



ROS

طريقة تثبيت ROS

INSTALL ROS ON UBUNTU 20.04

HESSAH ALDAYEL

ROS حول ABOUT ROS

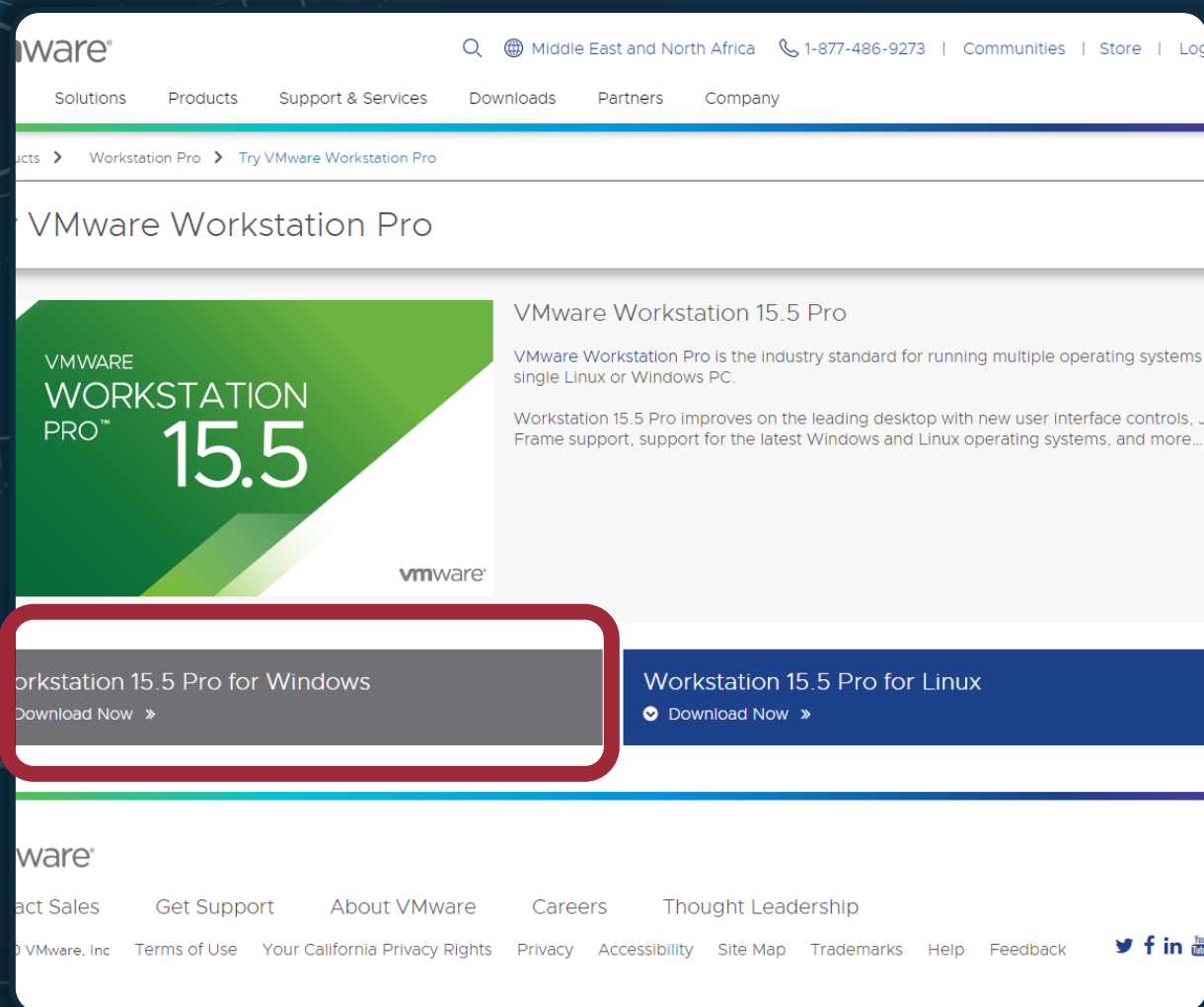
(ROS): نظام تشغيل الروبوت

هو إطار مرن لكتابة برنامج الروبوت. وهي عبارة عن مجموعة من الأدوات والمكتبات والاتفاقيات التي تهدف إلى تبسيط مهمة إنشاء سلوك روبوت معقد وقوي عبر مجموعة متنوعة من المنصات الروبوتية.

<https://vimeo.com/245826128>

The Robot Operating System (ROS):

is a flexible framework for writing robot software. It is a collection of tools, libraries, and conventions that aim to simplify the task of creating complex and robust robot behavior across a wide variety of robotic platforms.



الخطوات:

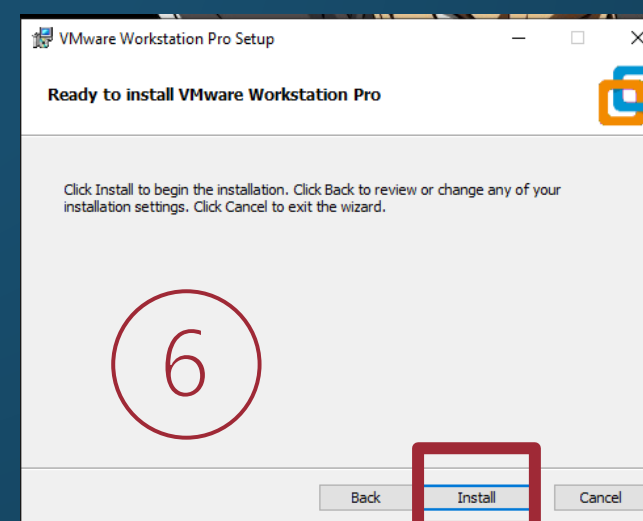
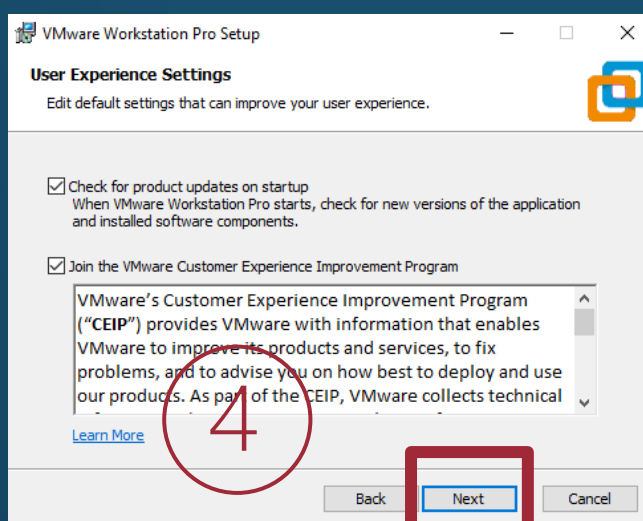
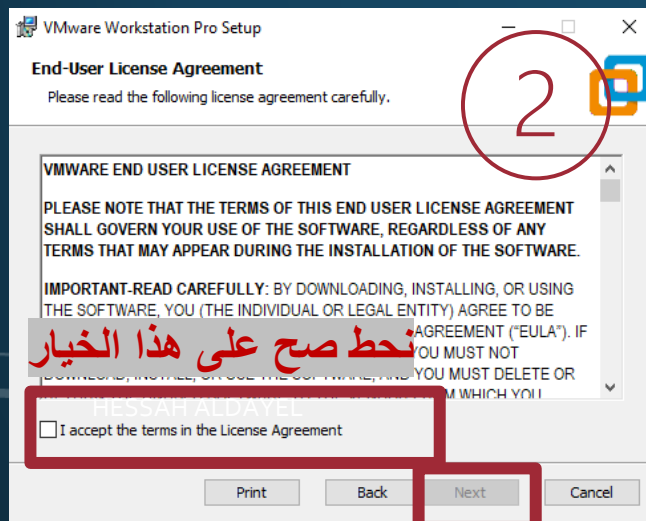
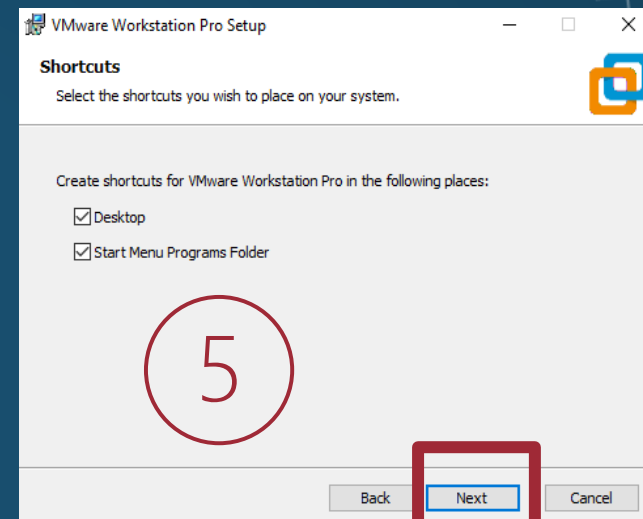
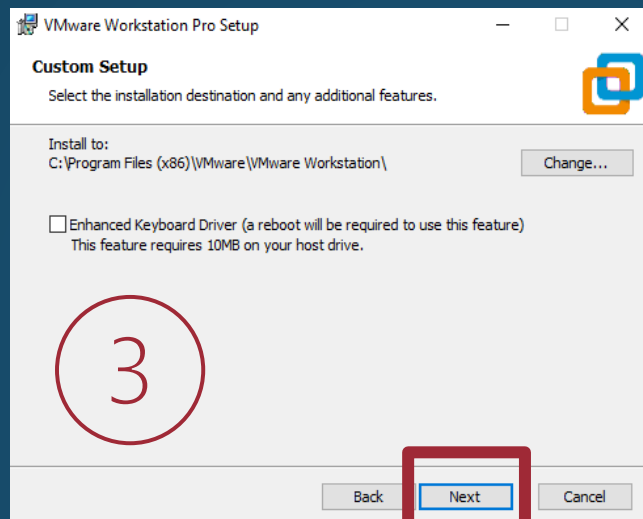
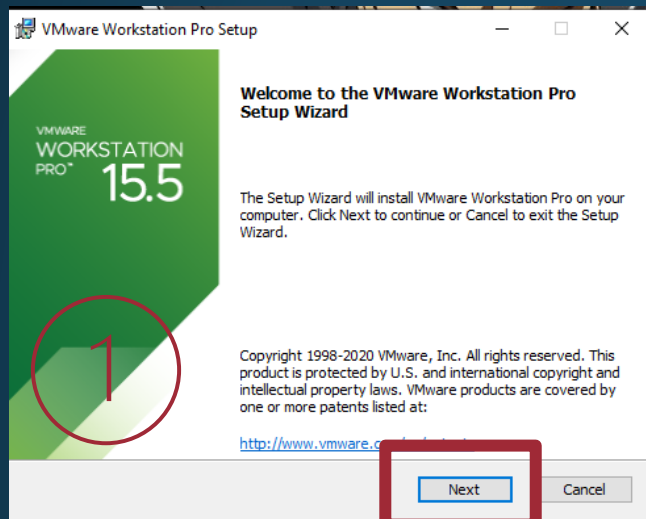
1. هو VMware Workstation Pro قم بتنزيل وتثبيت برنامج برنامج مراقبة افتراضي مستضاف يعمل على إصدارات من ؛ فهو يمكّن المستخدمين Linux و Windows أنظمة تشغيل من إعداد أجهزة افتراضية على جهاز فعلي واحد ، واستخدامها في نفس الوقت مع الجهاز الفعلي.

<https://www.vmware.com/mena/products/workstation-pro/workstation-pro-evaluation.html>

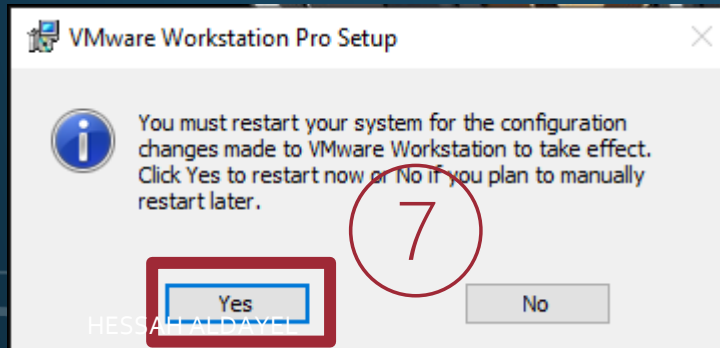
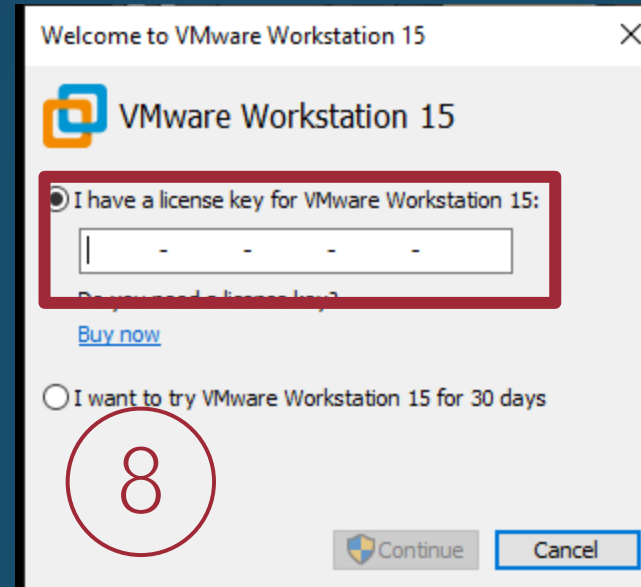
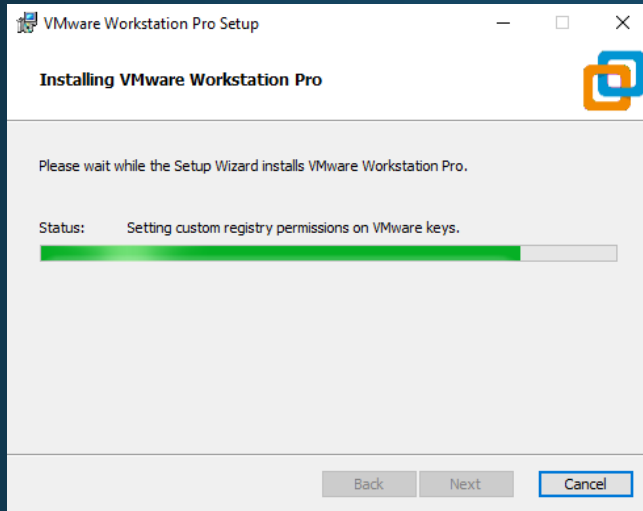
Download and install VMware Workstation Pro is a hosted virtual monitoring software running on versions of Windows and Linux operating systems; It enables users to set up virtual machines on one physical device and use them simultaneously with the physical device.

طريقة تثبيت VMWARE WORKSTATION PRO

INSTALL VMWARE WORKSTATION PRO



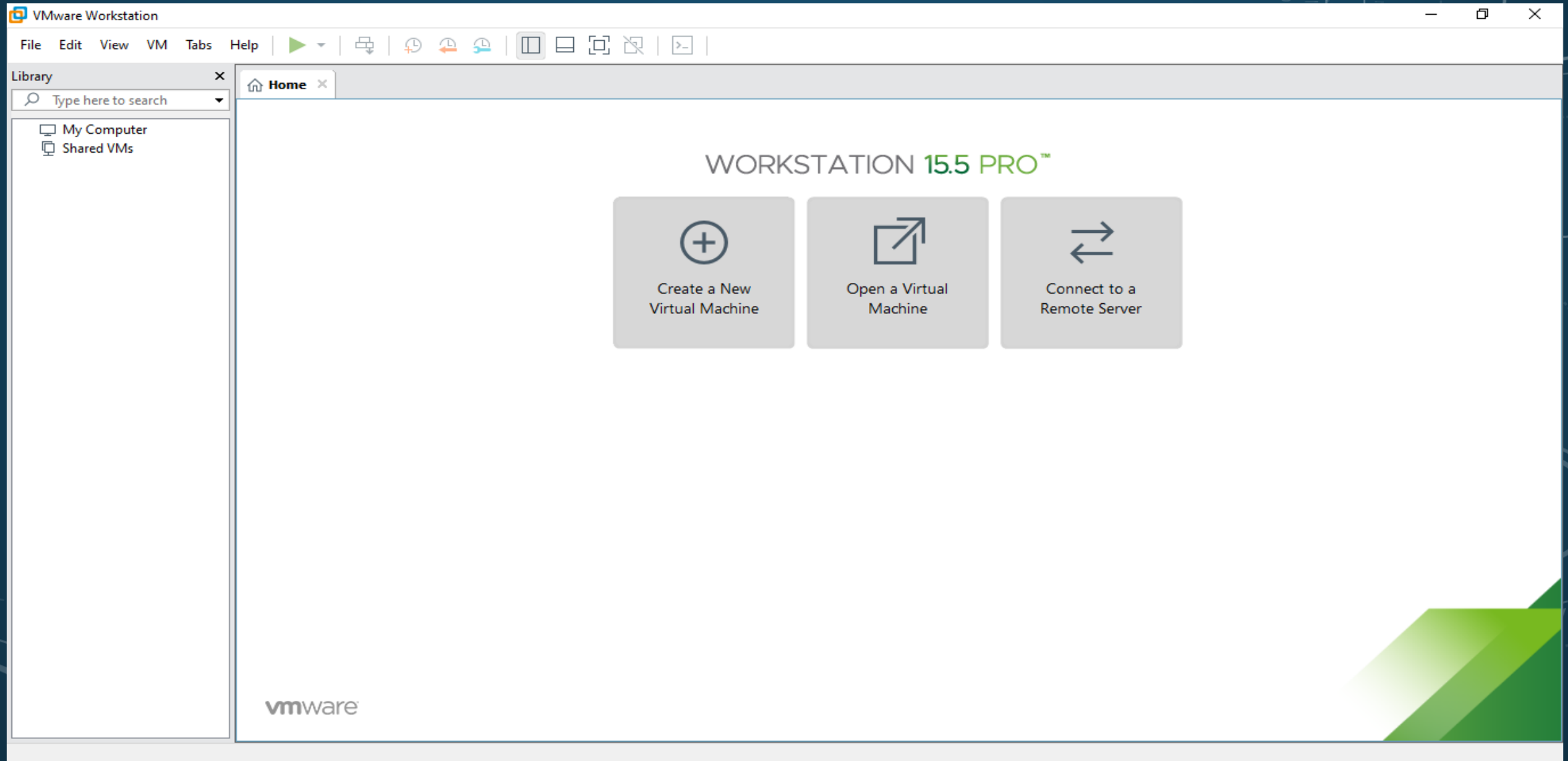
طريقة تثبيت INSTALL VMWARE WORKSTATION PRO



بذلك تم تثبيت
VMware Workstation

طريقة تثبيت VMWARE WORKSTATION PRO

INSTALL VMWARE WORKSTATION PRO





Install ROS Noetic Ubuntu 20.04

الخطوات:

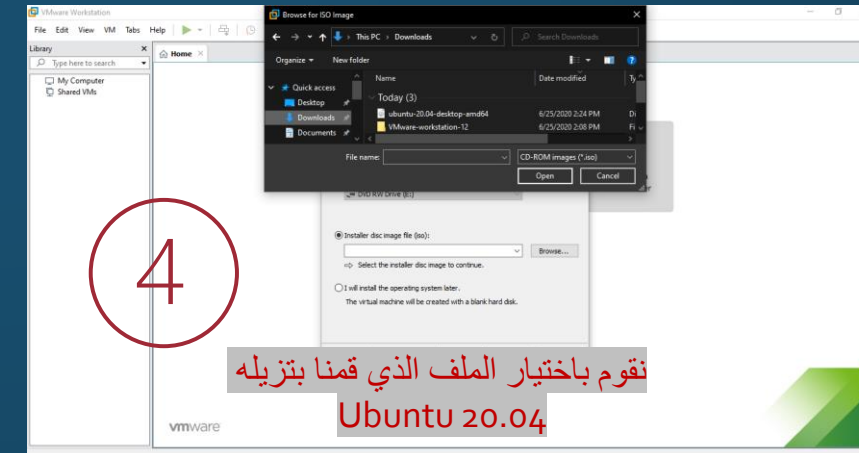
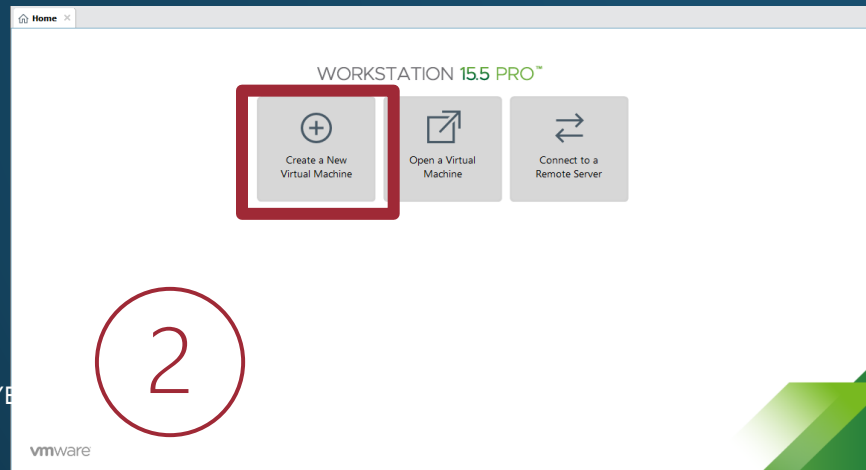
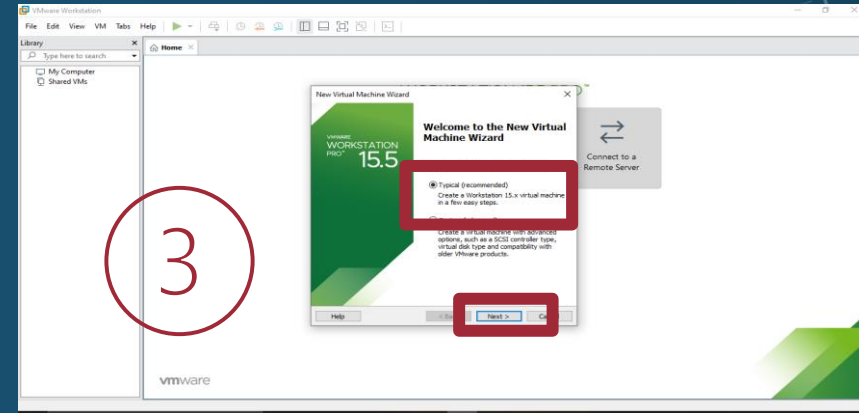
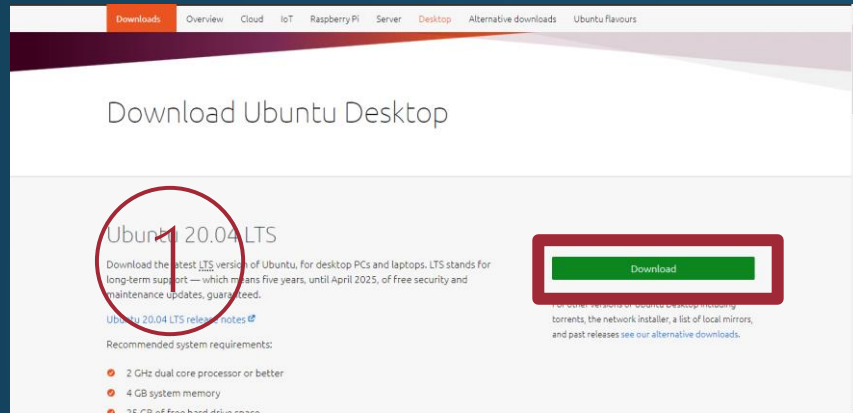
2. هو نظام تشغيل على Ubuntu 20.04 قم بتنزيل وتثبيت مستوى المؤسسات وآمن وفعال من حيث التكلفة للمؤسسات والمستخدمين المنزليين.

<https://ubuntu.com/download/desktop>

Download and install Ubuntu 20.04 is an enterprise-class operating system that is safe, cost-effective for enterprises and home users.

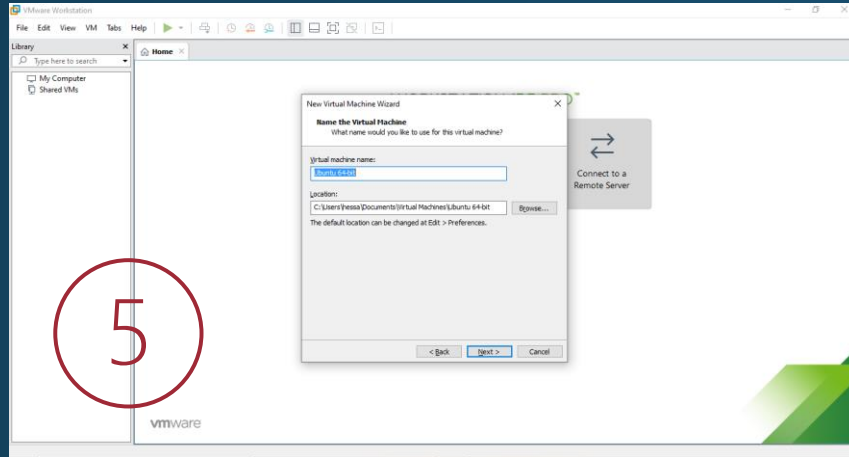
تحميل وتنصيب UBUNTU 20.04

DOWNLOAD AND INSTALL UBUNTU 20.04

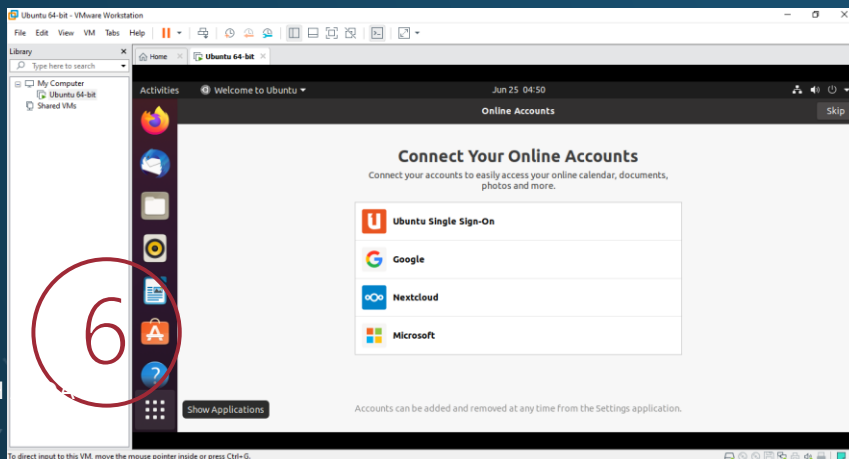


تثبيت و تنزيل UBUNTU 20.04

DOWNLOAD AND INSTALL UBUNTU 20.04



Ubuntu 20.04 بذلك تم تثبيت نظام



ROS/ Installation

1. See Also:

1. [ROS/Installation](#) (this page)
2. [Distributions](#)
3. [Installation](#)

ROS Installation Options

There is more than one ROS distribution supported at a time. Some are older releases with long term support, making them more stable, while others are newer with shorter support life times, but with binaries for more recent platforms and more recent versions of the ROS packages that make them up. See the [Distributions](#) page for more details. We recommend one of the versions below:

ROS Kinetic Kame

Released May, 2016

LTS, supported until April, 2021

This version isn't recommended for new installs.



ROS Melodic Morenia

Released May, 2018

LTS, supported until May, 2023

Recommended for Ubuntu 18.04



ROS Noetic Ninjemys

Released May, 2020

Latest LTS, supported until May 2025

Recommended for Ubuntu 20.04



Wiki

[Distributions](#)

[ROS/Installation](#)

[ROS/Tutorials](#)

[RecentChanges](#)

Page

[Immutable Page](#)

[Info](#)

[Attachments](#)

More Actions:

[Raw Text](#)

User

[Login](#)



Except where otherwise noted, the ROS wiki is licensed under the [Creative Commons Attribution 3.0](#)

Wiki: ROS/Installation (last edited 2020-06-11 19:29:29 by [Gabriel Staples](#))

Brought to you by: Open Source Robotics Foundation

الخطوات:

3. ROS تنزيل وتثبيت

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

ROS تنزيل وتثبيت DOWNLOAD AND INSTALL ROS

ROS.org

[About](#) | [Support](#) | [Discussion Forum](#) | [Service Status](#) | [Q&A answers.ros.org](#)

Search:

Documentation

Browse Software

News

Download

noetic/ Installation

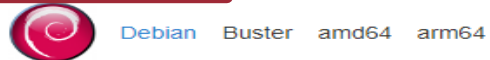
ROS Noetic installation instructions

These instructions will install **ROS Noetic Ninjemys**, which is available for Ubuntu Focal (20.04), Debian Buster (10), and [other platform options](#).

To install our previous long-term support release, **ROS Melodic Morenia**, please see the [ROS Melodic installation instructions](#).

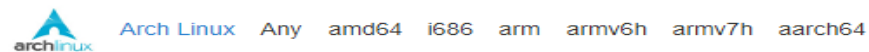
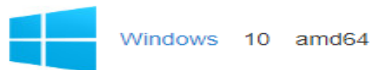
Select Your Platform

Supported:



Source installation

Experimental:



Except where otherwise noted, the ROS wiki is licensed under the [Creative Commons Attribution 3.0](#)

Wiki: noetic/Installation (last edited 2020-05-23 16:48:09 by ShaneLoretz)

Brought to you by: Open Source Robotics Foundation

Wiki

[Distributions](#)
[ROS/Installation](#)
[ROS/Tutorials](#)
[RecentChanges](#)
[noetic/Installation](#)

Page

[Immutable Page](#)
[Info](#)
[Attachments](#)

More Actions:

User

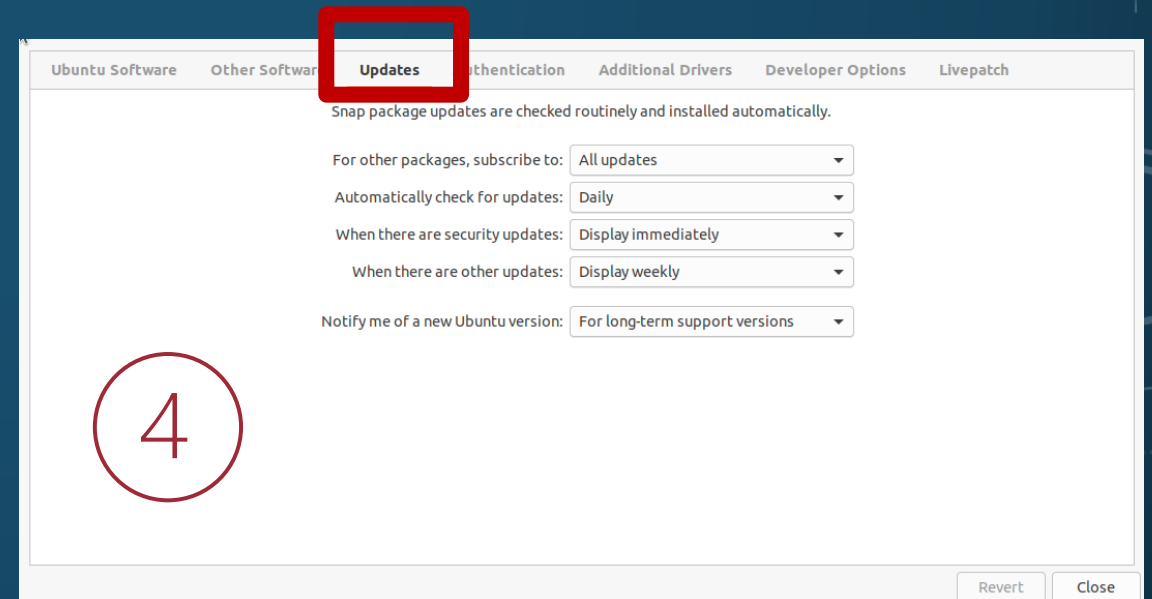
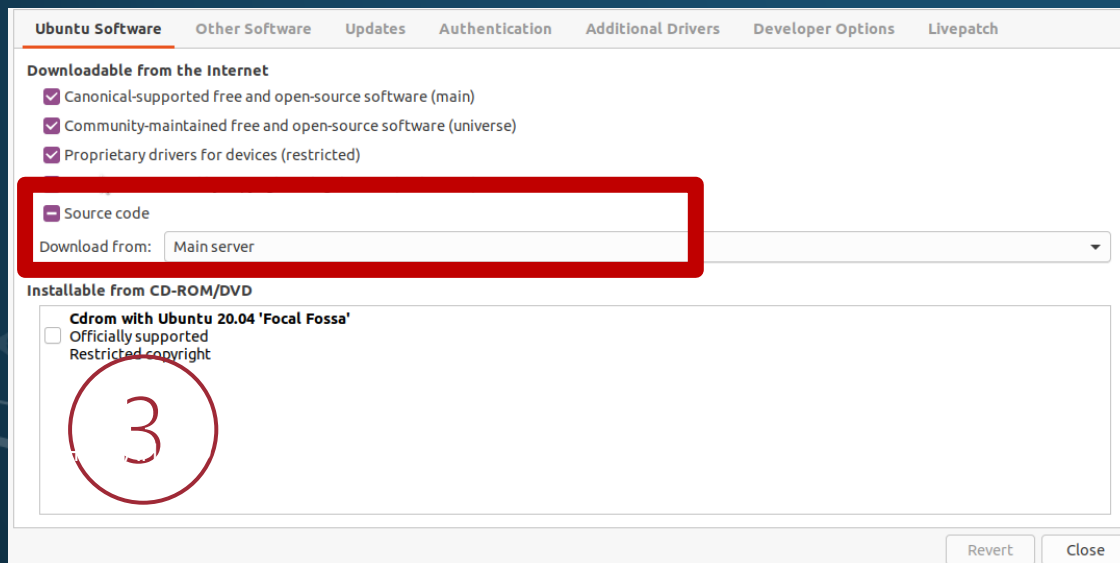
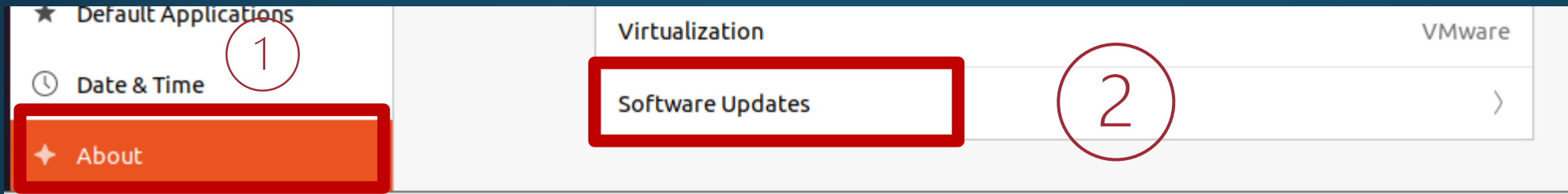
[Login](#)

2

ROS تنزيل و تثبيت

DOWNLOAD AND INSTALL ROS

Configure your Ubuntu repositories
Ubuntu قم بضبط اعدادات



ROS تنزيل وتثبيت DOWNLOAD AND INSTALL ROS

1. Setup your sources.list

الخاصة بك sources.list قم بإعداد قائمة
terminal وذلك بالدخول على
و لصق الاوامر التاليه

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

1. Installation

1.1 Configure your Ubuntu repositories

Configure your Ubuntu repositories to allow "restricted," "universe," and "multiverse." You can [follow the Ubuntu guide](#) for instructions on doing this.

1.2 Setup your sources.list

Setup your computer to accept software from packages.ros.org.

```
sudo sh -c 'echo "deb http://packages.ros.org/ubuntu-binary-repo main" > /etc/apt/sources.list.d/ros-latest.list'
```

Mirrors Source Dets are also available

1.3 Set up your keys

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

If you experience issues connecting to the keyserver, you can try substituting hkp://pgp.mit.edu:80 or hkp://keyserver.ubuntu.com:80 in the previous command.

Alternatively, you can use curl instead of the apt-key command, which can be helpful if you are behind a proxy server:

```
curl -sSL 'http://keyserver.ubuntu.com/pks/lookup?op=get&search=0xC1CF6E31E6BADE8868B172B4F42ED6FBAB17C654' | sudo apt-key add -
```

1.4 Installation

First, make sure your Debian package index is up-to-date:

```
sudo apt update
```

Now pick how much of ROS you would like to install.

Desktop-Full Install: (Recommended) Everything in **Desktop** plus 2D/3D simulators and 2D/3D perception packages

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

or [click here](#)

Desktop Install: Everything in **ROS-Base** plus tools like **rqt** and **rviz**

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

or [click here](#)

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

```
sudo apt install ros-noetic-ros-base
```

or [click here](#)

There are even more packages available in ROS. You can always install a specific package directly.

```
sudo apt install ros-noetic-PACKAGE
```

e.g.

```
sudo apt install ros-noetic-alam-mapping
```

To find available packages, see [ROS Index](#) or use:

```
apt search ros-noetic
```


1.5 Environment setup

You must source this script in every **bash** terminal you use ROS in.

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

It can be convenient to automatically source this script every time a new shell is launched. These commands will do that for you.

Bash

 If you have more than one ROS distribution installed, `~/.`bashrc must only source the setup.bash for the version you are currently using.

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

zsh

```
echo "source /opt/ros/noetic/setup.zsh" >> ~/.zshrc
source ~/.zshrc
```

2. Tutorials

Now, to test your installation, please proceed to the [ROS Tutorials](#).

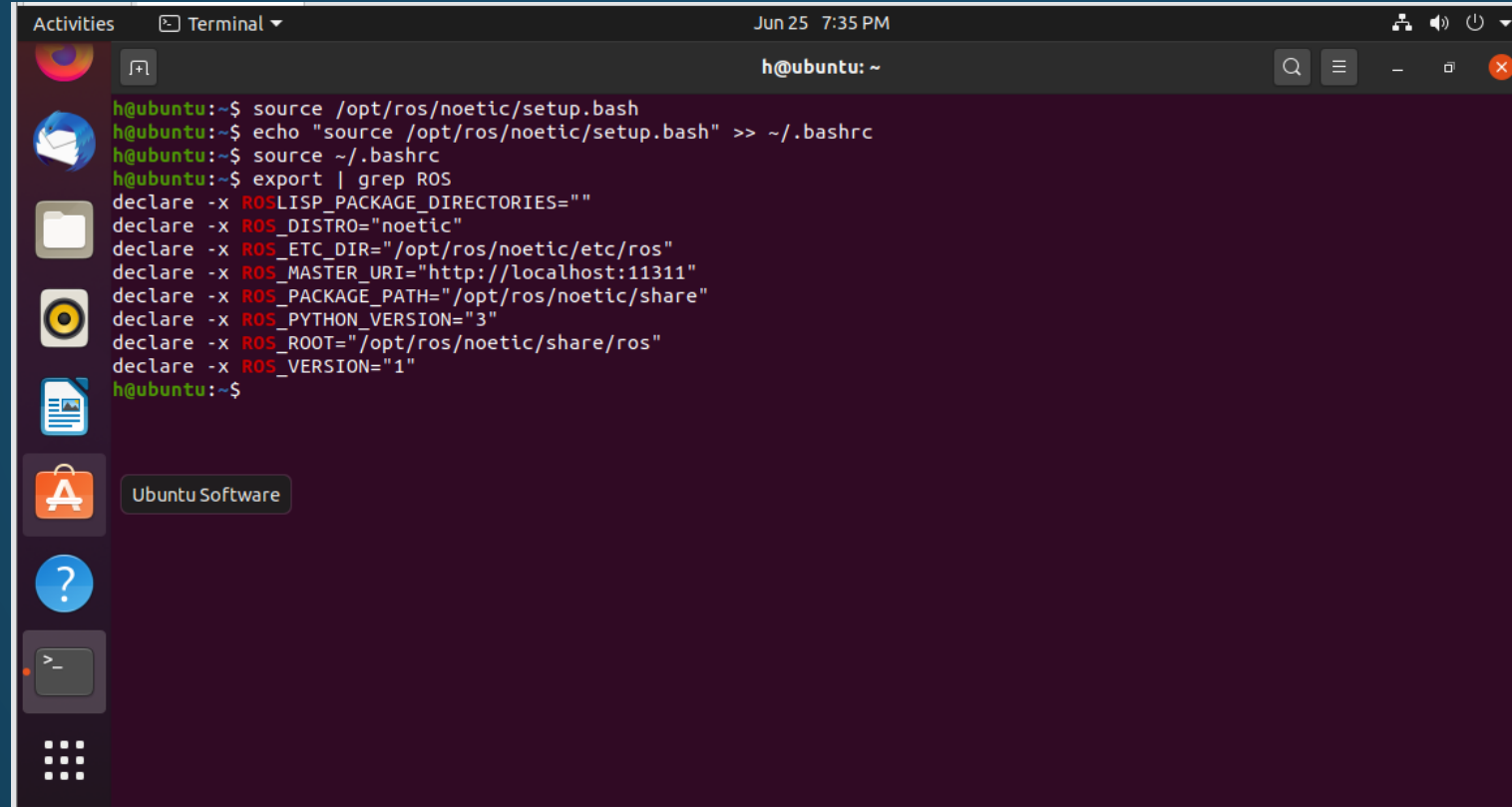
Except where otherwise noted, the ROS wiki is licensed under the [Creative Commons Attribution 3.0](#)

Wiki: noetic/Installation/Ubuntu (last edited 2020-05-23 16:48:43 by ShaneLoretz)

ROS تنزيل و تثبيت

DOWNLOAD AND INSTALL ROS

آخر خطوة لتأكد انه تم تنزيل كامل نقوم بكتابة
Export | grep ROS



```
h@ubuntu: ~  
h@ubuntu:~$ source /opt/ros/noetic/setup.bash  
h@ubuntu:~$ echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc  
h@ubuntu:~$ source ~/.bashrc  
h@ubuntu:~$ export | grep ROS  
declare -x ROSLISP_PACKAGE_DIRECTORIES=""  
declare -x ROS_DISTRO="noetic"  
declare -x ROS_ETC_DIR="/opt/ros/noetic/etc/ros"  
declare -x ROS_MASTER_URI="http://localhost:11311"  
declare -x ROS_PACKAGE_PATH="/opt/ros/noetic/share"  
declare -x ROS_PYTHON_VERSION="3"  
declare -x ROS_ROOT="/opt/ros/noetic/share/ros"  
declare -x ROS_VERSION="1"  
h@ubuntu:~$
```