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How do I install the latest version of cmake from the command line?

Asked 9 years, 4 months ago   Modified 26 days ago   Viewed 606k times

232

I am trying to install latest `cmake` in my linux box and I am always getting the below exception -

```
userName@phx5qa01c-4e23:~/build$ wget http://www.cmake.org/files/v2.8/cmake-2.8.11.tar.gz
--2013-10-08 14:39:55--  http://www.cmake.org/files/v2.8/cmake-2.8.11.tar.gz
Resolving www.cmake.org... 66.194.253.19
Connecting to www.cmake.org|66.194.253.19|:80... failed: Connection timed out.
Retrying.

--2013-10-08 14:40:17--  (try: 2)  http://www.cmake.org/files/v2.8/cmake-2.8.11.tar.gz
Connecting to www.cmake.org|66.194.253.19|:80... failed: Connection timed out.
Retrying.

--2013-10-08 14:40:40--  (try: 3)  http://www.cmake.org/files/v2.8/cmake-2.8.11.tar.gz
Connecting to www.cmake.org|66.194.253.19|:80...
```

It is always retrying... Any thoughts?

Does anyone know what wrong I am doing here? Or is there any better way of installing latest version of cmake in my linux box?

```
userName@phx5qa01c-4e23:~/build$ uname -a
Linux phx5qa01c-4e23 2.6.35-22-server #33-Ubuntu SMP Sun Sep 19 20:48:58 UTC 2010 x86_64 GNU/Linux
```

`command-line` `software-installation` `cmake`

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edited Nov 14, 2017 at 7:28   asked Oct 8, 2013 at 21:47

muru
189k   52   459   710

SSH
2,521   3   15   12

Are you sure there isn't a firewall blocking your connection? Why using `wget` ? Try to download that file (cmake.org/files/v2.8/cmake-2.8.11.tar.gz) using a web browser. – Eric Carvalho Oct 8, 2013 at 22:54

Similar question here: askubuntu.com/questions/610291/… with a good answer. – Elliptical view Oct 24, 2016 at 22:19 ✎

I think your question is "How to install **latest cmake version** in Linux" but the command `sudo apt-get install cmake` does not install the latest version. – Teocci Aug 17, 2017 at 1:54

askubuntu.com/a/952929/579410 – KindDragon Jul 19, 2018 at 13:55

The answers below didn't help me, but this answer to "Installing latest cmake on Ubuntu 18.04.3 LTS run via WSL: OpenSSL error" did: askubuntu.com/a/1205458/1191005 I also had to use this answer to "Unable to install libssl1.0.0:i386 due to unmet dependencies": askubuntu.com/a/1253788/1191005 – Tatiana Racheva Mar 10, 2021 at 20:10

12 Answers

Sorted by: Highest score (default) ⇕

408

The most common situation is when you want to install the latest version of *cmake*, but your Operating System's repositories are not updated. For example, in my case I have a laptop running *Ubuntu 16.04*, and when I executed the command `sudo apt install cmake` the installed version was **3.5.1**; instead of **3.25.1** which is the current version at cmake.org.

Teo, how can I get the latest version?

Well, we can install it by following one of these methods:

- **Using APT Repositories**
- **Building and Installing from source**
- **Using binary files**

A. Using APT Repositories (Recommended for normal users)

Kitware now provides an APT Repository that supports Ubuntu 16.04, 18.04, and 20.04. So we can install it easily following these steps:

A-1. Uninstall the default version provided by Ubuntu's package manager and configuration by using:

```
sudo apt remove --purge --auto-remove cmake
```

or:

```
                     -remove cmake
```

```
                on
```

```
              oftware-properties-common lsb-release && \
```

ware's signing key.

```
.kitware.com/keys/kitware-archive-latest.asc 2>/dev/null |
    tee /etc/apt/trusted.gpg.d/kitware.gpg >/dev/null
```

tory to your sources list for Ubuntu Focal Fossa (20.04), Ubuntu Bionic Beaver (18.04) and Ubuntu Xenial Xerus (16.04).

```
y "deb https://apt.kitware.com/ubuntu/ $(lsb_release -cs)
```

A-5. As an optional step, is recommended that we also install the `kitware-archive-keyring` package to ensure that Kitware's keyring stays up to date as they rotate their keys.

```
sudo apt update
sudo apt install kitware-archive-keyring
sudo rm /etc/apt/trusted.gpg.d/kitware.gpg
```

A-5.Note If running `sudo apt update` gets the following error:

```
Err:7 https://apt.kitware.com/ubuntu bionic InRelease
The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 6AF7F09730B3F0A4
Fetched 11.0 kB in 1s (7552 B/s)
```

Copy the public key `6AF7F09730B3F0A4` and run this command:

```
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys 6AF7F09730B3F0A4
```

A-6. Finally we can update and install the `cmake` package.

```
sudo apt update
sudo apt install cmake
```

B. Building and Installing (Recommended for developers)

For this approach you need to install the GCC tools:

```
sudo apt update
sudo apt install build-essential libtool autoconf unzip wget
```

B-1. Uninstall the default version provided by Ubuntu's package manager as in **A-1**.

B-2. Go to the [official CMake webpage](#), then download and extract the latest version. Update the `version` and `build` variables in the following command to get the desired version:

```
version=3.25
build=1
## don't modify from here
mkdir ~/temp
cd ~/temp
wget https://cmake.org/files/v$version/cmake-$version.$build.tar.gz
tar -xzvf cmake-$version.$build.tar.gz
cd cmake-$version.$build/
```

B-3. Install the extracted source by running:

```
./bootstrap
make -j$(nproc)
sudo make install
```

B-4. Test your new `cmake` version.

```
$ cmake --version
```

Results of `cmake --version`:

```
cmake version 3.25.X

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

C. Using binary files (`cmake-gui` might not work well)

C-1. Uninstall the default version provided by Ubuntu's package manager as in **A-1**.

C-2. Go to the [official CMake webpage](#), then download and install **the latest** `.sh` **version** in `opt/cmake`. Update the `version` and `build` variables in the following command to get the desired version:

```
version=3.25
build=1
## don't modify from here
limit=3.20
result=$(echo "$version >= $limit" | bc -l)
os=$([ "$result" == 1 ] && echo "linux" || echo "Linux")
mkdir ~/temp
cd ~/temp
wget https://cmake.org/files/v$version/cmake-$version.$build-$os-x86_64.sh
sudo mkdir /opt/cmake
sudo sh cmake-$version.$build-$os-x86_64.sh --prefix=/opt/cmake
```

C-3. Add the installed binary link to `/usr/local/bin/cmake` by running this:

```
sudo ln -s /opt/cmake/bin/cmake /usr/local/bin/cmake
```

C-4. Test your new `cmake` version as in **B-4**.

Note

In **3.25.X** the **X** represents the last part of the version that we defined as build. The build may change if **cmake** is updated. According to the official web [...] is 3.25.1. If you want the [Previous Release 3.24.3](#) just replace the version and build parameters like this:

```
                              here

                       n >= $limit" | bc -l)
                      ] && echo "linux" || echo "Linux")

               /files/v$version/cmake-$version.$build-$os-x86_64.sh

               .$build-$os-x86_64.sh --prefix=/opt/cmake
```

CMake (3.19.7 <=), remember that the file name contains an upper case `L` in `-Linux-x86_64.sh` and from version 3.20 it has [...]`-x86_64.sh`

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edited Jan 11 at 10:54   answered Dec 28, 2016 at 7:50

Teocci
4,255 2 11 12

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22 The make install command need root privileges. The cmake --version command only works after open a new terminal because cmake is installed under /usr/local/bin/ by default, not /usr/bin/. – HD189733b Jan 22, 2017 at 19:10

2 This is not a solution to UPDATE but to INSTALL cmake. Try this command or google it to find a solution: `sudo apt-get remove cmake cmake-data` – Teocci Dec 26, 2017 at 2:18 ✎

1 Note to also build the cmake-gui tool, add --qt-gui to the bootstrap command. – Richard Whitehead Mar 12, 2018 at 16:53 ✎

1 `apt purge` includes `apt remove`, so it's pointless to do `sudo apt remove cmake; apt purge cmake` Just do `apt purge` – gerardw Dec 16, 2018 at 16:10 ✎

2 My poor laptop just froze while executing `make` and I had to do a hard shutdown. Maybe it's better not to use all the cores? `-j$(($(nproc)-2))` ? – Dan Oak Dec 8, 2020 at 13:19

▲

83

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Kitware now has an APT repository that currently supports Ubuntu 16.04, 18.04 and 20.04

Install Instructions:

1. Remove old version of cmake

   ```
   sudo apt purge --auto-remove cmake
   ```

2. Obtain a copy of the signing key

   ```
   wget -O - https://apt.kitware.com/keys/kitware-archive-latest.asc 2>/dev/null | gpg --dearmor - | sudo tee /etc/apt/trusted.gpg.d/kitware.gpg >/dev/null
   ```

3. Add the repository to your sources list

   a. For Ubuntu Focal Fossa (20.04)

   ```
   sudo apt-add-repository 'deb https://apt.kitware.com/ubuntu/ focal main'
   ```

   b. For Ubuntu Bionic Beaver (18.04)

   ```
   sudo apt-add-repository 'deb https://apt.kitware.com/ubuntu/ bionic main'
   ```

   c. For Ubuntu Xenial Xerus (16.04)

   ```
   sudo apt-add-repository 'deb https://apt.kitware.com/ubuntu/ xenial main'
   ```

4. Update and install

   ```
   sudo apt update
   sudo apt install cmake
   ```

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edited May 19, 2020 at 3:20   answered Jul 9, 2019 at 23:03

Himel
939 6 5

---

7 Best solution as of today but the repository does not support the arm64 architecture. – Victor Lamoine Nov 12, 2019 at 18:01

1 Related links: cmake.org/download apt.kitware.com – wisbucky Feb 20, 2020 at 19:28

unsecure repo error W: GPG error: apt.kitware.com/ubuntu bionic InRelease: The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 291F9FF6FD385783 E: The repository 'apt.kitware.com/ubuntu bionic InRelease' is not signed. N: Updating from such a repository can't be done securely, and is therefore disabled by default. N: See apt-secure(8) manpage for repository creation and user configuration details. Better use the PIP approach below – Bizmate Sep 3, 2020 at 8:38

is the first step necessary? It should upgrade anyway right? – Abhineet Pandey Feb 25, 2021 at 11:59

@Bizmate this should help – JoeVictor Apr 12, 2022 at 22:15

▲

52

▼

🔖

↺

First uninstall any cmake package previously installed. Then:

1. Go to http://www.cmake.org/download/ and download the latest .sh installer

2. Install it (for example) in `opt/cmake` by running

   ```
   sudo mkdir /opt/cmake
   sudo sh <installer filename> --prefix=/opt/cmake
   ```

3. Add the cmake **bin** directory to your path: https://askubuntu.com/a/170240/359343

Installed in this way, `cmake-gui` looks a little bit horrible, if you find a way to fix it please feel free to edit this answer.

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edited Sep 19, 2017 at 23:42   answered Mar 11, 2015 at 9:00

Antonio
818 9 17

---

13 Add a link from /usr/local/bin/cmake to the installed binary. This way there is no need to change the PATH. `sudo ln -s /opt/cmake/bin/cmake /usr/local/bin/cmake` – Christian Mar 16, 2016 at 14:30

3 This is the best answer. – SuB Nov 20, 2016 at 9:59

3 really, this is most useful answer for initial question – amigo421 Dec 1, 2016 at 19:37

This gives me broken cmake-gui, which doesn't work over xRDP (prev version worked), and xRDP is the only way to access the server. – stiv Mar 28, 2018 at 18:56

@stiv 1. Did you verify `cmake` after the installation is working, and that you have no other `cmake` version in your path? 2. Can you verify if you are using the cmake-gui provided in the installation, and not some older version? (To know the version, append `--version` to the command line) – Antonio Mar 29, 2018 at 16:22 ✎

---

ecause you can get a recent version without much trouble.

y support a pip wheels release. So you can get latest cmake just by doing:

cmake

https://blog.kitware.com/cmake-python-wheels/

Follow

answered Aug 31, 2018 at 8:46

Juan Leni
2,008 4 20 32

---

l answer! I wish I thought of that a year ago. Thanks! – Albino Cordeiro May 7, 2020 at 20:05

3 This is probably the easiest one of all! – Chris Jun 19, 2020 at 16:00

2   Thank you! This is much easier than alternatives. – RReverser Jul 17, 2020 at 12:49

1   Happy to hear people find it useful. IMO it is the easiest and most reliable way. And it is also officially supported – Juan Leni Jul 17, 2020 at 19:20

2   This worked for me but only after opening a new terminal – Dylan Kerler Dec 13, 2021 at 16:42

Just in case if someone need to install latest CMAKE in a docker image (like me..). In this case is 3.7.2, but you can check here
https://cmake.org/download/ as already pointed out

37

```
#install latest cmake
ADD https://cmake.org/files/v3.7/cmake-3.7.2-Linux-x86_64.sh /cmake-3.7.2-Linux-x86_64.sh
RUN mkdir /opt/cmake

RUN sh /cmake-3.7.2-Linux-x86_64.sh --prefix=/opt/cmake --skip-license
RUN ln -s /opt/cmake/bin/cmake /usr/local/bin/cmake
RUN cmake --version
```

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answered Mar 4, 2017 at 11:15

Paolo Vigori
479   5   4

---

5   Nice, undocumented --skip-license option :) – 4LegsDrivenCat Jun 15, 2017 at 4:22

1   @4LegsDrivenCat, `--help` shows this option and there is no other documentation. – vulcan raven Jan 26, 2020 at 4:09

2   @vulcanraven It was added to `--help` in v.3.10.0 on 2018-12-01. This answer and my comment refer to v.3.7.2. – 4LegsDrivenCat Jan 29, 2020 at 8:34

Probably the server at www.cmake.org was just very busy. You could try again or download the file using your web browser.

23

There is however a much simpler way:

```
sudo apt-get install cmake
```

Update: commenters point out that *"Ubuntu 12.04 is only shipping v2.8.7"* and *"14.04 is still shipping 2.8"*. That is for a reason: 12.04 and 14.04 are **LTS releases** of Ubuntu. LTS releases are intended to remain stable for 5 years, so they receive only security and critical updates, not the latest releases of packages. Normal releases come out every 6 months, and are therefore more likely to come with a recent cmake.

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edited Aug 23, 2017 at 10:49

answered Oct 8, 2013 at 22:15

zwets
11.5k   2   31   44

---

3   ubuntu 12.04 is only shipping v 2.8.7 of cmake with apt-get. The current release of version 2 is 2.8.12. I suggest you persevere with building it from source. – Richard Hodges Jun 16, 2014 at 17:23

92   This is not the correct answer. The latest version is almost never on apt. – Senjai Feb 20, 2015 at 6:09

3   14.04 still shipping 2.8 – Stolas Mar 17, 2016 at 9:22

6   This answer is wrong. The StableReleaseUpdates policy is *not* just for LTS releases. *All* Ubuntu releases, once actually released, only get fixes for security vulnerabilities or otherwise serious bugs. As shown here (and on Launchpad), even non-LTS releases haven't received new `cmake` versions. Separate backports for some packages do exist (but not `cmake`). – Eliah Kagan Aug 4, 2017 at 11:56

16   This answer is wrong because `sudo apt-get install cmake` does not, by itself, ever upgrade `cmake` to a newer version. This does not work on any Ubuntu release. If your answer is actually "upgrade your Ubuntu system to a newer release" then you may want to edit again to make that clearer. (That would not be a reasonable solution for many users, though, and often there is no released version of Ubuntu whose repositories have the latest version of `cmake`.) – Eliah Kagan Aug 23, 2017 at 13:55 ✎

For a Docker container, best run

5

```
RUN wget -qO- "https://cmake.org/files/v3.12/cmake-3.12.1-Linux-x86_64.tar.gz" | \
    tar --strip-components=1 -xz -C /usr/local
```

Adjust the version, if needed.

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answered Aug 28, 2018 at 17:25

sebastian
163   1   5

You can find very recent versions of cmake through snap. For example, as of writing this answer, the latest version of cmake is 3.15.3, and snap has version 3.15.2.

5

```
sudo apt-get purge cmake
sudo snap install cmake --classic
```

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answered Sep 5, 2019 at 2:43

qwr
2,593   23   38

---

1   Assuming a bash terminal, you might need `hash -r` afterwards to ensure the updated cmake binary is found. – hertzsprung Aug 18, 2020 at 8:56

@hertzsprung that is important, without hash -r, I cannot run cmake binary on terminal. – Bằng Rikimaru Jul 17, 2021 at 11:18


You can also execute the following:

```
sh && ls $fn && (echo "use previous $fn? Enter for yes, ctrl+d for no." && read) || (wget -O $fn
iles/v3.0/cmake-3.0.2-Linux-i386.sh 1>&2) && (cd /opt && sudo bash ${fn} && echo sudo ln -f -s
/usr/local/bin/cmake && cd -)
```

* if it was already downloaded in this session, then you might reuse it if you did not finish the installation

link to the bin `cmake`.

Follow

answered Oct 2, 2014 at 23:11

test30
517   4   7

3: ¨¨:

3   apt-get purge cmake

Download binary version of `cmake` archived in a tarball. You can use new version of `cmake` by adding its `bin` directory path to `$PATH` . An alternative solution is to extract `tar.gz` package and go to the directory made after extracting and run following commands:

```
cp -r bin /usr/
cp -r doc /usr/share/
cp -r man /usr/share/
cp -r share /usr/
```

The second method is the same as installation process which `.deb` package does!

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answered Nov 20, 2016 at 10:02

SuB
3,859   5   23   33

[qwr](#)'s answer to use snap can be good but if you want something even newer, cmake makes building a DEB from source easy. The following assumes you have a recent cmake already installed. Ubuntu 18.04's apt install cmake will definitely work here.

2

```
sudo apt-get build-dep cmake
git clone http://www.cmake.org/cmake.git
cd cmake
git tag
# find the highest tagged release value (hint, rarely at the bottom)
git co tags/<highest tagged release value>
mkdir build
cd build
cmake ..
cmake --build .
cpack -G DEB
# you built a single deb that has what Ubuntu provides as two debs, the binary
# deb and the additional architecture independent data files
sudo apt remove cmake-data
sudo dpkg -i cmake-<highest tagged release value>-Linux-x86_64.deb
```

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answered Sep 23, 2019 at 21:06

mheyman
129   2

Now run the command `man cmake` and you will see one more reason that apt outshines the install from source method 99.999 % of the time. – Nate T Sep 12, 2021 at 9:55

Install the latest version of cmake from backports, where many latest versions reside. The particular backports depends on your current OS version. For example, running Debian Stretch, add the following to /etc/apt/sources.list

1

```
deb http://ftp.debian.org/debian stretch-backports main
```

Then install from this backport, aka:

```
sudo apt-get -t stretch-backports install -y cmake
```

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answered Dec 1, 2018 at 4:31

jeffmcneill
245   1   8

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