## **Installing Virtualbox on ubuntu:**

Here are the general steps to install VirtualBox 6.1 on Ubuntu 22.04:

## **Step 1**: Add the VirtualBox repository:

Open a terminal and run the following commands to add the VirtualBox repository:

sudo sh -c 'echo "deb [arch=amd64]
http://download.virtualbox.org/virtualbox/debian \$(lsb\_release -cs)
contrib" >> /etc/apt/sources.list.d/virtualbox.list'

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$ sudo sh -c 'echo "deb [arch=amd64] http://download.virtualbox.or
[sudo] password for kiranmayi:
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$
```

## **Step 2**: Download and register the Oracle public key:

wget -q https://www.virtualbox.org/download/oracle\_vbox\_2016.asc -O- | sudo gpg --dearmor -o /etc/apt/trusted.gpg.d/oracle\_vbox.asc

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$ wget -q https://www.virtualbox.org/download/oracle_vbox_2016.asc
File '/etc/apt/trusted.gpg.d/oracle_vbox.asc' exists. Overwrite? (y/N) y
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$
```

## **Step 3**: Install VirtualBox 6.1:

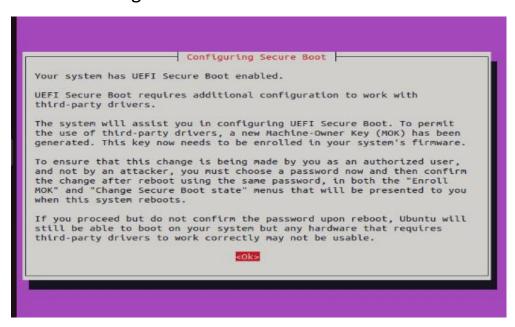
Update your package list and then install VirtualBox:

sudo apt update

sudo apt install virtualbox-6.1

```
ktrannyt@ktrannyt-1deaPad-3-15ALC6-Ub:-$ sudo apt update
Htt:1 http://h.n-crChive.ubuntu.com/ubuntu_jamy_Indelease
Htt:2 http://scurity.ubuntu.com/ubuntu_jamy_security_InRelease
Htt:3 http://ch.n-crChive.ubuntu.com/ubuntu_jamy-security_InRelease
Htt:3 http://ch.n-crChive.ubuntu.com/ubuntu_jamy-security_InRelease
Htt:3 http://ch.n-crChive.ubuntu.com/ubuntu_jamy-security_InRelease
Gt:-1 http://domiload.virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org/virulabox.org
```

Step 4: While installing virtualbox if your secure boot is enabled it will show a message like this:



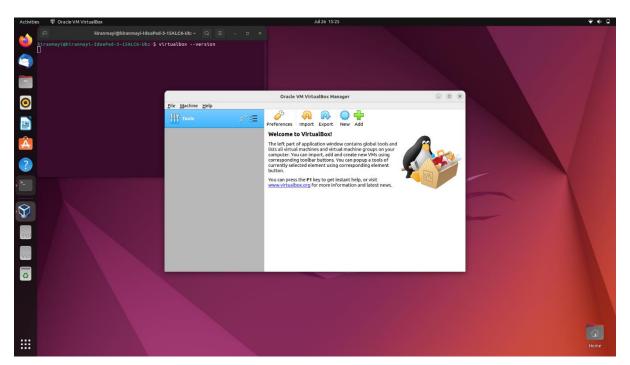
Then press Enter -> Give password -> Retype Password -> Enter



Now restart the system and while restarting press the function key for booting. Select Ubuntu ->Go to Security -> Disable Secure Boot ->Click on Yes
Step 5: Now check whether virtualbox is successfully installed or not

using the following command:

virtualbox --version



## **Installing git:**

**Step 1:** First check whether git is installed on your system or not. If it is not installed then use the following command to install git.

sudo apt install git

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$ sudo apt install git
[sudo] password for kiranmayi:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
    git-man liberror-perl
Suggested packages:
    git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
    git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 6 not upgraded.
Need to get 4,147 kB of archives.
After this operation, 21.0 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 liberror-perl all 0.17029-1 [26.5 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 git-man all 1:2.34.1-1ubuntu1.9 [954 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 git amd64 1:2.34.1-1ubuntu1.9 [3,166 kB]
```

Now check whether it is successfully installed or not using the command:

```
git --version
```

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$ git --version git version 2.34.1
```

## Now clone the following repository in to your system

## https://github.com/bradleyd/devops\_for\_the\_desperate.git

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-$ git clone https://github.com/bradleyd/devops_for_the_desperate.git
Cloning into 'devops_for_the_desperate'...
remote: Enumerating objects: 644, done.
remote: Counting objects: 100% (37/37), done.
remote: Compressing objects: 100% (37/37), done.
remote: Total 644 (delta 6), reused 3 (delta 0), pack-reused 607
Receiving objects: 100% (644/644), 6.49 MiB | 1.05 MiB/s, done.
Resolving deltas: 100% (298/298), done.
```

Now a folder with the name devops\_for\_the\_desperate is added to your directory.

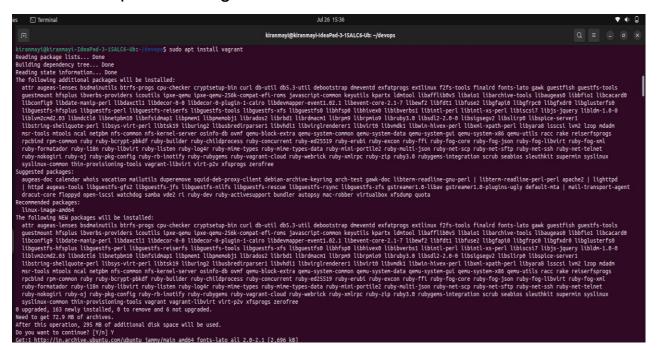
# **Installing Vagrant:**

**Step 1:** First make a directory and navigate to that directory like this:

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-$ mkdir devops
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-$ cd devops/
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$
```

## Step 2: Install vagrant using the command:

sudo apt install vagrant



Check whether vagrant is installed or not using the command:

Vagrant --version

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ vagrant --version
Vagrant 2.2.19
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$
```

Step 3: After you have finished installing Vagrant, enter the following command in your terminal to install the Vagrant plug-in for guest additions:

vagrant plugin install vagrant-vbguest

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ vagrant plugin install vagrant-vbguest
Installing the 'vagrant-vbguest' plugin. This can take a few minutes...
Fetching xml-simple-1.1.9.gem
Fetching diffy-3.4.2.gem
Fetching vagrant-libvirt-0.12.2.gem
Fetching micromachine-3.0.0.gem
Fetching vagrant-vbguest-0.31.0.gem
Installed the plugin 'vagrant-vbguest (0.31.0)'!
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$
```

Step 4: Copy the vagrant file from the folder you cloned from git and paste that file in this folder.

Step 5: Now perform basic vagrant commands:

vagrant up: Creates a VM using the Vagrantfile as a guide

vagrant destroy: Destroys the running VM

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ vagrant destroy
    default: Are you sure you want to destroy the 'default' VM? [y/N] y
==> default: Forcing shutdown of VM...
==> default: Destroying VM and associated drives...
```

vagrant status: Checks the running status of a VM

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ vagrant status
Current machine states:

default not created (virtualbox)

The environment has not yet been created. Run `vagrant up` to create the environment. If a machine is not created, only the default provider will be shown. So if a provider is not listed, then the machine is not created for that environment.
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$
```

vagrant ssh: Accesses the VM over Secure Shell

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ vagrant ssh
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.4.0-153-generic x86_64)
 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
  System information as of Wed Jul 26 15:22:40 UTC 2023
  System load: 0.49
                                   Processes:
                                                              123
 Usage of /: 4.7% of 38.70GB Users logged in:
                                                              0
                       IPv4 address for enp0s3: 10.0.2.15
IPv4 address for enp0s8: 192.168.56.5
 Memory usage: 26%
  Swap usage:
Expanded Security Maintenance for Applications is not enabled.
11 updates can be applied immediately.
11 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
New release '22.04.2 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
Last login: Wed Jul 26 15:22:17 2023 from 10.0.2.2
vagrant@dftd:~$
```

These are the vagrant commands. Note that you will get the following error after performing vagrant up:

```
default:

default: Vagrant insecure key detected. Vagrant will automatically replace

default: this with a newly generated keypair for better security.

default:

default: Inserting generated public key within guest...

default: Removing insecure key from the guest if it's present...

default: Key inserted! Disconnecting and reconnecting using new SSH key...

==> default: Machine booted and ready!

==> default: Checking for guest additions in VM...

==> default: Setting hostname...

==> default: Configuring and enabling network interfaces...

default: // Vagrant => /home/kiranmayi/devops

==> default: Running provisioner: ansible...

playbook does not exist on the host: /home/kiranmayi/ansible/site.yml

kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$

kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$

kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$

kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$
```

To resolve this issue install ansible and set the path for the playbook file site.yml

# **Installing Ansible:**

Step 1: First run the following command to include the official project's PPA (personal package archive) in your system's list of sources:

sudo apt-add-repository ppa:ansible/ansible

```
ktrannaytiktrannayt-ideaPad-3-15ALC6-Ub:-/davogsC sudo apt-add-repository ppa:ansible/ansible
Repository: 'deb https://ppa.launchpadcontent.net/ansible/pansible/bubuntu/ jamny main'
Description:
Ansible is a radically simple IT automation platforn that makes your applications and systems easier to deploy. Avoid writing scripts or custon code to deploy and update your applications—automate in a language that approaches plain English, using SSM, with no agents to install on remote systems.

http://ansible.com/

If you face any issues while installing Ansible PPA, file an issue here:
https://plubuc.on/ansible-community/ppa/issues
More info: https://lsunchpad.net/-ansible/sarchive/ubuntu/ansible
Adding repository.
Press [EMTER] to continue or Ctrl-c to cancel.
Adding disabled deb-src entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jamny.list
Adding key to /etc/apt/trusted-gp.gd.nasible-ubuntu-ansible-jamny.list
Adding key to /etc/apt/trusted-gp.gd.nasible-ubuntu-ansible-jamny.lis
```

Press ENTER when prompted to accept the PPA addition.

Step 2: Next update your system so that it is aware of the packages available in the newly included PPA:

#### sudo apt update

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-/devops$ sudo apt update
Hit:1 http://download.virtualbox.org/virtualbox/debian jammy InRelease
Hit:2 http://security.ubuntu.com/ubuntu jammy InRelease
Hit:3 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:5 https://pa. launchpadcontent.net/anstble/anstble/doubuntu jammy InRelease
Get:6 http://th.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:6 http://th.archive.ubuntu.com/ubuntu jammy-backports InRelease
Beti-6 http://th.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:6 http://th.archive.ubuntu.com/ubuntu jammy-backports InRelease
Beti-6 http://th.archive.ubuntu.com/ubuntu.jammy-backports InRelease
Beti-6 http://th.archive.ubuntu.com/ubuntu.jammy-backports
```

# Step 3: Now install ansible using the following command:

## sudo apt install ansible

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-/devops$ sudo apt install ansible
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
ansible-core python-babel-localedata python3-babel python3-jinja2 python3-jmespath python3-kerberos python3-ntlm-auth python3-packaging python3-requests-kerber
python3-resolvelib python3-winrm python3-xmltodict sshpass
Suggested packages:
python-jinja2-doc
The following NEW packages will be installed:
ansible ansible-core python-babel-localedata python3-babel python3-jinja2 python3-jmespath python3-kerberos python3-ntlm-auth python3-packaging python3-request
python3-resolvelib python3-winrm python3-xmltodict sshpass
0 upgraded, 15 newly installed, 0 to remove and 6 not upgraded.
Need to get 22.3 MB of archives.
After this operation, 297 MB of additional disk space will be used.
```

Make sure to restart your system after installing ubuntu.

Now check whether the ansible is successfully installed or not:

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-/devops$ ansible --version
ERROR: Ansible requires the locale encoding to be UTF-8; Detected ISO8859-1.
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:-/devops$
```

It will display the above error to fix that error open the following nano file and update the file.

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ sudo nano /etc/default/locale
```

It will show like this:

```
es © Terminal Jul 26 15:46

kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub: ~/devops

GNU nano 6.2 /etc/default/locale

### Fite generated by update-locale
LANGE="en_IN"
LANGUAGE="en_IN:en"
```

Update the lines like this using the following command:

sudo update-locale LANG="en\_US.UTF-8" LC\_CTYPE="en\_US.UTF-8"

kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops\$ sudo update-locale LANG=en\_US.UTF-8 LC\_CTYPE=en\_US.UTF-8 It should be updated like this:



Step 4: Now check the version.

sudo ansible --version

```
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~$ cd devops/
kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$ ansible --version
ansible [core 2.15.2]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/kiranmayi/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/kiranmayi/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.6 (main, May 29 2023, 11:10:38) [GCC 11.3.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
  kiranmayi@kiranmayi-IdeaPad-3-15ALC6-Ub:~/devops$
```

Step 5: After successful installation of ansible copy the ansible folder from the folder you cloned from the git in to your current working directory. In this case it is devops.

Step 6: Copy the path of site.yml and update the vagrant file like this:

```
# documentation for more information about their specific syntax and use.
# config.vm.provision "shell", inline: <<-SHELL
# apt-get update
# apt-get install -y apache2
# SHELL
config.vm.provision "ansible" do |ansible|
ansible.playbook = "/home/kiranmayi/devops/ansible/site.yml"
#ansible.compatibility_mode = "2.0"
end
end</pre>
```

# Step 7: Now run vagrant up command. It should display the output like this:

```
ktrannayt@ktrannayt-IdeaPad-3-15ALC6-Ub:-/devops$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
=>> default: Importing base box 'ubuntuf/ocald4'...
=>> default: Importing base box 'ubuntuf/ocald4'...
=>> default: Checking if box 'ubuntuf/ocald4' version '20230719.0.0' is up to date...
=>> default: Checking if box 'ubuntuf/ocald4' version '20230719.0.0' is up to date...
=>> default: Checking if box 'ubuntuf/ocald4' version '20230719.0.0' is up to date...
=>> default: Clearing any previously set network interfaces...
=>> default: Clearing any previously set network interfaces...
=>> default: Adapter 2: hostonly
=>> default: Adapter 2: hostonly
=>> default: Adapter 2: hostonly
=>> default: Box default: Adapter 2: hostonly
=>> default: Box default: Running 'pre-boot' VM custonizations...
=>> default: Box default: Box default: Box default: SSH address: 127.0.0.1:2222
default: SSH suername: vagrant
default: SSH sudress: 127.0.0.1:2222
default: SSH sudress: 127.0.0.1:2222
default: SSH sudress: 127.0.0.1:2222
default: Wagrant insecure key detected. Vagrant will automatically replace
default: Wagrant insecure key detected. Vagrant will automatically replace
default: His with a newly generated eypair for better security.
default: Removing insecure key from the guest if it's present...
default: Removing insecure key from the guest if it's present...
default: Nachine booted and ready!
=>> default: Nachine booted and ready!
=>> default: Nachine booted and ready!
=>> default: Setting bottmane...
=>> default: Setting bottmane...
=>> default: Setting bottmane...
=>> default: Running provisioner: ansible...
default: Running provisioner: ansi
```