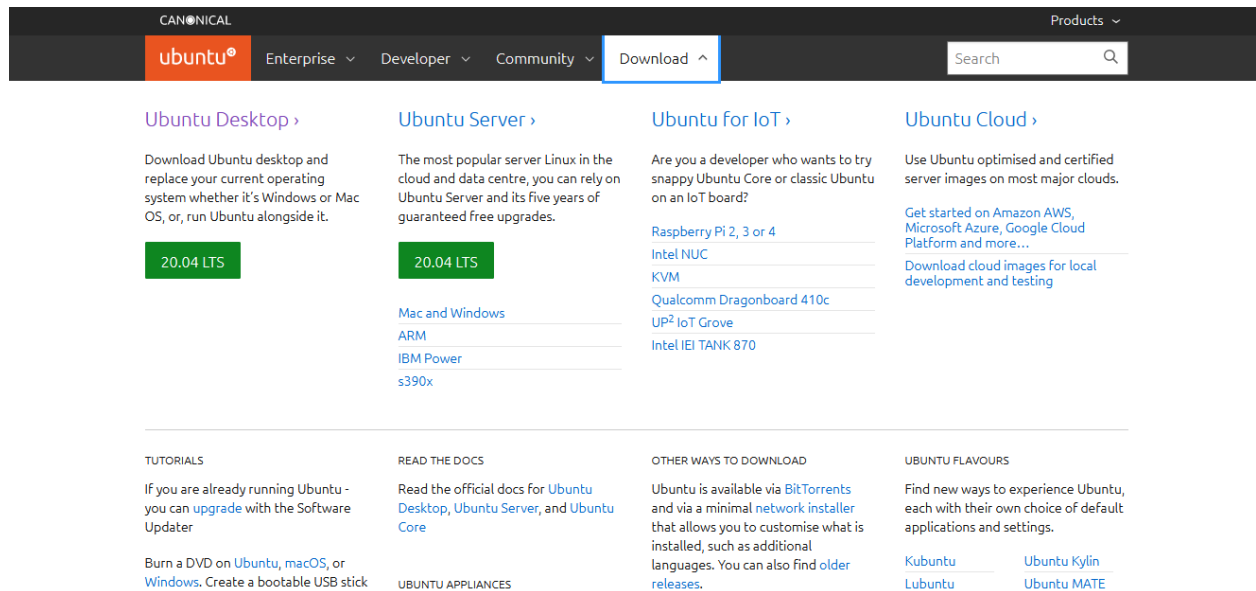
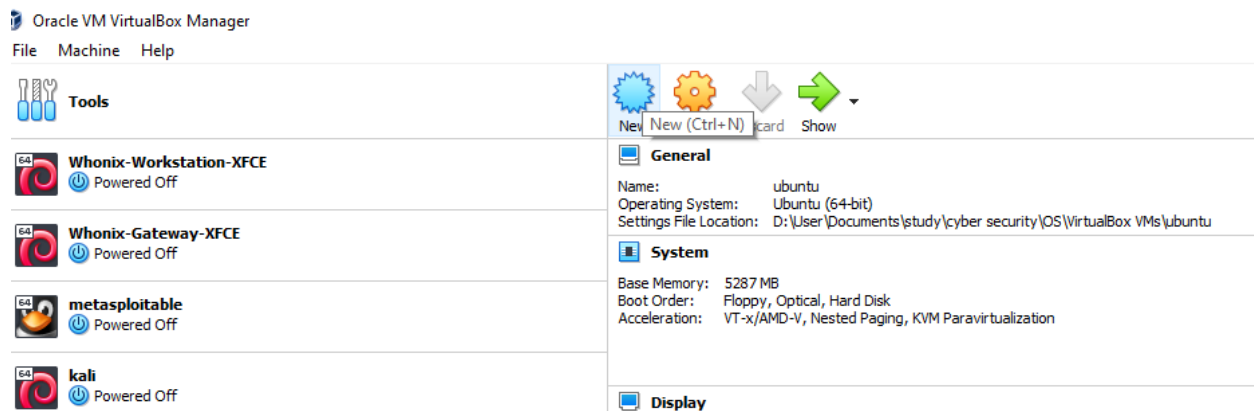


تنزيل نظام تشغيل اوبنتو و روس. Installation of Ubuntu and ROS for virtual box.

- 1- Go to <https://ubuntu.com/> اذهب الى الموقع التالي
- 2- Click download and choose Ubuntu 20.04 LTS اضغط على التحميل واختار اصدار اوبنتو 20.04 LTS



- 3- Go to virtualbox and click new اذهب الى برنامج فرتشوال بوكس واضغط على جديد



- 4- Choose a name for your guest machine and click اختار اسم للنظام الافتراضي

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← Create Virtual Machine

Name and operating system

Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

Name:

Machine Folder:

Type: 

Version:

Expert Mode **Next** Cancel

- 5- Choose the RAM sharing suitable for your machine 4 GB recommended. اختار مقدار سعة الرام اللذي تود مشاركته. يفضل ان يكون 4 جيجا فما فوق

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← Create Virtual Machine

Memory size

Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

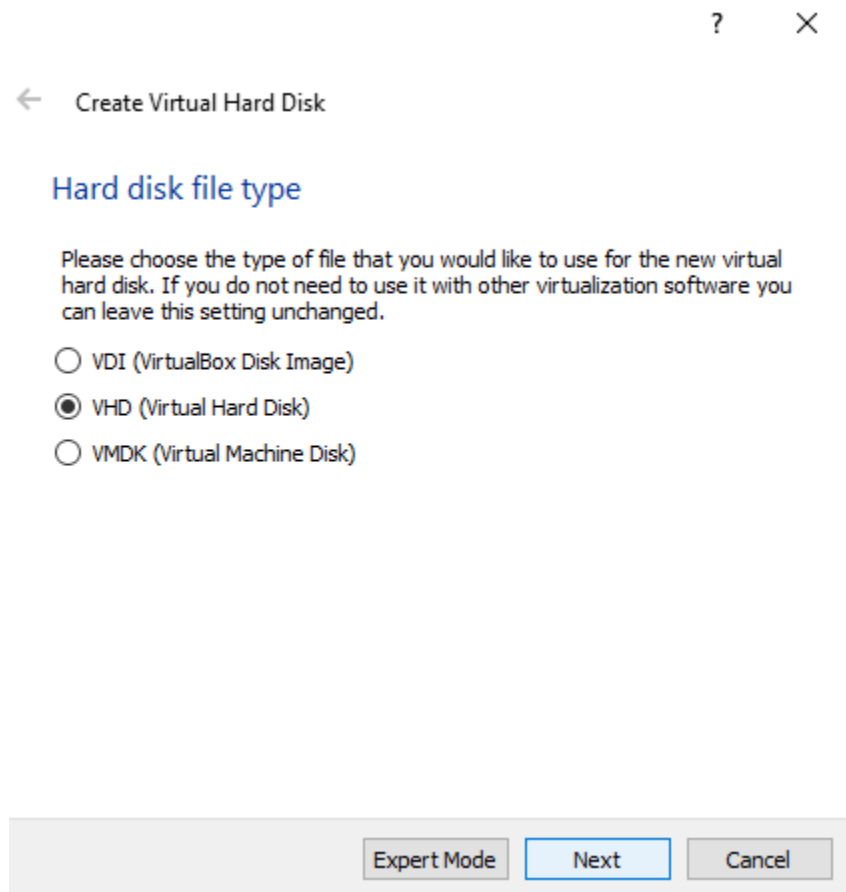
The recommended memory size is **1024 MB**.

MB

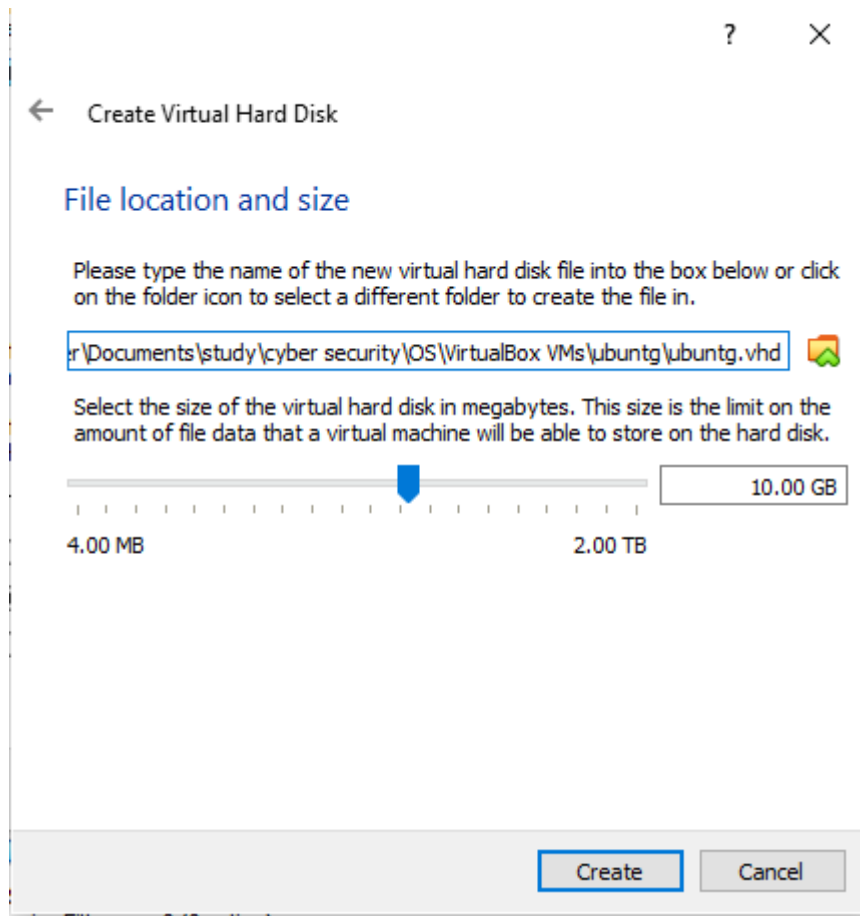
4 MB 8192 MB

Next Cancel

- 6- Choose virtual hard disk in the (create virtual hard disk pane) ثم اضغط على

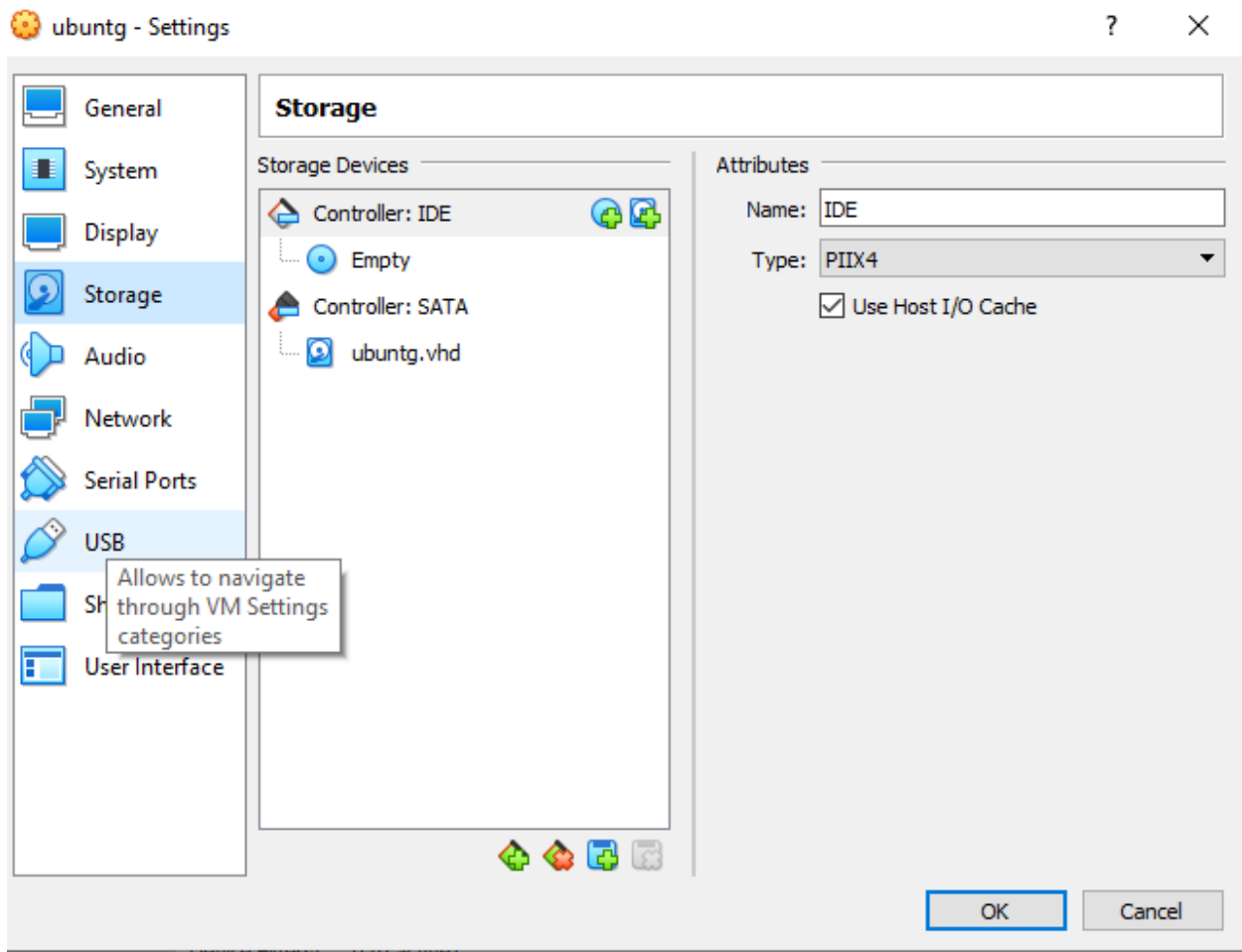


- 7- Click next until you reach file location and size اضغط على الخيارات كما هي حتى تصل للتالي

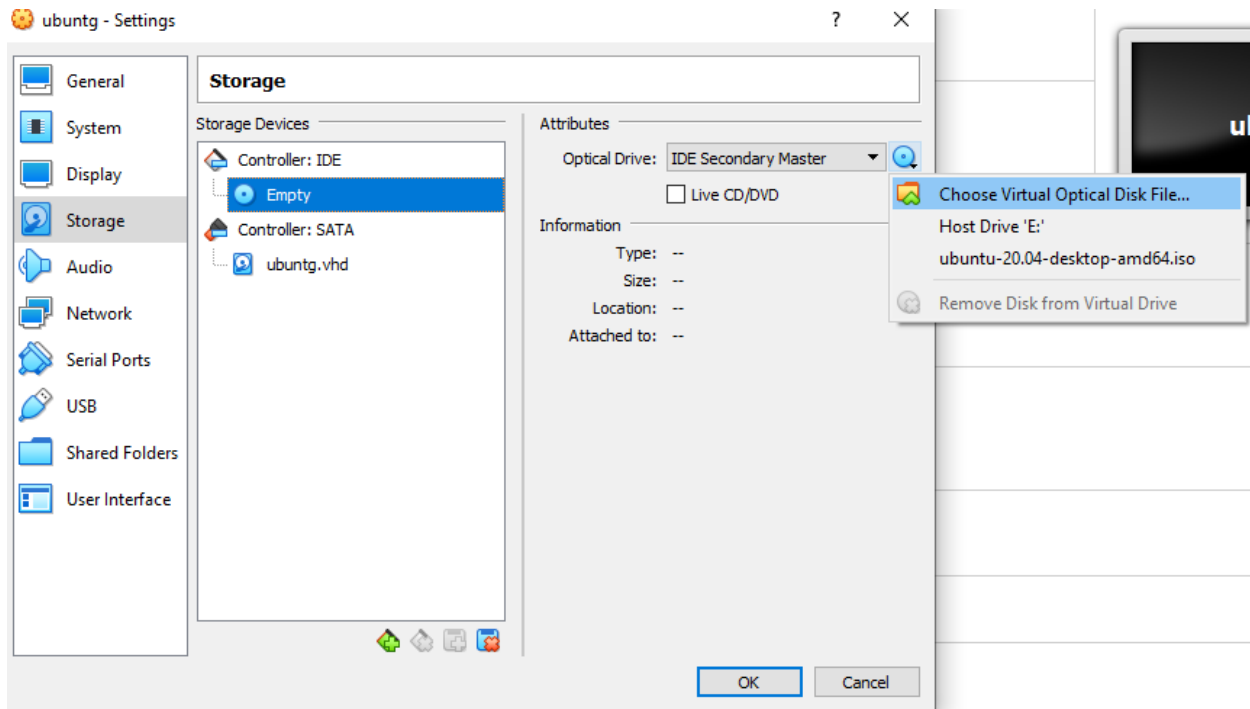


It is recommended that you choose more than 30 GB if you are planning to download the full version of ROS. يفضل اختيار ذاكرة اكثر من 30 جيجا في حال اردت تحميل نسخة روس الكاملة.

- 8- Right click on the newly created virtual machine and go to storage اضغط زر الفارة الايمن على الالة الجديدة واختار ضبط



9- Click on empty and then click the CD like icon واختار علامة الاسي دي empty اذهب الى خانة



- 10- اذهب الى الجلد الذي يحتوي على نظام التشغيل. Navigate to the folder that contain the OS image and choose it.
- 11- شغل نظام التشغيل. Click ok and run the virtual machine.
- 12- اتبع الخطوات واختار الخيارات كما هيا. After the virtual machine works, follow the steps and proceed with the default features.
- 13- يسالك النظام لتختار اسم مستخدم والكلمة مرور. The system will ask to create user name and password.
- 14- اذهب الى الترمينال. Navigate to terminal.
- 15- عبر المتصفح اذهب الى <http://wiki.ros.org/noetic/Installation> and choose the ubuntu platform الموقع
- 16- اتبع التعليمات المنصوص عليها في الصورة: Follow the instruction on the page shown below:

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/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
```

Mirrors [Source Debs](#) 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 -
```

17- If everything goes right, the following is the last command you enter to finish installation. اذا كل شي كان على ما يرام، اخر امر يكتب هو التالي

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