

Here is a guide to install ROS Noetic on Ubuntu 20.04 in four simple steps.

هنا دليل لتثبيت روز نويتك على اوبونتو 20.04 في 4 خطوات بسيطة.

### الأدوات: Tools/:

Terminal  
Curl  
apt

### المواد: Material/:

Ubuntu 20.04

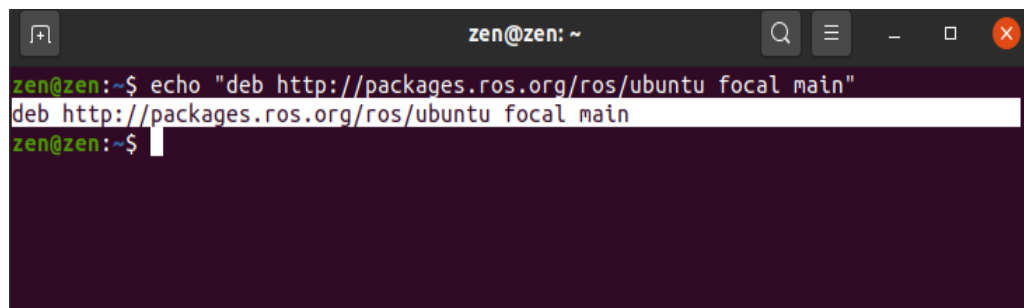
**Step 1:** Set up ROS Noetic repo by running the following command on your terminal:

**الخطوة الأولى:** قم بإجراء الأمر التالي في سطر الأوامر لتنصيب رزو على أوبونتو:

```
echo "deb http://packages.ros.org/ros/ubuntu focal main" | sudo tee /etc/apt/sources.list.d/ros-focal.list
```

You might be asked to enter your password in this step.


قد يطلب منك ادخال كلمة المرور فقد اكتبها ثم انقر على مفتاح الادخال

A terminal window titled 'zen@zen: ~' with search, menu, and window control icons. It shows the command 'echo "deb http://packages.ros.org/ros/ubuntu focal main" | sudo tee /etc/apt/sources.list.d/ros-focal.list' being entered. The output shows 'deb http://packages.ros.org/ros/ubuntu focal main' being written to the file. The prompt returns to 'zen@zen:~\$'.

## Step 2: Add official ROS keyring.

الخطوة الثانية: إضافة حلقة المفاتيح.

```
sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
```

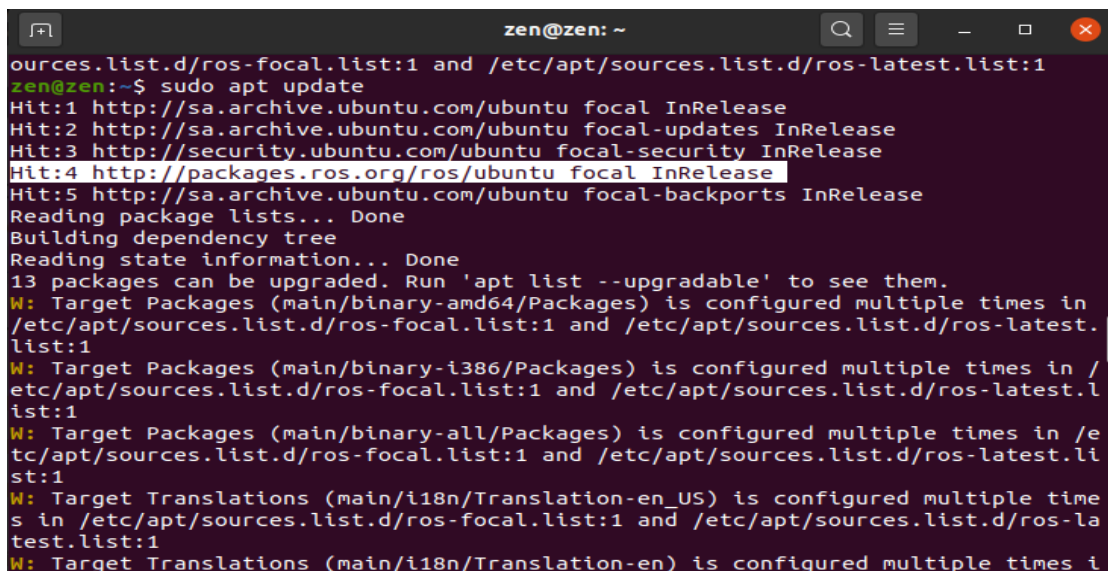


```
zen@zen:~$ echo "deb http://packages.ros.org/ros/ubuntu focal main" | sudo tee /etc/apt/sources.list.d/ros-focal.list
[sudo] password for zen:
deb http://packages.ros.org/ros/ubuntu focal main
zen@zen:~$ sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
Executing: /tmp/apt-key-gpghome.9CFI3pYWsW/gpg.1.sh --keyserver hkp://keyserver.ubuntu.com:80 --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
gpg: key F42ED6FBAB17C654: public key "Open Robotics <info@osrfoundation.org>" imported
gpg: Total number processed: 1
gpg: imported: 1
zen@zen:~$
```

## Step 3: Update ROS package index:

الخطوة الثالثة: تحديث حزمة فهرس روز.

```
sudo apt update
```



```
zen@zen:~$ sudo apt update
sources.list.d/ros-focal.list:1 and /etc/apt/sources.list.d/ros-latest.list:1
Hit:1 http://sa.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://sa.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:4 http://packages.ros.org/ros/ubuntu focal InRelease
Hit:5 http://sa.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
13 packages can be upgraded. Run 'apt list --upgradable' to see them.
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list.d/ros-focal.list:1 and /etc/apt/sources.list.d/ros-latest.list:1
W: Target Packages (main/binary-i386/Packages) is configured multiple times in /etc/apt/sources.list.d/ros-focal.list:1 and /etc/apt/sources.list.d/ros-latest.list:1
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list.d/ros-focal.list:1 and /etc/apt/sources.list.d/ros-latest.list:1
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list.d/ros-focal.list:1 and /etc/apt/sources.list.d/ros-latest.list:1
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list.d/ros-focal.list:1 and /etc/apt/sources.list.d/ros-latest.list:1
```

#### Step 4: Install ROS Noetic package.

There are 4 packages you can install from Depending on your need and usage. Here we are going to instal ros-noetic-desktop-full for the full experince. Visit the sources bellow for the other packages.

#### الخطوة الرابعة: تثبيت حزمة روز نويتك.

هناك 4 حزم يمكنك تحميلها يمكنك اختيار ما يناسبك حسب استخدامك، سوف نقوم بتحميل ros-noetic-desktop-full للتجربة الكاملة، يمكنك زيارة المصادر المرفقة بالاسفل لاختيار الحزم الأخرى.

```
sudo apt install ros-noetic-desktop-full
```

After running you will get the message bellow  
type y then enter to continue.

بعد إجراء الأمر سيظهر الأمر التالي فقط قم بكتابة y ثم انقر على مفتاح الإدخال.

```
zen@zen: ~  
zen@zen:~$ sudo apt install ros-noetic-desktop-full  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
autoconf automake autopoint autotools-dev binfmt-support blt bzip2-doc cmake  
cmake-data comerr-dev cpp-8 curl cython3 debhelper  
default-libmysqlclient-dev dh-autoreconf dh-strip-nondeterminism  
docutils-common dwz fltk1.3-doc fluid fonts-lato fonts-lyx freeglut3  
freeglut3-dev gazebo11 gazebo11-common gazebo11-plugin-base gcc-8 gcc-8-base  
gdal-data gettext gfortran gfortran-8 gfortran-9 gir1.2-gtk-2.0  
gir1.2-harfbuzz-0.0 google-mock googletest graphviz hddtemp hdf5-helpers  
ibverbs-providers icu-devtools ignition-tools intltool-debian  
javascript-common krb5-multidev libaec-dev libaec0 libann0 libapr1  
libapr1-dev libaprutil1 libaprutil1-dev libarchive-cpio-perl  
libarchive-zip-perl libarmadillo-dev libarmadillo9 libarpack2 libarpack2-dev  
libassimp-dev libassimp5 libassuan-dev libatk-bridge2.0-dev libatk1.0-dev  
libatspi2.0-dev libavcodec-dev libavdevice-dev libavfilter-dev  
libavformat-dev libavresample-dev libavresample4 libavutil-dev libblas-dev  
libblas3 libblkid-dev libboost-all-dev libboost-atomic-dev  
libboost-atomic1.71-dev libboost-atomic1.71.0 libboost-chrono-dev  
libboost-chrono1.71-dev libboost-chrono1.71.0 libboost-container-dev  
libboost-container1.71-dev libboost-container1.71.0 libboost-context-dev  
libboost-context1.71-dev libboost-context1.71.0 libboost-coroutine-dev
```

```
zen@zen: ~  
0 upgraded, 1014 newly installed, 0 to remove and 13 not upgraded.  
Need to get 533 MB of archives.  
After this operation, 2731 MB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:1 http://sa.archive.ubuntu.com/ubuntu focal/main amd64 fonts-lato all 2.0-2  
[2698 kB]  
Get:2 http://packages.ros.org/ros/ubuntu focal/main amd64 ignition-tools amd64 1  
.0.0-1~focal [4216 B]  
Get:3 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-common3 am  
d64 3.5.0-1~focal [88.1 kB]  
Get:4 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-common3-av  
amd64 3.5.0-1~focal [14.2 kB]  
Get:5 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-common3-co  
re-dev amd64 3.5.0-1~focal [93.6 kB]  
Get:6 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-common3-av  
-dev amd64 3.5.0-1~focal [7560 B]  
Get:7 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-math6 amd6  
4 6.4.0-1~focal [72.1 kB]  
Get:8 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-math6-dev  
amd64 6.4.0-1~focal [117 kB]  
Get:9 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-common3-ev  
ents amd64 3.5.0-1~focal [6988 B]  
Get:10 http://packages.ros.org/ros/ubuntu focal/main amd64 libignition-common3-e  
vents-dev amd64 3.5.0-1~focal [7508 B]
```

### Now you are done installing ROS Noetic.

To set up the environment which allows you to use ROS terminal commands to let catkin find ROS

programs files run:

```
source /opt/ros/noetic/setup.bash
```

```
echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc
```

والآن قد انتهيت من تثبيت روز نويتك.  
لتجهيز البيئة للسماح ل catkin للعثور على ملفات  
برامج روز قم بإجراء:

### To verify the installation run:

```
roscd
```

You will get:

```
/opt/ros/noetic
```

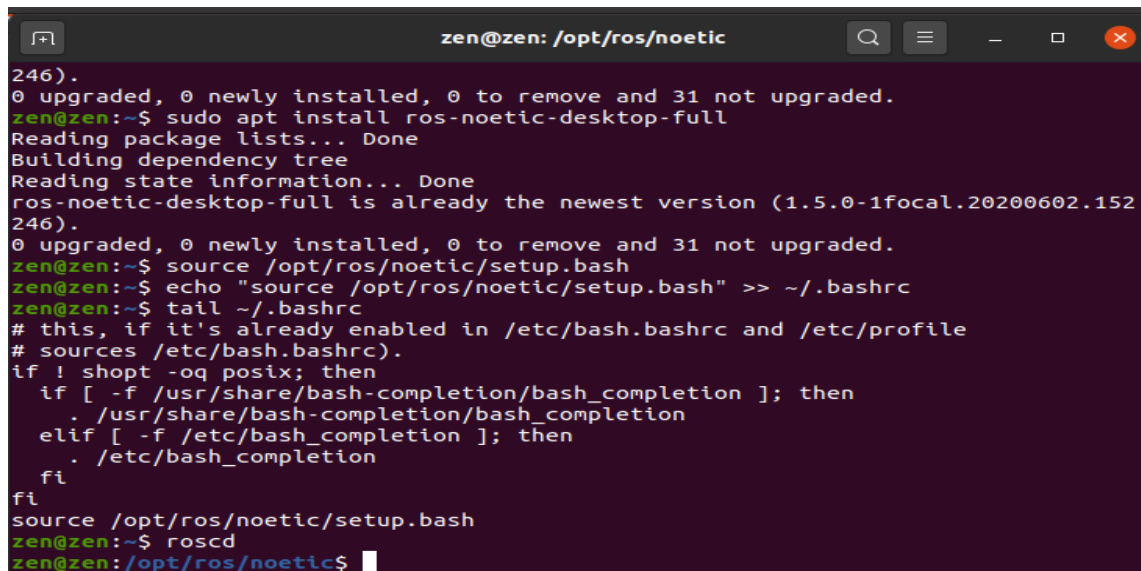
Or run:

```
roscore
```

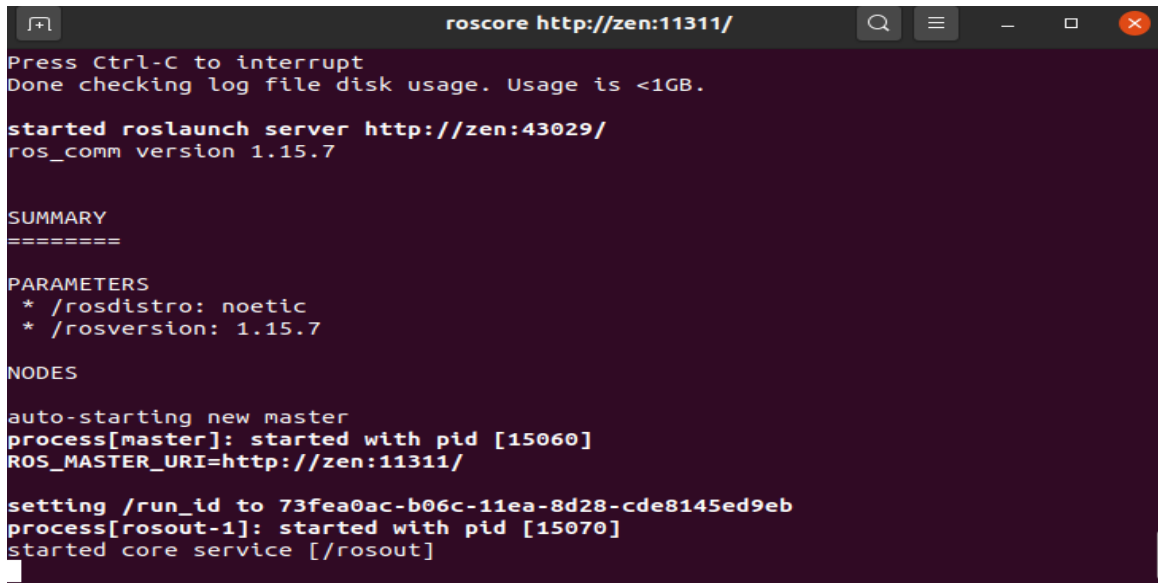
للتأكد من تثبيت روز أجري الأمر:

ستجد:

أو قم بإجراء:



```
zen@zen: /opt/ros/noetic
246).
0 upgraded, 0 newly installed, 0 to remove and 31 not upgraded.
zen@zen:~$ sudo apt install ros-noetic-desktop-full
Reading package lists... Done
Building dependency tree
Reading state information... Done
ros-noetic-desktop-full is already the newest version (1.5.0-1focal.20200602.152
246).
0 upgraded, 0 newly installed, 0 to remove and 31 not upgraded.
zen@zen:~$ source /opt/ros/noetic/setup.bash
zen@zen:~$ echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc
zen@zen:~$ tail ~/.bashrc
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
  if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi
source /opt/ros/noetic/setup.bash
zen@zen:~$ roscd
zen@zen:/opt/ros/noetic$
```

A terminal window titled 'roscore http://zen:11311/' with standard window controls. The output shows the process of starting a ROS master and roscore. It includes a summary, parameters for rosdistro (noetic) and rosversion (1.15.7), and a list of nodes starting with the master and roscore. The terminal text is as follows:

```
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://zen:43029/
ros_comm version 1.15.7

SUMMARY
=====

PARAMETERS
* /rosdistro: noetic
* /rosversion: 1.15.7

NODES

auto-starting new master
process[master]: started with pid [15060]
ROS_MASTER_URI=http://zen:11311/

setting /run_id to 73fea0ac-b06c-11ea-8d28-cde8145ed9eb
process[roscout-1]: started with pid [15070]
started core service [/roscout]
```

**Source:**

<https://varhowto.com/install-ros-noetic-ubuntu-20-04/>

<http://wiki.ros.org/noetic/Installation/Ubuntu>