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How to Install and Get Started with QGIS 3 on Ubuntu 18.04

5 months ago • by Shahriar Shovon



QGIS is an open source software package for drawing geospatial information. QGIS is a very popular and cross platform GIS (Geographical Information System). It is available on Linux, Mac, and Windows. In this article, I will show you how to install and get started with QGIS 3 on Ubuntu 18.04 Bionic Beaver. Let's get started.



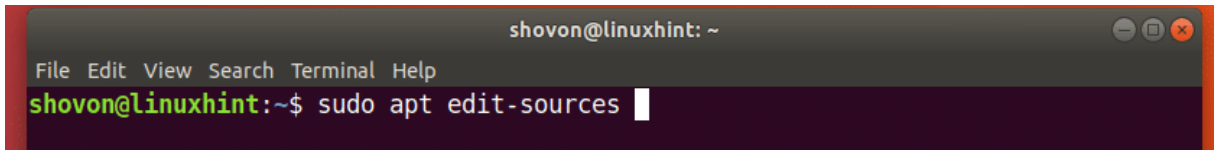
First you have to add the repository of QGIS 3 on the **sources.list** file of your Ubuntu 18.04 Bionic Beaver machine.

You can directly edit the **/etc/apt/sources.list** file with the following command:

```
$ sudo nano /etc/apt/sources.list
```

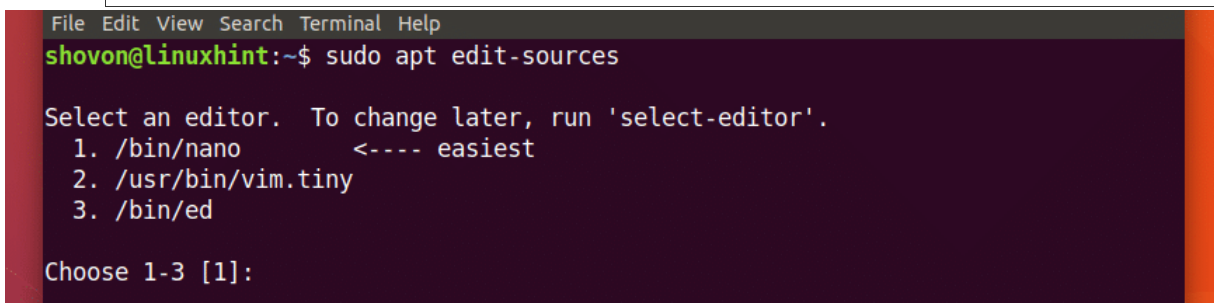
Or you can run the following command to open **/etc/apt/sources.list** file:

```
$ sudo apt-get edit-sources
```



```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
shovon@linuxhint:~$ sudo apt edit-sources
```

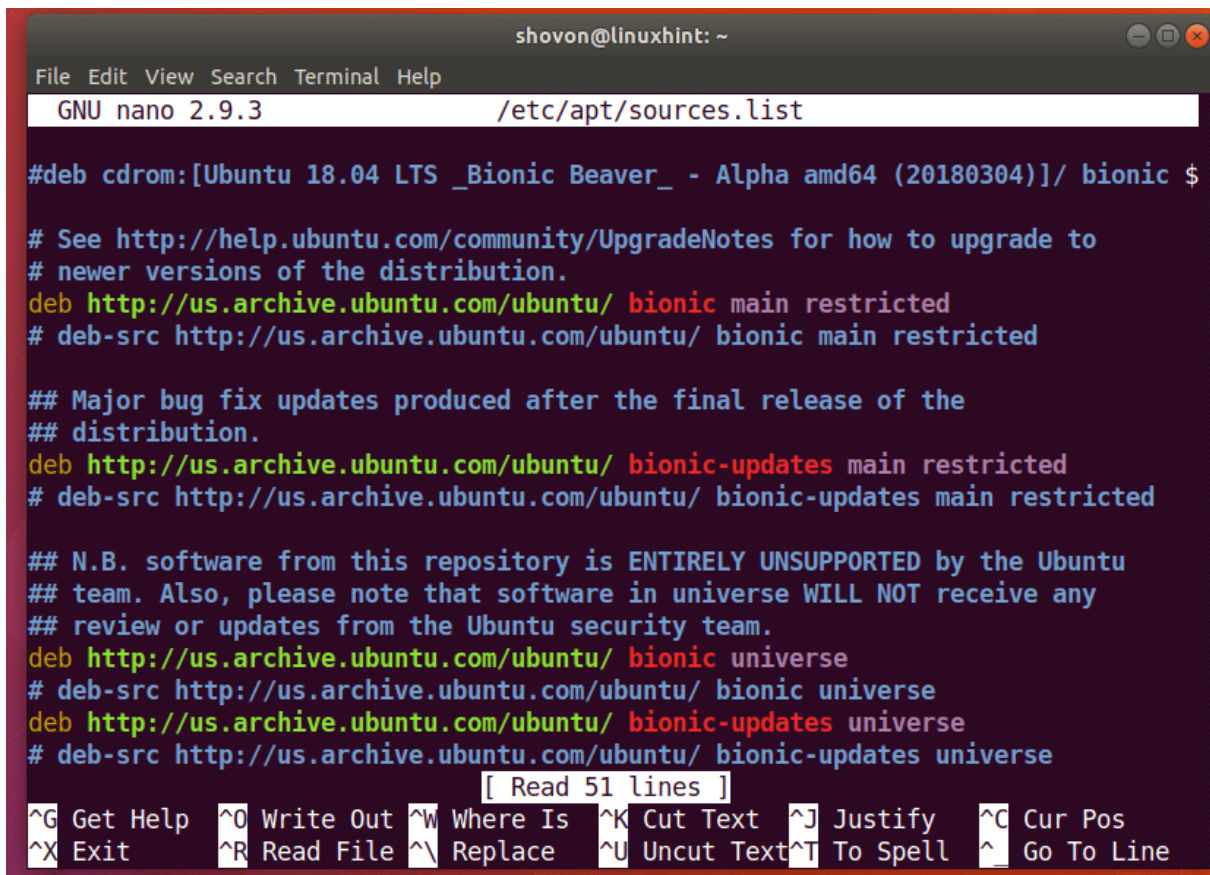
It should ask you to choose a text editor. Select any text editor you want. Just type in the line number in the left side of each editor and press <Enter>. By default, **nano** is selected. I am



```
File Edit View Search Terminal Help  
shovon@linuxhint:~$ sudo apt edit-sources  
  
Select an editor. To change later, run 'select-editor'.  
1. /bin/nano          <---- easiest  
2. /usr/bin/vim.tiny  
3. /bin/ed  
  
Choose 1-3 [1]:
```

/etc/apt/sources.list file should be opened with your editor of choice. It should look something like the screenshot below. Here you can see all the Ubuntu's default package repository lists or more specifically apt lines. You have to add QGIS 3's apt line here.





```
shovon@linuxhint: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/apt/sources.list

#deb cdrom:[Ubuntu 18.04 LTS _Bionic Beaver_ - Alpha amd64 (20180304)]/ bionic $

# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to
# newer versions of the distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic main restricted

## Major bug fix updates produced after the final release of the
## distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team. Also, please note that software in universe WILL NOT receive any
## review or updates from the Ubuntu security team.
deb http://us.archive.ubuntu.com/ubuntu/ bionic universe
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic universe
deb http://us.archive.ubuntu.com/ubuntu/ bionic-updates universe
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic-updates universe

[ Read 51 lines ]

^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

As you're using Ubuntu 18.04 Bionic Beaver, you will have to add Ubuntu 18.04 specific repository of QGIS 3. The codename of Ubuntu Bionic Beaver is **bionic**.

Add the following line to the top or bottom of the **/etc/apt/sources.list** file:

```
deb https://qgis.org/debian bionic main
```

This is how it looks like once the apt line of QGIS 3 is added to the **/etc/apt/sources.list** file.



```
shovon@linuxhint: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/apt/sources.list Modified
deb https://qgis.org/debian bionic main

#deb cdrom:[Ubuntu 18.04 LTS _Bionic Beaver_ - Alpha amd64 (20180304)]/ bionic $

# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to
# newer versions of the distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic main restricted

## Major bug fix updates produced after the final release of the
## distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team. Also, please note that software in universe WILL NOT receive any
## review or updates from the Ubuntu security team.
deb http://us.archive.ubuntu.com/ubuntu/ bionic universe

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line
```



If you're using **nano** just press <Ctrl> + x once you've added the apt line of QGIS 3 to the **/etc/apt/sources.list** file. You should be prompted to save the file. Just press 'y'.





```

shovon@linuxhint: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/apt/sources.list Modified

deb https://qgis.org/debian bionic main

#deb cdrom:[Ubuntu 18.04 LTS _Bionic Beaver_ - Alpha amd64 (20180304)]/ bionic $

# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to
# newer versions of the distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic main restricted

## Major bug fix updates produced after the final release of the
## distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team. Also, please note that software in universe WILL NOT receive any
## review or updates from the Ubuntu security team.
deb http://us.archive.ubuntu.com/ubuntu/ bionic universe
Save modified buffer? (Answering "No" will DISCARD changes.)
Y Yes
N No ^C Cancel

```

And then press <Enter> to save the file.

```

shovon@linuxhint: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/apt/sources.list Modified

deb https://qgis.org/debian bionic main

```



```

# newer versions of the distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic main restricted

## Major bug fix updates produced after the final release of the
## distribution.
deb http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ bionic-updates main restricted

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team. Also, please note that software in universe WILL NOT receive any
## review or updates from the Ubuntu security team.
deb http://us.archive.ubuntu.com/ubuntu/ bionic universe
File Name to Write: /etc/apt/sources.list
^G Get Help      M-D DOS Format  M-A Append     M-B Backup File
^C Cancel        M-M Mac Format  M-P Prepend    ^T To Files

```

The file should be saved.





```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
shovon@linuxhint:~$ sudo apt edit-sources  
  
Select an editor. To change later, run 'select-editor'.  
1. /bin/nano          <---- easiest  
2. /usr/bin/vim.tiny  
3. /bin/ed  
  
Choose 1-3 [1]:  
Your '/etc/apt/sources.list' file changed, please run 'apt-get update'.
```

Now you have to import the GPG key of QGIS 3 with the following command:

```
$ wget -O - https://qgis.org/downloads/qgis-2017.gpg.key | gpg --import
```

```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
shovon@linuxhint:~$ wget -O - https://qgis.org/downloads/qgis-2017.gpg.key | gpg --import
```





```

shovon@linuxhint: ~
File Edit View Search Terminal Help
shovon@linuxhint:~$ wget -O - https://qgis.org/downloads/qgis-2017.gpg.key | gpg --import
--2018-03-06 05:48:00-- https://qgis.org/downloads/qgis-2017.gpg.key
Resolving qgis.org (qgis.org)... 104.27.138.220, 104.27.139.220, 2400:cb00:2048:1::681b:8bdc, ..
.
Connecting to qgis.org (qgis.org)|104.27.138.220|:443...
connected.
HTTP request sent, awaiting response... 200 OK
Length: 1944 (1.9K) [application/pgp-keys]
Saving to: 'STDOUT'

-                               100%[=====>]  1.90K  --.-KB/s   in 0s

2018-03-06 05:48:03 (20.5 MB/s) - written to stdout [1944/1944]

gpg: key CAEB3DC3BDF7FB45: 1 signature not checked due to a missing key
gpg: /home/shovon/.gnupg/trustdb.gpg: trustdb created
gpg: key CAEB3DC3BDF7FB45: public key "QGIS Archive Automatic Signing Key (2017) <qgis-developer@lists.osgeo.org>" imported
gpg: Total number processed: 1
gpg:          imported: 1
gpg: no ultimately trusted keys found
shovon@linuxhint:~$

```

Now you can verify whether the GPG key was imported correctly with the following command:

```
$ gpg --fingerprint CAEB3DC3BDF7FB45
```

```

shovon@linuxhint: ~
File Edit View Search Terminal Help
shovon@linuxhint:~$ gpg --fingerprint CAEB3DC3BDF7FB45

```

As you can see from the screenshot below, the GPG key was imported correctly.



```

uid          [ unknown] QGIS Archive Automatic Signing Key (2017) <qgis-developer@lists.osgeo.o
rg>
sub          rsa2048 2017-08-16 [E] [expires: 2019-08-16]

```

Now you have to add the GPG key of QGIS 3 to **apt** package manager. Otherwise you won't be able to update the apt package repository cache of QGIS 3 repository and you won't be able to download and install QGIS 3 on Ubuntu 18.04.

Run the following command to add the GPG key of QGIS 3 to **apt** package manager:

```
$ gpg --export --armor CAEB3DC3BDF7FB45 | sudo apt-key add -
```

```

shovon@linuxhint: ~
File Edit View Search Terminal Help
shovon@linuxhint:~$ gpg --export --armor CAEB3DC3BDF7FB45 | sudo apt-key add -

```



The GPG key should be added to the **apt** package manager.



```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
shovon@linuxhint:~$ gpg --export --armor CAEB3DC3BDF7FB45 | sudo apt-key add -  
OK  
shovon@linuxhint:~$
```

Now you should update the **apt** package repository cache of Ubuntu 18.04 Bionic Beaver with the following command:

`$ sudo apt-get update`

```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
shovon@linuxhint:~$ sudo apt-get update
```

The package repository cache of your Ubuntu 18.04 Bionic Beaver machine should be updated.

```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
Get:13 http://mirror.dhakacom.com/ubuntu-archive bionic/restricted Translation-en [3,504 B]  
Get:14 http://mirror.dhakacom.com/ubuntu-archive bionic/universe i386 Packages [8,492 kB]  
Get:15 http://mirror.dhakacom.com/ubuntu-archive bionic/universe amd64 Packages [8,529 kB]  
Get:16 http://mirror.dhakacom.com/ubuntu-archive bionic/universe Translation-en [4,947 kB]  
Get:17 http://mirror.dhakacom.com/ubuntu-archive bionic/universe amd64 DEP-11 Metadata [3,009 kB]  
Get:18 http://mirror.dhakacom.com/ubuntu-archive bionic/universe DEP-11 64x64 Icons [8,215 kB]
```



```
kB]  
Fetched 37.5 MB in 9min 36s (65.1 kB/s)  
Reading package lists... Done  
shovon@linuxhint:~$
```

Now you can install QGIS 3 with the following command:

`$ sudo apt-get install qgis python-qgis qgis-plugin-grass`

```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
shovon@linuxhint:~$ sudo apt-get install qgis python-qgis qgis-plugin-grass
```

Now press 'y' and then press <Enter> to continue.





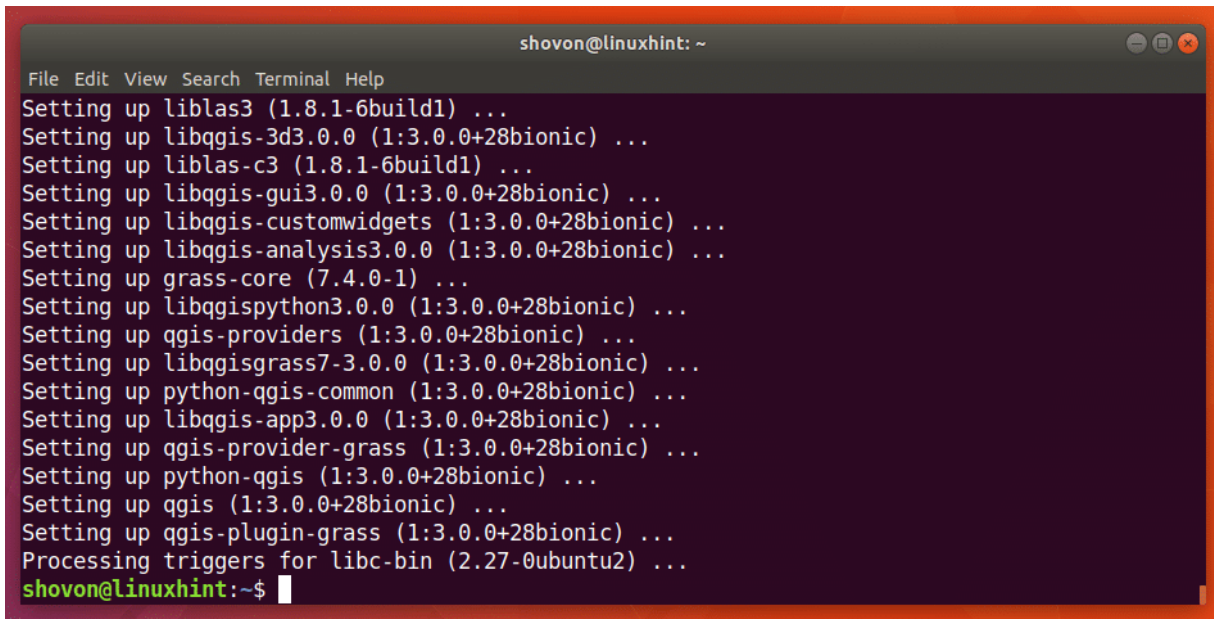
```
shovon@linuxhint: ~
File Edit View Search Terminal Help
libqt5webchannel5 libqt5webkit5 libqt5widgets5 libqt5xml5 libquadmath0
libqwt-qt5-6 libspatialindex4v5 libspatialite7 libsqlite3-mod-spatialite
libstdc++-7-dev libsuperlu5 libsz2 libtcl8.6 libtk8.6 libtsan0 libubsan0
liburiparser1 libxcb-xinerama0 libxerces-c3.2 libzip4 linux-libc-dev make
manpages-dev mysql-common odbcinst odbcinst1debian2 proj-bin proj-data
python python-matplotlib-data python-minimal python-numpy python-pip-whl
python-qgis python-qgis-common python-sip python2.7 python2.7-minimal
python3-bs4 python3-cycler python3-dateutil python3-decorator python3-dev
python3-future python3-gdal python3-html5lib python3-ipython-genutils
python3-jinja2 python3-jsonschema python3-jupyter-core python3-lxml
python3-matplotlib python3-nbformat python3-numpy python3-owslib python3-pip
python3-plotly python3-psycpg2 python3-pygments python3-pyparsing
python3-pyproj python3-pyqt5 python3-pyqt5.qsci python3-pyqt5.qtsql
python3-pyqt5.qtsvg python3-setuptools python3-sip python3-tk
python3-traitlets python3-tz python3-webencodings python3-wheel
python3.6-dev qgis qgis-common qgis-plugin-grass qgis-plugin-grass-common
qgis-provider-grass qgis-providers qgis-providers-common
qt3d-assimpsceneimport-plugin qt3d-defaultgeometryloader-plugin
qt3d-gltfsceneio-plugin qt3d-scene2d-plugin qt5-gtk-platformtheme qtchooser
qttools5-dev-tools qttranslations5-l10n tk8.6-blt2.5 ttf-bitstream-vera
0 upgraded, 204 newly installed, 0 to remove and 59 not upgraded.
Need to get 222 MB of archives.
After this operation, 768 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

The download and installation process of QGIS 3 should start. It should take a while.

```
shovon@linuxhint: ~
File Edit View Search Terminal Help
[6,066 B]
Get:3 http://mirror.dhakacom.com/ubuntu-archive bionic/main amd64 libalgorithm-diff-perl al
```

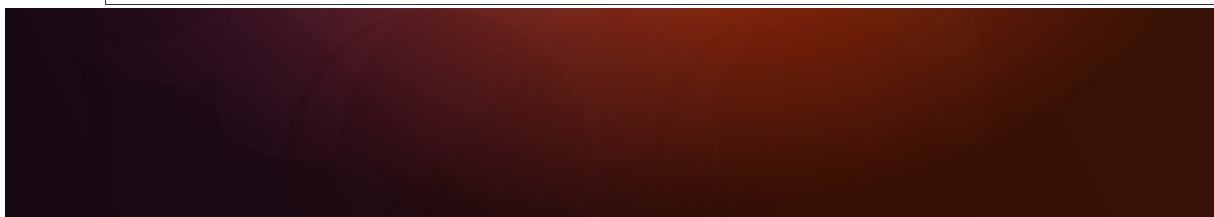
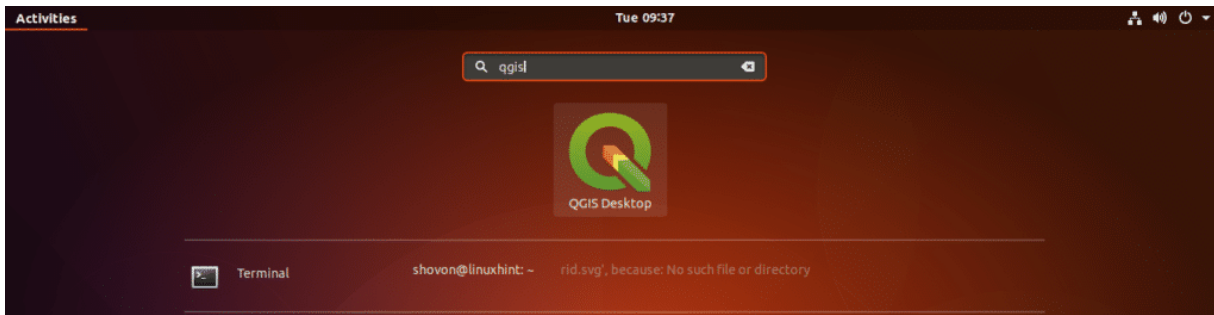
```
-3 [122 kB]
Get:7 http://mirror.dhakacom.com/ubuntu-archive bionic/universe amd64 libfcgi0ldbl amd64 2.
4.0-10 [154 kB]
Get:8 http://mirror.dhakacom.com/ubuntu-archive bionic/universe amd64 libfcgi-bin amd64 2.4
.0-10 [10.6 kB]
Get:9 http://mirror.dhakacom.com/ubuntu-archive bionic/universe amd64 libgslcblas0 amd64 2.
4+dfsg-6 [79.7 kB]
Get:10 http://mirror.dhakacom.com/ubuntu-archive bionic/universe amd64 libgsl23 amd64 2.4+d
fsg-6 [823 kB]
77% [10 libgsl23 262 kB/823 kB 32%] 545 kB/s 1min 13s
```

The installation process of QGIS 3 is complete at this point.



```
shovon@linuxhint: ~  
File Edit View Search Terminal Help  
Setting up libblas3 (1.8.1-6build1) ...  
Setting up libqgis-3d3.0.0 (1:3.0.0+28bionic) ...  
Setting up libblas-c3 (1.8.1-6build1) ...  
Setting up libqgis-gui3.0.0 (1:3.0.0+28bionic) ...  
Setting up libqgis-customwidgets (1:3.0.0+28bionic) ...  
Setting up libqgis-analysis3.0.0 (1:3.0.0+28bionic) ...  
Setting up grass-core (7.4.0-1) ...  
Setting up libqgispython3.0.0 (1:3.0.0+28bionic) ...  
Setting up qgis-providers (1:3.0.0+28bionic) ...  
Setting up libqgisgrass7-3.0.0 (1:3.0.0+28bionic) ...  
Setting up python-qgis-common (1:3.0.0+28bionic) ...  
Setting up libqgis-app3.0.0 (1:3.0.0+28bionic) ...  
Setting up qgis-provider-grass (1:3.0.0+28bionic) ...  
Setting up python-qgis (1:3.0.0+28bionic) ...  
Setting up qgis (1:3.0.0+28bionic) ...  
Setting up qgis-plugin-grass (1:3.0.0+28bionic) ...  
Processing triggers for libc-bin (2.27-0ubuntu2) ...  
shovon@linuxhint:~$
```

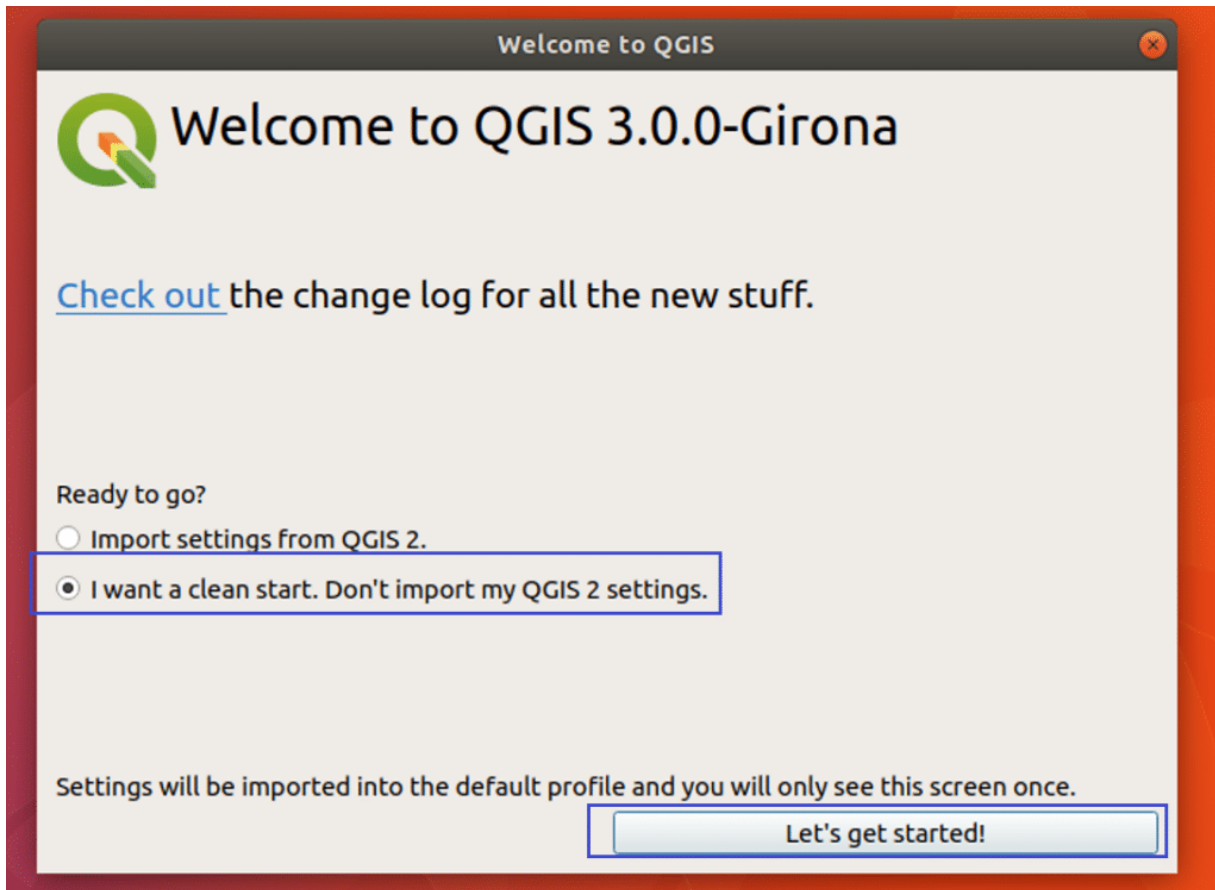
Now you can go to **Activities** of GNOME 3 desktop environment or **Application Menu** of other desktop environments and look for **qgis** and you should be able to find the logo of **QGIS Desktop** as shown in the screenshot below. Click on the **QGIS Desktop** logo.



You should see the following window as shown in the screenshot below.



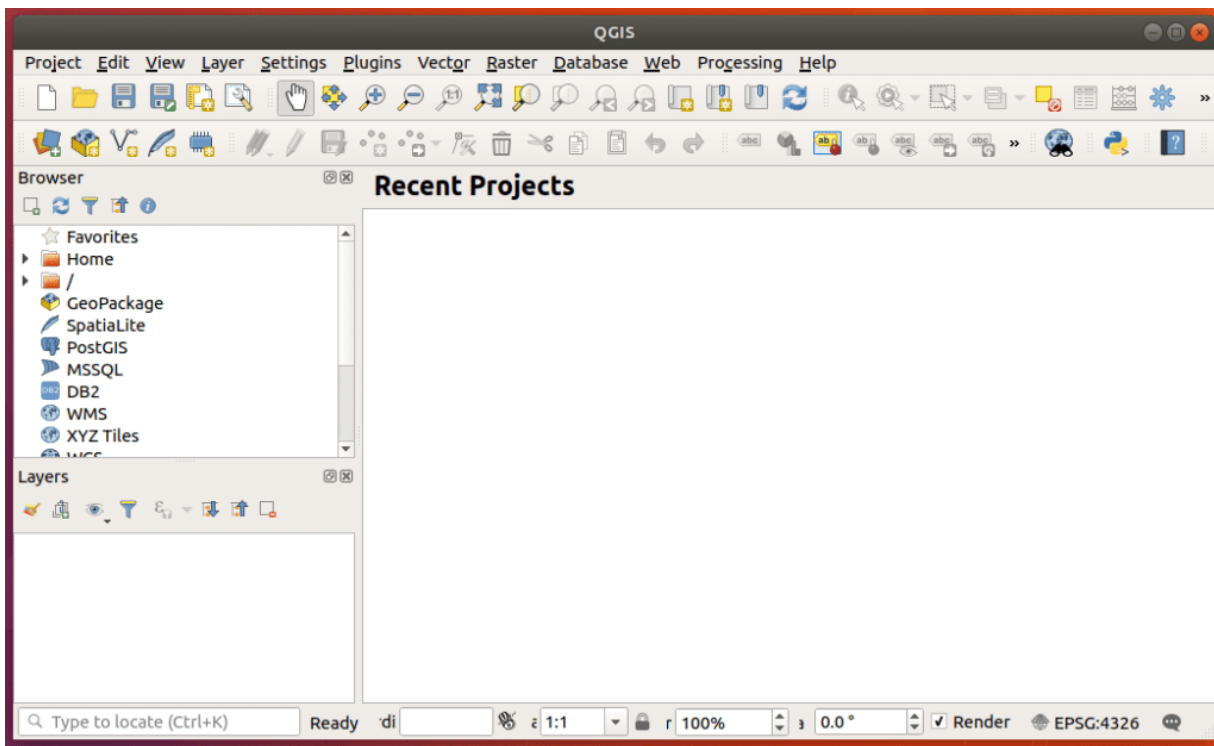
If you've used QGIS before and you have settings from previous version of QGIS, you should select **Import settings from QGIS 2**. If you're new to QGIS, then select **I want a clean start. Don't import my QGIS 2 settings** and click on the **Let's get started!** button as marked in the screenshot below.



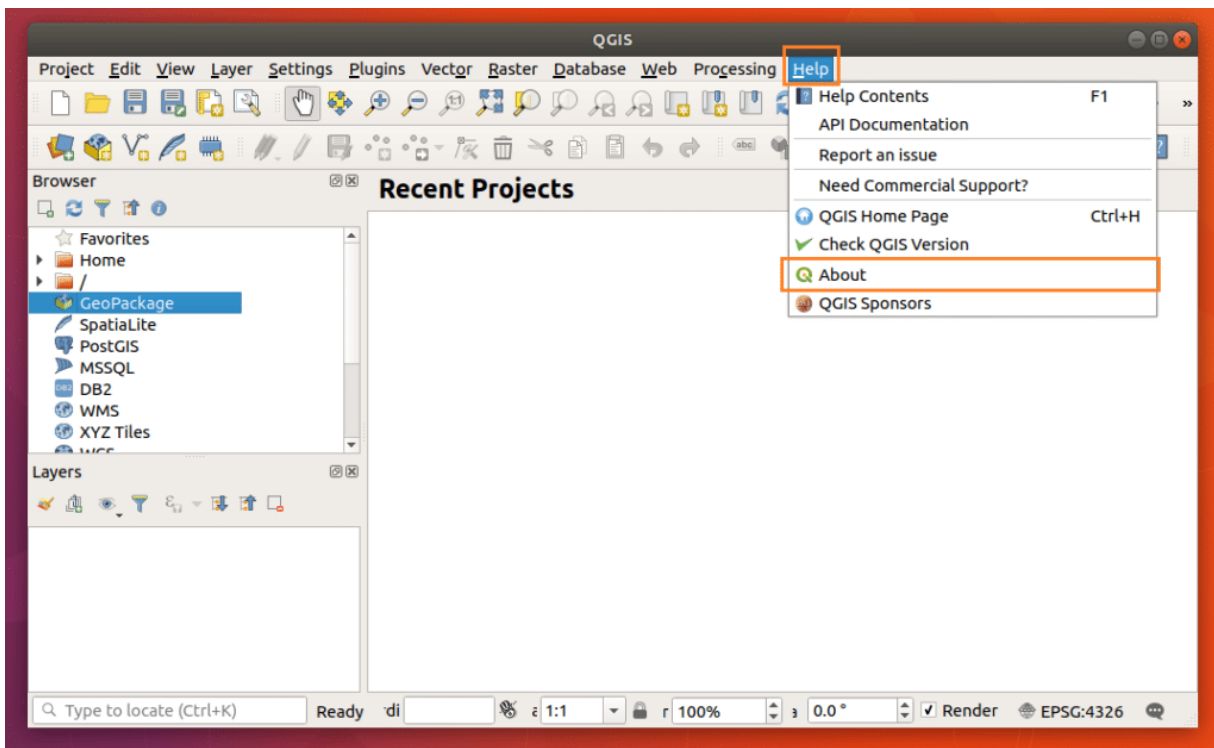
You should see a loading window of QGIS 3 as shown in the screenshot below.



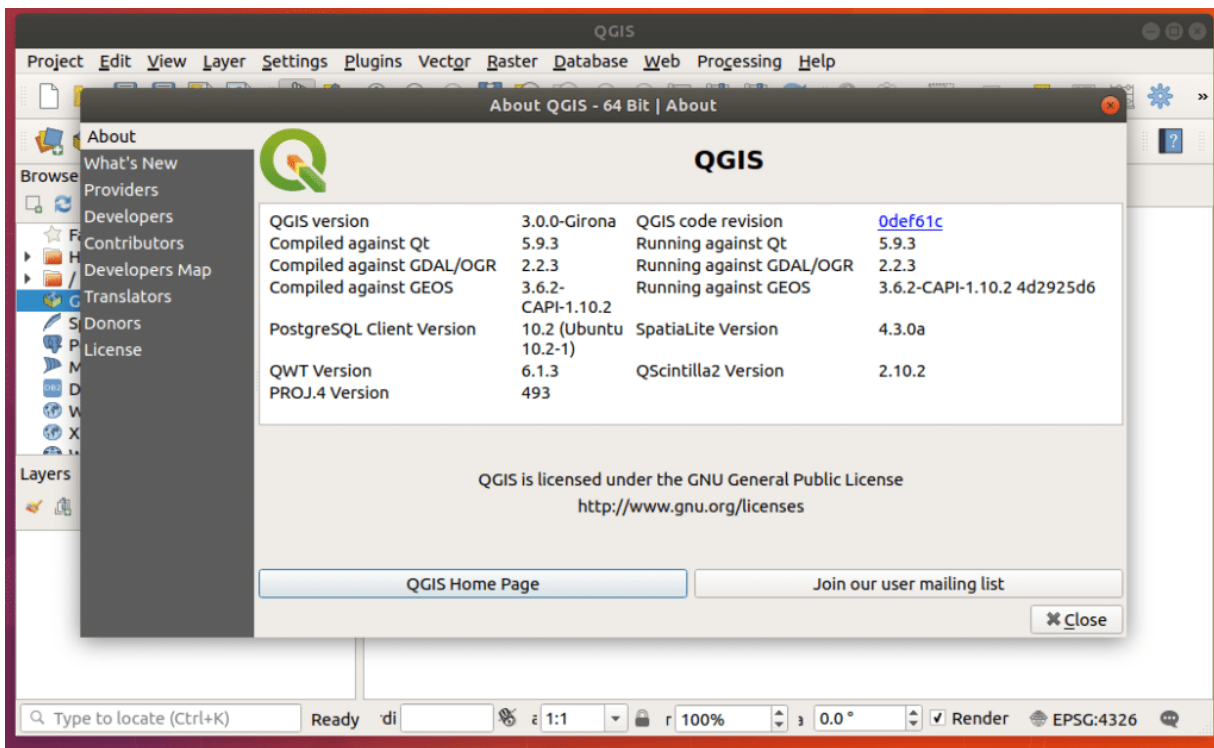
Once QGIS 3 loader loaded everything it needs, you should see the main window of QGIS 3 as shown in the screenshot below.



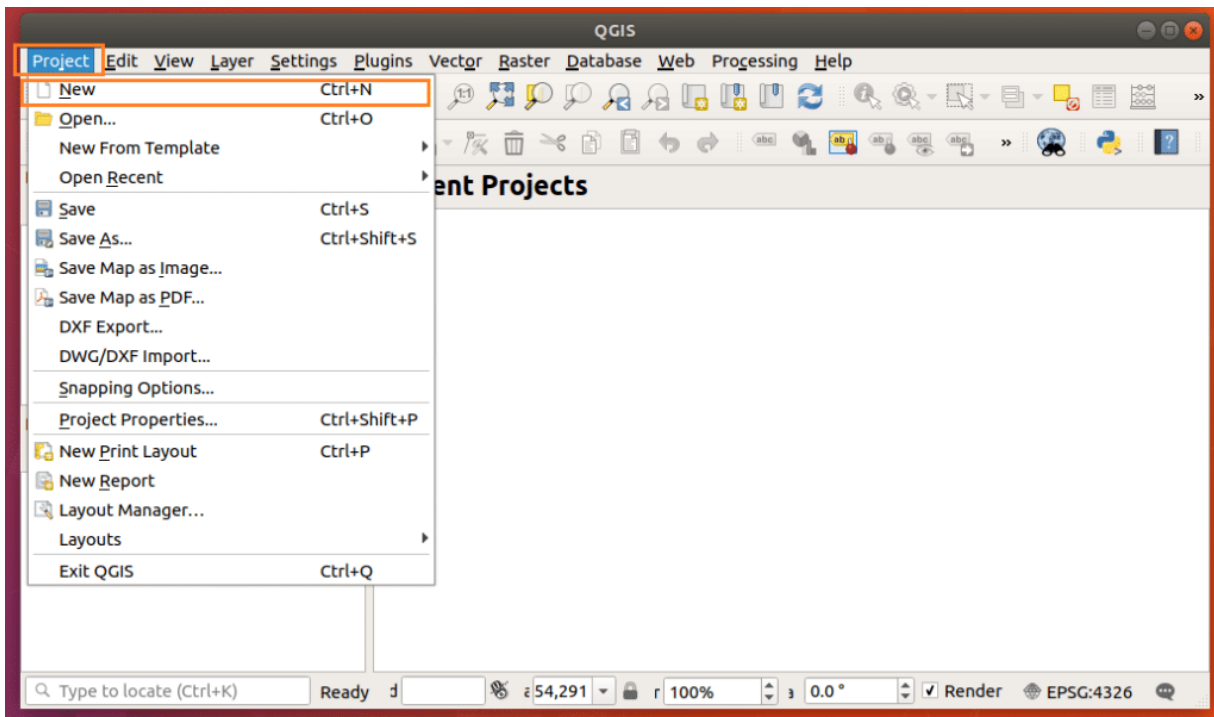
You can click on **Help** and then click on **About** from the dropdown menu to check more information about QGIS.



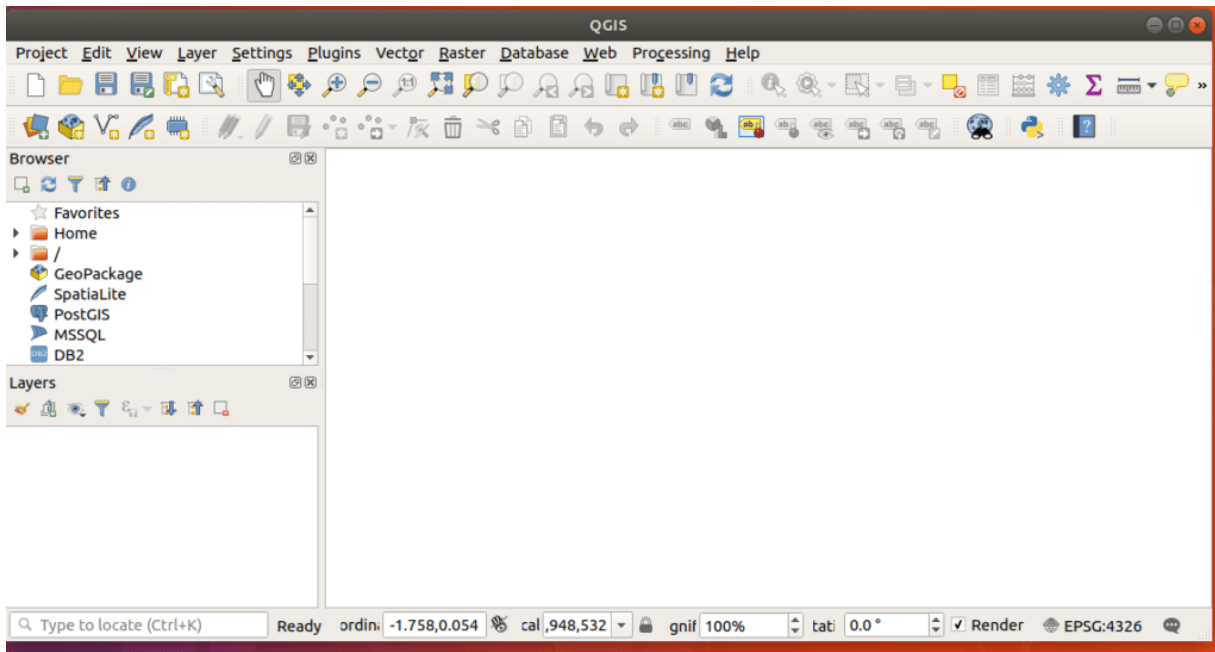
The About page of QGIS shows a lot of information about the QGIS you've installed as you can see from the screenshot below.



You can click on **Project** and click on **New** from the dropdown menu to create a new Project in QGIS 3 as marked in the screenshot below.



A new project is created.



Now have fun drawing your geospatial information. That's how you install and get started with QGIS 3 on Ubuntu 18.04 Bionic Beaver. Thanks for reading this article.

ABOUT THE AUTHOR



Shahriar Shovon

Freelancer & Linux System Administrator. Also loves Web API development with Node.js and JavaScript. I was born in Bangladesh. I am currently studying Electronics and Communication Engineering at Khulna University of Engineering & Technology (KUET), one of the demanding public engineering universities of Bangladesh.

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