

Setting up Ubuntu with VirtualBox

****Please Note:** You do not need to install Ubuntu if you are using a Mac

Note: see the last page for a note on using Ubuntu on 64-bit machines

The following is an install guide for setting up VirtualBox with Ubuntu 16.04.7 on your system. If you have problems, more detailed instruction and troubleshooting tips can be found on the [Ubuntu site](https://ubuntu.com).

1. Download the version of [VirtualBox](https://www.virtualbox.org/wiki/Download_Old_Builds_5_2) (https://www.virtualbox.org/wiki/Download_Old_Builds_5_2) for your machine (under “VirtualBox 5.2.44”, choose the host package that corresponds to your operating system (i.e. if you’re installing on Mac, choose the package “OS X hosts”, if you’re installing on Windows, choose the package “Windows Hosts”).



VirtualBox
Download VirtualBox (Old Builds): VirtualBox 5.2

The Extension Packs in this section are released under the VirtualBox Personal Use and Evaluation License. All other binaries are released under the terms of the you agree to the terms and conditions of the respective license.

- 5.2 SDK (5.2.44)
- **VirtualBox 5.2.44** (released July 14 2020)
 - Windows hosts
 - OS X hosts
 - Solaris hosts
 - Linux Hosts:
 - Oracle Linux 8 / Red Hat Enterprise Linux 8 / CentOS 8
 - Oracle Linux 7 / Red Hat Enterprise Linux 7 / CentOS 7
 - Oracle Linux 6 / Red Hat Enterprise Linux 6 / CentOS 6 32-bit | 64-bit
 - Ubuntu 18.04 / 18.10 / 19.04
 - Ubuntu 16.04 32-bit | 64-bit
 - Ubuntu 14.04 / 14.10 / 15.04 32-bit | 64-bit
 - Debian 9 32-bit | 64-bit
 - Debian 8 32-bit | 64-bit
 - openSUSE 15.0
 - openSUSE 13.2 / Leap 42 32-bit | 64-bit
 - Fedora 29 / 30
 - Fedora 26 / 27 / 28 32-bit | 64-bit
 - All distributions 32-bit 64-bit
 - Extension Pack
 - Sources
 - MD5 checksums, SHA256 checksums
- **VirtualBox 5.2.42** (released May 15 2020)
 - Windows hosts
 - OS X hosts
 - Solaris hosts

2. Download the 64 bit version of Ubuntu Linux 16.04.7 LTS (<http://releases.ubuntu.com/releases/>).
3. If your system has less than 2GB RAM select the 32-bit version

Ubuntu 16.04.7 LTS (Xenial Xerus)

Select an image

Ubuntu is distributed on two types of images described below.

Desktop image

The desktop image allows you to try Ubuntu without changing your computer at all, and at your option to install it permanently later. This type of image is what most people will want to use. You will need at least 384MiB of RAM to install from this image.

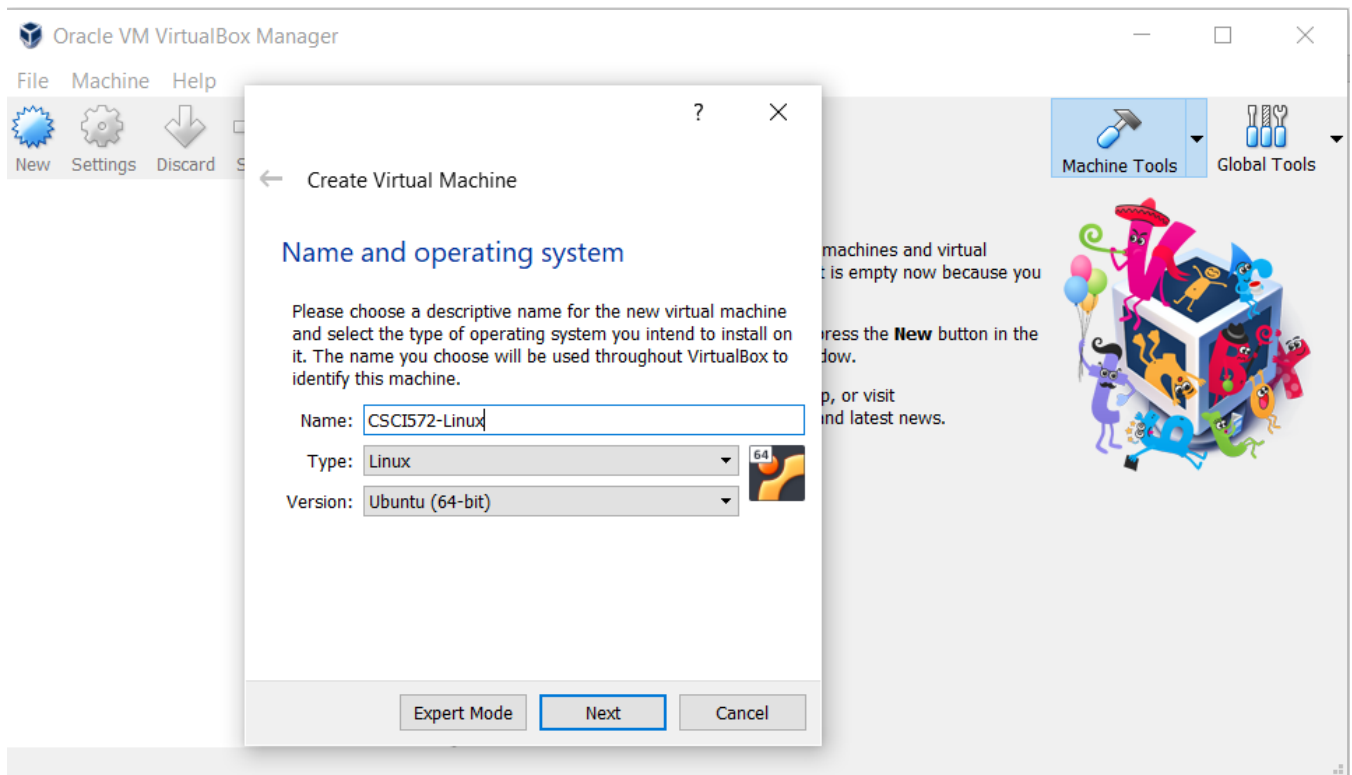
[64-bit PC \(AMD64\) desktop image](#)

Choose this if you have a computer based on the AMD64 or EM64T architecture (e.g., Athlon64, Opteron, EM64T Xeon, Core 2). Choose this if you are at all unsure.

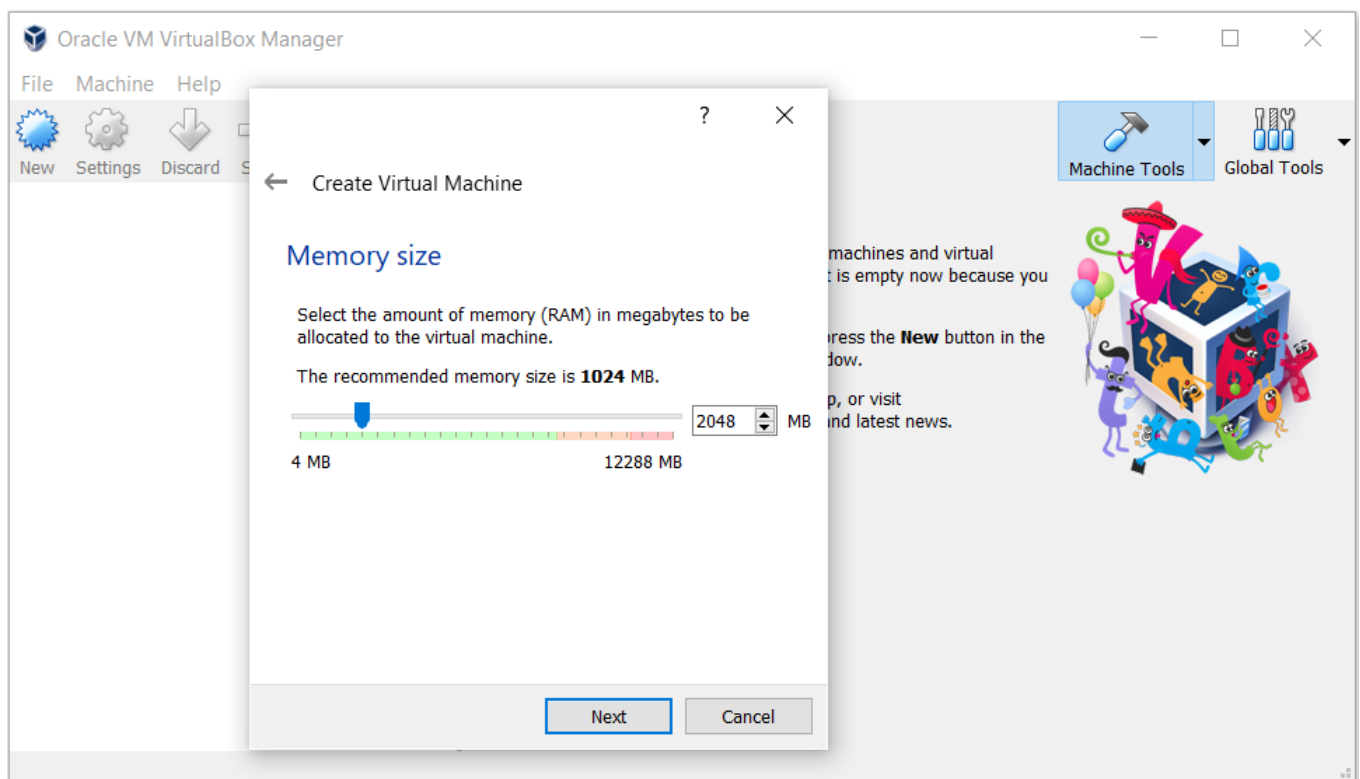
[32-bit PC \(i386\) desktop image](#)

For almost all PCs. This includes most machines with Intel/AMD/etc type processors and almost all computers that run Microsoft Windows, as well as newer Apple Macintosh systems based on Intel processors.

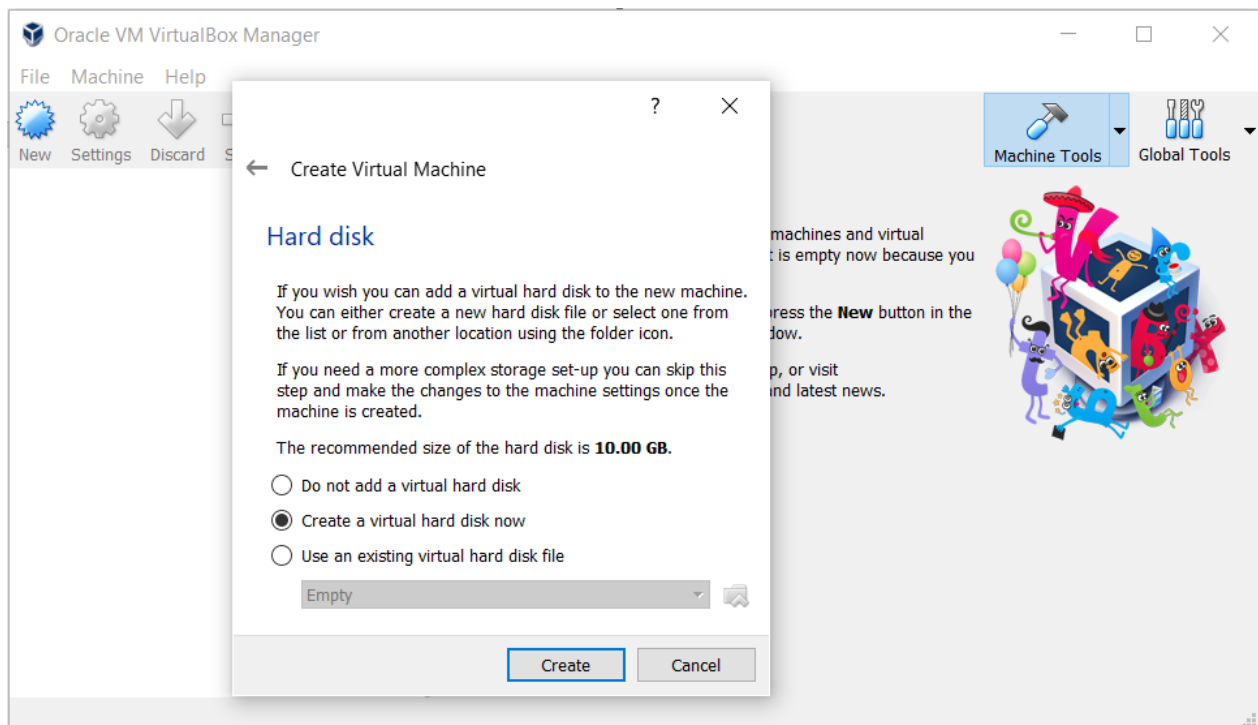
4. Run the [VirtualBox-5.2.44-139111-Win.exe](#) file and follow the Installer wizard
5. After the installation, open the VirtualBox application
6. Select “New” from the application ribbon, choose a name for your system, and select Type: Linux and Version Ubuntu (64bit). Remember to select Version: Ubuntu (64-bit)



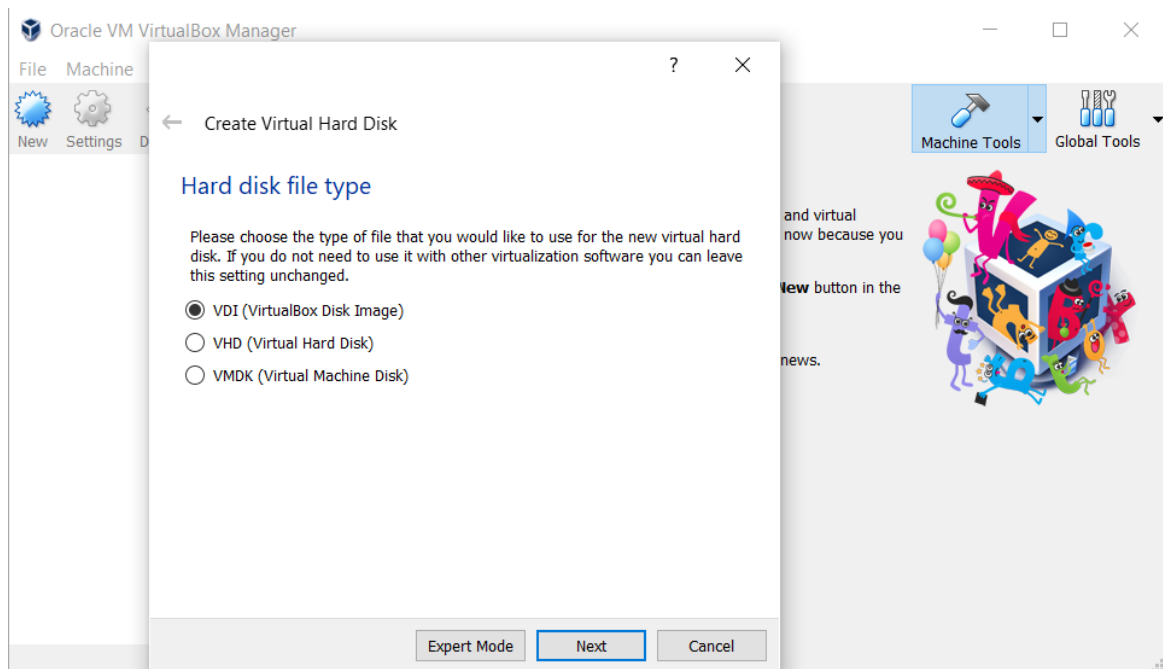
7. Select the amount of memory for your virtual machine (If you have 4GB of RAM or more, generally set this to 2048MB or half your system RAM, whichever is greater).



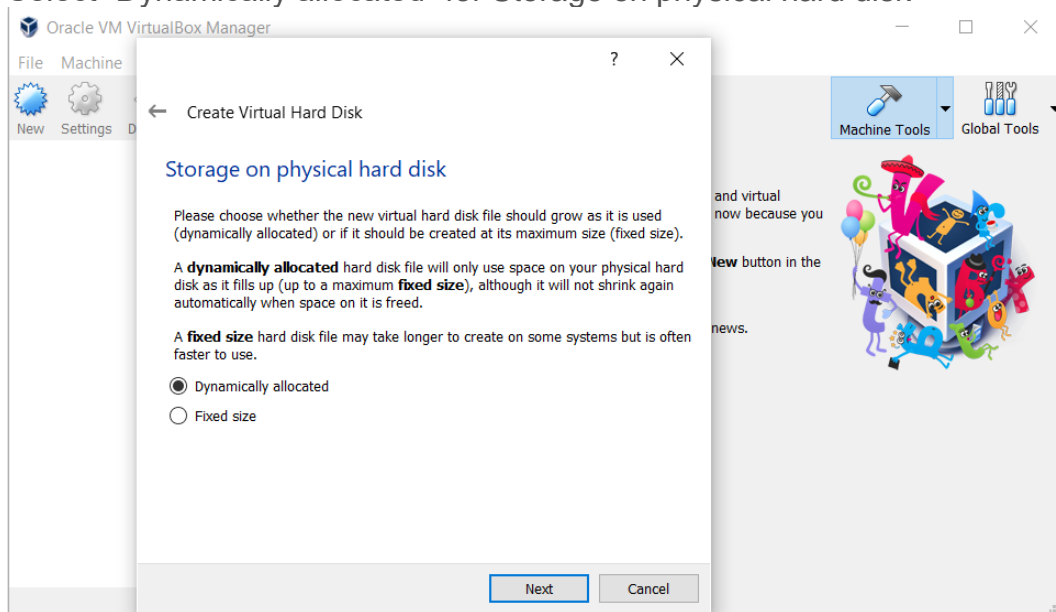
8. Select the “Create a virtual hard drive now” option: Note: your grayed area may say Empty instead of Ubuntu as shown in the figure.



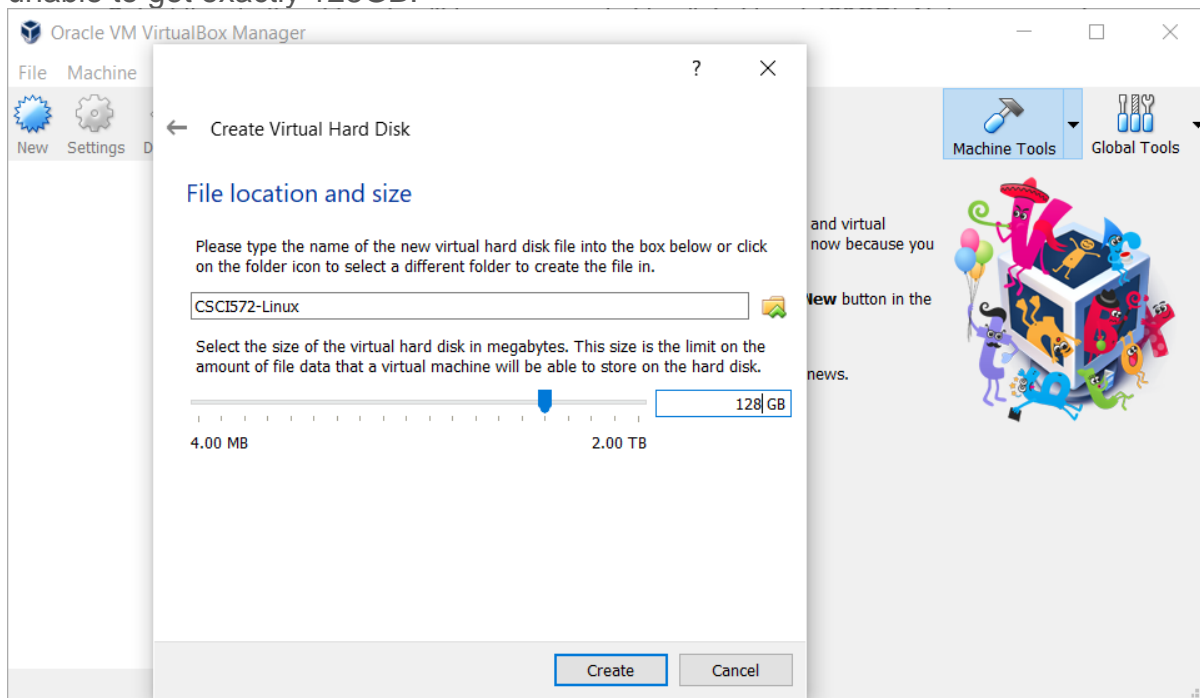
- Select the “VDI (VirtualBox Disk Image)” option for Hard disk File Type



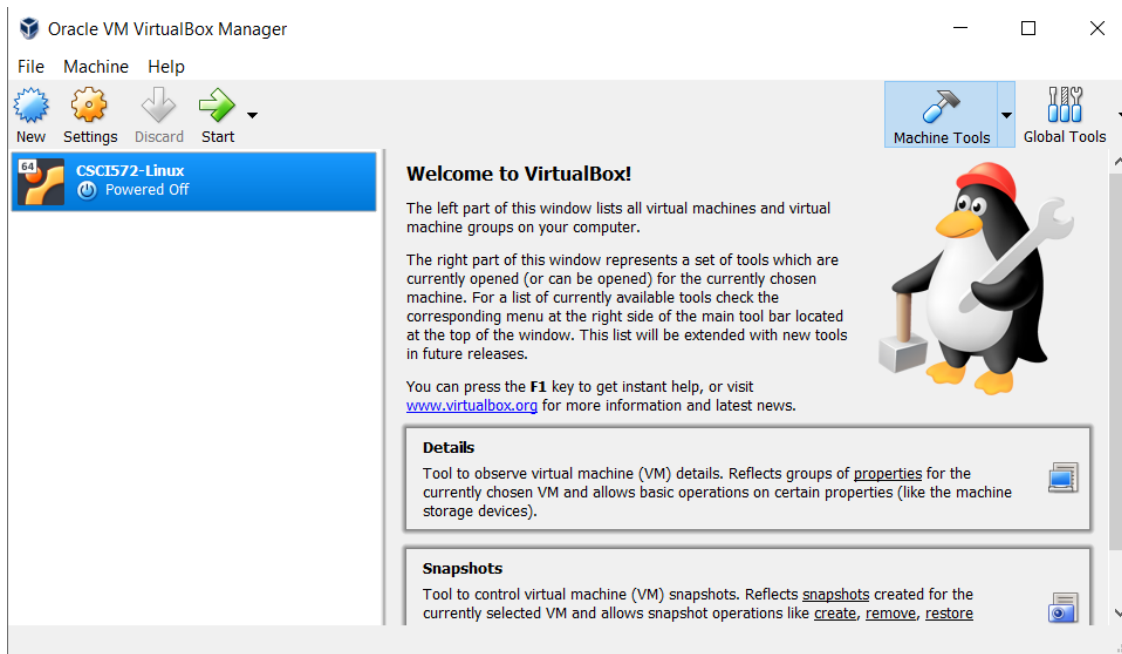
- o Select “Dynamically allocated” for Storage on physical hard disk



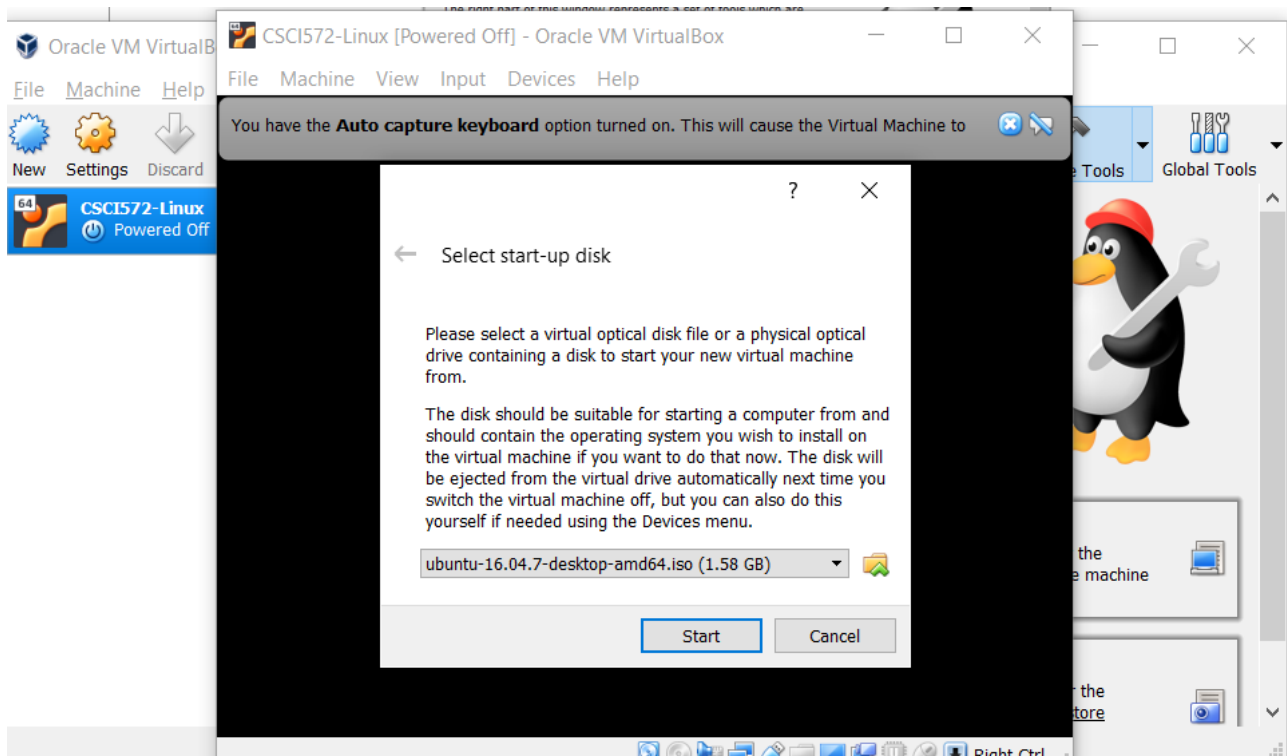
Select the starting drive size (it is recommended to allot at least 128GB). Note: you may be unable to get exactly 128GB.



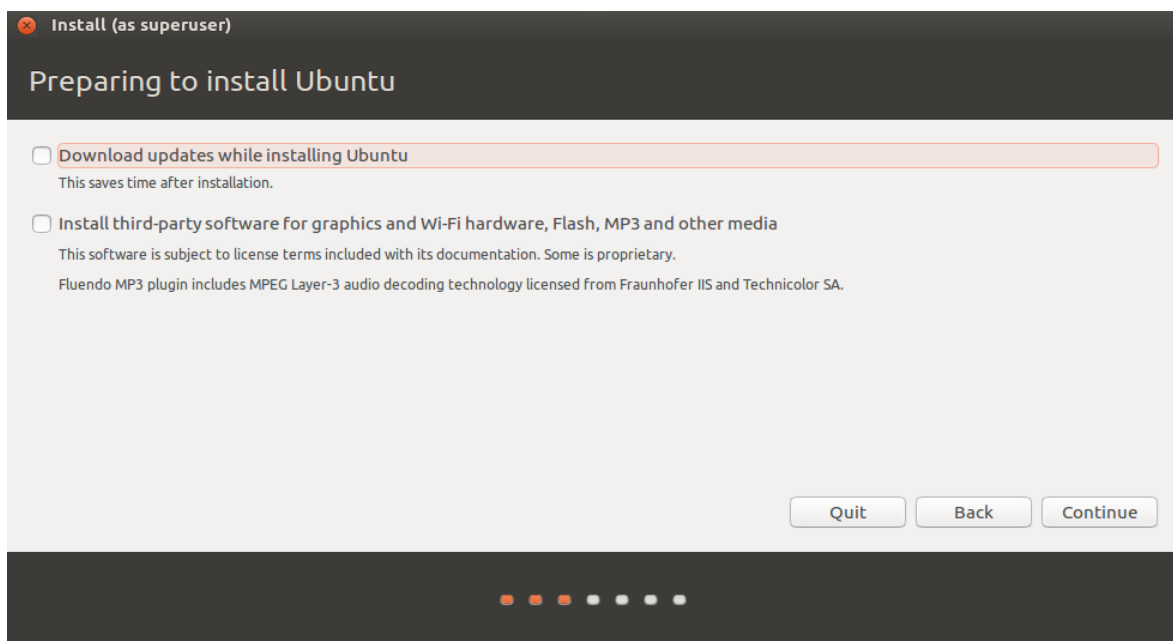
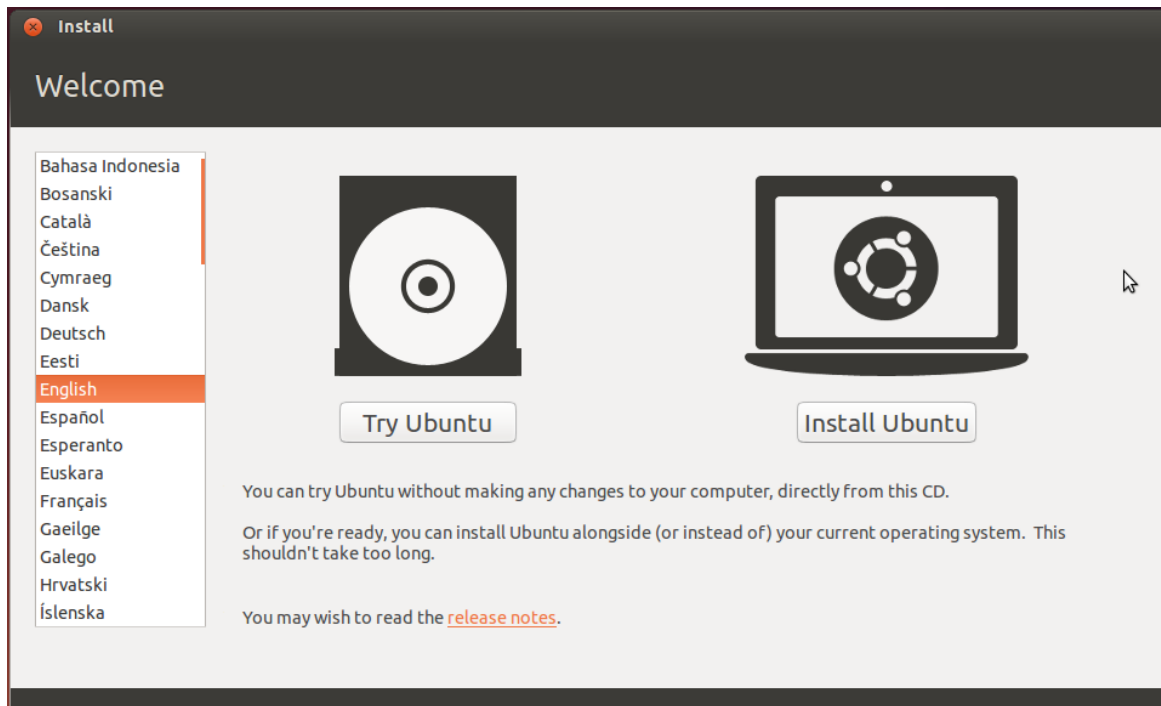
9. With your new instance selected, select start from the application ribbon.



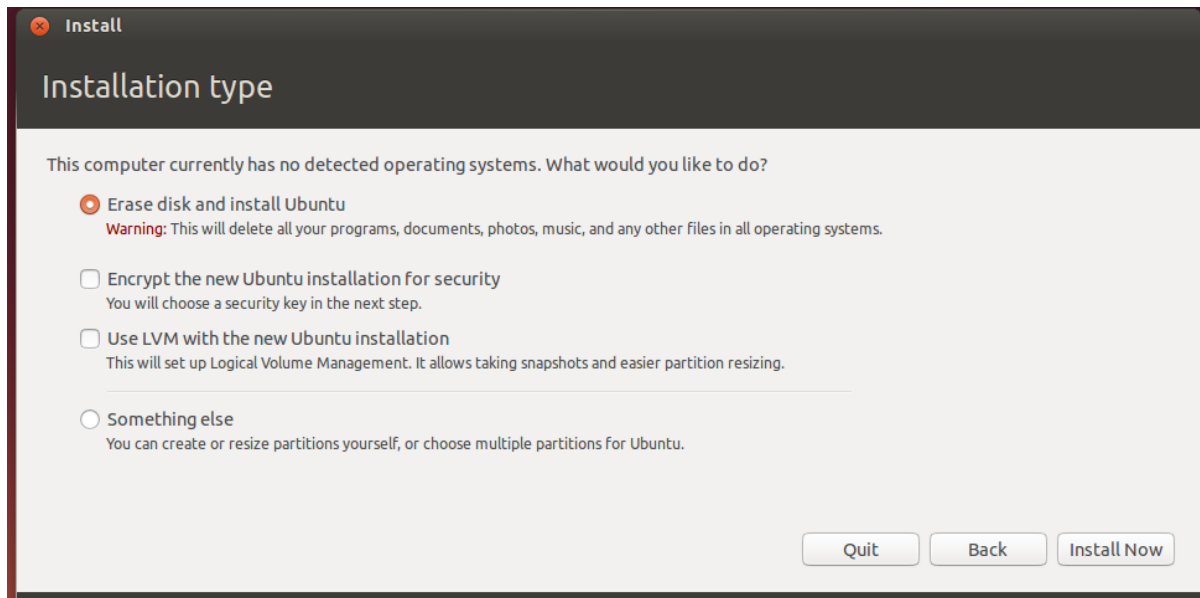
10. When prompted, select the previously downloaded Ubuntu iso file as the virtual optical disk file by clicking on the folder icon and click on Start



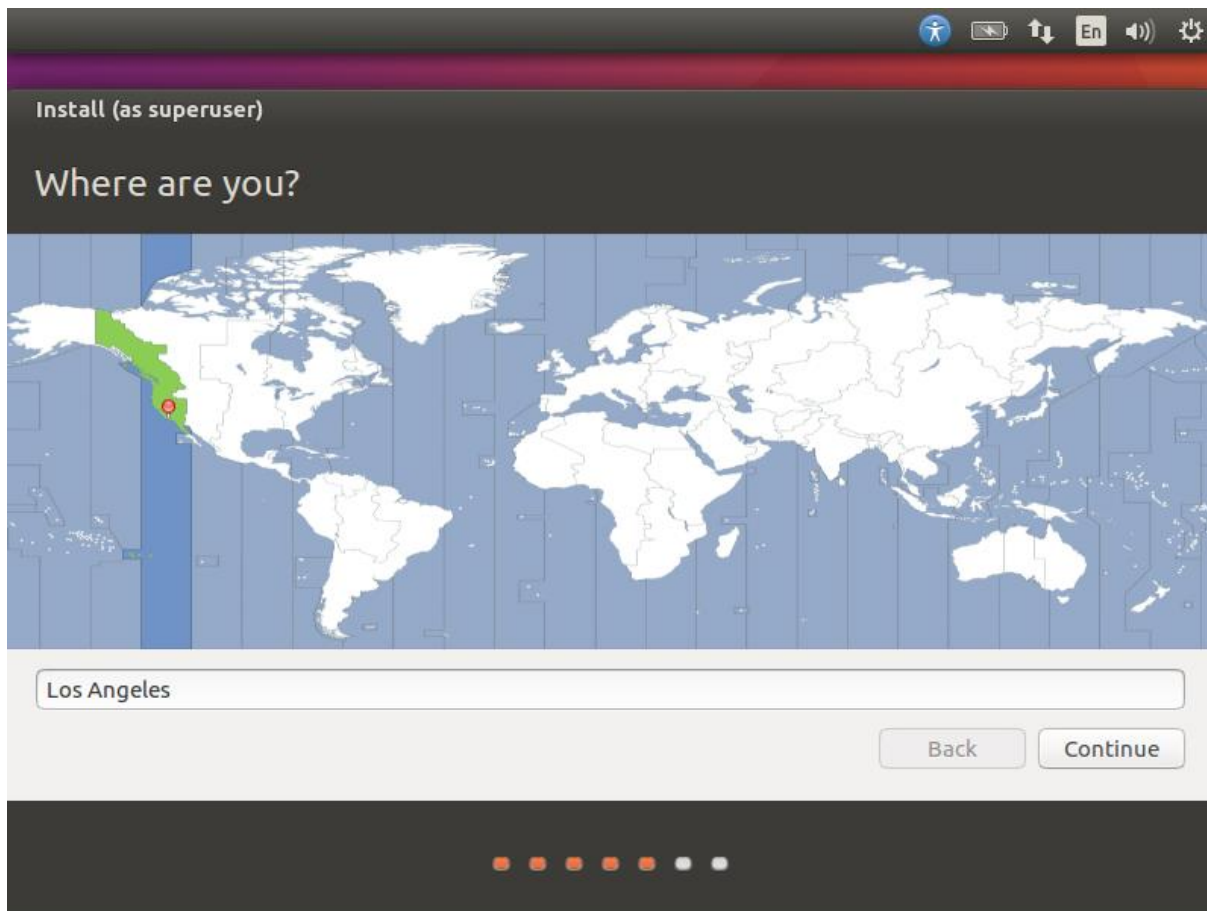
11. Click on Install Ubuntu



Click on Continue and select “Erase disk and install Ubuntu” and click on “Install Now”. Messages may appear indicating Auto capture of keyboard and mouse pointer. The messages can be removed. If prompted about “Write the changes to disk?”, click Continue.



12. Follow the prompts to install Ubuntu. Select Location and Language. Enter your username and Password for the Ubuntu system. Select “Log in automatically” if you want to log in without password when the Ubuntu machine is started from VirtualBox.



Install

Who are you?

Your name:

Your computer's name:
The name it uses when it talks to other computers.

Pick a username:

Choose a password:

Confirm your password:

☐ Log in automatically
☒ Require my password to log in
☐ Encrypt my home folder


Progress indicator: 6 dots, 5th dot is highlighted.

Ubuntu Installation will begin after you click on Continue. This will take a while, be patient.

Install (as superuser)

Welcome to Ubuntu

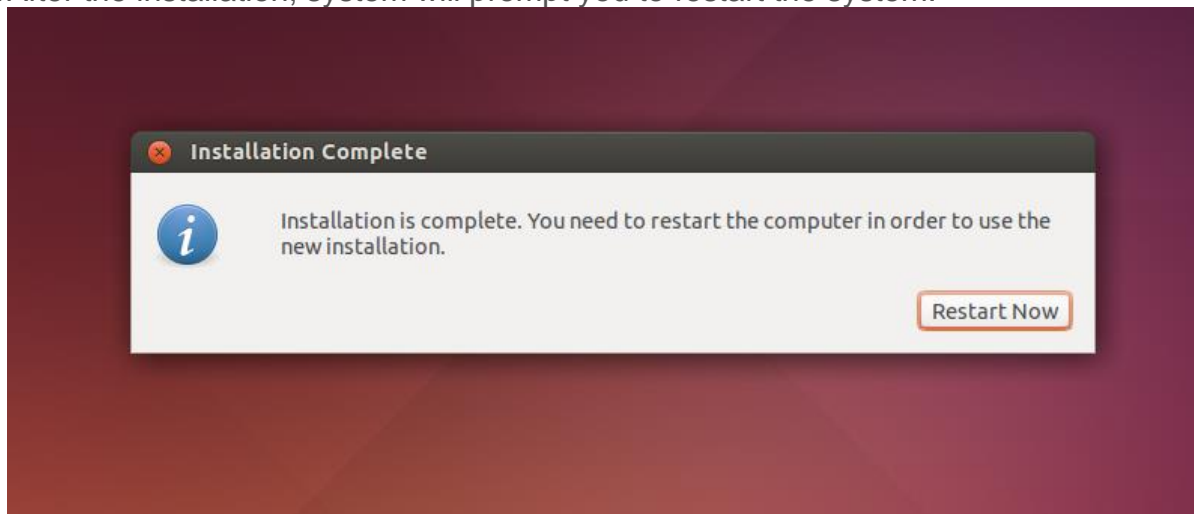
Fast and full of new features, the latest version of Ubuntu makes computing easier than ever. Here are just a few cool new things to look out for...



Progress indicator: 6 dots, 5th dot is highlighted.

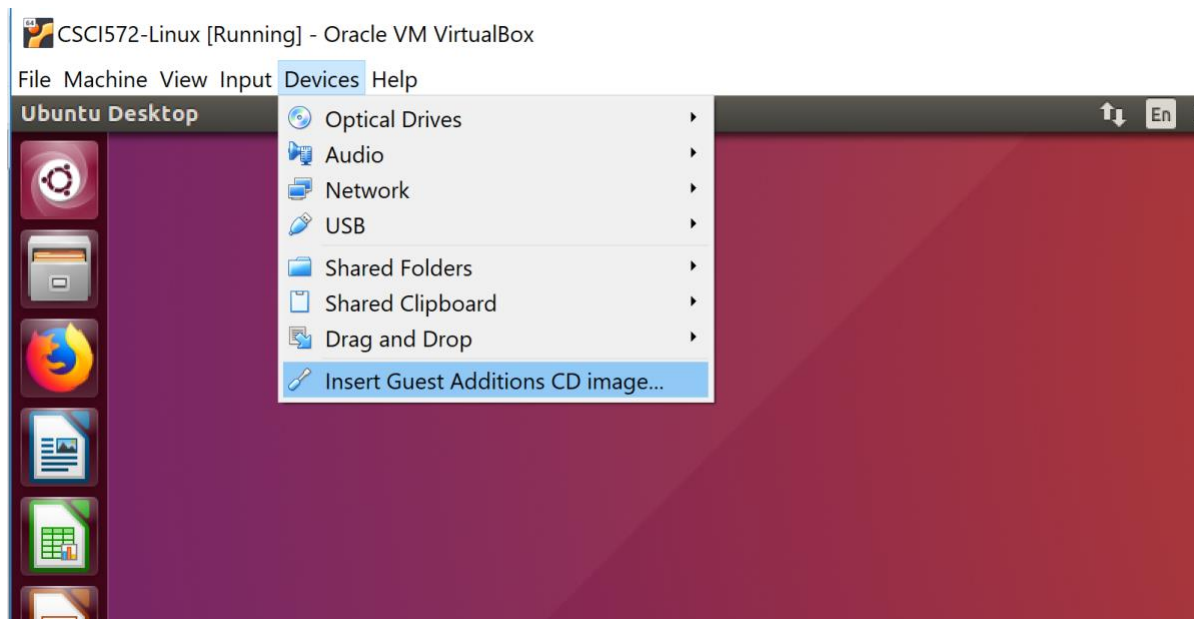
Retrieving file 50 of 87 (14s remaining)

13. After the installation, system will prompt you to restart the system.

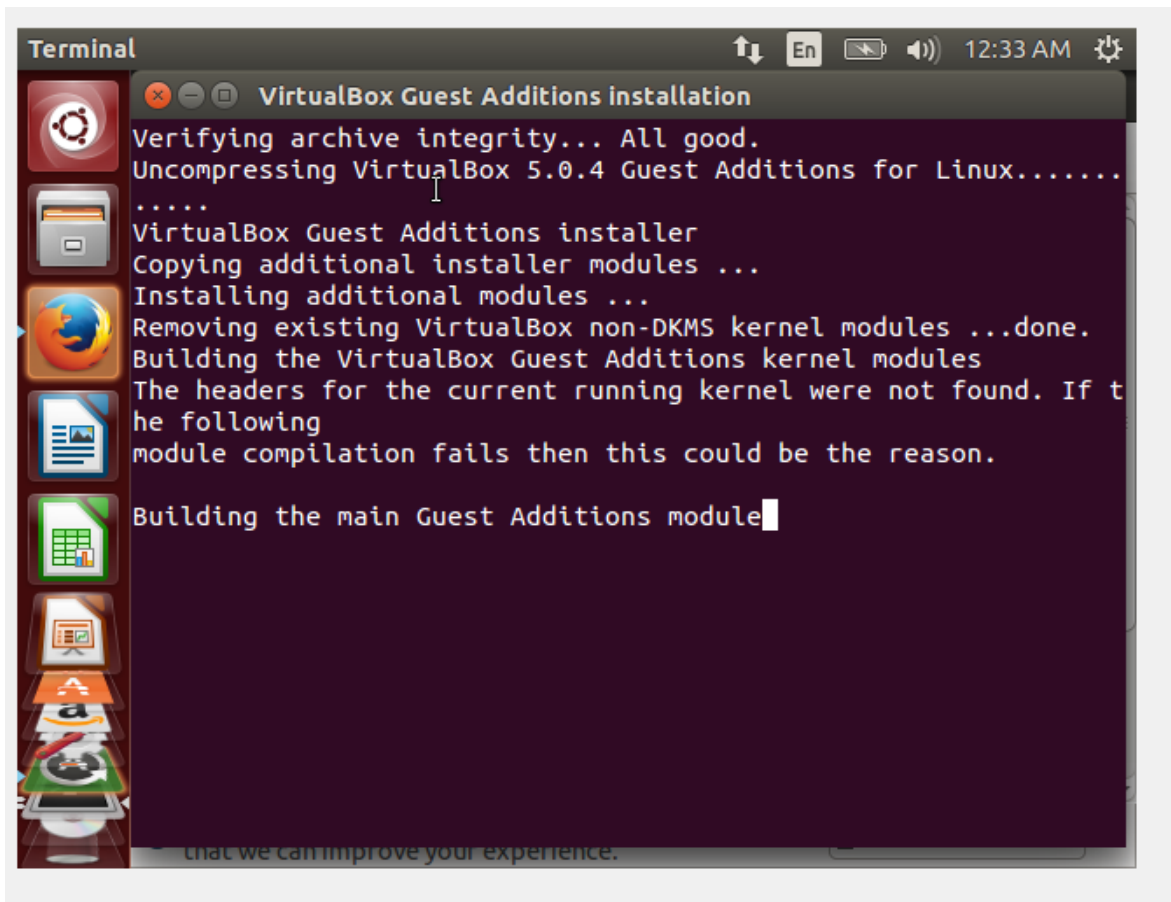


14. Adding Guest Additions (extensions to help Ubuntu run better when virtualized).

- After restarting your system, open a terminal and run "sudo apt-get install build-essential module-assistant linux-headers-generic".
- From the menu, select Devices > Insert Guest Additions CD Image.



- Select "Run" when prompted and enter your password. You should see the following screen if it is running successfully.



Note: If you get an error “Unable to mount CD ...”, then follow these instructions

1. Install kernel headers and build tools

Virtualbox guest additions are compiled for the target system, so it needs the necessary kernel headers and related programs. Install the following 2 packages.

```
$ sudo apt-get install build-essential module-assistant
```

Now run

```
$ sudo m-a prepare
```

Mount manually

If it does not mount by itself, then you can manually mount it. Find out the device using blkid and then use the mount command to mount it somewhere in your home directory

```
# find out the device
$ sudo blkid
/dev/sr0: LABEL="VBox_Gas_5.2.18" TYPE="iso9660"
```

```
# Or use the lsblk command

$ sudo lsblk -o NAME,TYPE,SIZE,LABEL,MOUNTPOINT,MODEL

NAME      TYPE      SIZE LABEL                MOUNTPOINT MODEL
sda       disk      8G
├─sda1    part      6G                /
├─sda2    part      1K
└─sda5    part      2G                [SWAP]
sr0       rom       55.3M VBox_Gas_5.2.18    CD-ROM
```

Note down the device name which is "/dev/sr0" here. Next we have to mount this device (cdrom) to access the contents.

```
# create directory to mount

$ mkdir cdrom

# mount the cd

$ sudo mount /dev/sr0 ~/cdrom/

mount: block device /dev/sr0 is write-protected, mounting read-only

# get inside the mounted directory

$ cd cdrom/

~/cdrom$ ls

32Bit      cert      VBoxSolarisAdditions.pkg
64Bit      OS2       VBoxWindowsAdditions-amd64.exe
AUTORUN.INF runasroot.sh  VBoxWindowsAdditions.exe
autorun.sh  VBoxLinuxAdditions.run  VBoxWindowsAdditions-x86.exe
```

Start compiling

Once you are inside the cdrom directory, run the script named VBoxLinuxAdditions.run

```
cdrom$ sudo ./VBoxLinuxAdditions.run

Verifying archive integrity... All good.

Uncompressing VirtualBox 5.2.18 Guest Additions for Linux.....

VirtualBox Guest Additions installer
```

```
Copying additional installer modules ...
Installing additional modules ...
Removing existing VirtualBox DKMS kernel modules ...done.
Removing existing VirtualBox non-DKMS kernel modules ...done.
Building the VirtualBox Guest Additions kernel modules ...done.
Doing non-kernel setup of the Guest Additions ...done.
Starting the VirtualBox Guest Additions ...done.
Installing the Window System drivers
Installing X.Org Server 1.15 modules ...done.
Setting up the Window System to use the Guest Additions ...done.
You may need to restart the hal service and the Window System (or just restart
the guest system) to enable the Guest Additions.

Installing graphics libraries and desktop services components ...done.
```

Note the line

```
Building the VirtualBox Guest Additions kernel modules ...done.
```

If it shows done, then virtualbox guest additions are compiled successfully.
Now restart the guest OS.

3. Verify that guest additions are working

After rebooting the OS, the screen resolution of the guest OS should adjust with the window size of virtualbox.
Other things like mouse scroller, copy paste from guest to host should also work.

You can verify that the guest additions are loaded with the following command

```
# check loaded modules

$ lsmod | grep -io vboxguest

vboxguest

# check module

$ modinfo vboxguest
```

```

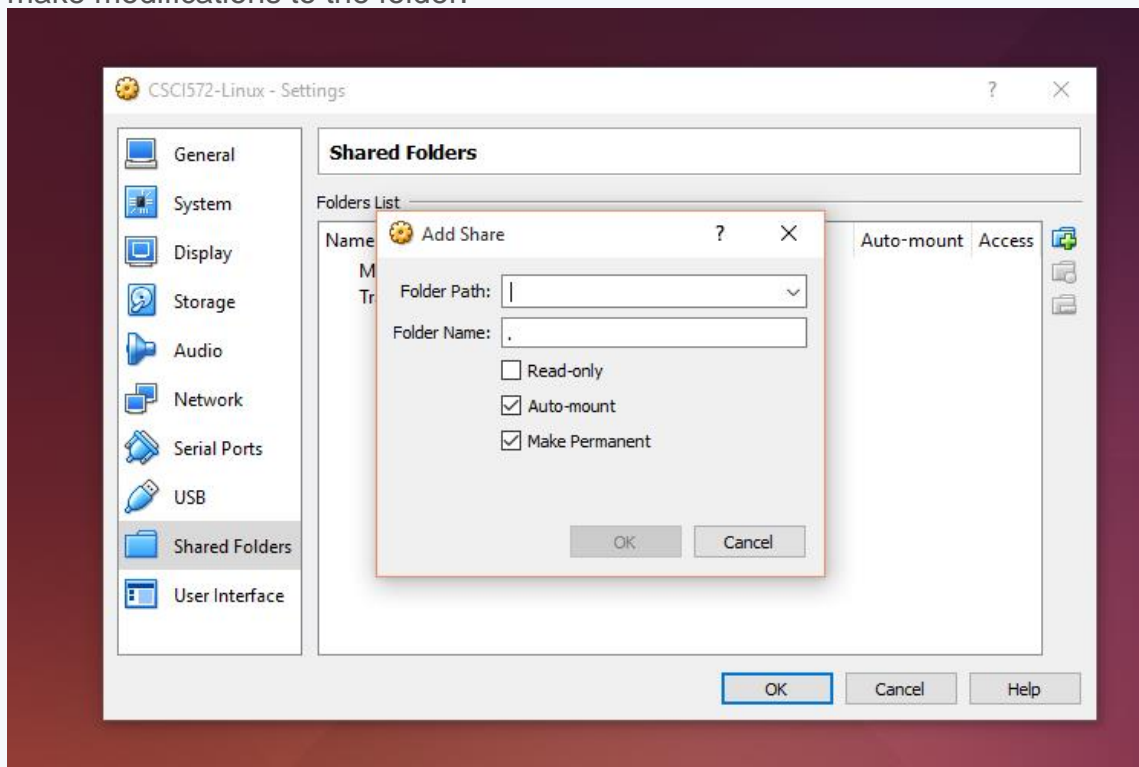
filename:      /lib/modules/4.15.0-112-generic/misc/vboxguest.ko
version:      5.2.44 r139111
license:      GPL
description:   Oracle VM VirtualBox Guest Additions for Linux Module
author:       Oracle Corporation
.....

$ lsmod | grep -io vboxguest | xargs modinfo | grep -iw version
version:      5.2.44 r139111

```

- After installing guest additions, you can share folders across the guest and host OS, allowing each of them to access each other's files. The folder exists on the host OS and is shared to the guest OS. The guest may or may not be given the permission to write to the shared folder.

Click Devices > Shared Folder > Shared folder settings on the VirtualBox window. Click the plus icon on the right side and select the directory from the host OS that you want to share with the guest OS. If you choose "Make permanent" it becomes a Machine folder, else it is a Transient folder. You also have the option to make it read only, so that the guest OS cannot make modifications to the folder.

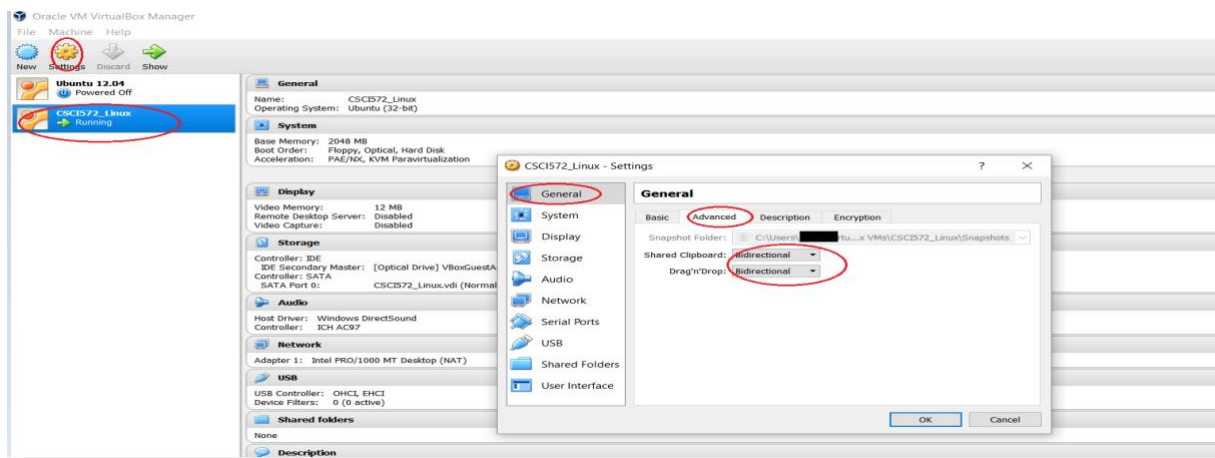


16. Once you have specified the shared directory, it is time to mount it inside the guest OS. The list of shared folders would show you the name and path of the shared directory. Note down the name, and mount it using the following command

```
17. # create a directory in your home directory
18. $ mkdir shared
19.
20. # mount using the mount command. SHARENAME is the name of the shared directory
21. $ sudo mount -t vboxsf SHARENAME ~/shared
22.
23. # or
24. $ sudo mount.vboxsf SHARENAME ~/shared
```

Tips:

1. To enable copy-paste between guest and host:



2. Apache Solr runs on Java 8 or greater. Please make sure to download Java 8 jdk before proceeding to the rest of the tutorials.

Running Ubuntu on 64-bit machines

To resolve the issue one student suggested:

1. Enable **Intel Virtualization Technology** or **VT-d** from BIOS Ref: <https://appuals.com/fix-virtualbox-not-showing-64-bit-windows-10/>.

2. Turn off Hyper-V on Windows 10. I followed every single step in this guide: <https://ugetfix.com/ask/how-to-disable-hyper-v-in-windows-10/>

3. Reboot my PC and saw 64 bit in VM

A second suggestion was

You could try to enable virtualization through BIOS.

<https://askubuntu.com/questions/675251/virtualbox-has-no-64-bit-options#:~:text=May%20be%20your%20system%20is,to%20enable%20virtualization%20through%20BIOS>