

خطوات تثبيت نظام ROS

Steps to install the ROS system

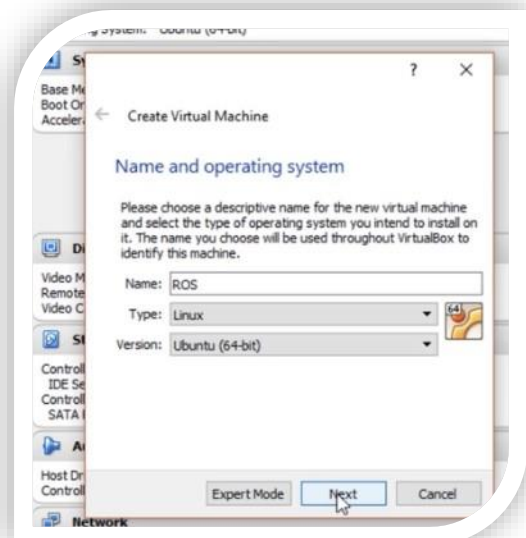
أولاً: قم بتنزيل (VirtualBox) كما هو موضح في الصورة للويندوز .

First: Download (VirtualBox) as shown in the image for Windows



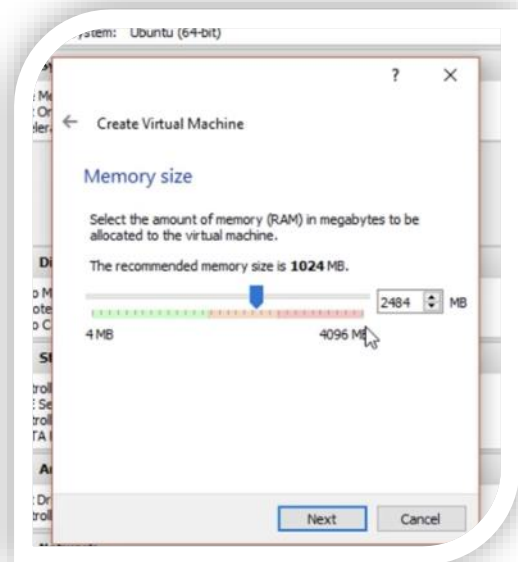
ثانياً: بعد ذلك قم بإنشاء جهاز افتراضي في (VirtualBx).

Second: Then create a virtual machine in (VirtualBox).



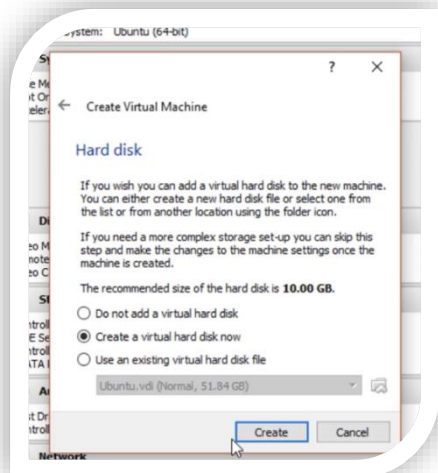
ثالثًا: قم بالتحكم بحجم الذاكرة. كما هو موضح في الصورة

Third: Control the amount of memory as shown in the image



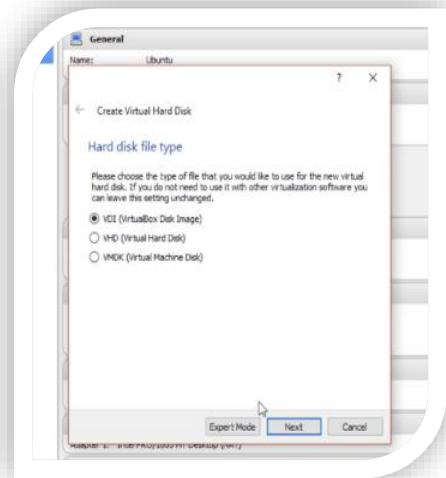
رابعًا: قم بإنشاء قرص صلب افتراضي.

Fourth: Create a virtual hard disk



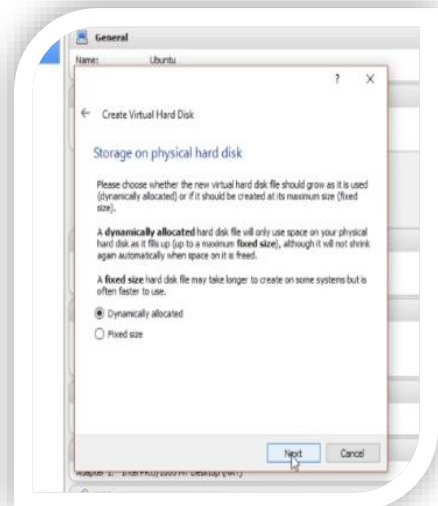
خامسًا: قم باختيار نوع القرص الصلب الافتراضي.

Fifth: Choose the hard disk file type



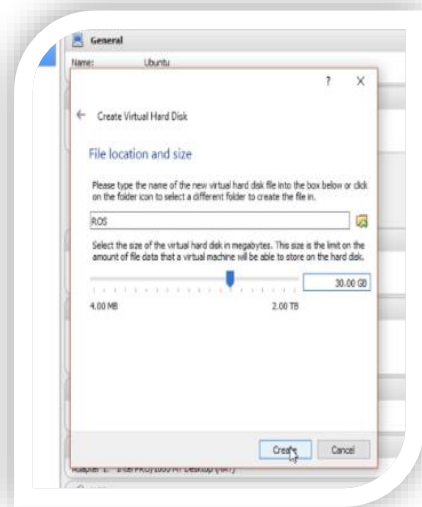
سادسًا: قم باختيار نوع نظام التخزين على القرص الصلب المادي.

Sixth: Choose the type of storage system on the physical hard disk



سابعًا: حدد حجم القرص الثابت الظاهري بالميجابايت.

Seventh: Select the size of the virtual hard disk in megabytes



ثامنًا: قم بتنزيل نظام (Linux ubuntu).

Eighth: Download (Linux ubuntu)



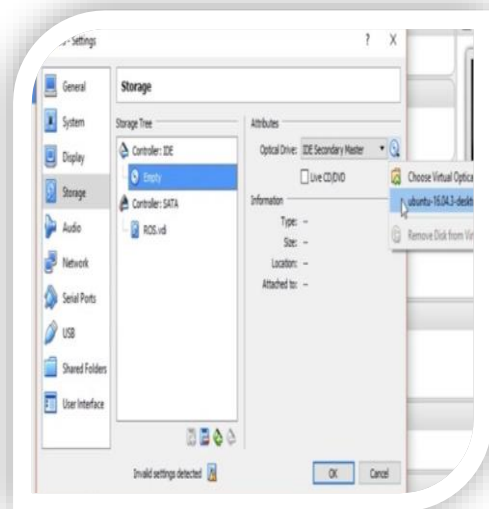
تاسعاً: اذهب إلى إعدادات VirtualBox

Nine: Go to (VirtualBox) settings



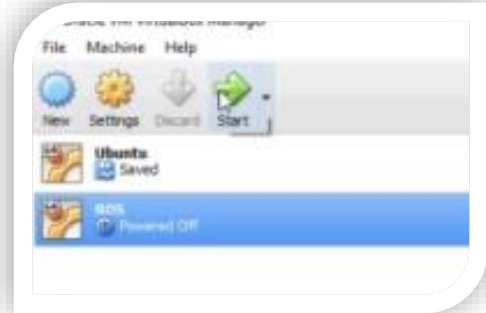
عاشراً: قم بتنزيل نظام (Linux ubuntu) على برنامج VirtualBox

Tenth: Download (Linux ubuntu) system on (VirtualBox)



الحادية عشر: انقر على (start) لبدء تنزيل نظام لينيكس.

Eleven :Click (start) to start downloading the Linux system



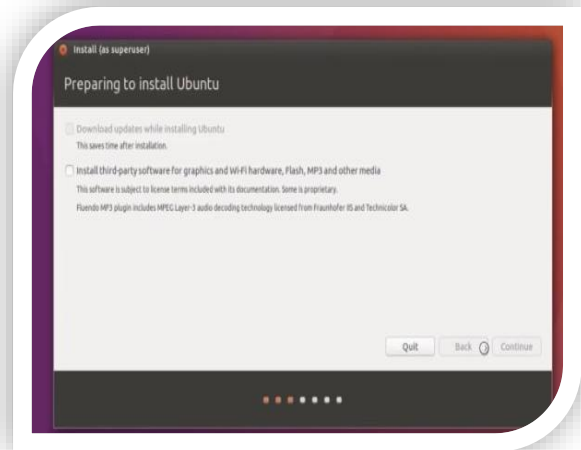
الثانية عشر: قم بتنزيل Ubuntu

Twelfth :Download (Ubuntu)



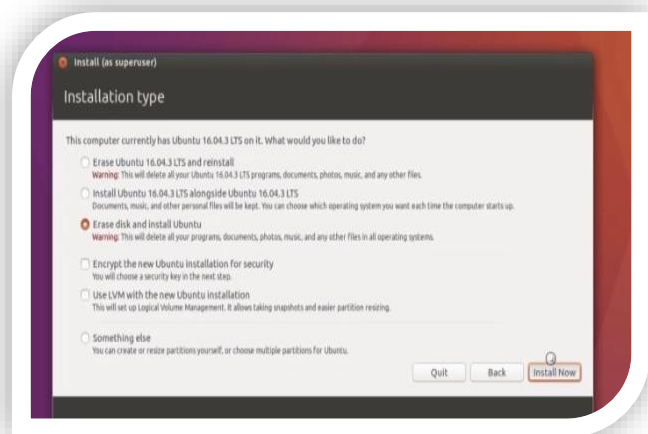
الثالثة عشر: ستظهر لك نافذة، انقر على Continue

Thirteenth :A window will appear for you ,click (Continue)



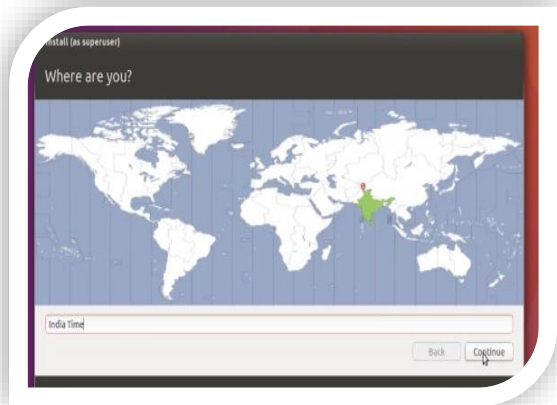
الرابعة عشر: قم باختيار محو القرص وتثبيت Ubuntu

Fourteenth :Choose erase disk and install (Ubuntu)



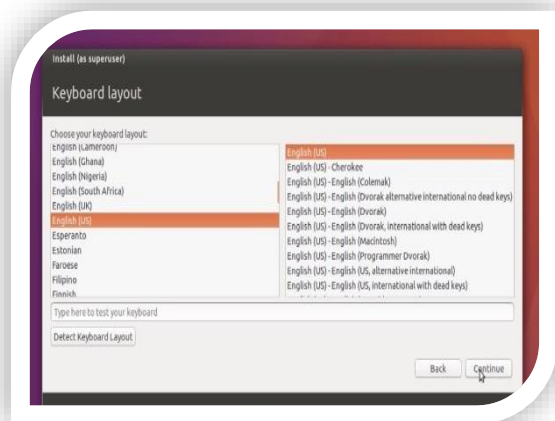
الخامسة عشر: قم باختيار منطقتك الزمنية.

Fifteenth :Choose your time zone



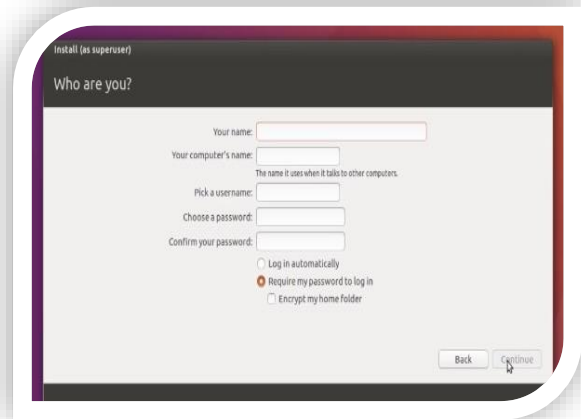
السادسة عشر: اختر لغة لوحة المفاتيح.

Sixteenth :Choose a keyboard layout



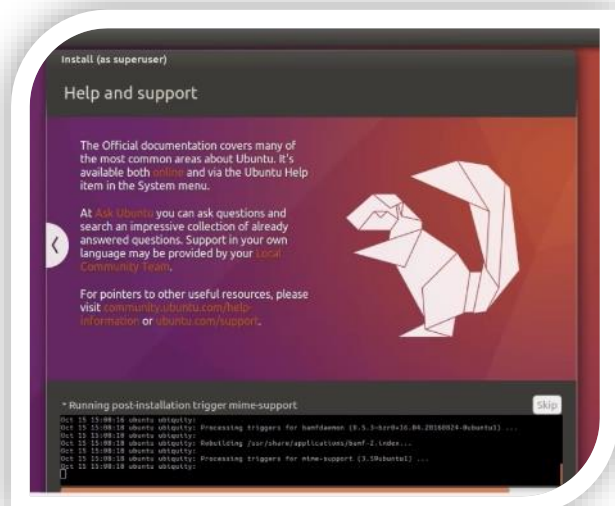
السابعة عشر: قم بتعبئة البيانات المطلوبة مثل: الاسم، اسم المستخدم، والرقم السري.

Seventeen :Fill in the required information such as :name ,username ,and password



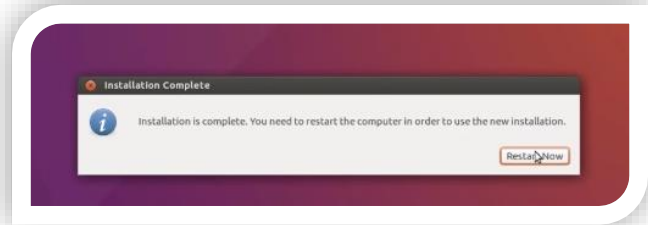
الثامنة عشر: ستظهر لك نافذة تبين بأن النظام يتثبت.

Eighteen :A window will appear showing you that the system is installing



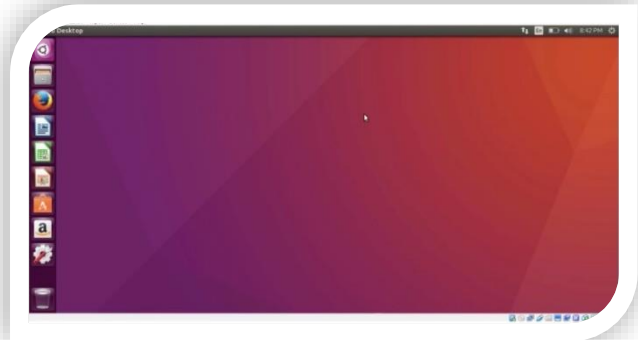
التاسعة عشر: ستظهر نافذة انتهاء التثبيت، قم بالنقر على Restart now

Nineteen :The installation completion window will appear ,click (Restart now)



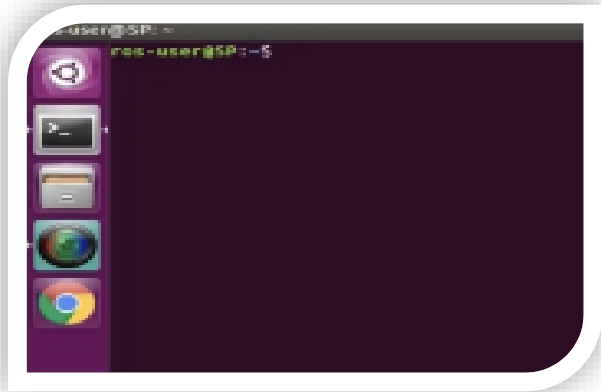
العشرون: سيظهر لك سطح المكتب وهكذا يكون نظام (Ubuntu) جاهز للاستخدام.

Twentieth :You will see the desktop and so the Ubuntu system is ready to use



الحادية والعشرون: قم بالنقر على `D. + alt + ctrl`

Twenty-first :click on `ctrl + alt + D`



الثانية والعشرون: قم بكتابة `sudo apt update`.

Twenty-second :Type `sudo apt update`



Twenty-third :After the processing process is over ,type `sudo apt update`

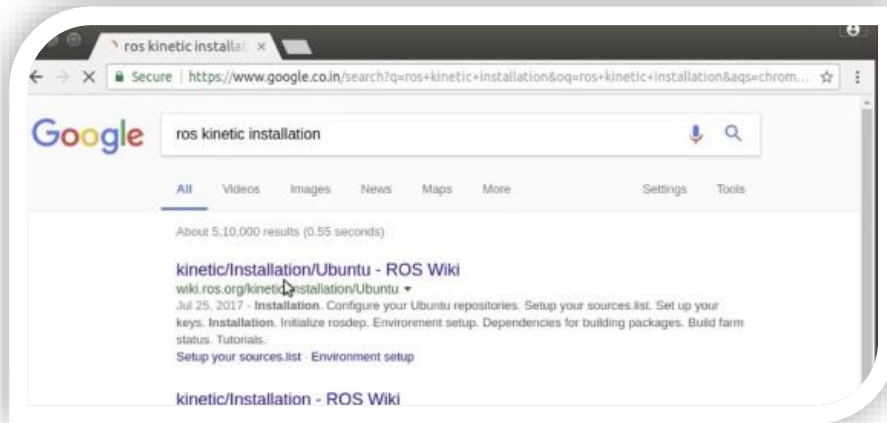
```
ros-user@SP: ~  
ros-user@SP:~$ sudo apt update  
Ign:1 http://dl.google.com/linux/chrome/deb stable InRelease  
Get:2 http://security.ubuntu.com/ubuntu xenial-security InRelease [102 kB]  
Hit:3 http://ppa.launchpad.net/graphics-drivers/ppa/ubuntu xenial InRelease  
Hit:4 http://dl.google.com/linux/chrome/deb stable Release  
Hit:5 https://download.docker.com/linux/ubuntu xenial InRelease  
Hit:6 http://in.archive.ubuntu.com/ubuntu xenial InRelease  
Hit:8 http://ppa.launchpad.net/marten-baert/smplescreenrecorder/ubuntu xenial  
Get:9 http://in.archive.ubuntu.com/ubuntu xenial-updates InRelease [102 kB]  
Get:10 http://in.archive.ubuntu.com/ubuntu xenial-backports InRelease [102 kB]  
Fetched 306 kB in 2s (124 kB/s)  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
116 packages can be upgraded. Run 'apt list --upgradable' to see them.  
ros-user@SP:~$ sudo apt upgrade
```

Twenty-four : The processing process will take some time and it depends on the strength of your Internet connection

[illegible]

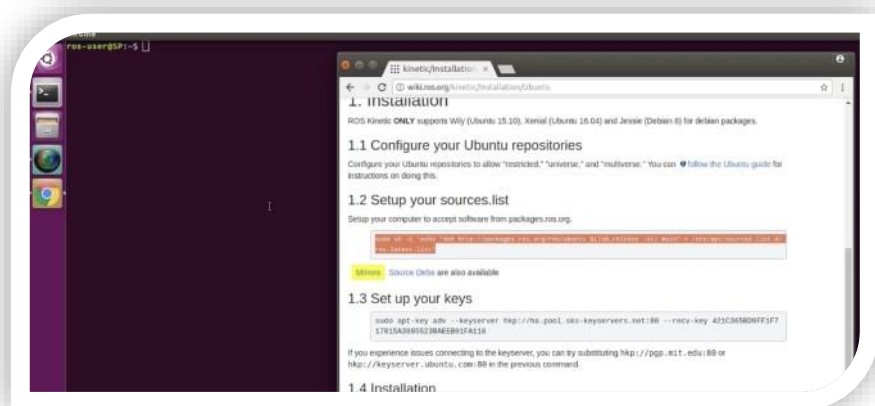
الخامسة والعشرون: افتح أحد كحركات البحث وابحث عن ros kinetic istallation

Twenty-fifth :Open one of the search engines and search for (ros kinetic istallation)



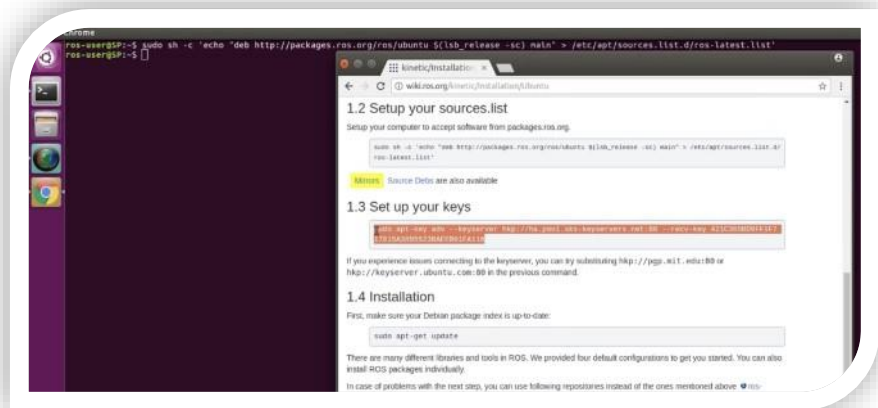
السادسة والعشرون: انسخ النص الموجود وألصقه كما في الصورة أدناه.

Twenty-six :Copy and paste the existing text as in the image below



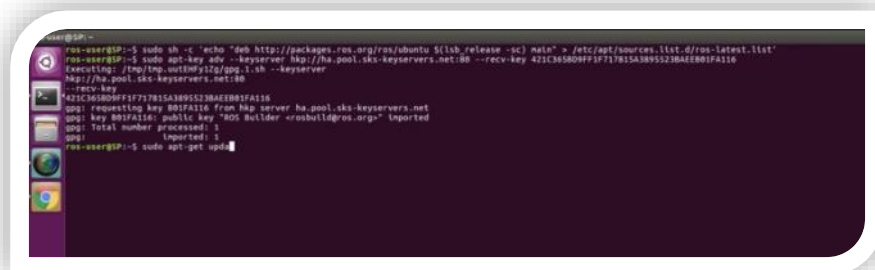
السابعة والعشرون: انسخ النص الآخر كما فعلت في الخطوة السابقة وألصقه كما في الصورة أدناه.

Twenty-seventh :Copy the other text as you did in the previous step and paste it as in the image below



الثامنة والعشرون: بعدما تنتهي عمليات المعالجة اكتب `sudo apt-get update`.

Twenty-eight :After the processing is finished write `sudo apt-get update`



التاسعة والعشرون: قم بكتابة `sudo apt install ros-kinetic-desktop.`

Twenty-ninth :Type sudo apt install ros-kinetic-desktop

```

ros-user@SP:~$ sudo apt-get install ros-kinetic-desktop-full
ros-user@SP:~$ sudo sh -c 'echo "deb http://packages.ros.org/ubuntu50lsb release -sc" main'
ros-user@SP:~$ sudo apt-key adv --keyserver hkp://ha.pool.sks-keyservers.net:80 --recv-key 421C365809FF1F717815A3895523BAEEB01FA116
Executing: /tmp/tmp.uWtEHFyz/gpg.1.sh --keyserver hkp://ha.pool.sks-keyservers.net:80 --recv-key 421C365809FF1F717815A3895523BAEEB01FA116
gpg: requesting key B01FA116 from hkp server ha.pool.sks-keyservers.net
gpg: key B01FA116: public key "ROS Builder <rosbuild@ros.org>" imported
gpg: Total number processed: 1
gpg:   Imported: 1
ros-user@SP:~$ sudo apt-get update
Ign1 http://dl.google.com/linux/chrome/deb stable InRelease
Hit2 http://ppa.launchpad.net/graphics-drivers/ppa/ubuntu xenial InRelease
Hit3 https://download.docker.com/linux/ubuntu xenial InRelease
Hit4 http://ln.archive.ubuntu.com/ubuntu xenial InRelease
Get5 http://security.ubuntu.com/ubuntu xenial-security InRelease [102 kB]
Hit6 http://dl.google.com/linux/chrome/deb/stable Release
Get7 http://ln.archive.ubuntu.com/ubuntu xenial-updates InRelease [102 kB]
Hit8 http://ppa.launchpad.net/maarten-baert/simple-screencoreorder/ubuntu xenial InRelease
Get10 http://ln.archive.ubuntu.com/ubuntu xenial-backports InRelease [102 kB]
Get11 http://packages.ros.org/ros/ubuntu xenial InRelease [4,037 B]
Get12 http://packages.ros.org/ros/ubuntu xenial/main amd64 Packages [488 kB]
Get13 http://packages.ros.org/ros/ubuntu xenial/main i386 Packages [368 kB]
Fetched 1,166 kB in 4s (257 kB/s)
Reading package lists... Done
ros-user@SP:~$ sudo apt install ros-kinetic-desktop-full

```

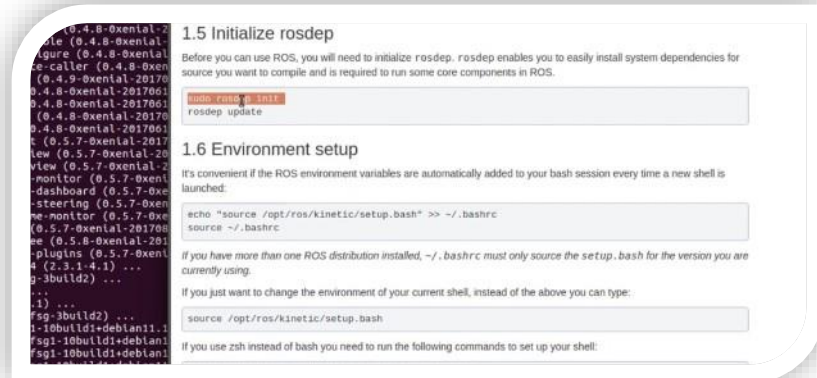
الثلاثون: ستأخذ عملية التنزيل بعضًا من الوقت.

Thirty :The download will take some time

[illegible]

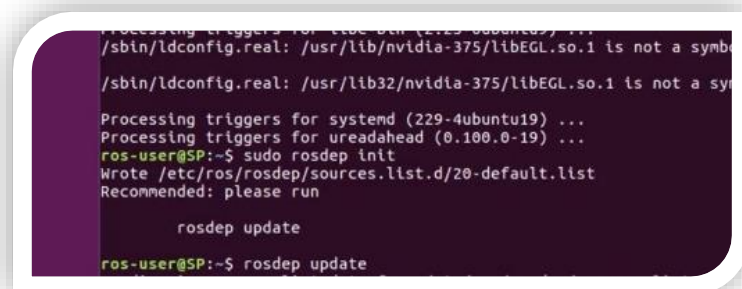
الحادية والثلاثون: قم بكتابة `sudo rosdep init`.

Thirty-first :Type `sudo rosdep init`



الثانية والثلاثون: قم بكتابة `rosdep update`.

Thirty-second :Write `rosdep update`



الثالثة والثلاثون: للتأكد من عملية تنزيل نظام ros، قم بكتابة roscore.

Thirty-third :To confirm the ros system download process ,type roscore

```
Hit https://raw.githubusercontent.com/ros/rosdistro/master/ro
Hit https://raw.githubusercontent.com/ros/rosdistro/master/ro
Hit https://raw.githubusercontent.com/ros/rosdistro/master/ro
Hit https://raw.githubusercontent.com/ros/rosdistro/master/ro
Query rosdistro index https://raw.githubusercontent.com/ros/r
Add distro "groovy"
Add distro "hydro"
Add distro "indigo"
Add distro "jade"
Add distro "kinetic"
Add distro "lunar"
updated cache in /home/ros-user/.ros/rosdep/sources.cache
ros-user@SP:~$ roscore
```

الرابعة والثلاثون: يمكنك أن ترى أن الملف التنفيذي غير مرئي لسطر الأوامر

Thirty-fourth :You can see that the executable file is not visible to the command line

الخامسة والثلاثون: الآن سيتم تنزيل حزمة داخل نظام تشغيل نظام Ros.

Thirty-fifth :Now the downloaded draws package are placed inside the directory Opt .Ross kinetic

السادسة والثلاثون: قم بكتابة cd / opt / ros /

Thirty-sixth :Type / cd / opt / ros

```
ros-user@SP: /opt/ros
ros-user@SP:~$ cd /opt/ros/
ros-user@SP:/opt/ros$ ls
kinetic
ros-user@SP:/opt/ros$
```

السابعة والثلاثون: قم بكتابة cd kinetic./

Thirty-seventh :Type cd kinetic

```
ros-user@SP: /opt/ros/kinetic
ros-user@SP:~$ cd /opt/ros/
ros-user@SP:/opt/ros$ ls
kinetic
ros-user@SP:/opt/ros$ cd kinetic/
ros-user@SP:/opt/ros/kinetic$ ls
```

الثامنة والثلاثون: قم بكتابة source setup.bash.

Thirty-eighth :Type source setup.bash

```
ros-user@SP:~$ cd /opt/ros/
ros-user@SP:/opt/ros$ ls
kinetic
ros-user@SP:/opt/ros$ cd kinetic/
ros-user@SP:/opt/ros/kinetic$ ls
bin  env.sh  etc  include  lib  setup.bash  setup.sh
ros-user@SP:/opt/ros/kinetic$ source setup.bash
ros-user@SP:/opt/ros/kinetic$
```

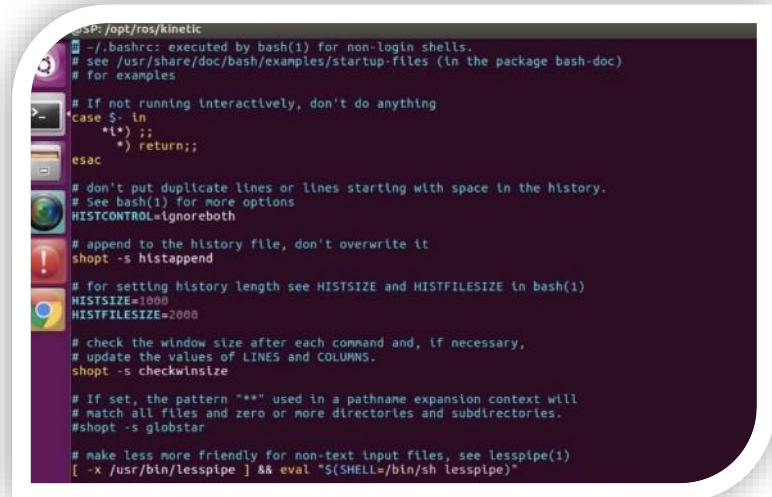
التاسعة والثلاثون: قم بكتابة roscore.

Thirty-ninth :Write roscore

```
roscore
ros-user@SP:~$ cd /opt/ros/
ros-user@SP:/opt/ros$ ls
kinetic
ros-user@SP:/opt/ros$ cd kinetic/
ros-user@SP:/opt/ros/kinetic$ ls
bin  env.sh  etc  include  lib  setup.bash  setup.sh  _setup_util.py  setup.zsh  share
ros-user@SP:/opt/ros/kinetic$ source setup.bash
ros-user@SP:/opt/ros/kinetic$ roscore
... logging to /home/ros-user/.ros/log/c1c00efc-b506-11e7-a7bb-02420377e57d/roslaunch-SP-27214.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.
```

الأربعون: عندما تقوم بكتابة roscre ستلاحظ أنها لا تظهر عمليات المعالجة.

Forty: When you write roscre you will notice that it does not show the operations



```
ros-user@SP: /opt/ros/kinetic
# ~/.bashrc: executed by bash(1) for non-login shells.
# see /usr/share/doc/bash/examples/startup-files (in the package bash-doc)
# for examples

# If not running interactively, don't do anything
case $- in
  *i*) ;;
  *) return;;
esac

# don't put duplicate lines or lines starting with space in the history.
# See bash(1) for more options
HISTCONTROL=ignoreboth

# append to the history file, don't overwrite it
shopt -s histappend

# For setting history length see HISTSIZE and HISTFILESIZE in bash(1)
HISTSIZE=1000
HISTFILESIZE=2000

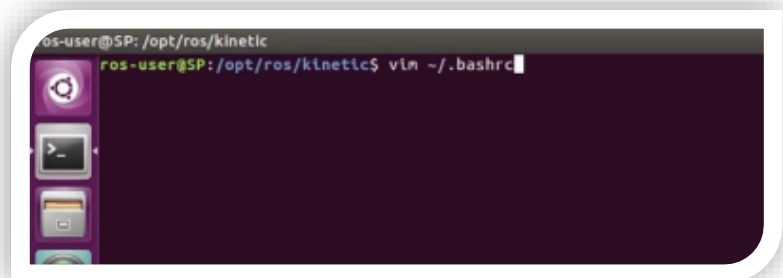
# check the window size after each command and, if necessary,
# update the values of LINES and COLUMNS.
shopt -s checkwinsize

# If set, the pattern "**" used in a pathname expansion context will
# match all files and zero or more directories and subdirectories.
#shopt -s globstar

# make less more friendly for non-text input files, see lesspipe(1)
[ -x /usr/bin/lesspipe ] && eval "$(SHELL=/bin/sh lesspipe)"
```

الحادية والأربعون: قم بكتابة vim ~/.bashrc

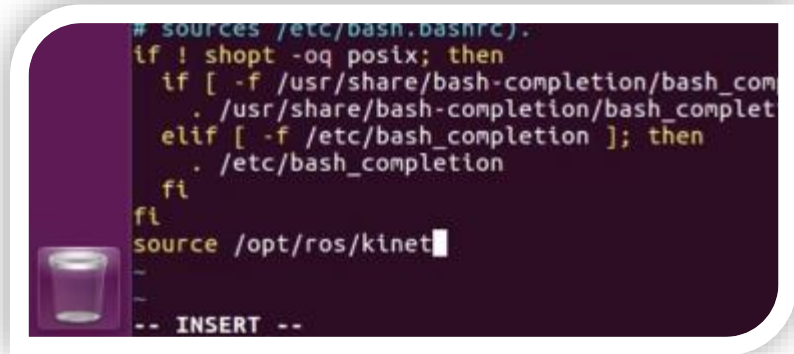
Forty-first: Type vim. / ~ bashrc



```
ros-user@SP: /opt/ros/kinetic$ vim ~/.bashrc
```

الثانية والأربعون: قم بكتابة `./opt/ros/kinetic/setup.bash`.

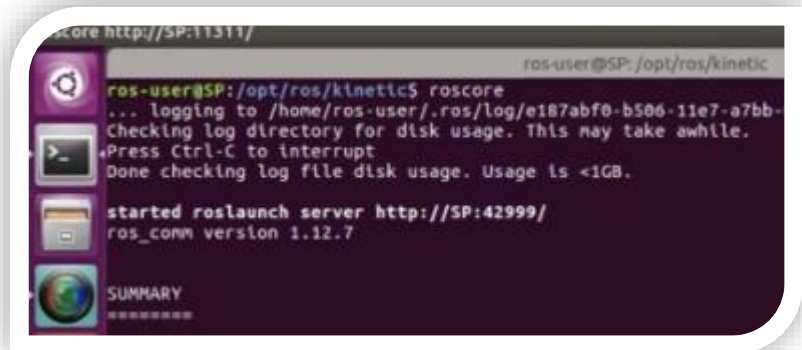
Forty-second :Type `opt / ros / kinetic / setup.bash`

A terminal window with a dark background and light-colored text. The text shows the execution of the `./opt/ros/kinetic/setup.bash` script. The script contains conditional logic to source bash completion files. The current line being executed is `source /opt/ros/kinetic`, followed by a cursor. Below the main script content, there is a line that says `-- INSERT --`.

```
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
  if [ -f /usr/share/bash-completion/bash_com
    . /usr/share/bash-completion/bash_complet
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi
source /opt/ros/kinetic
-- INSERT --
```

الثالثة والأربعون: قم بكتابة `roscore` وستلاحظ بأنه سيعمل.

Forty-third :Type `roscore` and you will notice that it will run

A terminal window showing the output of the `roscore` command. The output indicates that roscore is logging to a specific directory, checking for disk usage, and starting a roslaunch server. The terminal also shows a summary of the process.

```
roscore http://SP:11311/
ros-user@SP: /opt/ros/kinetic$ roscore
... logging to /home/ros-user/.ros/log/e187abf0-b506-11e7-a7bb-
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://SP:42999/
ros_comm version 1.12.7

SUMMARY
=====
```

الرابعة والأربعون: تهانينا نظام ROS أصبح جاهز للاستخدام.

Forty-fourth :Congratulations ,the ROS system is ready to use