

HOW TO INSTALL ROS ON UBUNTU USING VIRTUALBOX

كيف تثبيت ROS على نظام لينيكس




Task 1

First: Download VirtualBox Software

أولاً: تنزيل برنامج VirtualBox

<https://www.virtualbox.org/wiki/Downloads>





VirtualBox

Download VirtualBox

Here you will find links to VirtualBox binaries and its source code.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

If you're looking for the latest VirtualBox 6.0 packages, see [VirtualBox 6.0 builds](#). Please also use version 6.0 if you need to run VMs with software virtualization, as this has been discontinued in 6.1. Version 6.0 will remain supported until July 2020.

If you're looking for the latest VirtualBox 5.2 packages, see [VirtualBox 5.2 builds](#). Please also use version 5.2 if you still need support for 32-bit hosts, as this has been discontinued in 6.0. Version 5.2 will remain supported until July 2020.

VirtualBox 6.1.10 platform packages

- Windows hosts
- OS X hosts
- Linux distributions
- Solaris hosts

The binaries are released under the terms of the GPL version 2.

See the [changelog](#) for what has changed.

You might want to compare the checksums to verify the integrity of downloaded packages. The SHA256 checksums should be favored as the MD5 algorithm must be treated as insecure!

Download the compatible version for your device.

قم بتنزيل نسخة متوافقة مع نظام تشغيل الجهاز الخاص بك.



Save

حفظ



VirtualBox

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What do you want to do with VirtualBox 6.1.10 138649 Winexe (102 MB)?

From: download.virtualbox.org

Run Save Cancel

Oracle VM VirtualBox 6.1.10 Setup

Welcome to the Oracle VM VirtualBox 6.1.10 Setup Wizard

The Setup Wizard will install Oracle VM VirtualBox 6.1.10 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

Version 6.1.10

Next > Cancel

Oracle VM VirtualBox 6.1.10 Setup

Custom Setup

Select the way you want features to be installed.

Click on the icons in the tree below to change the way features will be installed.

VirtualBox Application

- VirtualBox USB Support
- VirtualBox Networking
- VirtualBox Bridge
- VirtualBox Host-C
- VirtualBox Python 2.x Su

Oracle VM VirtualBox 6.1.10 application.

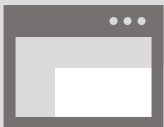
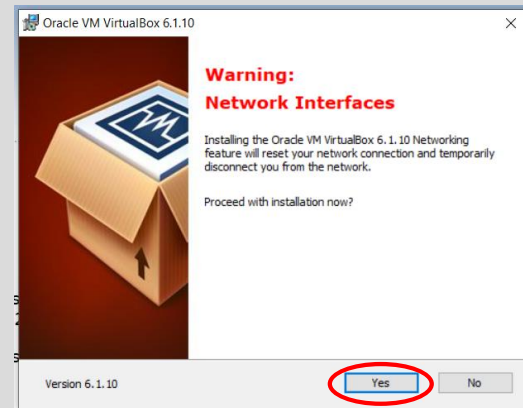
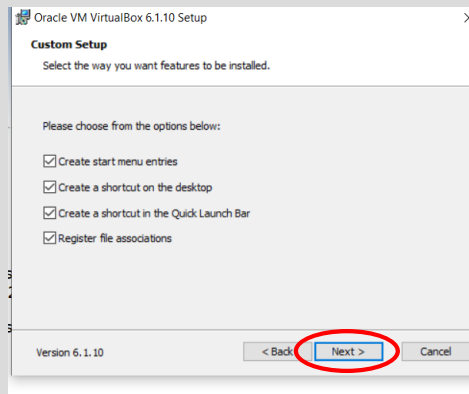
This feature requires 216MB on your hard drive. It has 3 of 3 subfeatures selected. The subfeatures require 932KB on yo...

Location: C:\Program Files\Oracle\VirtualBox\

Browse

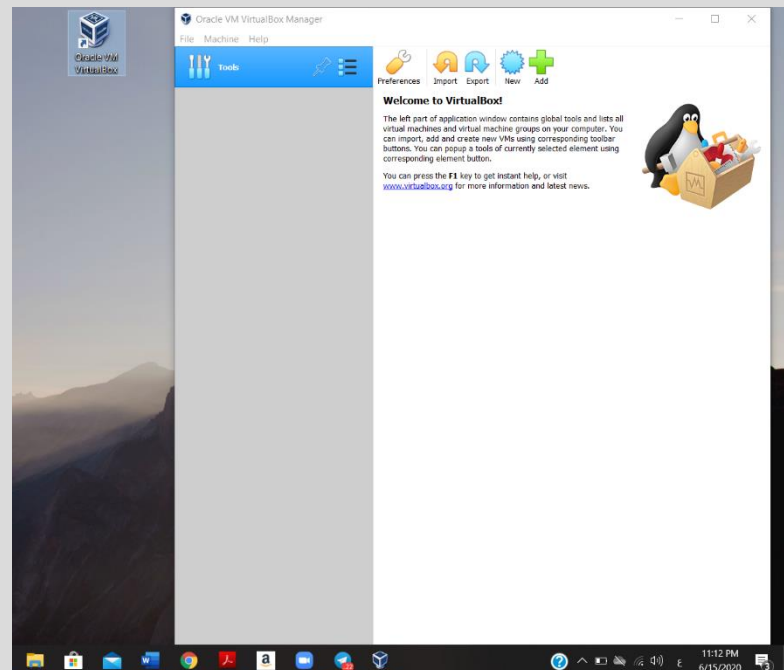
Version 6.1.10

Disk Usage < Back Next > Cancel



This interface will appear after
the download is completed.

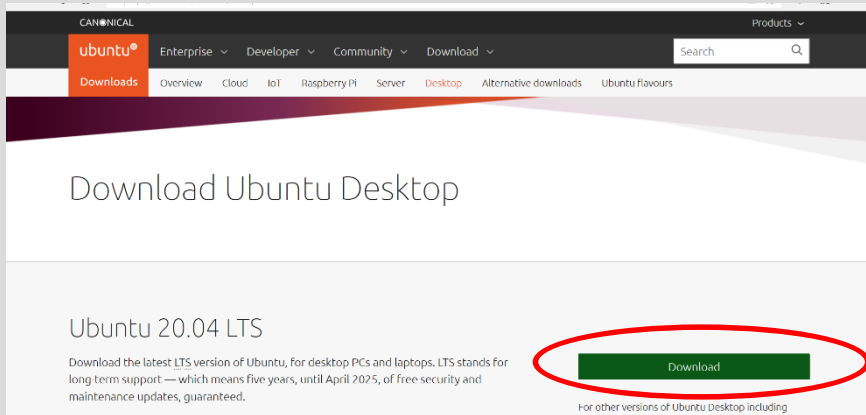
ستظهر هذه الواجهة بعد إنهاء
التنزيل.



Second: Download Ubuntu 20.04

ثانياً: تنزيل Ubuntu 20.04

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



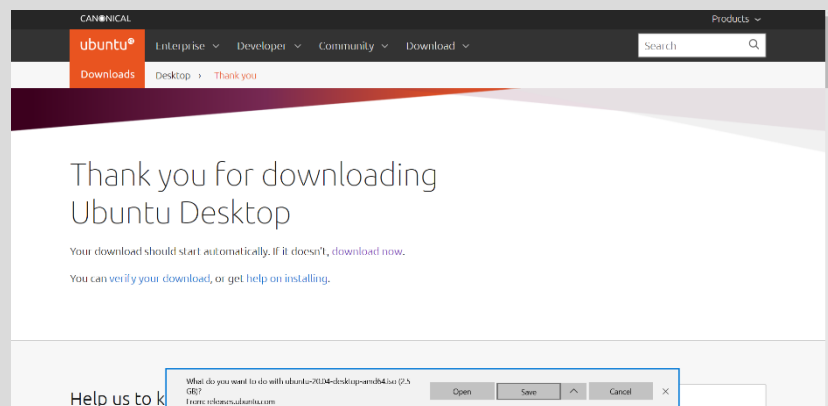
Download

تنزيل



Save

حفظ



Note | **ملاحظة**

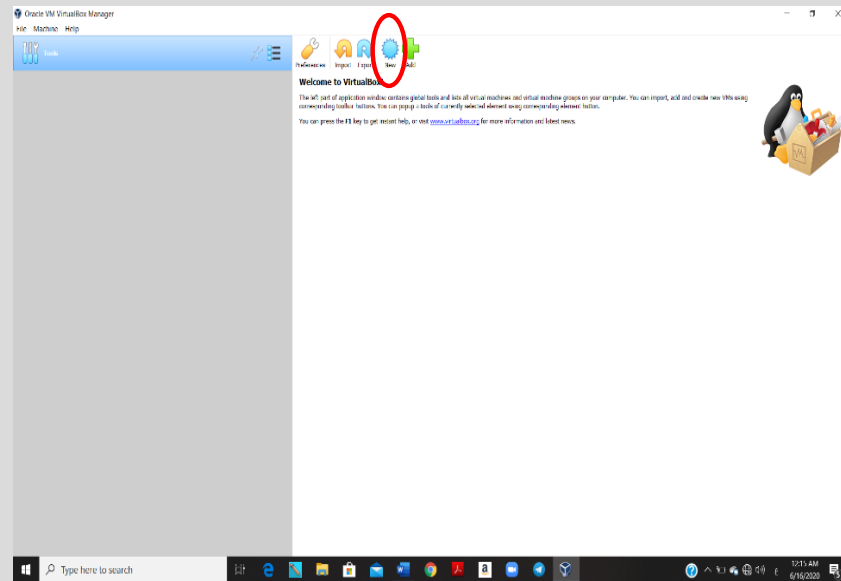
ROS version	Ubuntu version
Kinetic 2016	Ubuntu (15.1) & Ubuntu (16.04)
Melodic 2018	Ubuntu (17.01) & Ubuntu (18.04)
Noetic 2020	Ubuntu(20.04)

Make sure to download the Ubuntu version that matches the Ros version

تأكد من تنزيل إصدار Ubuntu الذي يتوافق مع إصدار ROS

Third: Install Ubuntu 20.04 on VirtualBox

ثالثاً: تثبيت Ubuntu 20.04

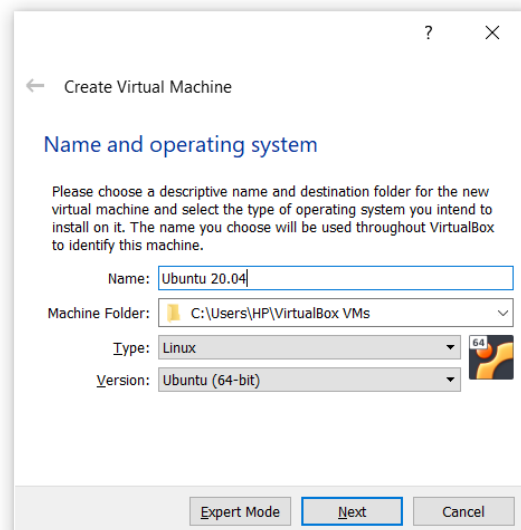


Open VirtualBox,
go to New.

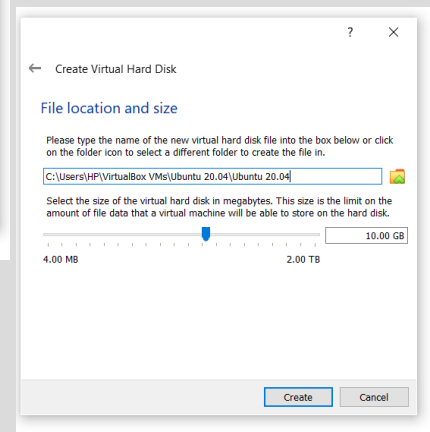
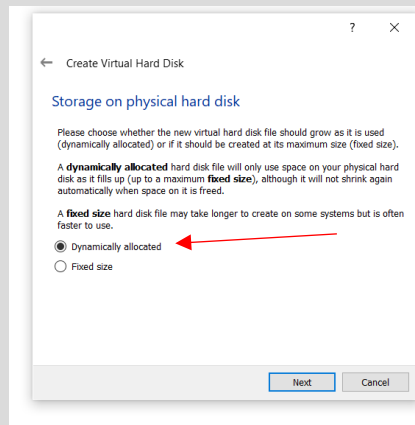
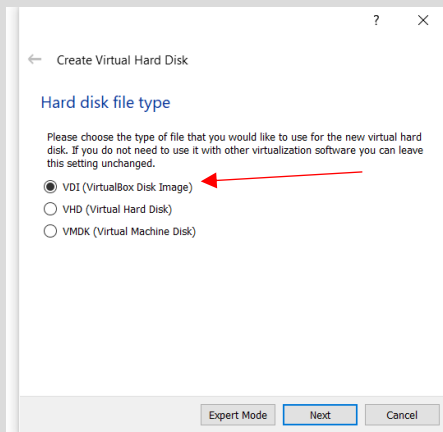
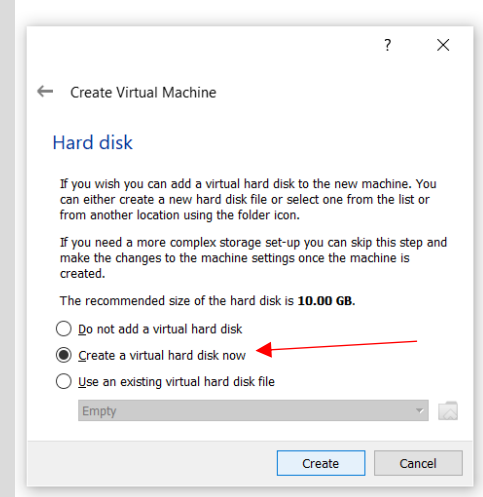
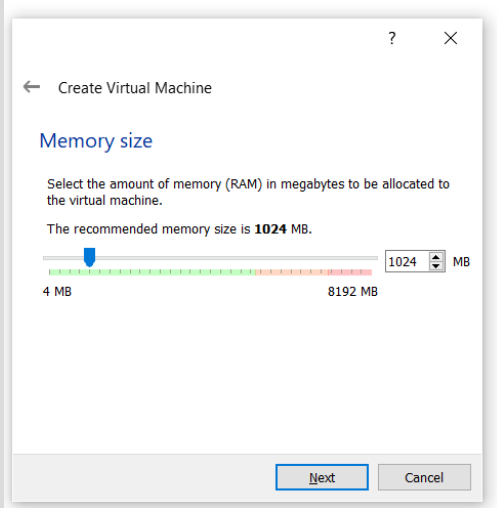
قم بفتح برنامج
VirtualBox، انتقل الى
جديد

Name and define the
system, Continue with the
system settings as in the
following pictures.

تسمية النظام وتحديده وثم نتابع
مع اعدادات النظام كما في
الصور التالية.

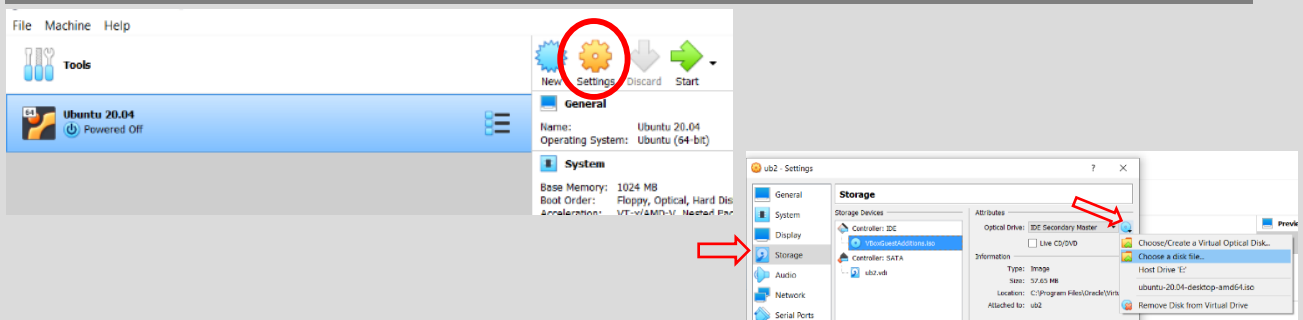


Determine the RAM space, it is best to have 3000 MB then continue as in the pictures.
تحديد مساحة ذاكرة الوصول العشوائي، من الأفضل أن تكون ٣٠٠٠ ميغا ثم تابع كما في الصور.



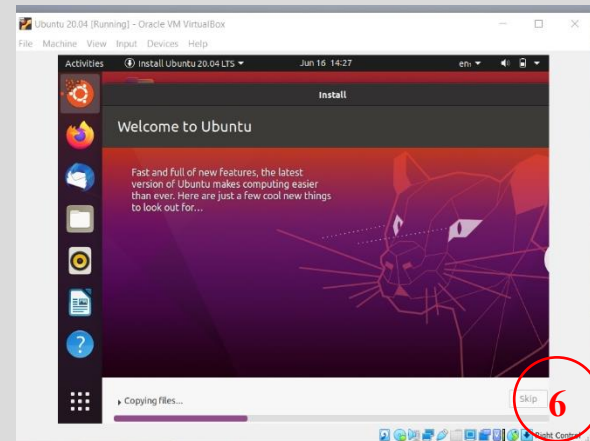
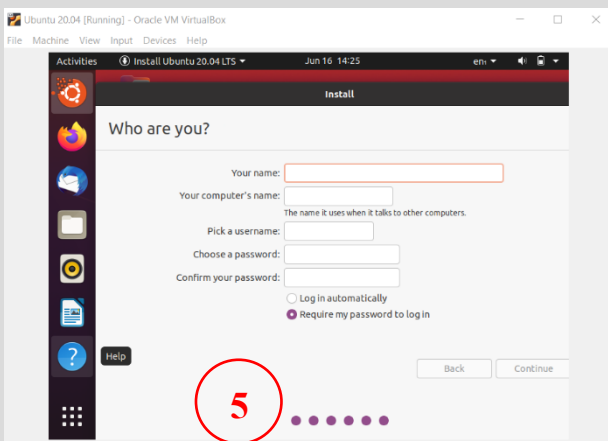
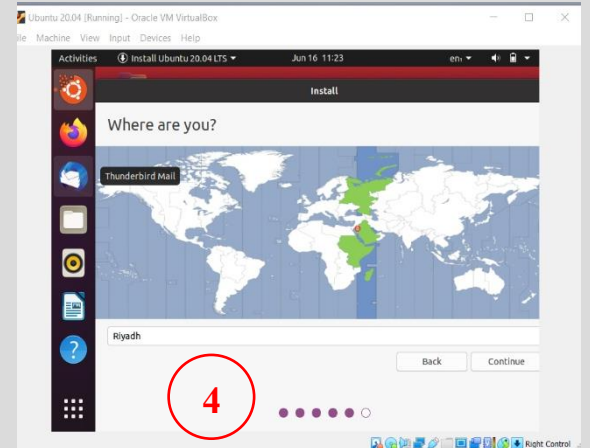
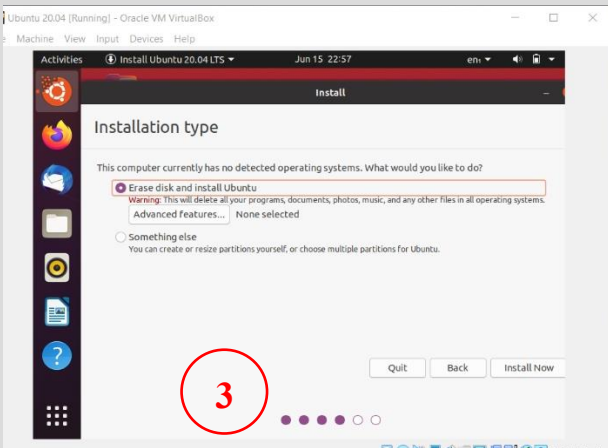
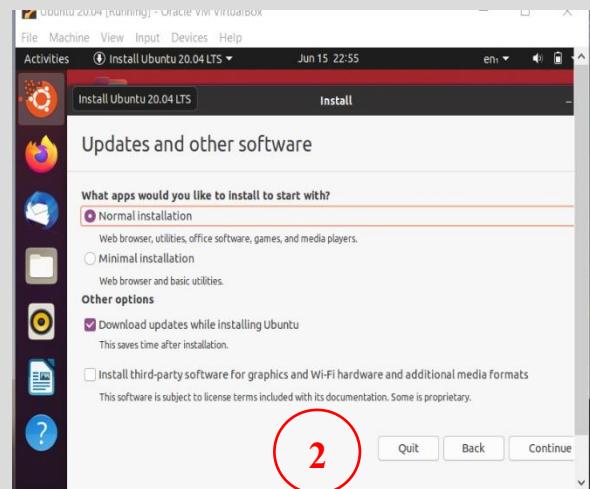
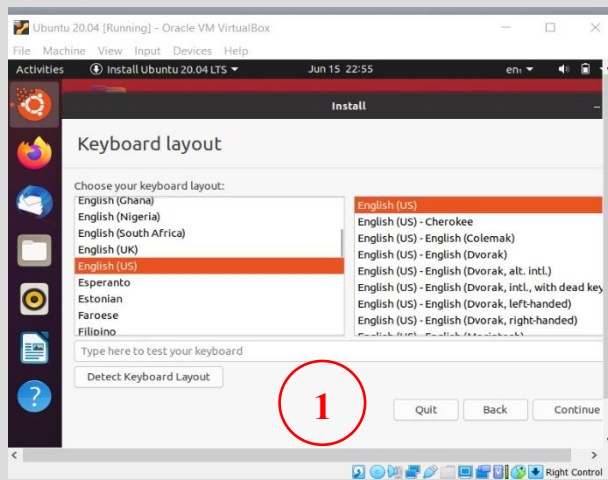
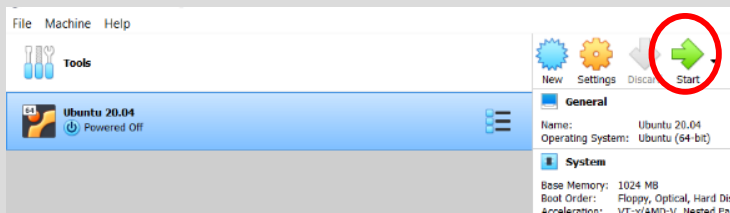
After completing these main procedures, you must enter the system settings to add the downloaded Ubuntu file.

بعد الانتهاء من هذه الاجراءات الرئيسية لابد من الدخول الى إعدادات النظام لإضافة ملف Ubuntu الذي تم تنزيله.



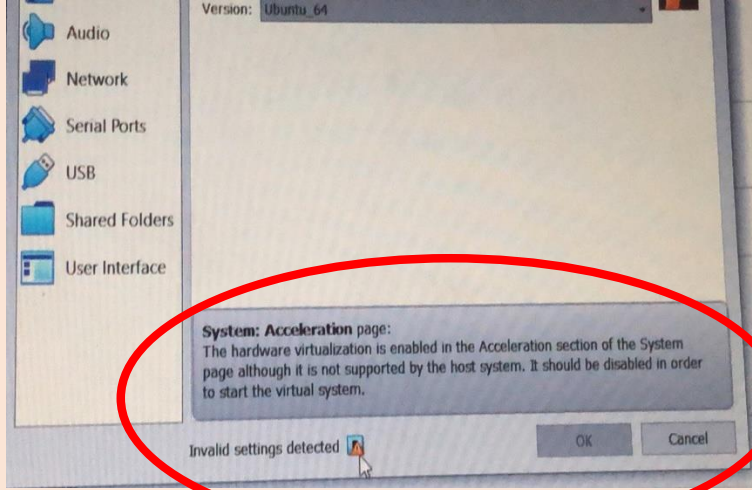
Run the system and progress with its settings of language, location, password, etc.

قم بتشغيل النظام والتقدم مع اعداداته من اللغة والموقع وكلمة السر وما الى ذلك.





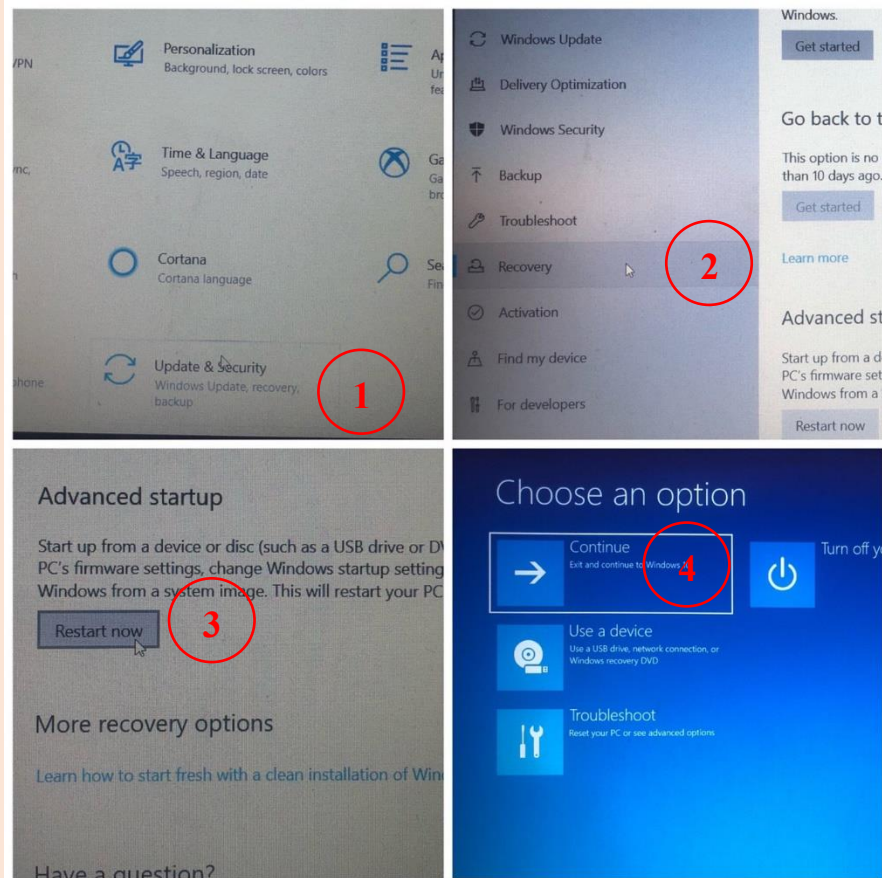
Note | ملاحظة

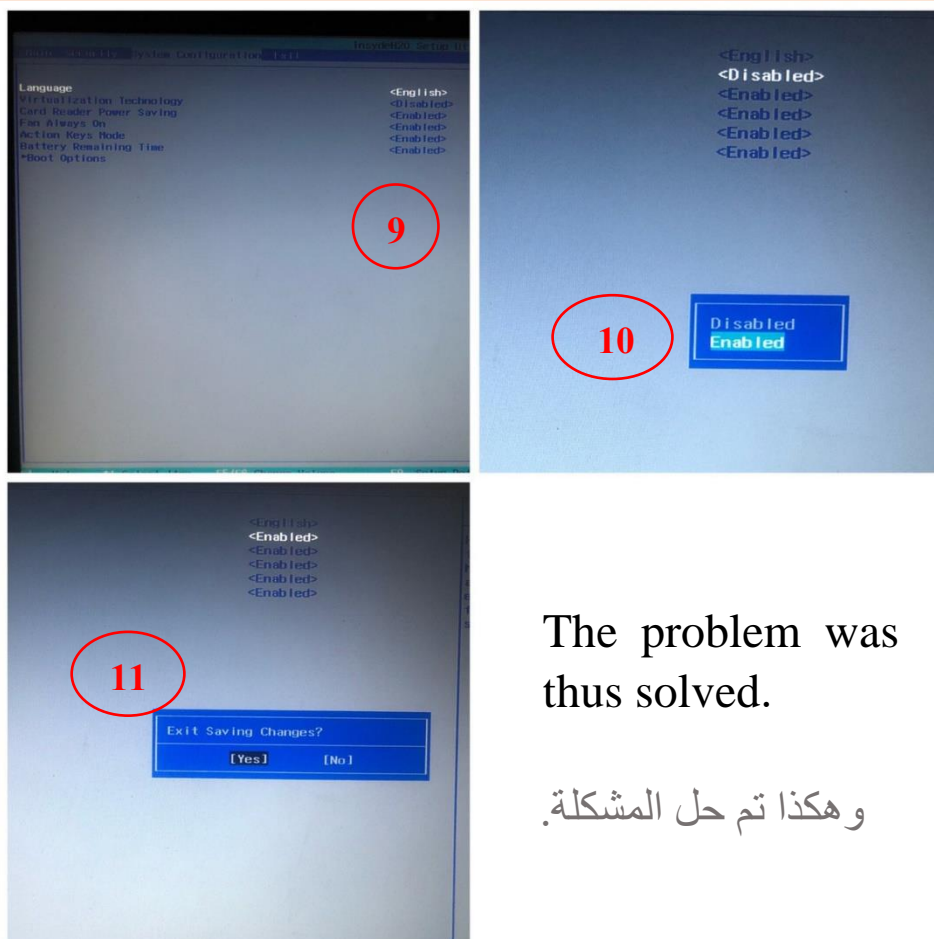
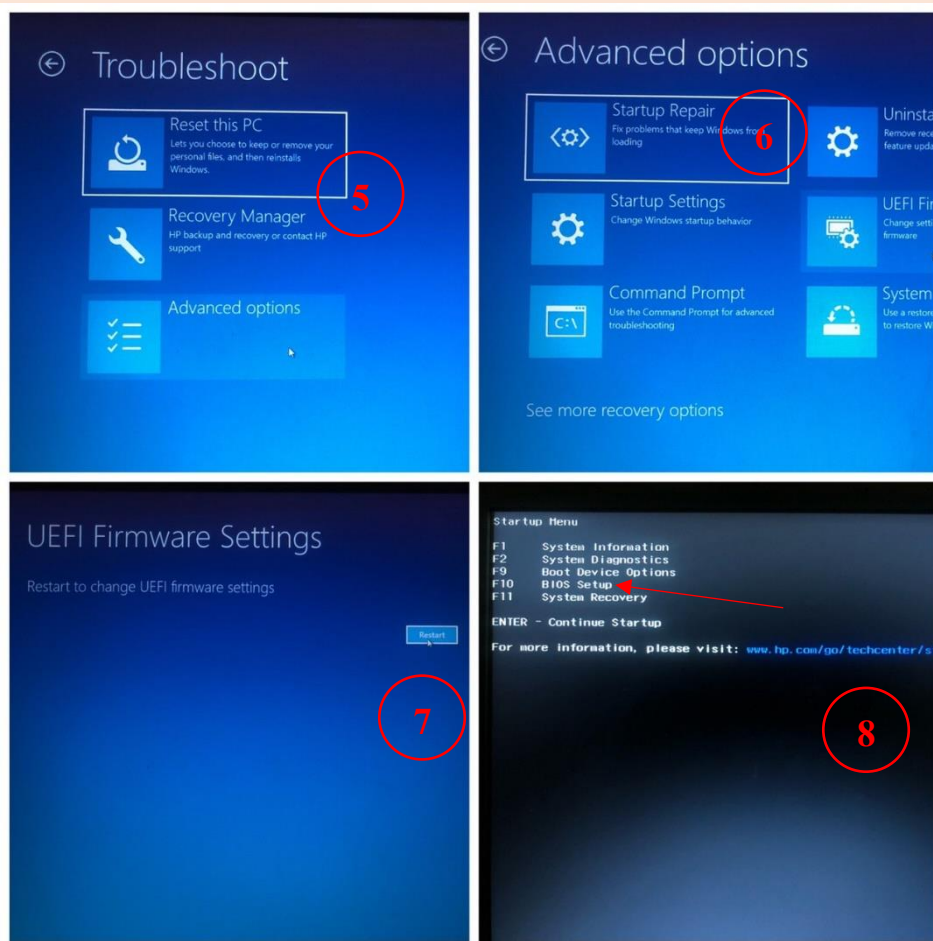


If you have trouble changing your system settings, as in this picture, follow these steps.

إذا واجهتك مشكلة في تغيير إعدادات النظام كما في هذه الصورة، فاتبع الخطوات التالية

Open Windows Settings and proceed as shown in the pictures.
قم بفتح اعدادات ويندوز ثم تابع كما في الصور.





The problem was thus solved.

وهكذا تم حل المشكلة.

Finally: Install ROS

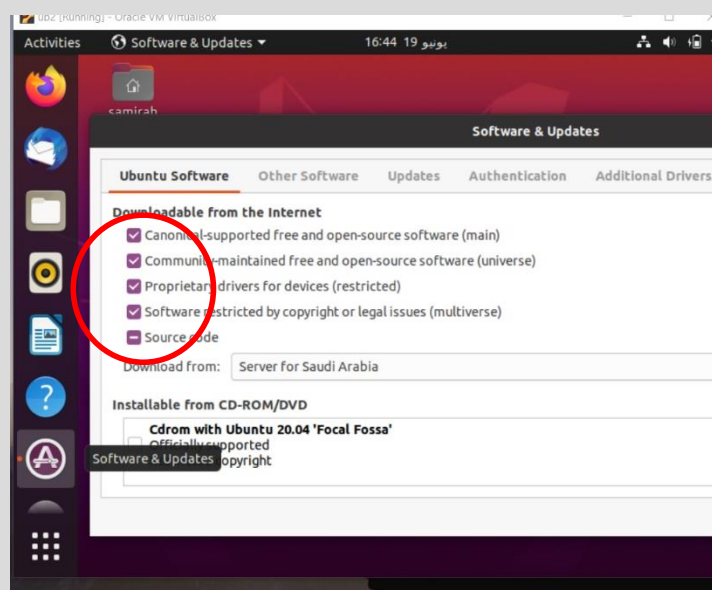
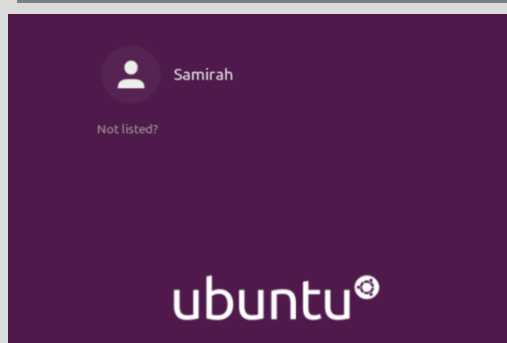
أخيراً: تثبيت ROS

wiki.ros.org/noetic/Installation/Ubuntu



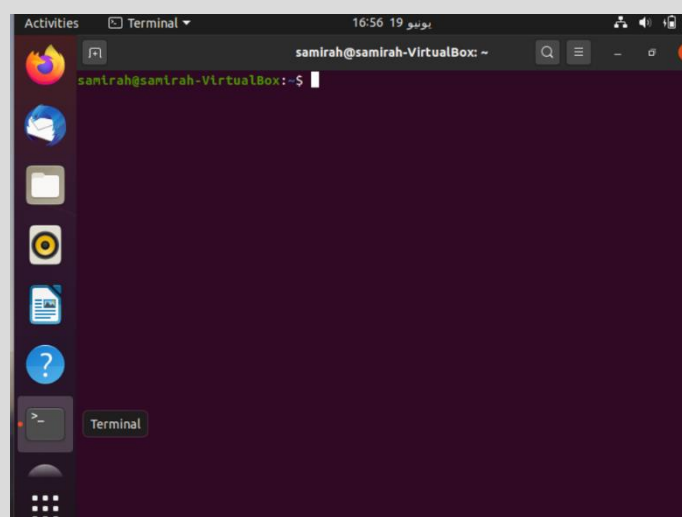
Log in to your account, go to Software & Updates, configure your Ubuntu repositories to allow "restricted universe", "universe", and "multiple universes".

قم بالدخول الى حسابك، أولاً اسمح لهذه الخيارات بعد الدخول الى Software & Updates



Open the Terminal window, then execute the commands in the following table.

قم بفتح شاشة Terminal، ثم قم بتنفيذ الاوامر الموجودة في الجدول التالي.



```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" >
/etc/apt/sources.list.d/ros-latest.list'
```

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

```
curl -sSL
'http://keyserver.ubuntu.com/pks/lookup?op=get&search=0xC1CF6E31E6BADE8868B1
72B4F42ED6FBAB17C654' | sudo apt-key add -
```

```
sudo apt update
```

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

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

