

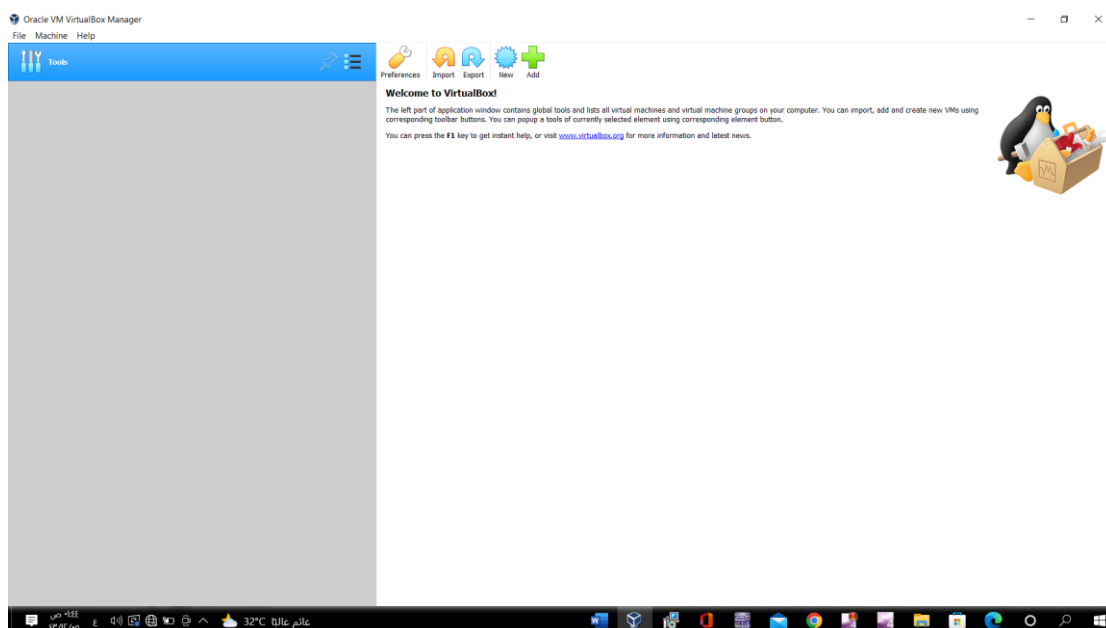
ROS - Robot Operating System

Ros is abbreviation for the robot operation system it's actually a powerful and flexible framework that aims for simplifying the task of creating complex behavior so basically If you want to build a robot or are you don't have much experience just that you really wanna work on that begin with the installation process

Steps for Download ROS

First step:

Download VirtualBox



Second step :

Download ubuntu

Ubuntu 20.04.4 LTS (Focal Fossa)

Select an image

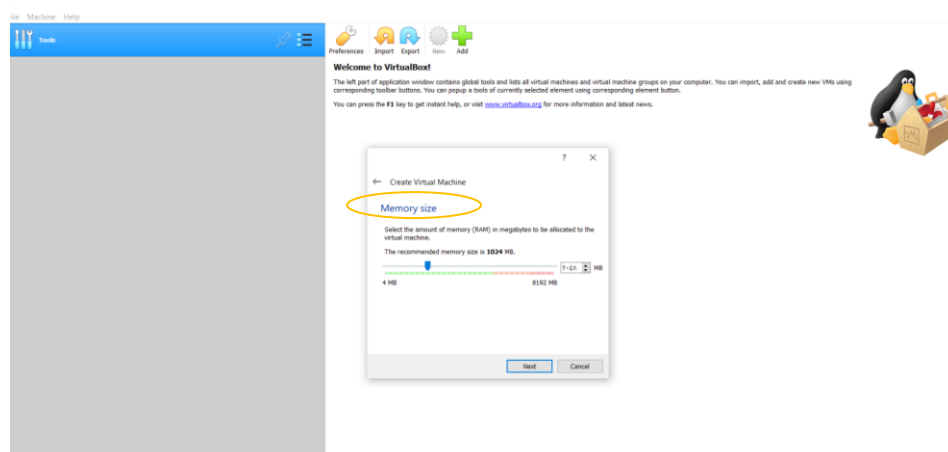
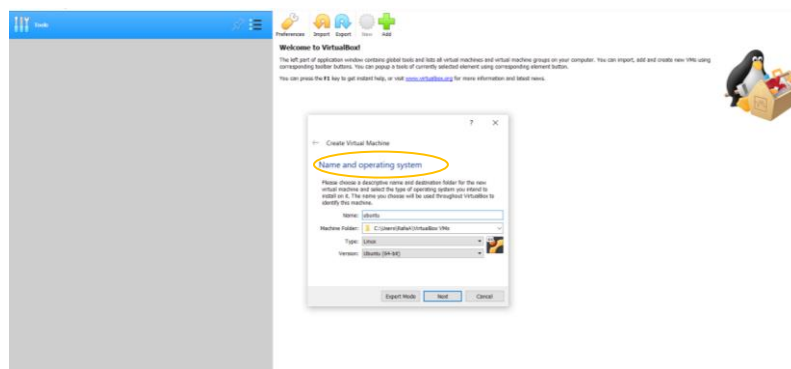
Ubuntu is distributed on three types of images described below.

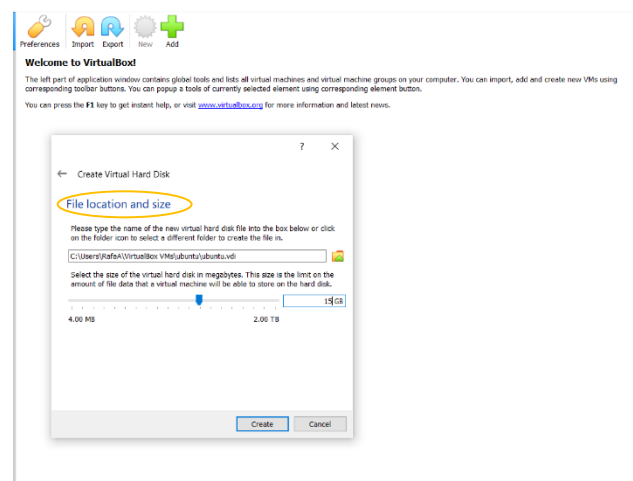
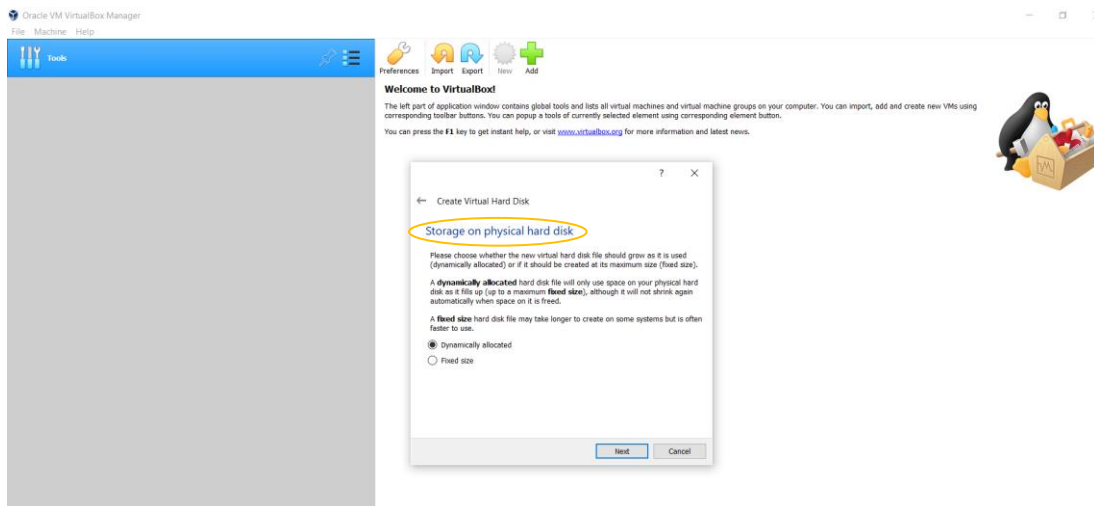
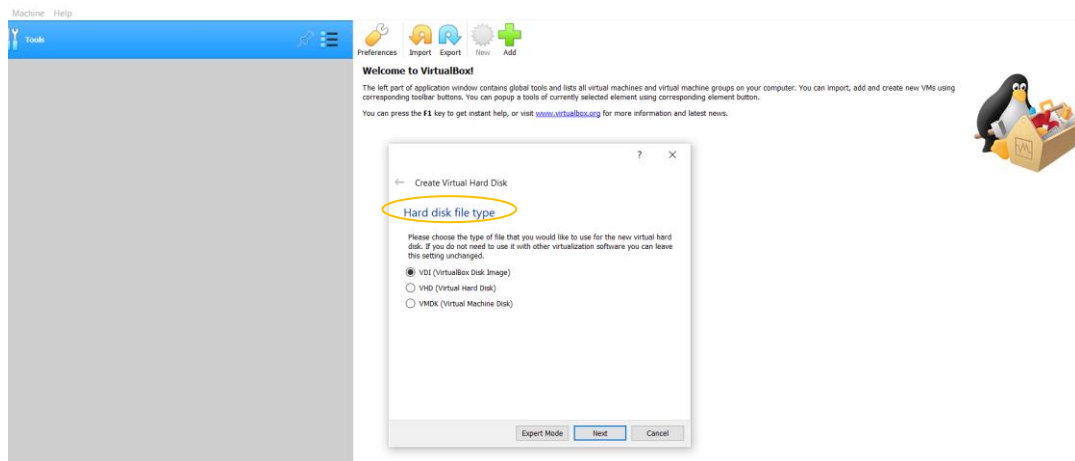
Desktop image

The desktop image allows you to try Ubuntu without changing your computer at all, and as your option to install it, pre-installed system. This type of image is what most people will want to use. You will need at least 2048MB of RAM to install from this image.

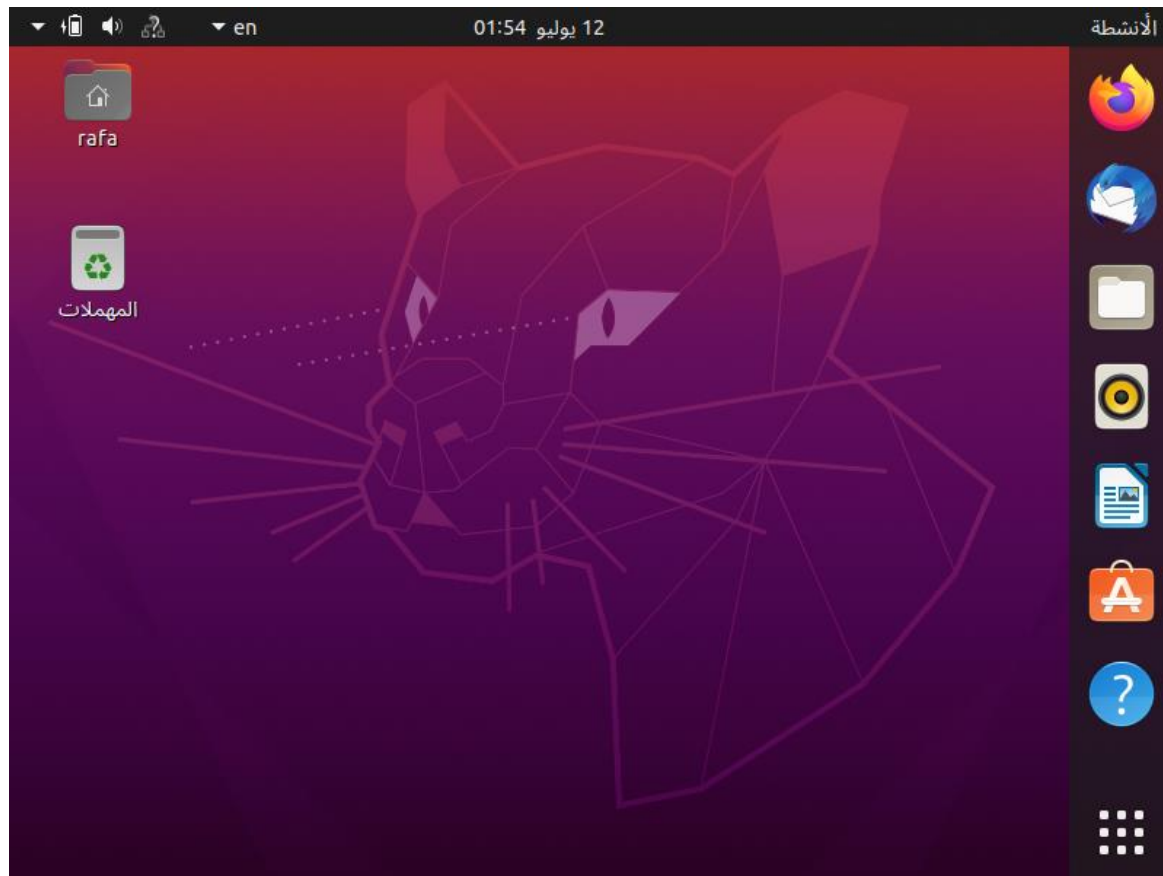
64-bit PC (AMD64) desktop image

Choose this if you have a computer based on the AMD64 or EM64T architecture (e.g., Athlon®, Opteron®, EM64T Xeon®, Core 2). Choose this if you are at all unsure.





Ubuntu is ready



The third step :

Open [Installation/Ubuntu - ROS Wiki](#)

- Copy all command in the link and past in terminal window

- Some screenshots while uploading

command of update

```
rafa@rafa-VirtualBox: ~
The following additional packages will be installed:
libcurl4
مسئتم تثبيت الحزم الجديدة التالية
curl
مسئتم ترقية الحزم التالية
libcurl4
مسئتم ترقيةها. 1 مثبتة حديثاً. 0 لإزالتها و 227 لم يتم ترقيةها
ب من الأرشيف بحاجة إلى جيب 396
After this operation, 416 kB of additional disk space will be used.
هل تريد الاستمرار؟
1:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 libcurl4 and
64 7.68.0-1ubuntu2.12 [235 kB]
2:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 curl amd64 7
.68.0-1ubuntu2.12 [161 kB]
396 ف في k2 جيب (159 kB)
(Reading database ... 178411 files and directories currently installed.)
Preparing to unpack .../libcurl4_7.68.0-1ubuntu2.12_amd64.deb ...
Unpacking libcurl4:amd64 (7.68.0-1ubuntu2.12) over (7.68.0-1ubuntu2.7) ...
Selecting previously unselected package curl.
Preparing to unpack .../curl_7.68.0-1ubuntu2.12_amd64.deb ...
Unpacking curl (7.68.0-1ubuntu2.12) ...
Setting up libcurl4:amd64 (7.68.0-1ubuntu2.12) ...
Setting up curl (7.68.0-1ubuntu2.12) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
rafa@rafa-VirtualBox:~$ curl -s https://raw.githubusercontent.com/ros/rosdistro
/master/ros.asc | sudo apt-key add -
OK
rafa@rafa-VirtualBox:~$
```

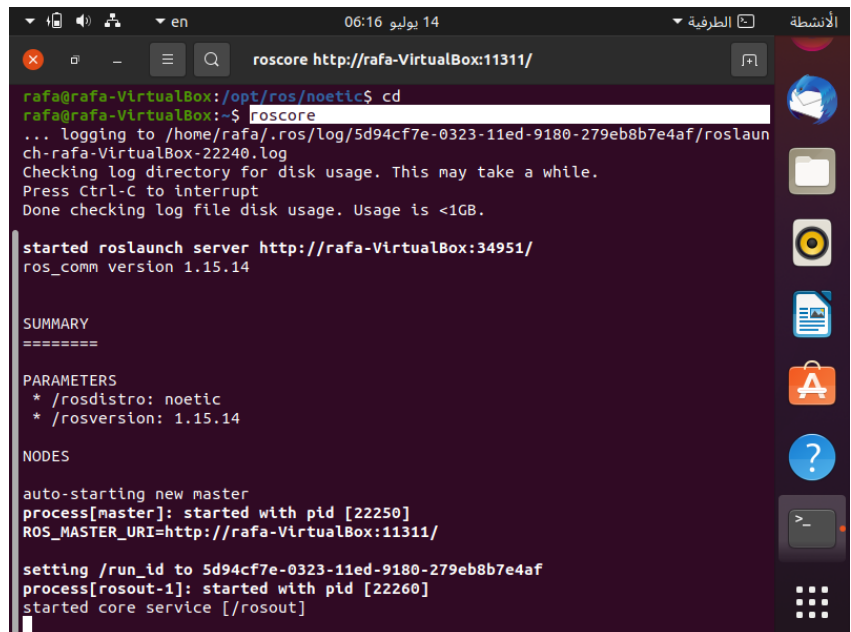
```
rafa@rafa-VirtualBox: ~
Setting up ros-noetic-rviz (1.14.14-1focal.20220212.160156) ...
Setting up ros-noetic-rqt-bag-plugins (0.5.1-1focal.20220328.225810) ...
Setting up ros-noetic-urdf-tutorial (0.5.0-1focal.20220413.175254) ...
Setting up ros-noetic-tf-conversions (1.13.2-1focal.20220107.012308) ...
Setting up ros-noetic-interactive-marker-tutorials (0.11.0-1focal.20220107.0023
45) ...
Setting up ros-noetic-librviz-tutorial (0.11.0-1focal.20220212.163831) ...
Setting up ros-noetic-rqt-msg (0.4.10-1focal.20220328.225436) ...
Setting up ros-noetic-rviz-python-tutorial (0.11.0-1focal.20220212.164051) ...
Setting up ros-noetic-rqt-rviz (0.7.0-1focal.20220328.224826) ...
Setting up ros-noetic-rviz-plugin-tutorials (0.11.0-1focal.20220212.164049) ...
Setting up ros-noetic-rqt-reconfigure (0.5.5-1focal.20220519.091134) ...
Setting up ros-noetic-rqt-robot-dashboard (0.5.8-1focal.20220328.225954) ...
Setting up ros-noetic-visualization-tutorials (0.11.0-1focal.20220212.164542) .
..
Setting up ros-noetic-ros-core (1.5.0-1focal.20220107.010105) ...
Setting up ros-noetic-geometry (1.13.2-1focal.20220107.012748) ...
Setting up ros-noetic-rqt-srv (0.4.9-1focal.20220328.225517) ...
Setting up ros-noetic-rqt-action (0.4.9-1focal.20220328.225504) ...
Setting up ros-noetic-rqt-launch (0.4.9-1focal.20220328.225434) ...
Setting up ros-noetic-ros-base (1.5.0-1focal.20220519.095901) ...
Setting up ros-noetic-rqt-robot-plugins (0.5.8-1focal.20220331.120506) ...
Setting up ros-noetic-robot (1.5.0-1focal.20220519.102310) ...
Setting up ros-noetic-rqt-common-plugins (0.4.9-1focal.20220519.094624) ...
Setting up ros-noetic-viz (1.5.0-1focal.20220519.101922) ...
Setting up ros-noetic-desktop (1.5.0-1focal.20220519.102708) ...
rafa@rafa-VirtualBox:~$
```

Desktop-Full Install

```
rafa@rafa-VirtualBox: ~
144:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 ruby2.7 am
d64 2.7.0-5ubuntu1.7 [95.6 kB]
145:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 ruby amd64 1:2.7+1
[5412 B]
146:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 libgssrpc4
amd64 1.17-6ubuntu4.1 [55.4 kB]
147:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 libkdb5-9
amd64 1.17-6ubuntu4.1 [37.3 kB]
148:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 libkadm5sr
v-mit11 amd64 1.17-6ubuntu4.1 [49.5 kB]
149:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 libkadm5cl
nt-mit11 amd64 1.17-6ubuntu4.1 [37.6 kB]
150:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 comerr-dev
amd64 2.1-1.45.5-2ubuntu1.1 [39.9 kB]
151:جيب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 krb5-multi
dev amd64 1.17-6ubuntu4.1 [120 kB]
152:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 libalgorithm-diff-
perl all 1.19.03-2 [46.6 kB]
153:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 libalgorithm-diff-
xs-perl amd64 0.04-6 [11.3 kB]
154:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 libalgorithm-merge
-perl all 0.08-3 [12.0 kB]
155:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 libarchive-cpio-pe
rl all 0.10-1 [9644 B]
156:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 libblas-dev amd64
3.9.0-1build1 [147 kB]
157:جيب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 liblapack-dev amd6
4 3.9.0-1build1 [4242 kB]
42% [157 liblapack-dev 1531 kB/4242 kB 36%] 241 kB/s 10min 6s
```

Ensure that the process is completed

Command roscore

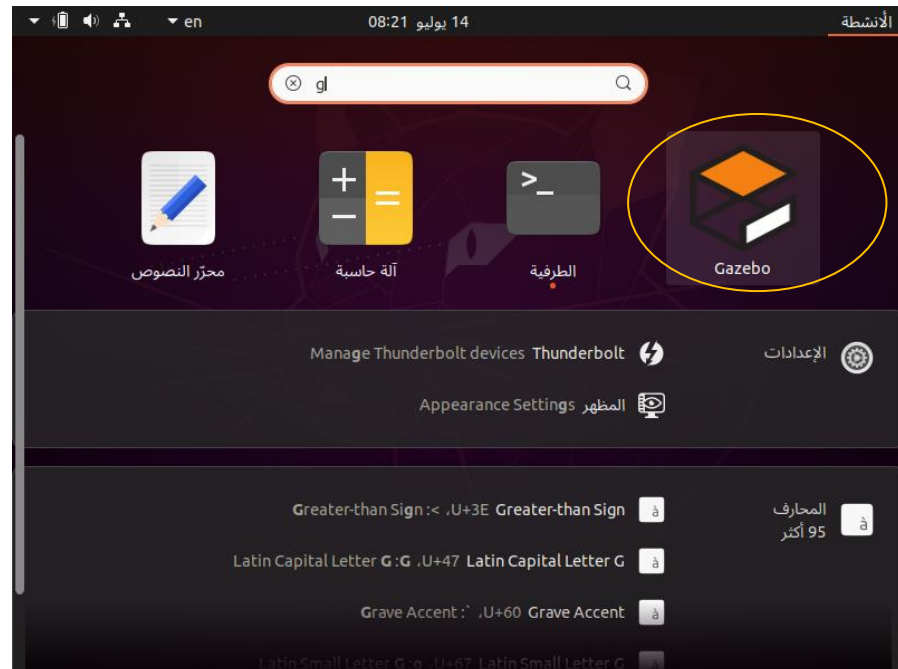


```
rafa@rafa-VirtualBox:~$ cd /opt/ros/noetic
rafa@rafa-VirtualBox:~/opt/ros/noetic$ roscore
... logging to /home/rafa/.ros/log/5d94cf7e-0323-11ed-9180-279eb8b7e4af/roslaunch-rafa-VirtualBox-22240.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

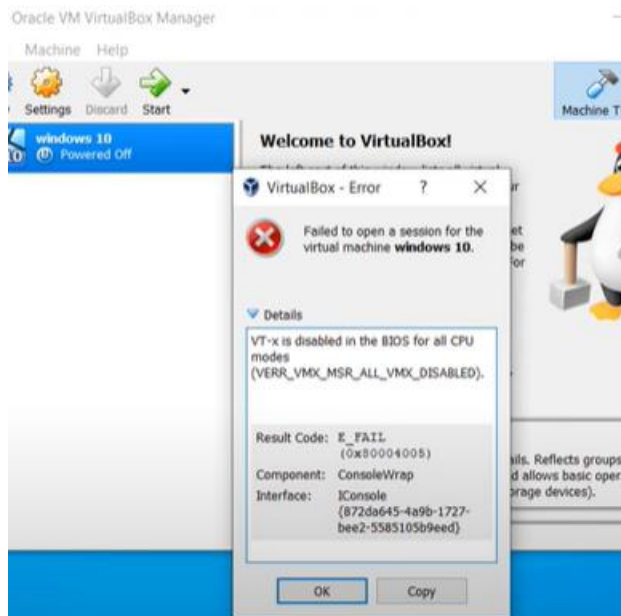
started roslaunch server http://rafa-VirtualBox:34951/
ros_comm version 1.15.14

SUMMARY
=====
PARAMETERS
 * /rostdistro: noetic
 * /rosversion: 1.15.14
NODES
auto-starting new master
process[master]: started with pid [22250]
ROS_MASTER_URI=http://rafa-VirtualBox:11311/

setting /run_id to 5d94cf7e-0323-11ed-9180-279eb8b7e4af
process[rosout-1]: started with pid [22260]
started core service [/rosout]
```



Some problems I encountered while installing the **Ubuntu**

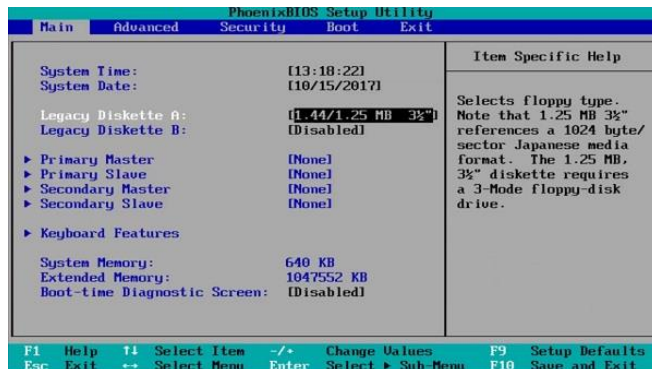


Error message

Solve :

First step

Open BIOS windows



Search for the word virtual and change **Discreated** to **enabled** and save and exit

