

Operating system project

Create a Basic Virtual Machine

project members :

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Group 3

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Project Goal :

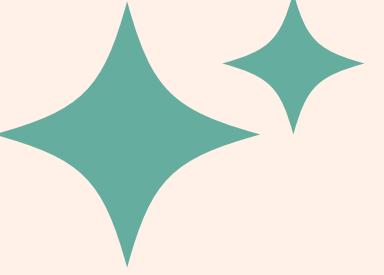
To demonstrate the creation and configuration of virtual machines using both graphical interfaces (VirtualBox on macOS) and command-line tools (on Ubuntu)



What is the Virtual Machine?

VM

**It's a logical version of a physical computer.
and It runs on a physical computer (the host) and
behaves like a real computer with its own
operating system, memory, storage, and
applications.**



For example:

VM

you can use virtual machine software to create isolated environments on this computer, like separate rooms in a house.

Each virtual machine acts like a completely independent computer.

HOW TO CREATE THE VIRTUAL MACHINE?

There is several ways, but we do two:

1

Create Virtual Machine by using
VirtualBox in MAC operating system.

2

Create Virtual Machine by using
commands inside Ubuntu system.

HOW TO CREATE THE VIRTUAL MACHINE?

First Way

1

Create Virtual Machine by using
VirtualBox in MAC operating system.



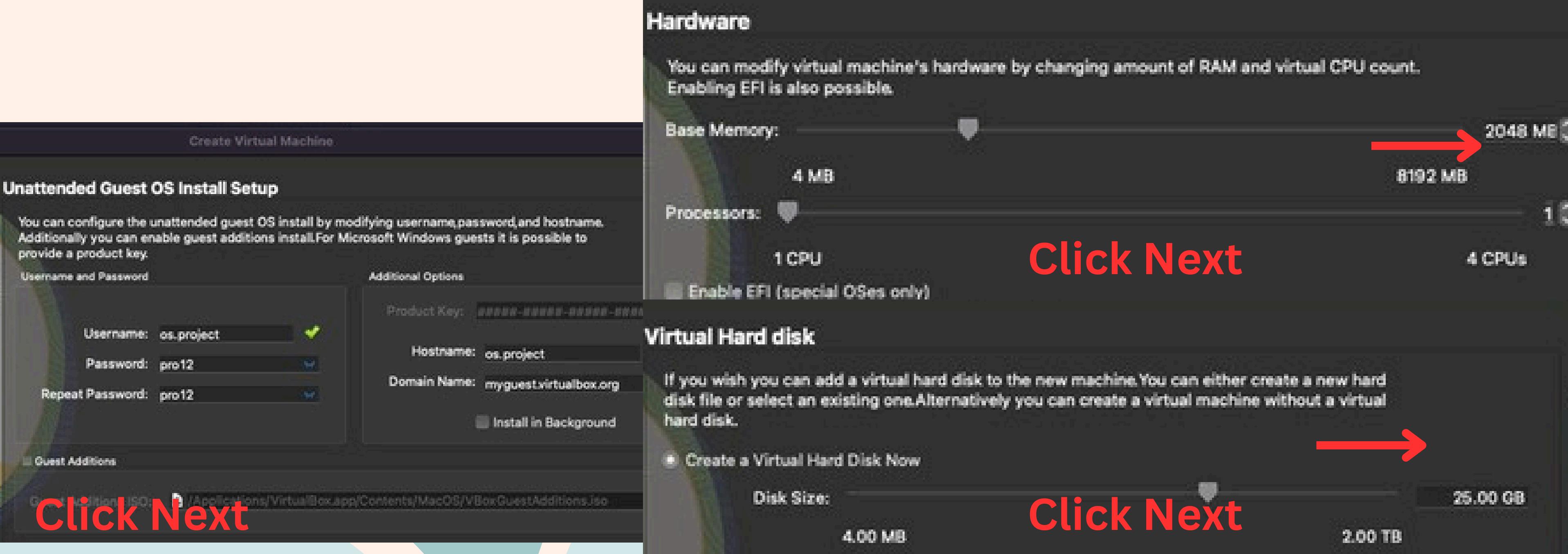
Step1/ create new Virtual Machine AND name it:

Click on “New” the blue button.

Enter name for your Virtual Machine

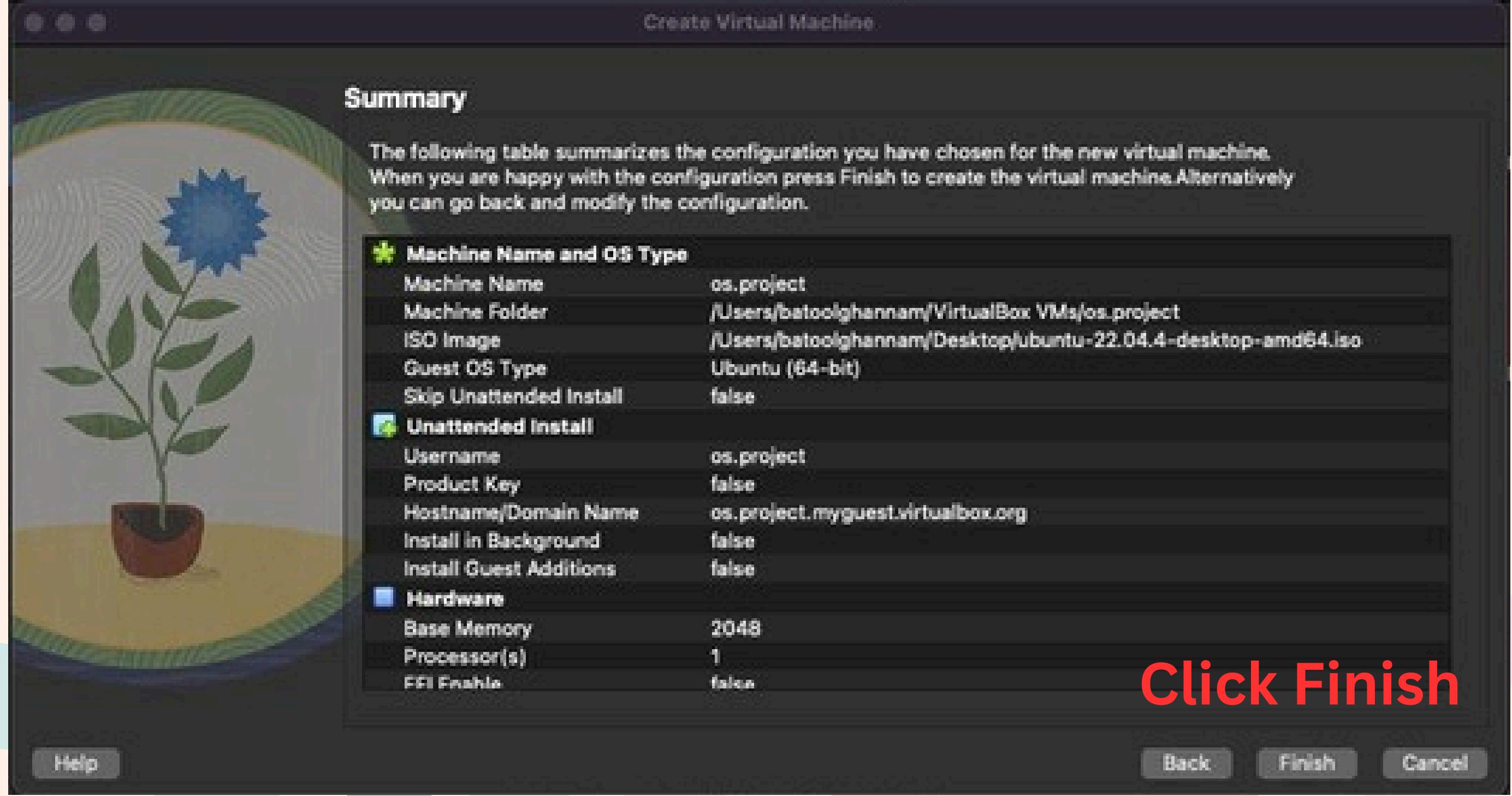
Select the type of OS you want, and the version .

add the ISO image

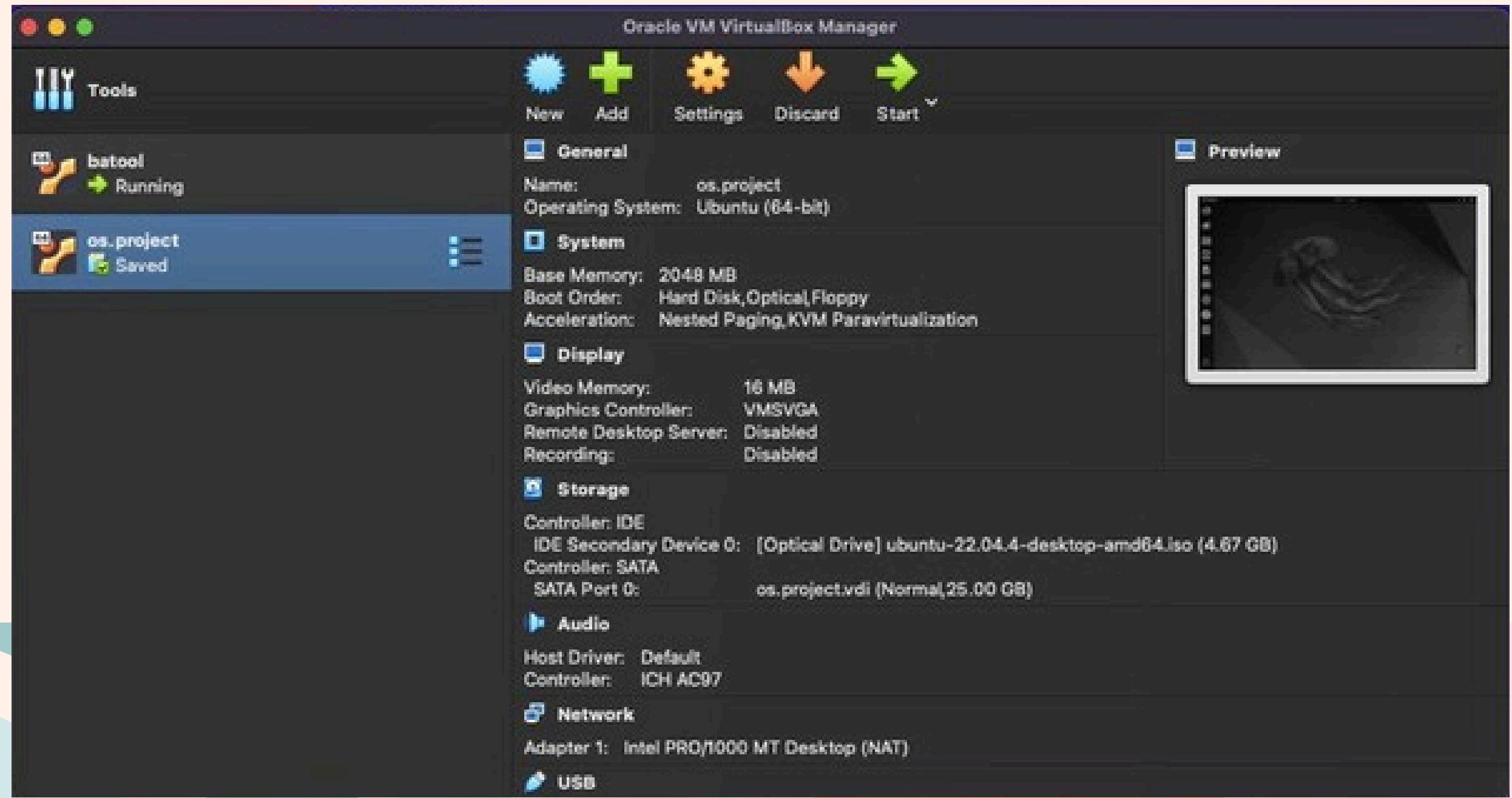


Step2/ set a username and password for our VM:

Step3/ change the RAM amount:
1) change your machine hardware to 2048MG
2) Change the virtual hard disk to 2GB
These values are the recommended for Ubuntu



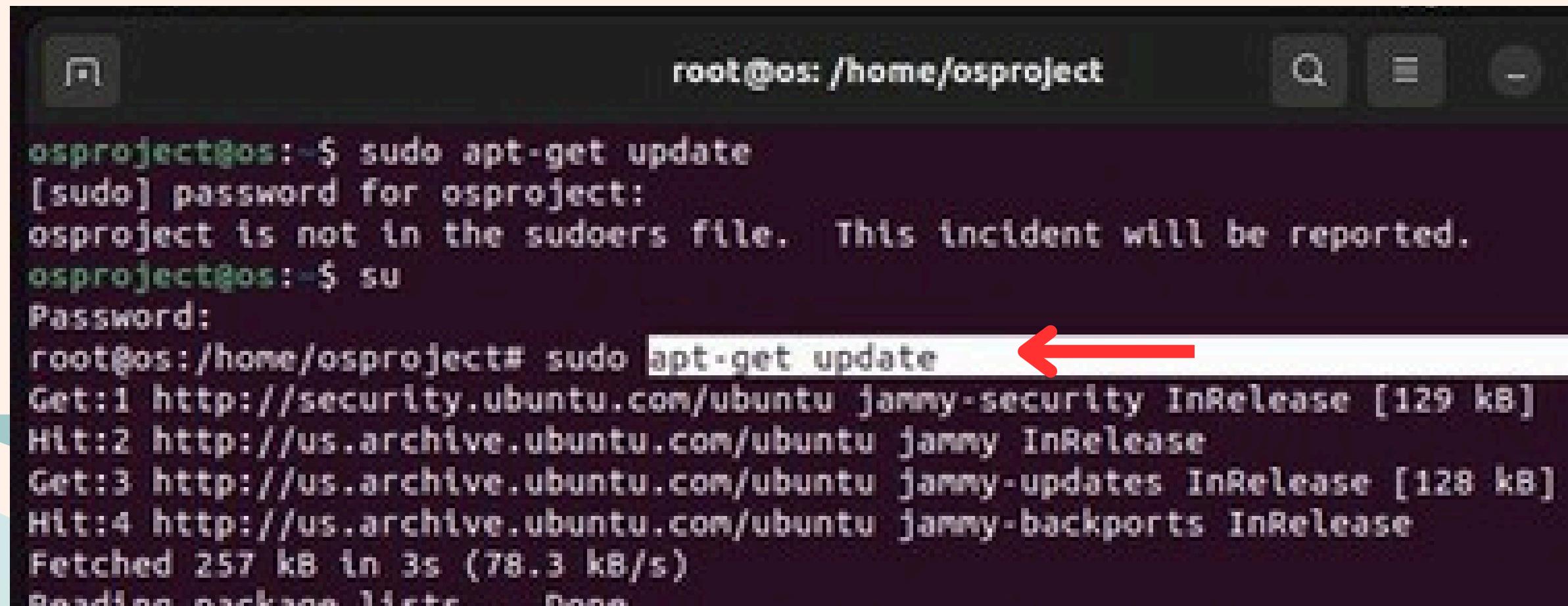
Step4/ our VM general information:
these information (summary) will appear after you
complete the previous steps.
it's summarised all configuration you've chosen.



Now your VM is ready to be used
Click on start

Additional Steps

Step8/ here we run the VM and go to the terminal to use some commands to insure that our VM is working successfully



```
root@os: /home/osproject
osproject@os:~$ sudo apt-get update
[sudo] password for osproject:
osproject is not in the sudoers file. This incident will be reported.
osproject@os:~$ su
Password:
root@os:/home/osproject# sudo apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Hit:2 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Hit:4 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 257 kB in 3s (78.3 kB/s)
Reading package lists... Done
```

we use this command to retrieves
the information in the system

Additional Steps

Step8/ here we run the VM and go to the terminal to use some commands to insure that our VM is working successfully

```
root@os:/home/osprojects# sudo apt-get install git curl ssh
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  git-man libcurl4 liberror-perl ncurses-term openssh-client openssh-server
  openssh-sftp-server ssh-import-id
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb
  git-cvs git-mediawiki git-svn keychain libpam-ssh monkeysphere ssh-askpass
  molly-guard
The following NEW packages will be installed:
  curl git git-man liberror-perl ncurses-term openssh-server openssh-sftp-server
  ssh ssh-import-id
The following packages will be upgraded:
  libcurl4 openssh-client
2 upgraded, 9 newly installed, 0 to remove and 256 not upgraded.
Need to get 5897 kB/6291 kB of archives.
After this operation, 27.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openssh-sftp-server amd64 1:8.9p1-3ubuntu0.10 [38.9 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openssh-server amd64 1:8.9p1-3ubuntu0.10 [435 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ssh all 1:8.9p1
```

we use this command to install the
Git Because we want to put our
project in the GitHub

Additional Steps

Step8/ here we run the VM and go to the terminal to use some commands to insure that our VM is working successfully

```
root@os: /home/osproject# git clone https://github.com/Batool-ghannam/osproject1.git
Cloning into 'osproject1'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
```

we use this command to put our
repository link to upload our
project in it

Additional Steps

Our GitHub Repository You can visit it and see our project Report and Presentation.

<https://github.com/Batool-ghannam/osproject1.git>

The screenshot shows the GitHub repository page for 'osproject1'. The repository is public and owned by 'Batool-ghannam'. It contains one branch ('main') and no tags. The repository has 2 commits, with the most recent being an upload of 'Operating Systems report.pdf' and 'README.md'. The commit was made 5 minutes ago. The repository has 0 stars, 1 watching, and 0 forks. There are no releases or packages published.

osproject1 Public

main · 1 Branch · 0 Tags

Batool-ghannam Add files via upload · 53d00b4 · 5 minutes ago · 2 Commits

Operating Systems report.pdf Add files via upload · 5 minutes ago

README.md Initial commit · last week

osproject.pdf Add files via upload · 5 minutes ago

README

No description, website, or topics provided.

Readme · Activity · 0 stars · 1 watching · 0 forks

Releases

No releases published · Create a new release

Packages



HOW TO CREATE THE VIRTUAL MACHINE?

Second Way

2

Create Virtual Machine inside Ubuntu system.

```
root@os: /home/osproject root@os: /home/osproject 
root@os:/home/osprojects sudo apt update ←
Hit:1 http://download.virtualbox.org/virtualbox/debian jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Hit:3 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Get:4 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Hit:5 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:6 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [547 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1854 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [910 kB]
Get:10 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2071 kB]
Get:11 http://us.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [705 kB]
Get:12 http://us.archive.ubuntu.com/ubuntu jammy-updates/main
```

we use this command to
downloads the package
information from the Internet.
and It is useful to get info on the
updated version of packages or
their dependencies

```
root@os:/home/osproject  Q  -  X
root@os:/home/osproject# sudo apt install virtualbox ←
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libSDL-ttf2.0-0
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libgsoap-2.8.117 liblzf1 virtualbox-dkms virtualbox-qt
Suggested packages:
  vde2 virtualbox-guest-additions-iso
The following packages will be REMOVED:
  virtualbox-6.1
The following NEW packages will be installed:
  libgsoap-2.8.117 liblzf1 virtualbox virtualbox-dkms
  virtualbox-qt
0 upgraded, 5 newly installed, 1 to remove and 266 not upgraded.
Need to get 46.4 MB of archives.
After this operation, 45.6 MB disk space will be freed.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu jammy/universe amd64 libgsoap-2.8.117 amd64 2.8.117-2build1 [269 kB]
```

we use this command to install
VirtualBox package from the
official repositories on the Ubuntu

```
root@os: /home/osproject
root@os:/home/osprojects# VBoxManage --version
6.1.50_Ubuntur161033
root@os:/home/osprojects#
```

we use this command to see the latest VirtualBox version installed via the Ubuntu repository

```
root@os:/home/osprojects# wget https://download.virtualbox.org/virtualbox/7.0.14/
Oracle_VM_VirtualBox_Extension_Pack-7.0.14.vbox-extpack
--2024-10-15 13:57:28-- https://download.virtualbox.org/virtualbox/7.0.14/Oracle_
VM_VirtualBox_Extension_Pack-7.0.14.vbox-extpack
Resolving download.virtualbox.org (download.virtualbox.org)... 23.209.88.118
Connecting to download.virtualbox.org (download.virtualbox.org)|23.209.88.118|:4
43... connected.
HTTP request sent, awaiting response... 200 OK
Length: 18331089 (17M) [text/plain]
Saving to: 'Oracle_VM_VirtualBox_Extension_Pack-7.0.14.vbox-extpack'

Oracle_VirtualBo 100%[=====] 17.48M 6.94MB/s in 2.5s

2024-10-15 13:57:33 (6.94 MB/s) - 'Oracle_VM_VirtualBox_Extension_Pack-7.0.14.vb
ox-extpack' saved [18331089/18331089]

root@os:/home/osprojects# sudo VBoxManage extpack install Oracle_VM_VirtualBox_Ex
tension_Pack-7.0.14.vbox-extpack
VirtualBox Extension Pack Personal Use and Evaluation License (PUEL)
```

we use this command to The current extension pack version on the VirtualBox website is 7.0.14. And it's adds additional features to VirtualBox

```
root@os:/home/osproject# sudo VBoxManage extpack install Oracle_VM_VirtualBox_Ex  
tension_Pack-7.0.14.vbox-extpack  
VirtualBox Extension Pack Personal Use and Evaluation License (PUEL)
```

we use this command to install
the Oracle VM VirtualBox
Extension Pack that we've
previously downloaded.

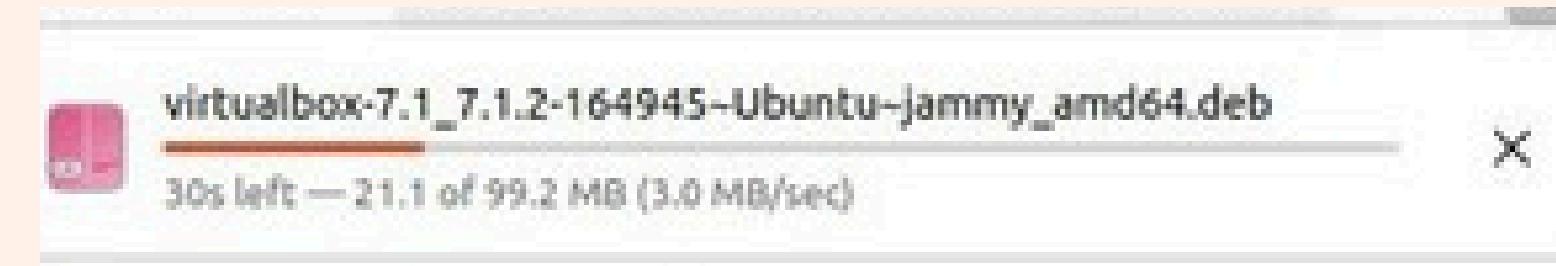
or Santa Clara counties in California in any dispute arising relating to this Agreement. Upon 45 days written notice, Oracle shall audit your use of the Product to confirm that you are in compliance with the terms of this Agreement. You agree to cooperate with the audit and provide reasonable assistance and access to information such audit shall not unreasonably interfere with your normal operations. You agree to pay within 30 days of written notice any fees applicable to your unlicensed use of the Product. You acknowledge that Oracle shall not be responsible for any of your costs of cooperating with the audit. If a legal action or proceeding is brought by either party in connection with the enforcement of this Agreement, the prevailing party shall be entitled to its costs and attorney fees actually incurred in connection with such action or proceeding.

Do you agree to these license terms and conditions (y/n)? y

License accepted. For batch installation add
--accept-license=33d7284dc4a0ece381196fd3cfe2ed0e1e8e7ed71c
to the VBoxManage command line.

ex...10%...20%...30%...40%...50%...60%...70%...80%...90%...
Successfully installed "Oracle VM VirtualBox Extension Pack"
root@os:/home/osprojects

- [Oracle Linux 9 / Red Hat Enterprise Linux 9](#)
- [Oracle Linux 8 / Red Hat Enterprise Linux 8](#)
- [Ubuntu 24.04](#)
- **Ubuntu 22.04**
- [Ubuntu 20.04](#)
- [Debian 12](#)
- [Debian 11](#)
- [openSUSE 15.3 / 15.4 / 15.5 / 15.6](#)
- [Fedora 40](#)
- [Fedora 36 / 37 / 38 / 39](#)
- [All distributions \(built on EL6 and therefore not requiring recent system libraries\)](#)

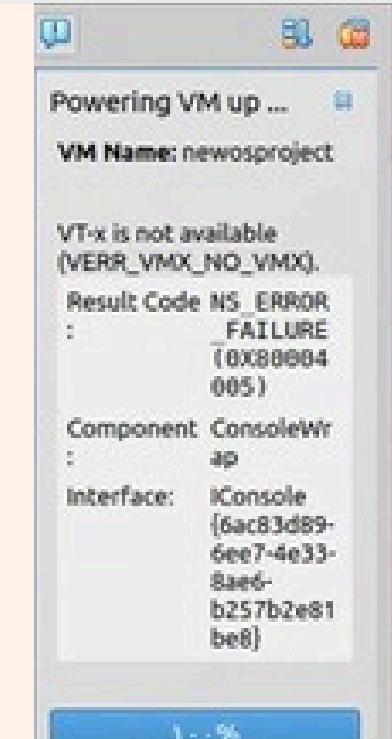
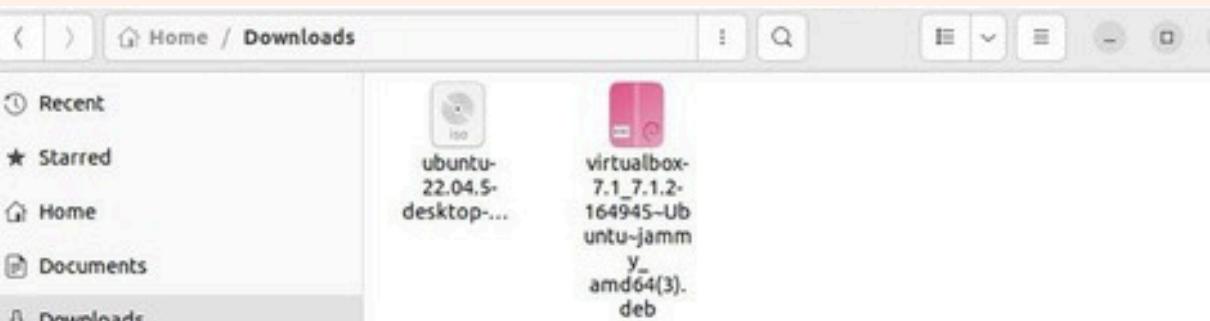
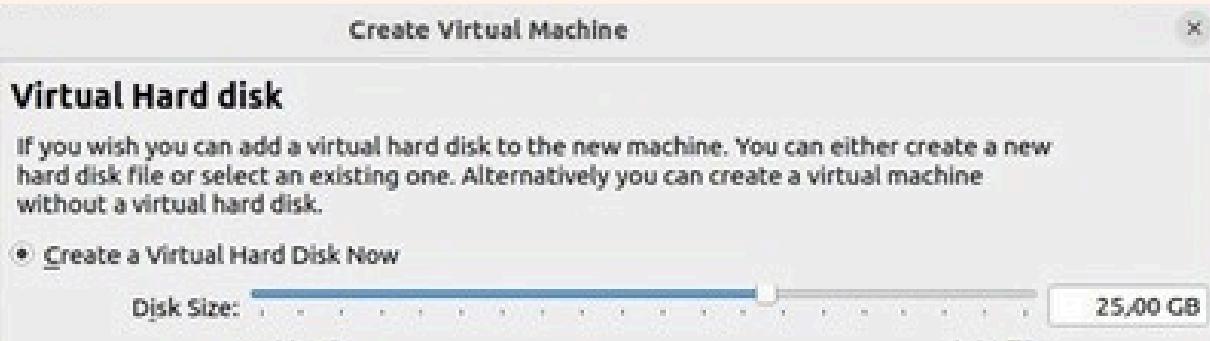
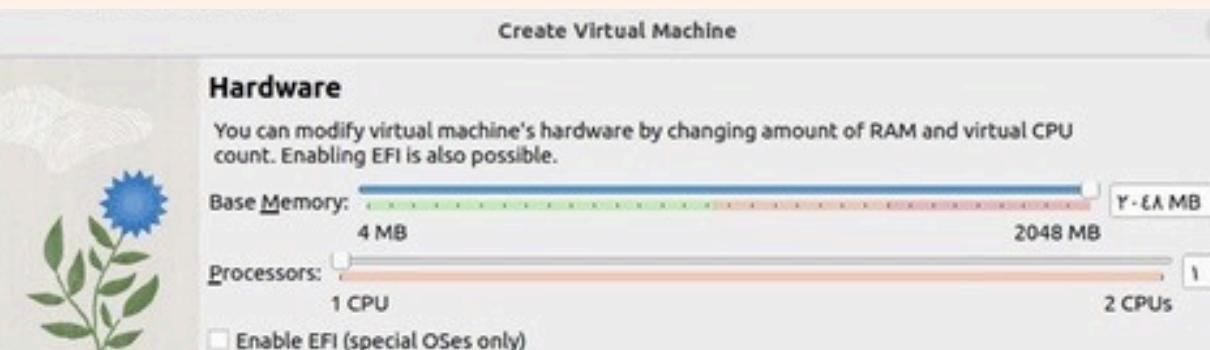
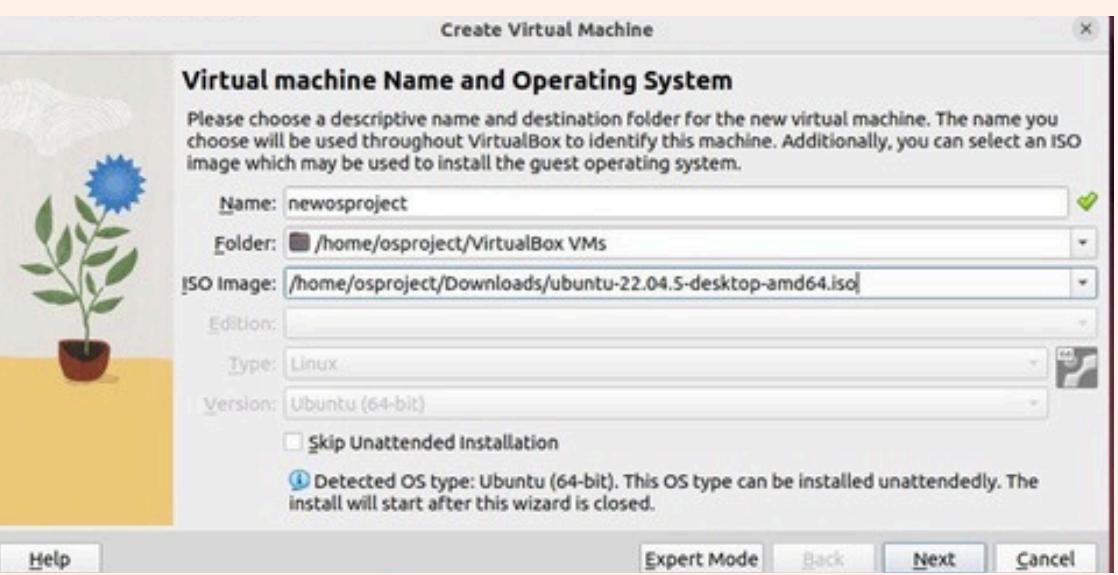


we use this command to Confirm
the installation and
allow the process to complete

Choose the appropriate version



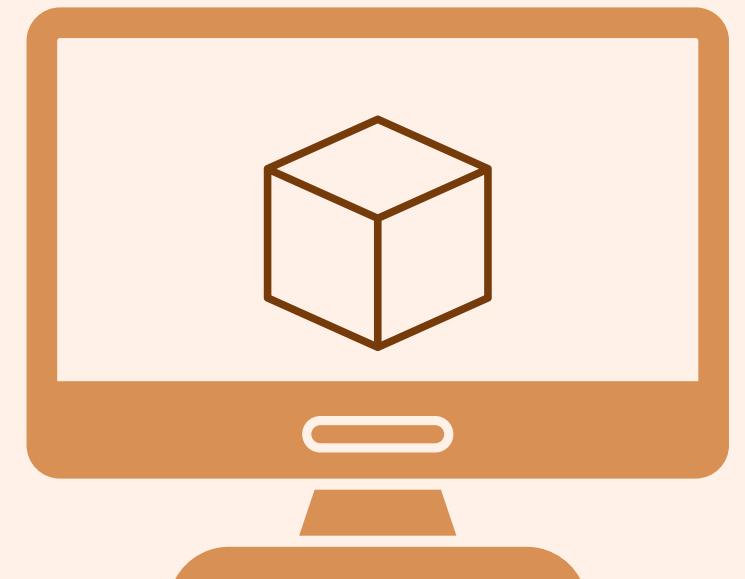
After downloading the VirtualBox successfully, this page will appear when you open it



Some issues are appeared when we want run the VM.
-we've download the ISO file successfully.
but we think the issues appear because the storage of the
RAM is full so it's can not run the VM.

What Did we learn?

- 1- There is several ways to Create Virtual Machine.
- 2- You can Create Virtual Machine inside different Virtual Machine.
- 3- The Virtual Machine used the physical computer resources.
- 4- You should making sure that you have an enough storage space Before create it.



**Thank you
for listening**