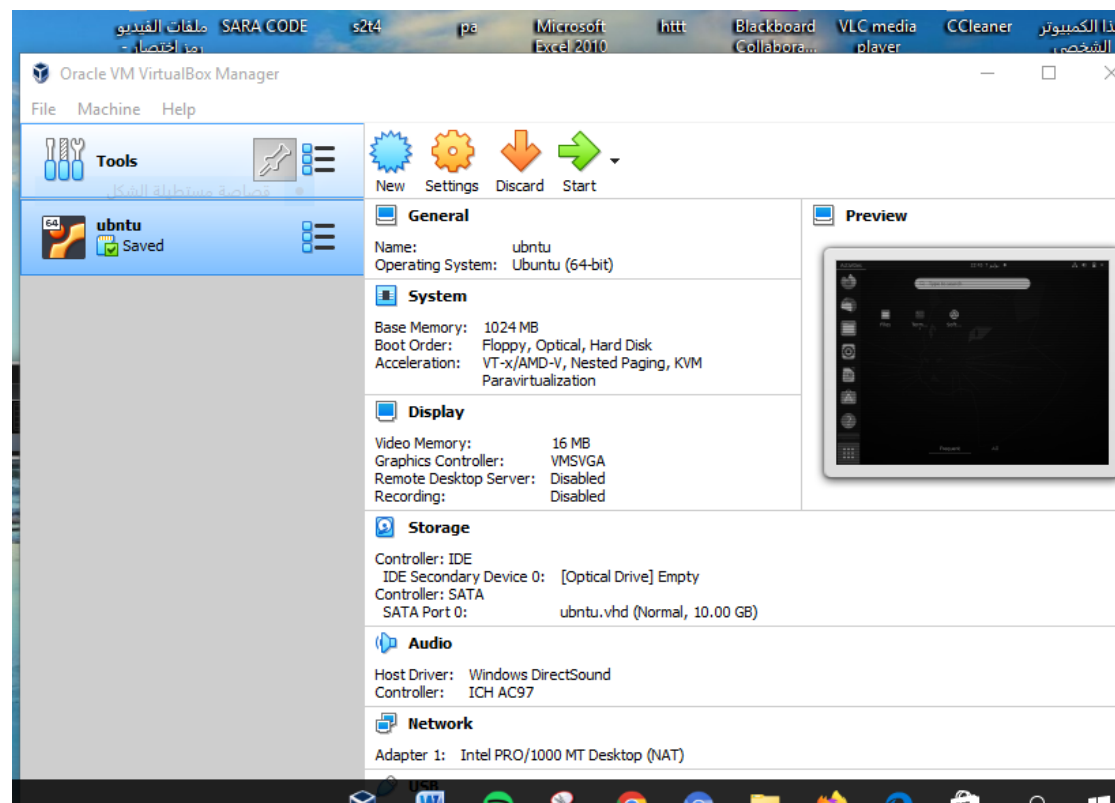


ROS Installations

1 – Download virtual box

2 – Installing Ubuntu



3 - Configure Ubuntu repositories

Configure Ubuntu repositories to allow "restricted," "universe," and "multiverse"

4- Setup sources.list

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

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

```
vh@varhowto-com:~$ sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu bionic main" > /etc/apt/sources.list.d/ros-melodic.list'
```

5- Set up keys

```
sudo apt install curl # if you haven't already installed curl •  
curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | •  
sudo apt-key add -
```

6- Update ROS package index

```
sudo apt update
```

```
vh@varhowto-com:~$ sudo apt update  
[sudo] password for vh:  
Hit:1 http://archive.ubuntu.com/ubuntu bionic InRelease  
Get:2 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]  
Get:3 http://packages.ros.org/ros/ubuntu bionic InRelease [4,669 B]  
Get:4 http://archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]  
Get:5 http://packages.ros.org/ros/ubuntu bionic/main amd64 Packages [672 kB]  
Get:6 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [746 kB]  
Get:7 http://archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]  
Get:8 http://packages.ros.org/ros/ubuntu bionic/main i386 Packages [39.9 kB]  
Get:9 http://archive.ubuntu.com/ubuntu bionic-updates/main i386 Packages [694 kB]  
Get:10 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [969 kB]  
Get:11 http://security.ubuntu.com/ubuntu bionic-security/main i386 Packages [484 kB]  
Get:12 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [236 kB]
```

7-Installation

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

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

```
x11proto-core-dev x11proto-damage-dev x11proto-dev
x11proto-fixes-dev x11proto-input-dev x11proto-randr-dev
x11proto-scrnsaver-dev x11proto-xext-dev
x11proto-xf86vidmode-dev x11proto-xinerama-dev xml-core
xorg-sgml-doctools xtrans-dev zlib1g-dev
The following packages will be upgraded:
  libexif12 libjpeg-turbo8 libjson-c3 libldap-2.4-2
  libldap-common libssl1.1
6 upgraded, 1052 newly installed, 0 to remove and 80 not upg
raded.
```

8- Environment setup

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

```
vh@varhowto-com:~$ echo "source /opt/ros/melodic/setup.bash"
>> ~/.bashrc
vh@varhowto-com:~$ 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/melodic/setup.bash
vh@varhowto-com:~$
```

9- Verify Melodic installation

```
roscore
```

```
vh@varhowto-com:~$ roscore
... logging to /home/vh/.ros/log/0b706622-ab8c-11ea-b7e5-0800
27e1313c/roslaunch-varhowto-com-10761.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://varhowto-com:37309/
ros_comm version 1.14.5

SUMMARY
=====

PARAMETERS
* /rostdistro: melodic
* /rosversion: 1.14.5

NODES

auto-starting new master
process[master]: started with pid [10772]
ROS_MASTER_URI=http://varhowto-com:11311/

setting /run_id to 0b706622-ab8c-11ea-b7e5-080027e1313c
process[rosout-1]: started with pid [10783]
started core service [/rosout]
```