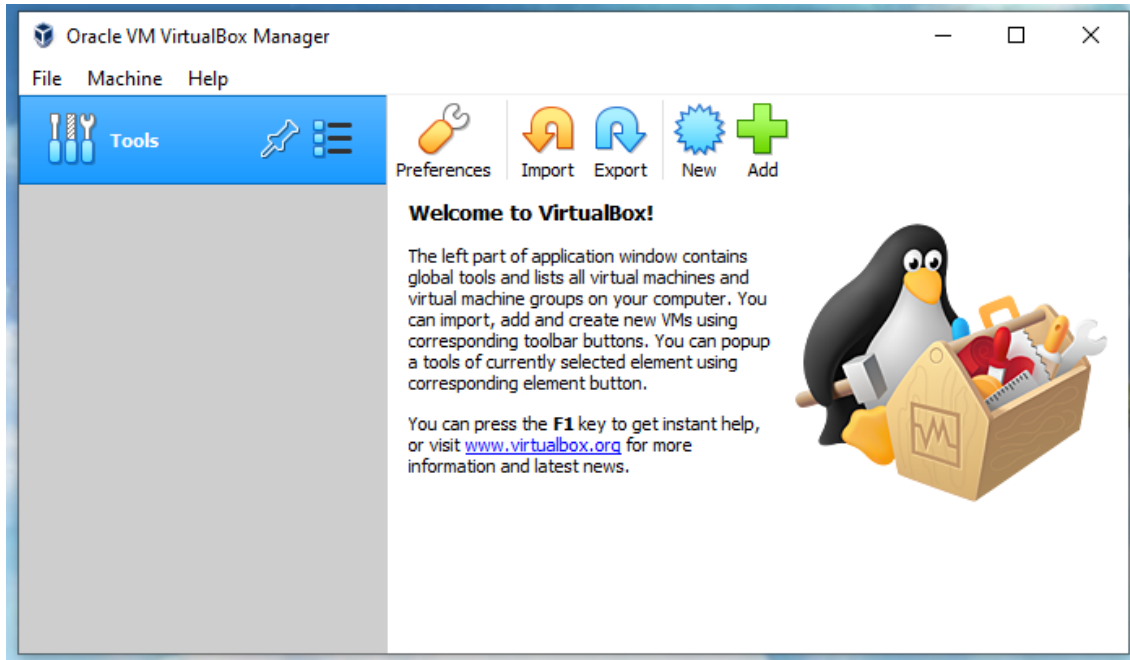


## Installing ROS Noetic

### تثبيت الروز نوتيك

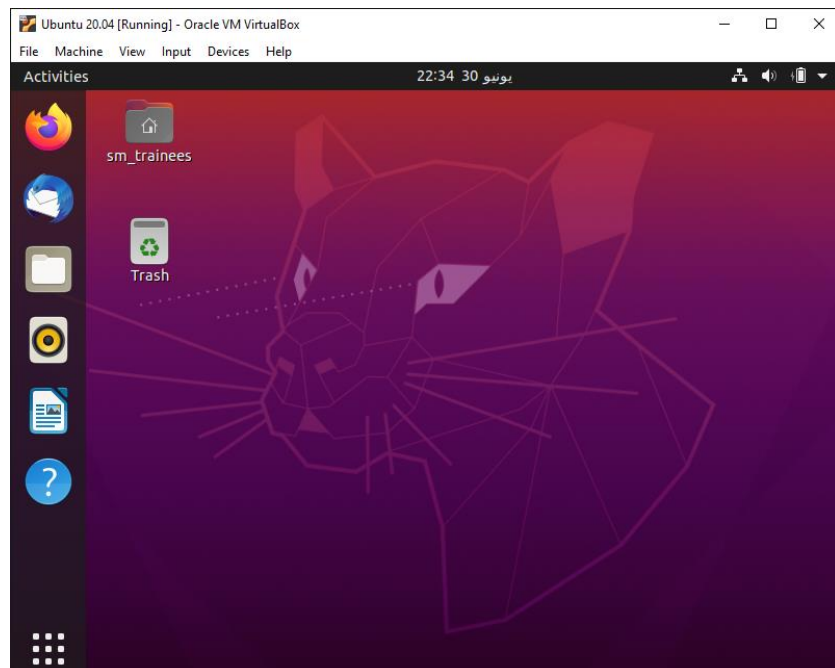
1. Download and install VirtualBox:

١. تحميل وتثبيت VirtualBox



2. Download and install ubuntu by VirtualBox:

٢. تحميل وتثبيت ubuntu باستخدام VirtualBox:



By: Collaborative work of trainees.

### 3. Install ROS:

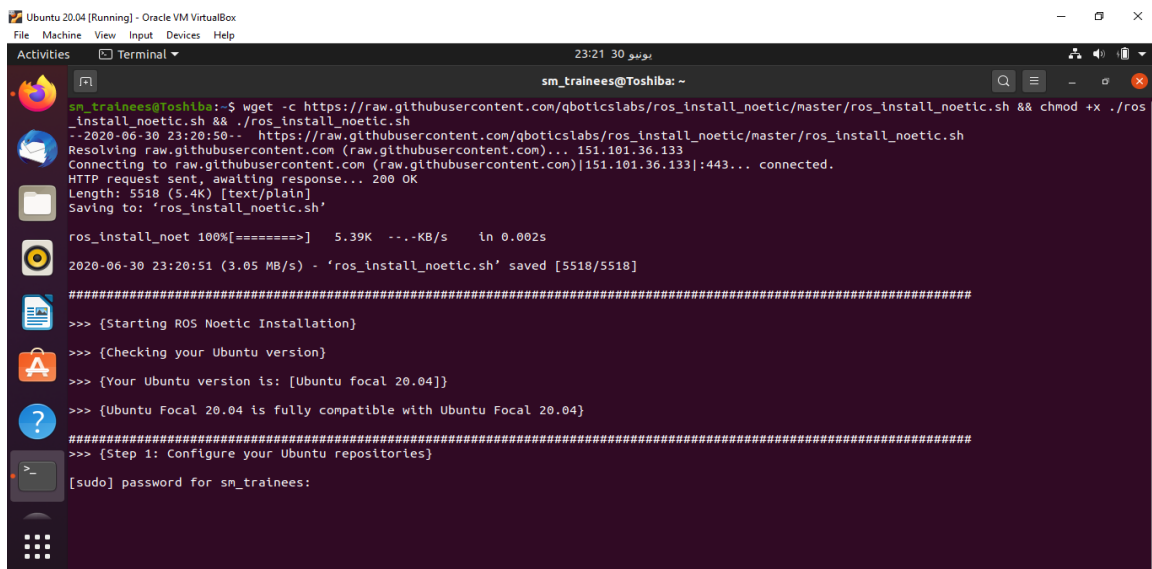
٣. تثبيت ROS :

- After installing Ubuntu 20.04 on VirtualBox and having access to Linux virtual interface, open the terminal.
- Then, copy a single line code:

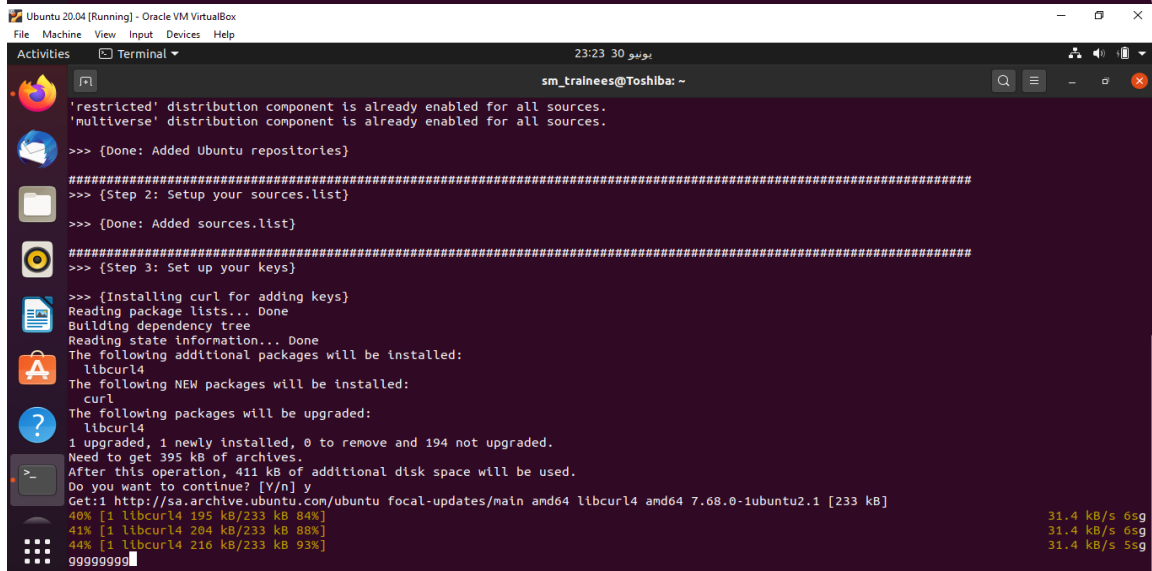
```
wget -c https://raw.githubusercontent.com/qboticslabs/ros_install_noetic/master/ros_install_noetic.sh && chmod +x ./ros_install_noetic.sh && ./ros_install_noetic.sh
```

- After that, paste it in the terminal and **press Enter**, then we enter the password and **press Enter**.

- نقوم بفتح التيرمينال بعد تثبيت اوبونتو على فيرشوال بوكس.
- نقوم بنسخ الكود السابق ونلصقه في صفحة التيرمينال، ثم نقوم بالضغط على **Enter** ، بعد ذلك ندخل كلمة المرور ونضغط على **Enter**.



```
sm_trainees@Toshiba: ~  
$ wget -c https://raw.githubusercontent.com/qboticslabs/ros_install_noetic/master/ros_install_noetic.sh && chmod +x ./ros_install_noetic.sh && ./ros_install_noetic.sh  
--2020-06-30 23:20:50-- https://raw.githubusercontent.com/qboticslabs/ros_install_noetic/master/ros_install_noetic.sh  
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.36.133  
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.36.133|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 5518 (5.4K) [text/plain]  
Saving to: 'ros_install_noetic.sh'  
  
ros_install_noetic 100%[=====] 5.39K --.-KB/s in 0.002s  
2020-06-30 23:20:51 (3.05 MB/s) - 'ros_install_noetic.sh' saved [5518/5518]  
  
#####  
>>> {Starting ROS Noetic Installation}  
>>> {Checking your Ubuntu version}  
>>> {Your Ubuntu version is: [Ubuntu focal 20.04]}  
>>> {Ubuntu Focal 20.04 is fully compatible with Ubuntu Focal 20.04}  
#####  
>>> {Step 1: Configure your Ubuntu repositories}  
[sudo] password for sm_trainees:
```



```
'restricted' distribution component is already enabled for all sources.  
'multiverse' distribution component is already enabled for all sources.  
>>> {Done: Added Ubuntu repositories}  
#####  
>>> {Step 2: Setup your sources.list}  
>>> {Done: Added sources.list}  
#####  
>>> {Step 3: Set up your keys}  
>>> {Installing curl for adding keys}  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
  libcurl4  
The following NEW packages will be installed:  
  curl  
The following packages will be upgraded:  
  libcurl4  
1 upgraded, 1 newly installed, 0 to remove and 194 not upgraded.  
Need to get 395 kB of archives.  
After this operation, 411 kB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:: http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 libcurl4 amd64 7.68.0-1ubuntu2.1 [233 kB]  
40% [1 libcurl4 195 kB/233 kB 84%]  
41% [1 libcurl4 204 kB/233 kB 88%]  
44% [1 libcurl4 216 kB/233 kB 93%]  
99999999
```

**By: Collaborative work of trainees.**

- When we get to this Stage, we enter the number 1 and then press **Enter**.
- عندما نصل الى هذه المرحلة نقوم بإدخال الرقم ١ ثم الضغط على **Enter**.

```

sm_trainees@Toshiba: ~
Hit:1 http://sa.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://security.ubuntu.com/ubuntu focal-security InRelease [107 kB]
Get:3 http://packages.ros.org/ros/ubuntu focal InRelease [4650 B]
Get:4 http://sa.archive.ubuntu.com/ubuntu focal-updates InRelease [107 kB]
Get:5 http://packages.ros.org/ros/ubuntu focal/main i386 Packages [15.4 kB]
Get:6 http://sa.archive.ubuntu.com/ubuntu focal-backports InRelease [98.3 kB]
Get:7 http://packages.ros.org/ros/ubuntu focal/main amd64 Packages [221 kB]
Get:8 http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [211 kB]
Get:9 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [21.2 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [35.8 kB]
Get:11 http://sa.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [108 kB]
Get:12 http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [105 kB]
Get:13 http://sa.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [115 kB]
Get:14 http://sa.archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [62.1 kB]
Get:15 http://sa.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [156 kB]
Get:16 http://sa.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [532 B]
Fetched 1368 kB in 12s (111 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
194 packages can be upgraded. Run 'apt list --upgradable' to see them.

#####
>>> {Step 5: Install ROS, you pick how much of ROS you would like to install.}
[1. Desktop-Full Install: (Recommended) : Everything in Desktop plus 2D/3D simulators and 2D/3D perception packages ]

[2. Desktop Install: Everything in ROS-Base plus tools like rqt and rviz]

[3. ROS-Base: (Bare Bones) ROS packaging, build, and communication libraries. No GUI tools.]

Enter your install (Default is 1):g

```

- We wait for the installation to complete.
- ننتظر حتى يكتمل التثبيت.

```

sm_trainees@Toshiba: ~
Setting up ros-noetic-geometry (1.13.2-1focal.20200612.011155) ...
Setting up ros-noetic-rqt-srv (0.4.8-1focal.20200613.043637) ...
Setting up ros-noetic-rqt-action (0.4.9-1focal.20200613.043629) ...
Setting up ros-noetic-urdf-sim-tutorial (0.5.1-1focal.20200613.043518) ...
Setting up ros-noetic-gazebo-plugins (2.9.1-1focal.20200612.011329) ...
Setting up ros-noetic-rqt-launch (0.4.8-1focal.20200613.043540) ...
Setting up ros-noetic-gazebo-ros-pkgs (2.9.1-1focal.20200612.013402) ...
Setting up ros-noetic-laser-pipeline (1.6.4-1focal.20200612.011901) ...
Setting up ros-noetic-ros-base (1.5.0-1focal.20200529.065007) ...
Setting up ros-noetic-rqt-robot-plugins (0.5.8-1focal.20200613.043647) ...
Setting up ros-noetic-robot (1.5.0-1focal.20200612.011649) ...
Setting up ros-noetic-rqt-common-plugins (0.4.9-1focal.20200615.143035) ...
Setting up ros-noetic-perception (1.5.0-1focal.20200612.013104) ...
Setting up ros-noetic-viz (1.5.0-1focal.20200615.143416) ...
Setting up ros-noetic-desktop (1.5.0-1focal.20200615.143711) ...
Setting up ros-noetic-simulators (1.5.0-1focal.20200615.143416) ...
Setting up ros-noetic-desktop-full (1.5.0-1focal.20200615.143854) ...
Processing triggers for libc-bin (2.31-0ubuntu9) ...

#####
>>> {Step 6: Setting ROS Environment, This will add ROS environment to .bashrc.}
>>> { After adding this, you can able to access ROS commands in terminal}

#####
>>> {Step 7: Testing ROS installation, checking ROS version.}

>>> {Type [ rosverion -d ] to get the current ROS installed version}

#####
sm_trainees@Toshiba:~$ g

```

**By: Collaborative work of trainees.**

- Finally, we verify that the installation was successful, by writing the following code in terminal:

`rosversion -d`

then press **Enter**. To check the installed version of ROS.

- أخيرا نقوم بالتحقق من ان التنصيب تم بنجاح، وذلك بكتابة الكود التالي في التيرمينال:

`"rosversion -d"`

ثم الضغط على **Enter**. لنقوم باستعراض نسخة ROS.

```

sm_trainees@Toshiba:~$ rosversion -d
noetic
sm_trainees@Toshiba:~$ g

```

- To check also, enter the following codes into the terminal window:

`"roscore"`

```

sm_trainees@Toshiba:~$ rosversion -d
noetic
sm_trainees@Toshiba:~$ roscore
... logging to /home/sm_trainees/.ros/log/49a28f02-bb17-11ea-9bf6-6fa4c5fcaa63/roslaunch-Toshiba-25541.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://Toshiba:43505/
ros_comm version 1.15.7

SUMMARY
=====
PARAMETERS
* /rostdistro: noetic
* /rosversion: 1.15.7

NODES

auto-starting new master
process[master]: started with pid [25567]
ROS_MASTER_URI=http://Toshiba:11311/

setting /run_id to 49a28f02-bb17-11ea-9bf6-6fa4c5fcaa63
process[rosout-1]: started with pid [25577]
started core service [/rosout]

```

**By: Collaborative work of trainees.**