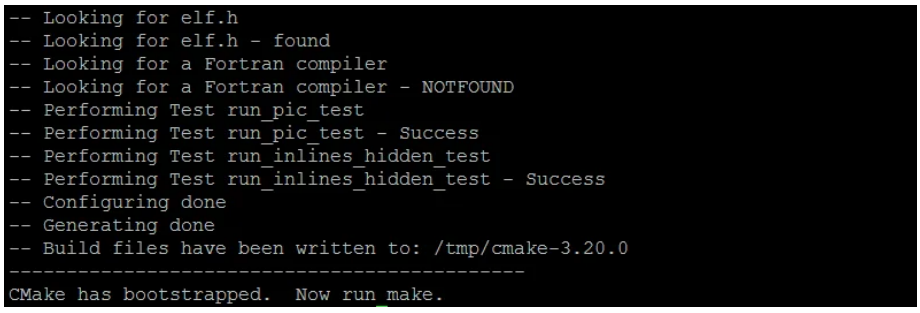
```
$ cd cmake-3.20.0
```

Finally, run the following commands to compile and install CMake:

```
./bootstrap
```



The bootstrap process may take some time, do not interrupt it. When CMake has bootstrapped, you will get the following output:



You can now make it using the following command:

```
$ make
```

```
root@server1:/tmp/cmake-3.20.0# make
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/ProcessUNIX.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/Base64.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/EncodingC.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/MD5.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/Terminal.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/System.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys_c.dir/String.c.o
[  1%] Linking C static library libcmsys_c.a
[  1%] Built target cmsys_c
[  1%] Building C object Source/kwsys/CMakeFiles/cmsysTestSharedForward.dir/testSharedForward.c.o
[  1%] Linking C executable cmsysTestSharedForward
[  1%] Built target cmsysTestSharedForward
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/ProcessUNIX.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/Base64.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/EncodingC.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/MD5.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/Terminal.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/System.c.o
[  1%] Building C object Source/kwsys/CMakeFiles/cmsys.dir/String.c.o
[  1%] Building CXX object Source/kwsys/CMakeFiles/cmsys.dir/Directory.cxx.o
[  1%] Building CXX object Source/kwsys/CMakeFiles/cmsys.dir/DynamicLoader.cxx.o
[  2%] Building CXX object Source/kwsys/CMakeFiles/cmsys.dir/EncodingCXX.cxx.o
[  2%] Building CXX object Source/kwsys/CMakeFiles/cmsys.dir/Glob.cxx.o
[  2%] Building CXX object Source/kwsys/CMakeFiles/cmsys.dir/RegularExpression.cxx.o
[  2%] Building CXX object Source/kwsys/CMakeFiles/cmsys.dir/SystemTools.cxx.o
```

And then install it as follows:

```
$ sudo make install
```

```
-- Installing: /usr/local/share/cmake-3.20/Templates/MSBuild/FlagTables/v11_MASM.json
-- Installing: /usr/local/share/cmake-3.20/Templates/MSBuild/nasm.targets
-- Installing: /usr/local/share/cmake-3.20/Templates/MSBuild/nasm.xml
-- Installing: /usr/local/share/cmake-3.20/Templates/AppleInfo.plist
-- Installing: /usr/local/share/cmake-3.20/Templates/CPack.GenericWelcome.txt
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/SmallLogo.png
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/Logo.png
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/SplashScreen.png
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/SmallLogo44x44.png
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/StoreLogo.png
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/ApplicationIcon.png
-- Installing: /usr/local/share/cmake-3.20/Templates/Windows/Windows_TemporaryKey.pfx
-- Installing: /usr/local/share/cmake-3.20/Templates/TestDriver.cxx.in
-- Installing: /usr/local/share/cmake-3.20/Templates/CPackConfig.cmake.in
-- Installing: /usr/local/share/vim/vimfiles/indent
-- Installing: /usr/local/share/vim/vimfiles/indent/cmake.vim
-- Installing: /usr/local/share/vim/vimfiles/syntax
-- Installing: /usr/local/share/vim/vimfiles/syntax/cmake.vim
-- Installing: /usr/local/share/emacs/site-lisp/cmake-mode.el
-- Installing: /usr/local/share/aclocal/cmake.m4
-- Installing: /usr/local/share/bash-completion/completions/cmake
-- Installing: /usr/local/share/bash-completion/completions/cpack
-- Installing: /usr/local/share/bash-completion/completions/ctest
root@server1:/tmp/cmake-3.20.0#
```

After the software is successfully installed, you can verify its installation and also if the correct version is installed, through the following command:

```
$ cmake --version
```

```
root@server1:/tmp/cmake-3.20.0# cmake --version
cmake version 3.20.0

CMake suite maintained and supported by Kitware (kitware.com/cmake).
```

CMake 3.20.0 has been installed successfully on Ubuntu. You can now use the CLI tool to work with your software's code.

Karim Buzdar Linux, Ubuntu

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Karim Buzdar

About the Author: Karim Buzdar holds a degree in telecommunication engineering and holds several sysadmin certifications. As an IT engineer and technical author, he writes for various web sites. You can reach Karim on LinkedIn