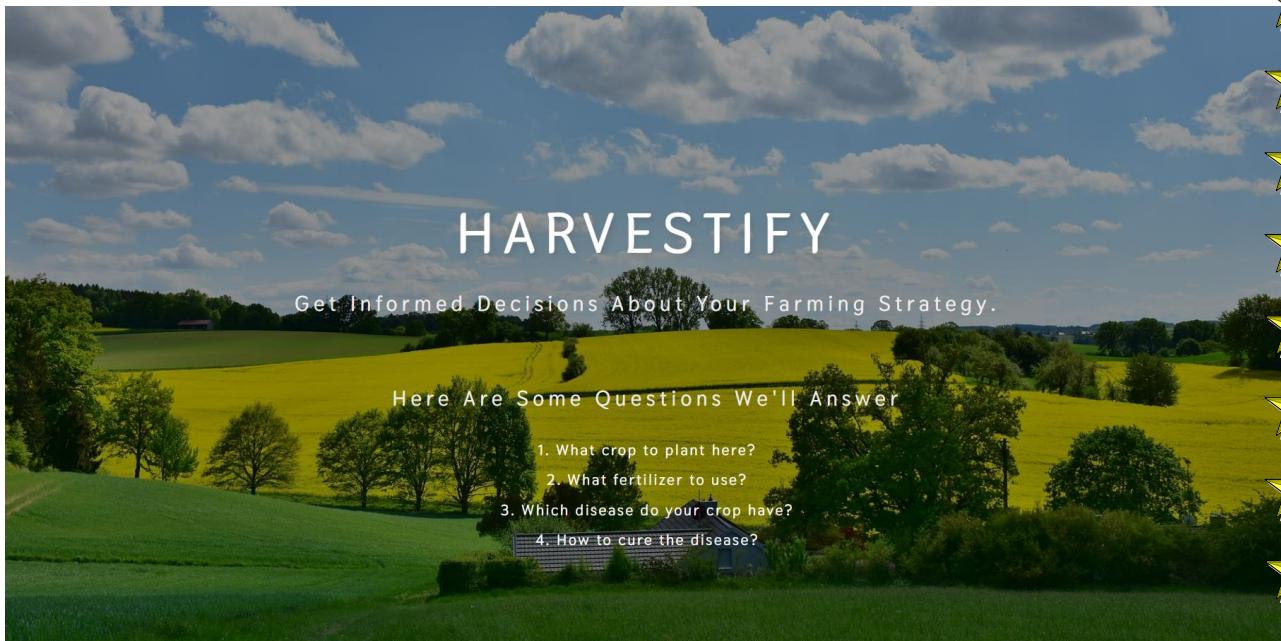




PROJECT

Harvestify



By –

Akhil Dubey

Aman Kumar Jha

Vishesh Naithani





Tool Used

Software Use

- Jupyter Notebook
- VS Code
- Win SCP
- AWS
- Git Bash

Languages Used

- Python
- HTML, CSS
- JavaScript

Python Libraries

- NumPy
- Pandas
- Flask
- Scikit-learn
- Requests
- Rillow
- Gunicorn == 20.0.4





Here are Some Questions that we answer

1. What Crop to Plant?
2. What Fertilizer to use?
3. Which Disease do your crop have?
4. How to cure the disease?

Purpose

1. Predicting type of crop based on Soil Nutrients
2. Recommendation about the type of fertilizer best suited for the particular soil and recommended crop.
3. Predicting the name and cause of disease and suggestion to cure it.





Steps to Host Project on AWS

Step 1 : Create EC2 instance on Amazon AWS.

Step 2: Download Key Pair(.pem file) during instance creation.

Step 3: Open WinSCP Application and connect localhost to the server.

Step 3: Upload all Files to the server by Drag and drop in WinSCP

Step 4: Open Git Bash and Connect the server by typing Git command given in connect section of instance.

Step 4: Update the sudo by typing “”*Sudo apt-get update*”” .

Step 5: Install Pip using command “”*sudo apt install python3-pip*””

Step 6 : Install all the requirements by using command “”*sudo install -r requirement.txt*””.

Step 7: Now Type “”*Python3 app.py*””.



Connected

```
dubeyakhil@Dubey MINGW64 ~/.ssh
$ ssh -i "bhp.pem" ubuntu@ec2-54-242-67-99.compute-1.amazonaws.com
Welcome to Ubuntu 20.04 LTS (GNU/Linux 5.15.0-1019-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

System information as of Mon Nov  7 07:04:47 UTC 2022

System load: 0.22      Processes:          108
Usage of /:   38.0% of 7.57GB  Users logged in:    0
Memory usage: 31%           IPv4 address for eth0: 172.31.17.89
Swap usage:   0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

  https://ubuntu.com/aws/pro

19 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

*** System restart required ***
Last login: Mon Nov  7 06:12:37 2022 from 205.254.175.187
ubuntu@ip-172-31-17-89:~$ python3 app.py
/home/ubuntu/.local/lib/python3.8/site-packages/sklearn/base.py:329: UserWarning
: Trying to unpickle estimator DecisionTreeClassifier from version 0.23.2 when u
sing version 1.1.3. This might lead to breaking code or invalid results. Use at
your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-
limitations
  warnings.warn(
/home/ubuntu/.local/lib/python3.8/site-packages/sklearn/base.py:329: UserWarning
: Trying to unpickle estimator RandomForestClassifier from version 0.23.2 when u
sing version 1.1.3. This might lead to breaking code or invalid results. Use at
your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-
limitations
  warnings.warn(
  * Serving Flask app 'app'
  * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
  * Running on all addresses (0.0.0.0)
  * Running on http://127.0.0.1:8080
  * Running on http://172.31.17.89:8080
Press CTRL+C to quit
205.254.175.187 - - [07/Nov/2022 07:04:59] "GET /crop-recommend HTTP/1.1" 200 -
205.254.175.187 - - [07/Nov/2022 07:05:00] "GET /static/css/bootstrap.css HTTP/1
```

Bibliography

1. Youtube Channel “”Krish Naik””
2. GitHub “”Gladiator07””
3. Website :- linuxize.com
4. Paandas Documentation
5. W3Sch

Thank You!

Aman Kumar Jha(2020UCO1674)

Akhil Dubey(2020UCO1673)

Vishesh Naithani(2020UCO1671)

HEALTHCARE USE CASES USING AWS

Healthcare and life science organizations are reinventing Show they collaborate, make data-driven clinical and operational decisions, enable precision medicine, and decrease the cost of care. To help healthcare and life science organizations achieve business and technical goals, AWS for Health provides an offering of AWS services and AWS Partner solutions, used by thousands of customers globally.

With AWS, researchers can quickly analyse massive data pipelines, store petabytes of data, and advance research using transformative technologies like artificial intelligence (AI), machine learning (ML), and quantum computing. Researchers can then share their results with collaborators around the world to ultimately improve patient outcomes.

Medical research use cases

AWS solutions support researchers' need for increased computing power and various options for handling complex data at higher rates of production and consumption.

AWS solutions & guidance

Solution: Service Workbench on AWS

Service Workbench on AWS helps democratize access to cloud computing for researchers and teachers. With Service Workbench, researchers can quickly and securely provision and access research environments and conduct experiments with peers. By automating setups, simplifying data access, and providing price transparency, researchers can focus on their work and achieve quicker results.

Guidance: REDCap on AWS

REDCap (Research, Electronic, Data Capture) is an NIH-funded, free, secure web application for building and managing online surveys and databases used by over 3,000 institutions and is cited in more than 6,000 journal articles. While REDCap can be used to collect virtually any type of data (including in 21 CFR Part 11, FISMA, and HIPAA-compliant environments), it is specifically geared to support online or offline data capture for research studies and operations. The REDCap Consortium is a vast support network of thousands of institutional partners from over one hundred countries.

Guidance: OHDSI OMOP

OMOP can consolidate data from many sources, like Electronic Health Record (EHR) systems and administrative claims data, from many geographic regions, into a common data model.

Featured customers



Ava brings together artificial intelligence and clinical research to improve women's reproductive health.



Munich Leukemia Lab (MLL) is a diagnostics and research institution whose mission is to find a cure for leukemia and lymphoma. MLL uses state-of-the-art molecular and IT-supported methods to shape the future of hematological diagnostics and therapy. Using AWS, MLL reduces the turnaround time to process patient genome data from 20 hours to 3 hours.



Genomics England—a company owned by the Department of Health & Social Care to run the 100,000 Genomes Project, which aims to sequence 100,000 genomes from NHS patients with a rare disease and their families, and patients with cancer—turns to AWS to deliver its next-generation genomics research platform in the fight against COVID-19.

CLOUD COMPUTING

EX.No:1

Install Virtualbox/VMware Workstation

Aim:

Find procedure to Install VMware Workstation with different flavours of linux or windows OS on top of windows7 or 8.

PROCEDURE TO INSTALL

Step 1- Download Link

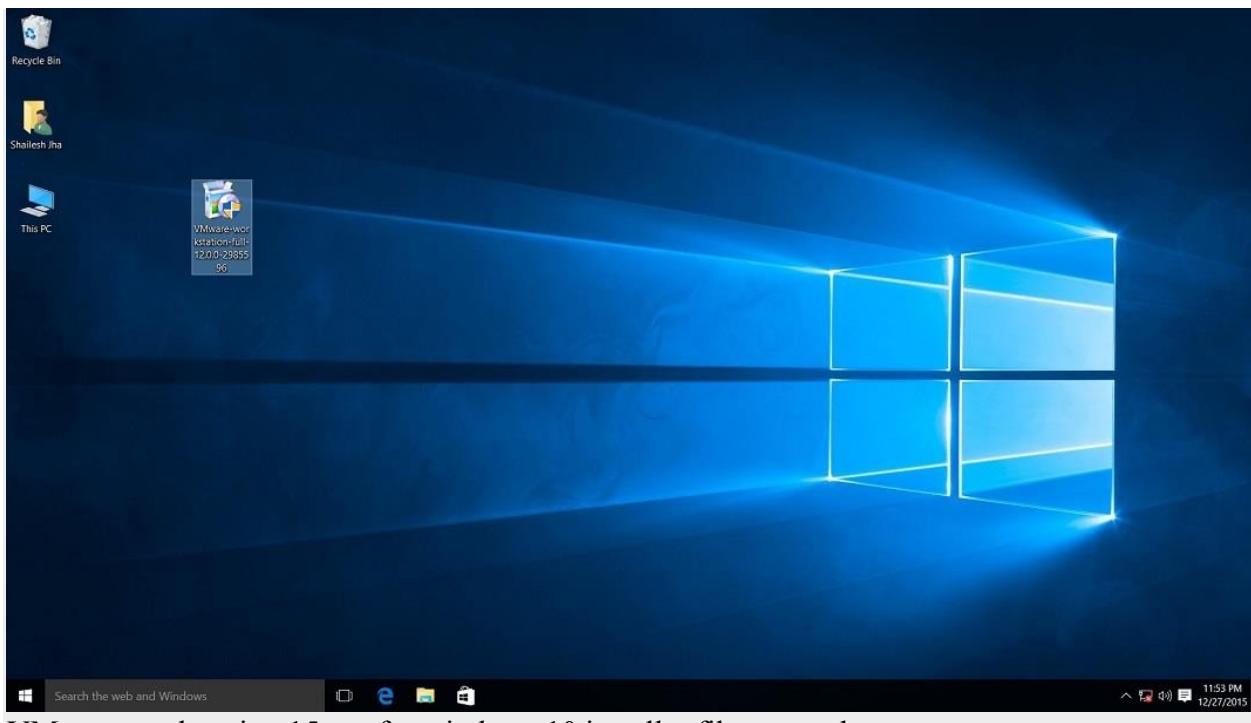
Link for downloading the software is <https://www.vmware.com/products/workstation-pro/workstation-pro-evaluation.html>. Download the software for windows. Good thing is that there is no signup process. Click and download begins. Software is around 541 MB.

Step 2- Download the installer file

It should probably be in the download folder by default, if you have not changed the settings in your browser. File name should be something like VMware-workstation-full-15.5.1-15018445.exe. This file name can change depending on the version of the software currently available for download. But for now, till the next version is available, they will all be VMware Workstation 15 Pro.

Step 3- Locate the downloaded installer file

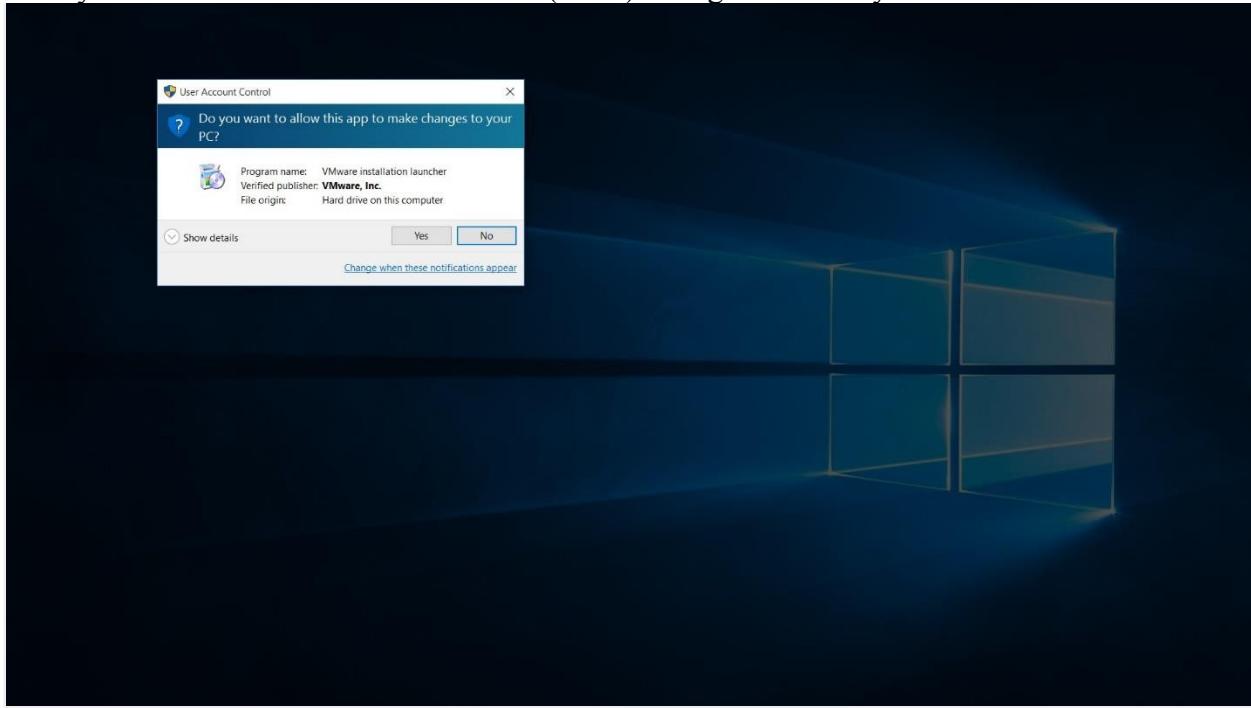
For demonstration purpose, I have placed the downloaded installer on my desktop. Find the installer on your system and double click to launch the application.



VMware workstation 15 pro for windows 10 installer file screenshot.

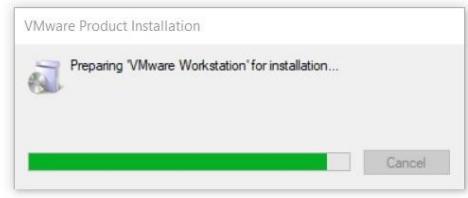
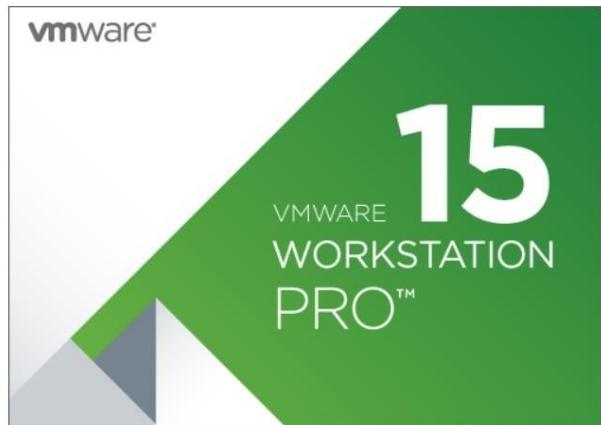
Step 4- User Access Control (UAC) Warning

Now you should see User Access Control (UAC) dialog box. Click yes to continue.



VMware Workstation 12 Pro installer windows 10 UAC screenshot

Initial Splash screen will appear. Wait for the process to complete.



VMware Workstation 15 Installation Splash Screen

Step 5- VMware Workstation Setup wizard

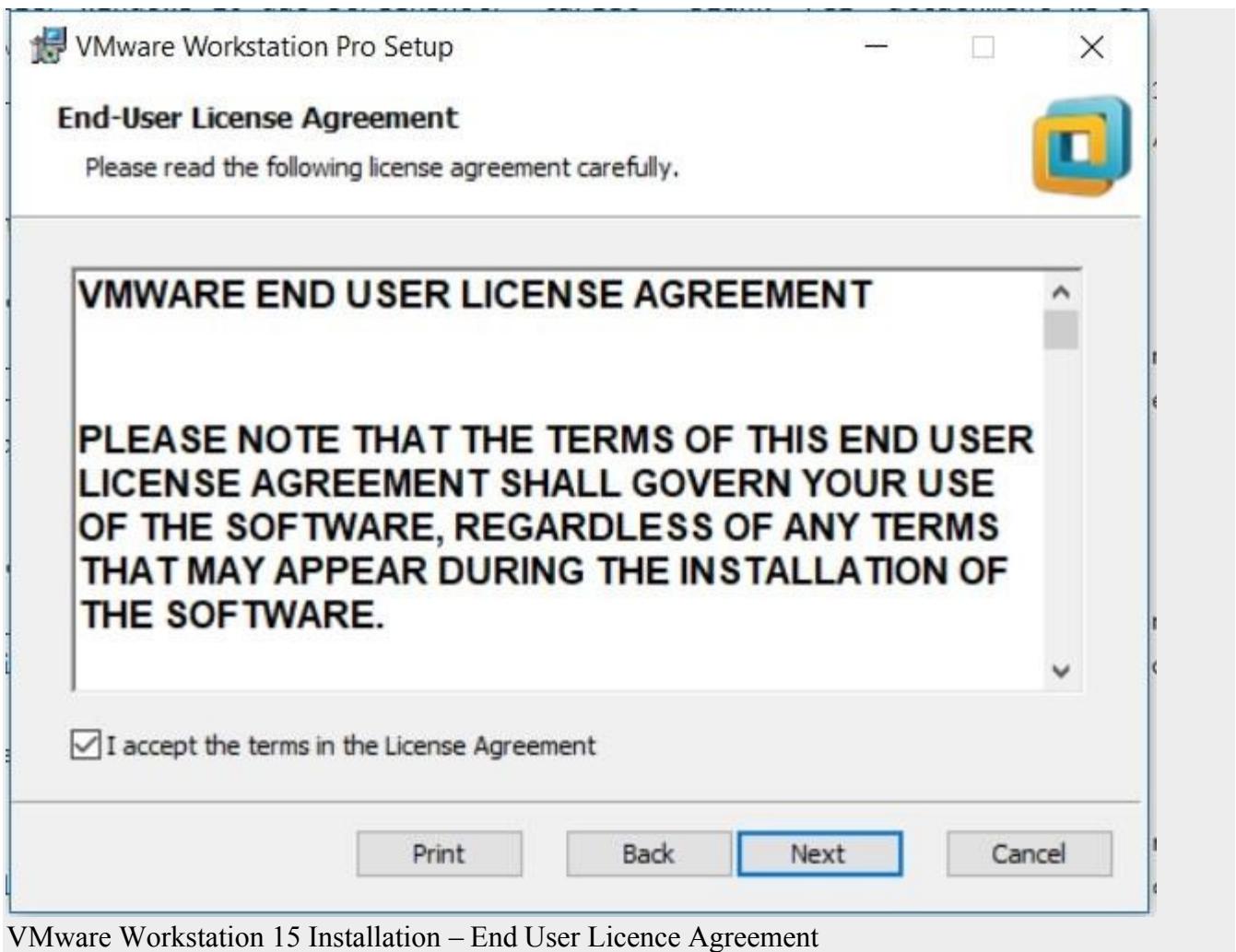
Now you will see VMware Workstation setup wizard dialog box. Click next to continue.



VMware Workstation 15 Installation – Setup Wizard

Step 6- End User Licence Agreement

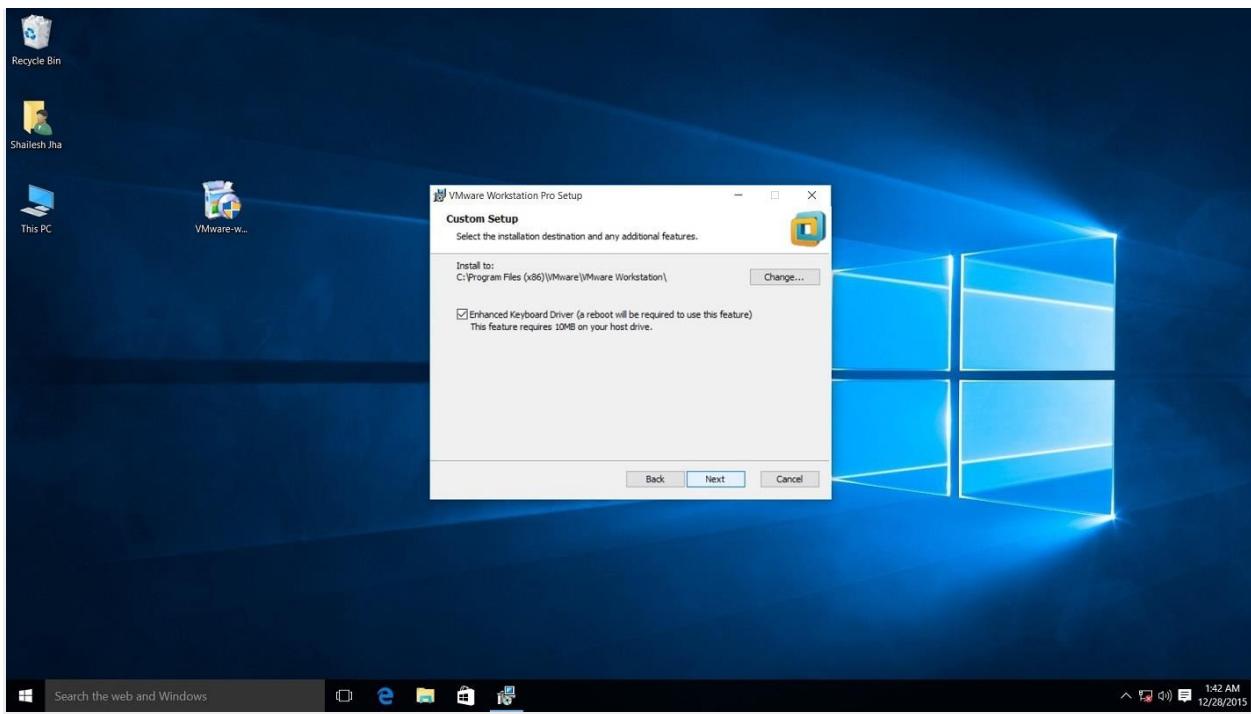
This time you should see End User Licence Agreement dialog box. Check “I accept the terms in the Licence Agreement” box and press next to continue.



VMware Workstation 15 Installation – End User Licence Agreement

Step 7- Custom Setup options

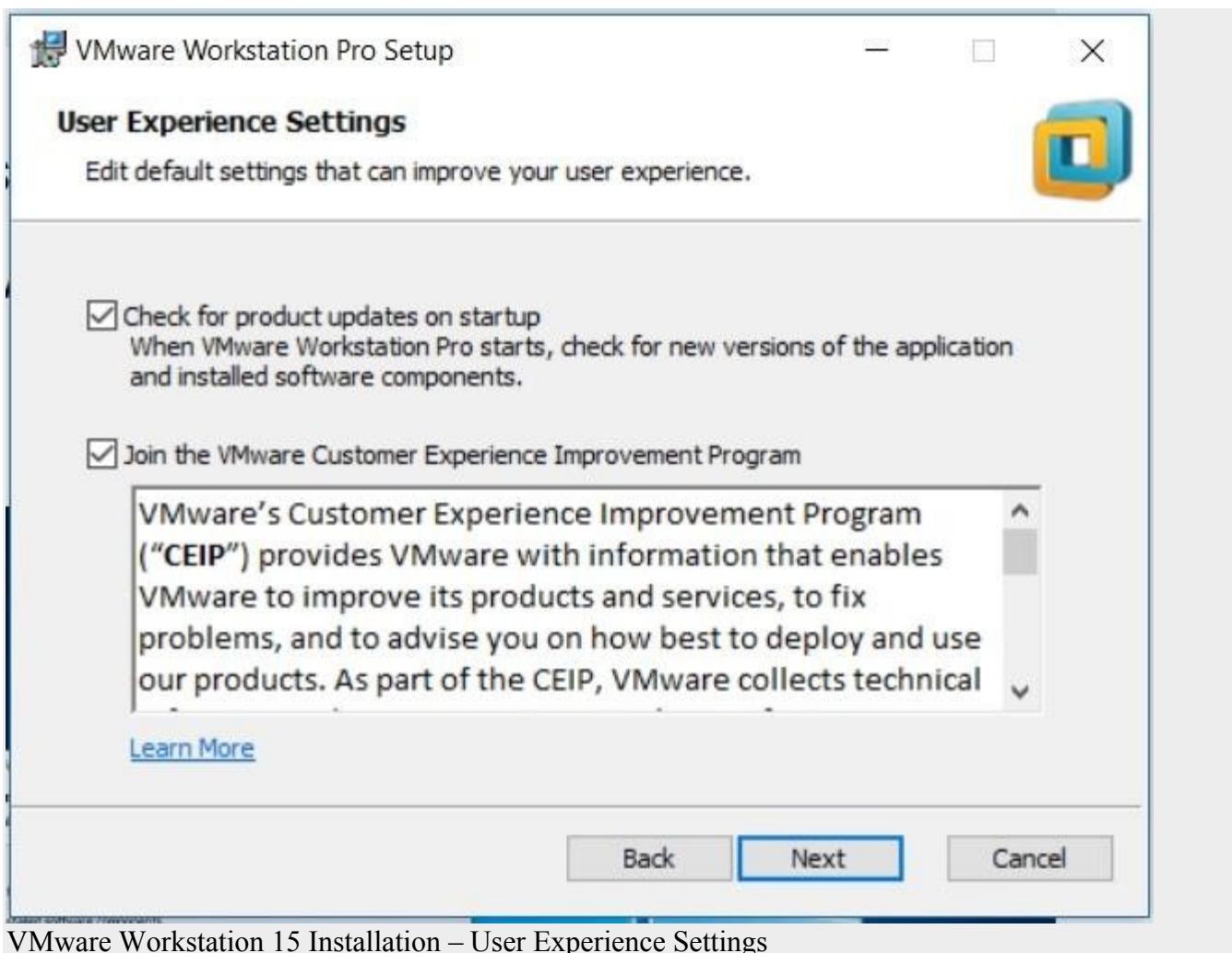
Select the folder in which you would like to install the application. There is no harm in leaving the defaults as it is. Also select Enhanced Keyboard Driver check box.



VMware Workstation 15 Pro installation – select installation folder

Step 8- User Experience Settings

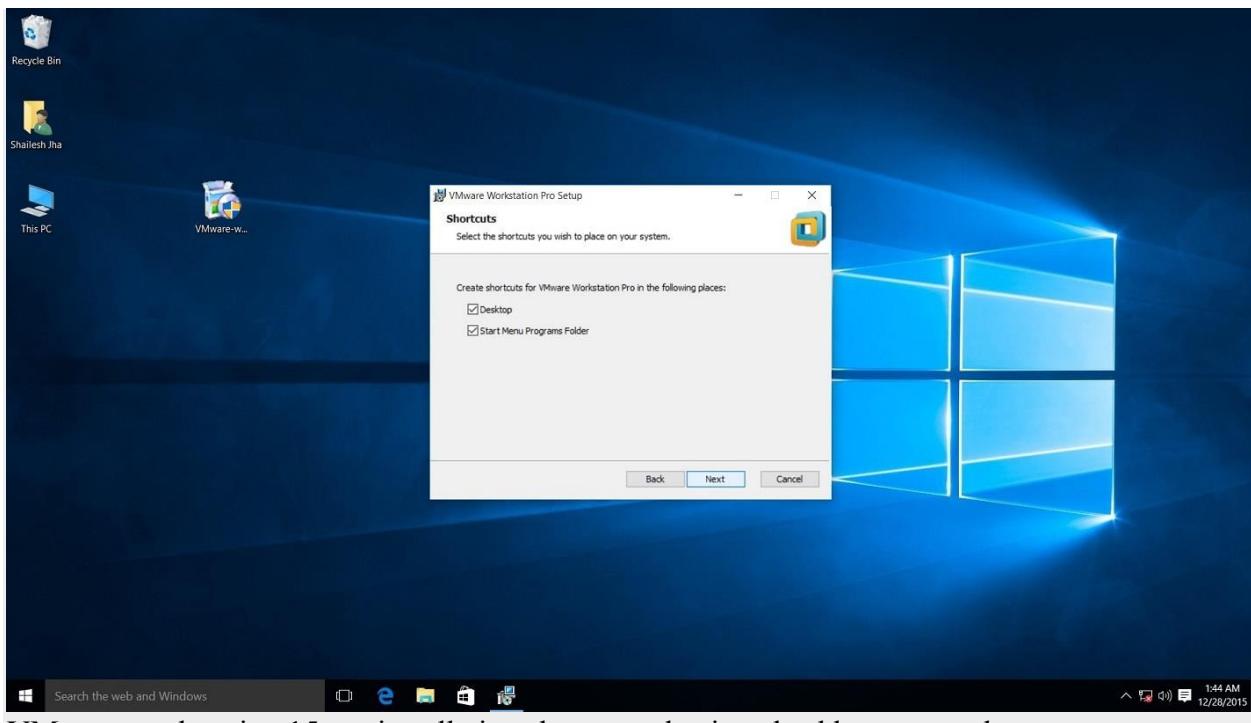
Next you are asked to select “Check for Updates” and “Help improve VMware Workstation Pro”. Do as you wish. I normally leave it to defaults that is unchecked.



VMware Workstation 15 Installation – User Experience Settings

Step 9- Application Shortcuts preference

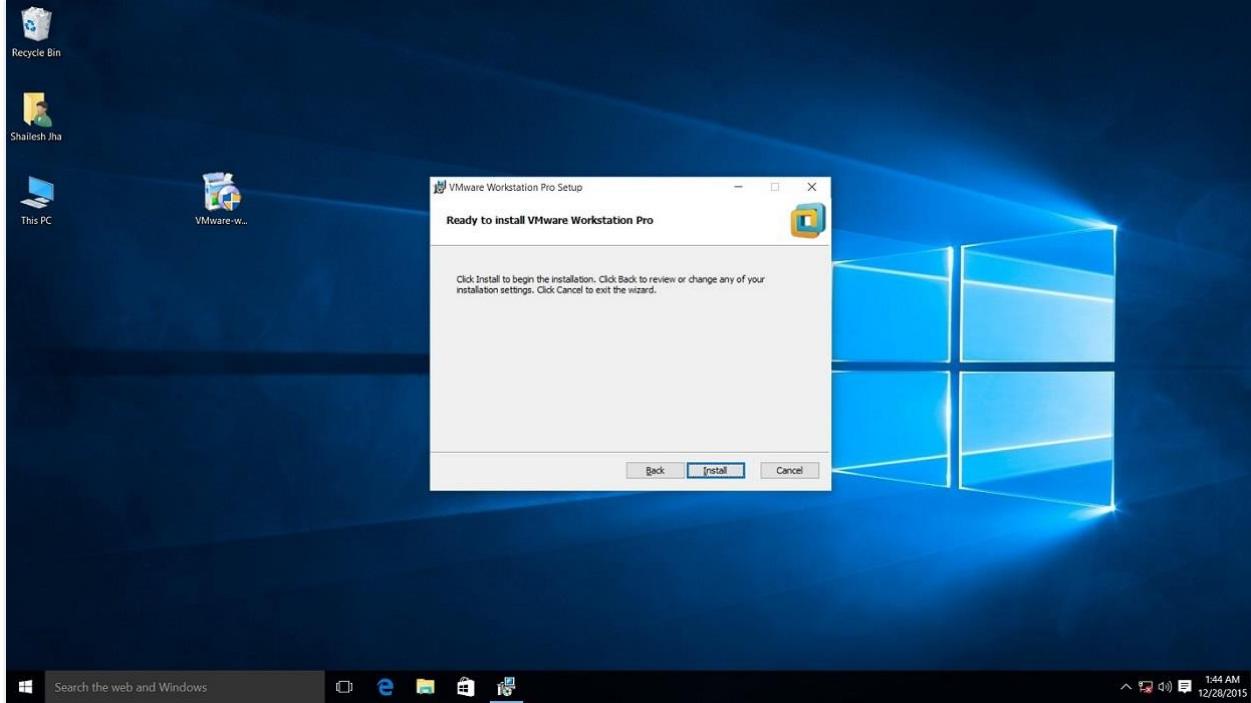
Next step is to select the place you want the shortcut icons to be placed on your system to launch the application. Please select both the options, desktop and start menu and click next.



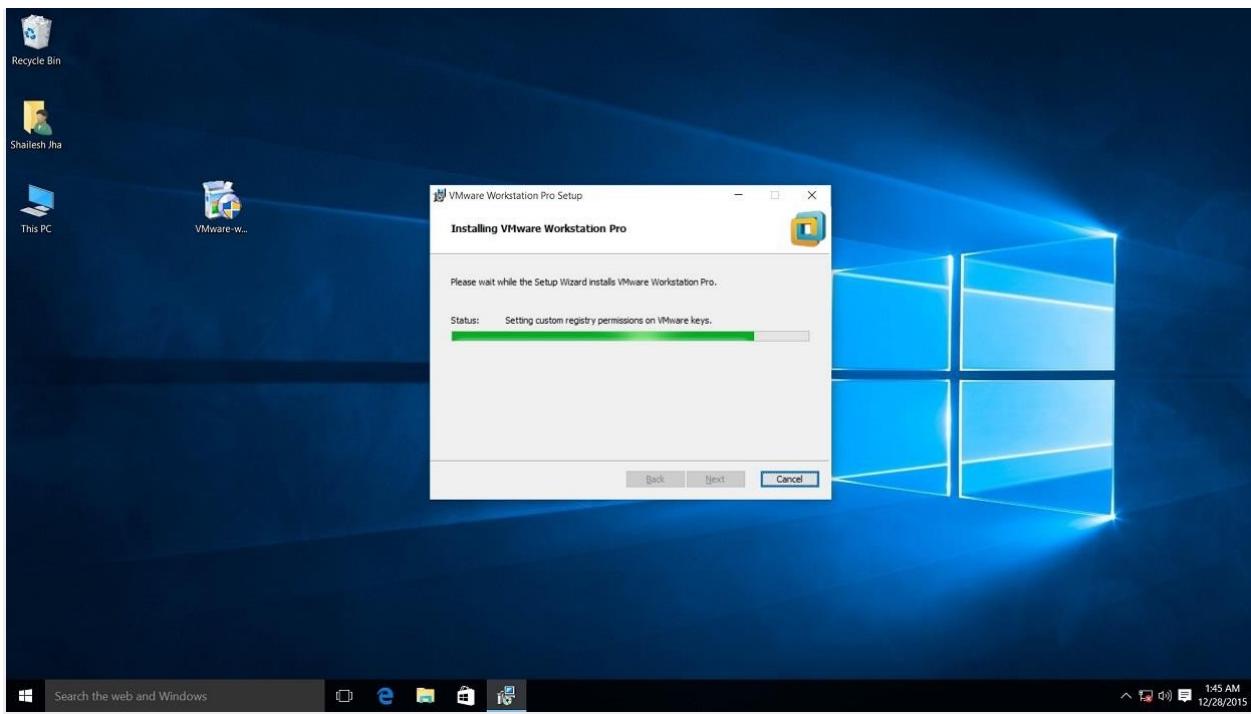
VMware workstation 15 pro installation shortcut selection checkbox screenshot.

Step 10- Installation begins

Now you see the begin installation dialog box. Click install to start the installation process.

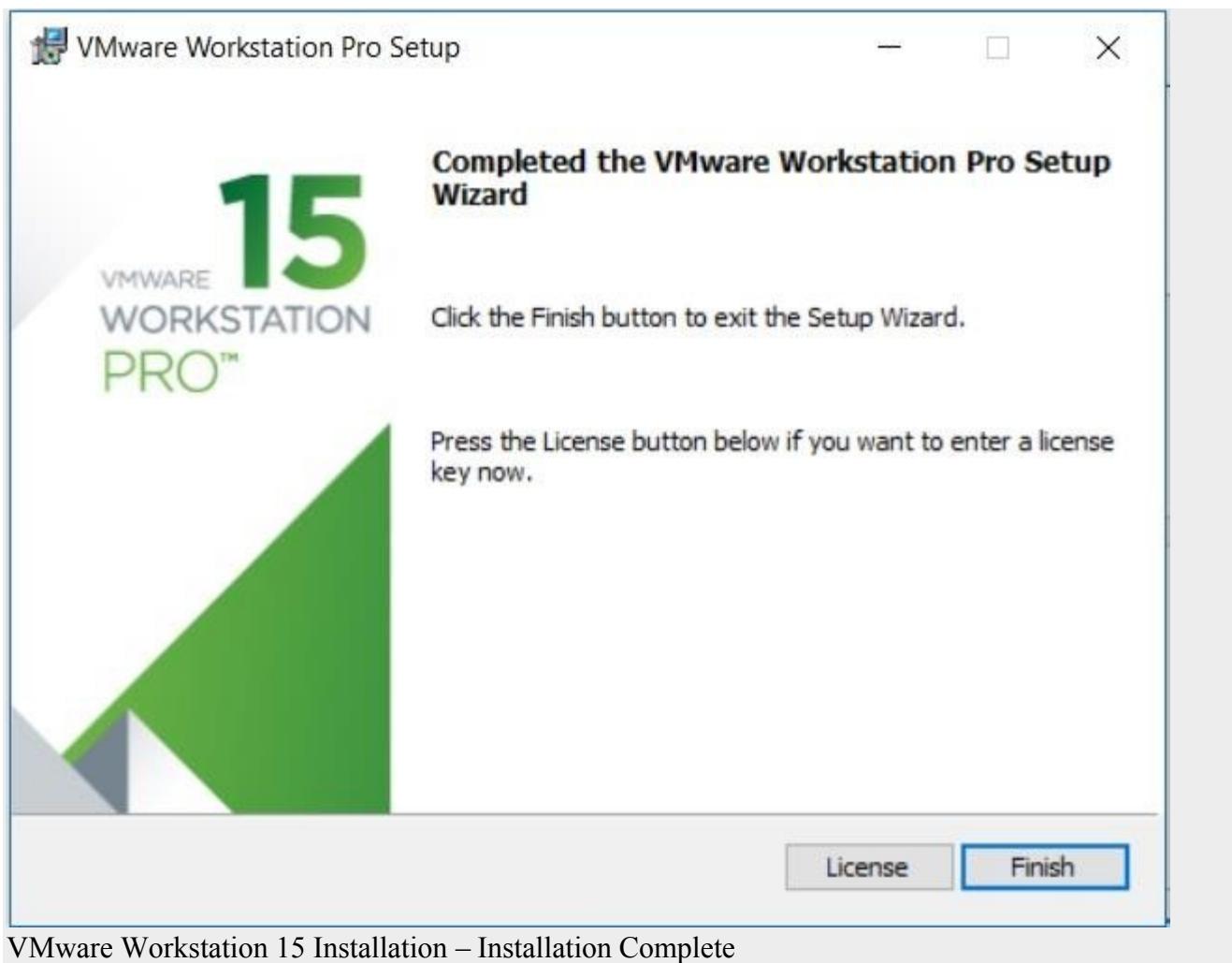


Screenshot for VMware Workstation 15 pro installation begin confirmation dialog box on windows 10. Below screenshot shows Installation in progress. Wait for this to complete.



Screenshot for VMware Workstation 15 pro installation process.

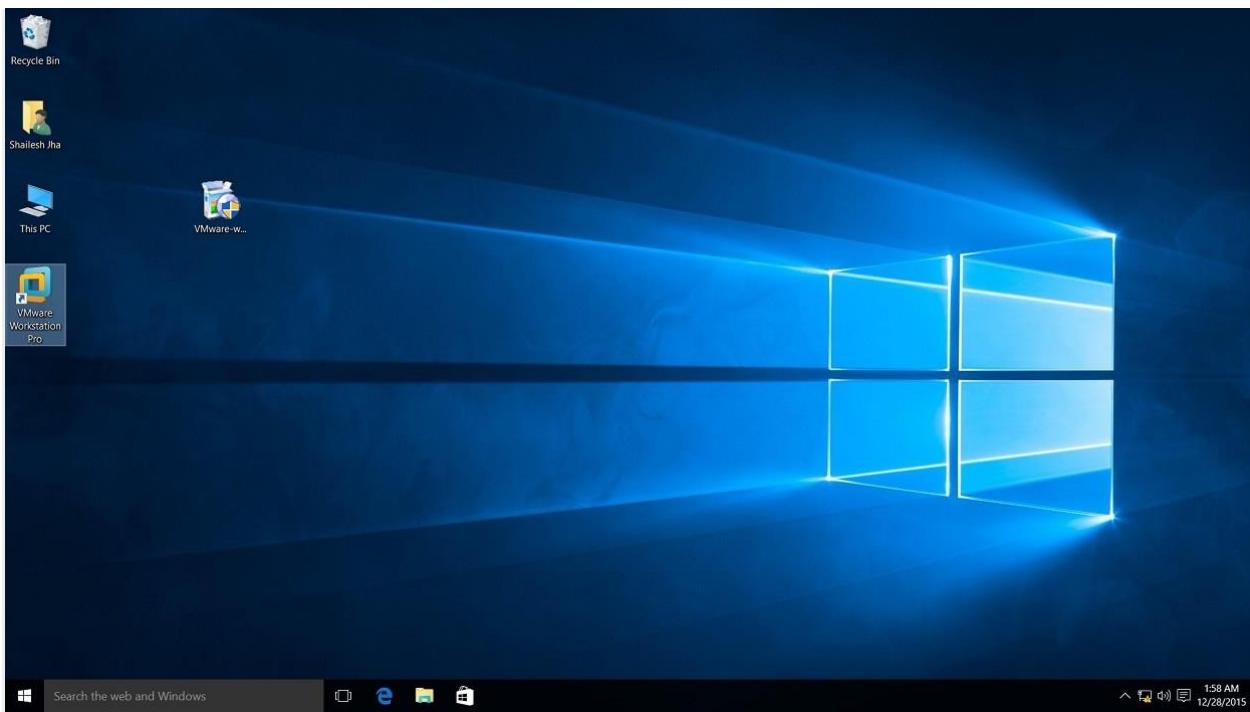
At the end you will see installation complete dialog box. Click finish and you are done with the installation process. You may be asked to restart your computer. Click on Yes to restart.



VMware Workstation 15 Installation – Installation Complete

Step 11- Launch VMware Workstation

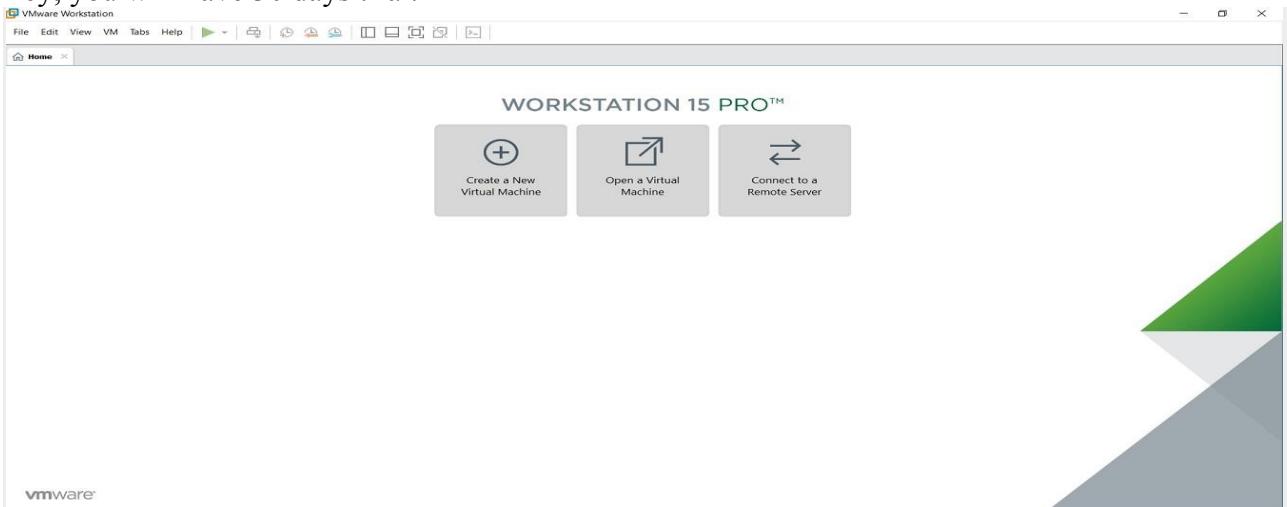
After the installation completes, you should see VMware Workstation icon on the desktop. Double click on it to launch the application.



Screenshot for VMware Workstation 15 Pro icon on windows 10 desktop.

Step 12- Licence Key

If you see the dialog box asking for licence key, click on trial or enter the licence key. Then what you have is the VMware Workstation 15 Pro running on your windows 10 desktop. If don't have the licence key, you will have 30 days trial.



VMware Workstation 15 Pro home screen

Step 13- At some point if you decide to buy

At some point of time if you decide to buy the Licence key, you can enter the Licence key by going to **Help->Enter a Licence Key**

You can enter the 25 character licence key in the dialog box shown below and click OK. Now you have the licence version of the software.

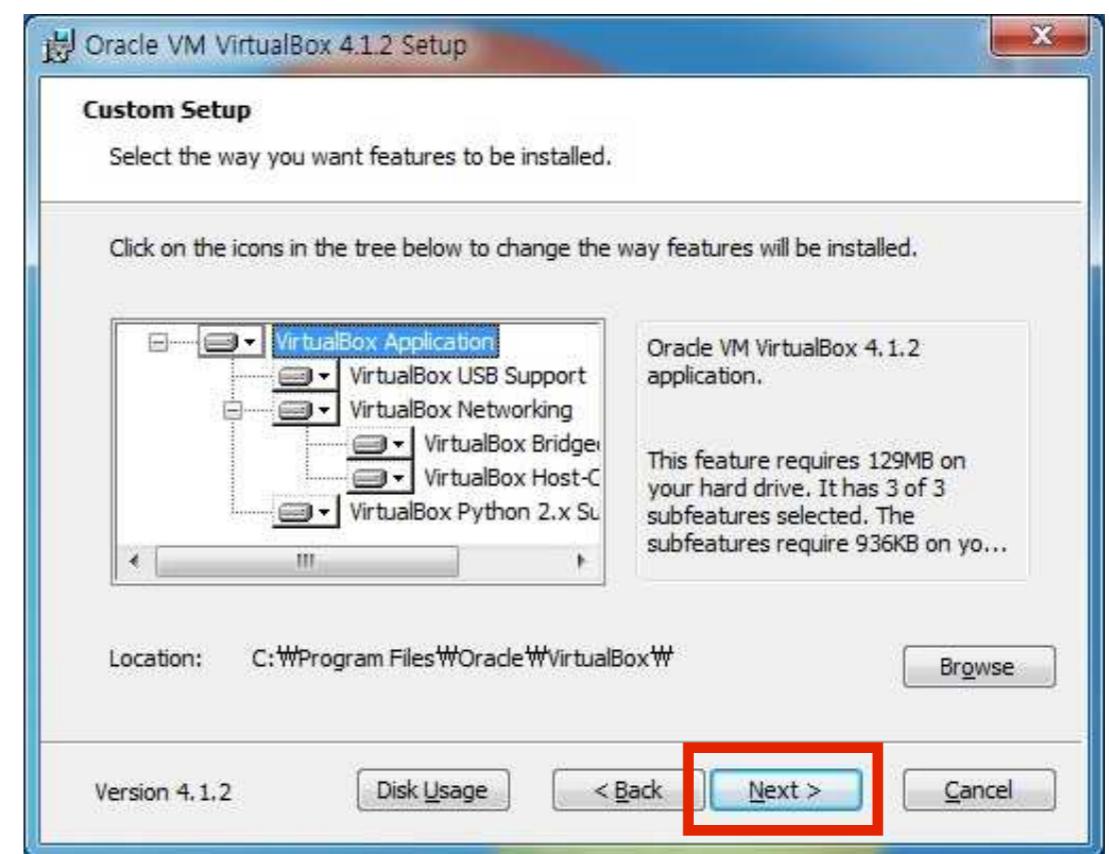
Install VirtualBox

1. Visit <http://www.virtualbox.org/wiki/downloads>
2. Download VirtualBox platform packages for your OS
3. Open the Installation Package by double clicking

MAC



PC



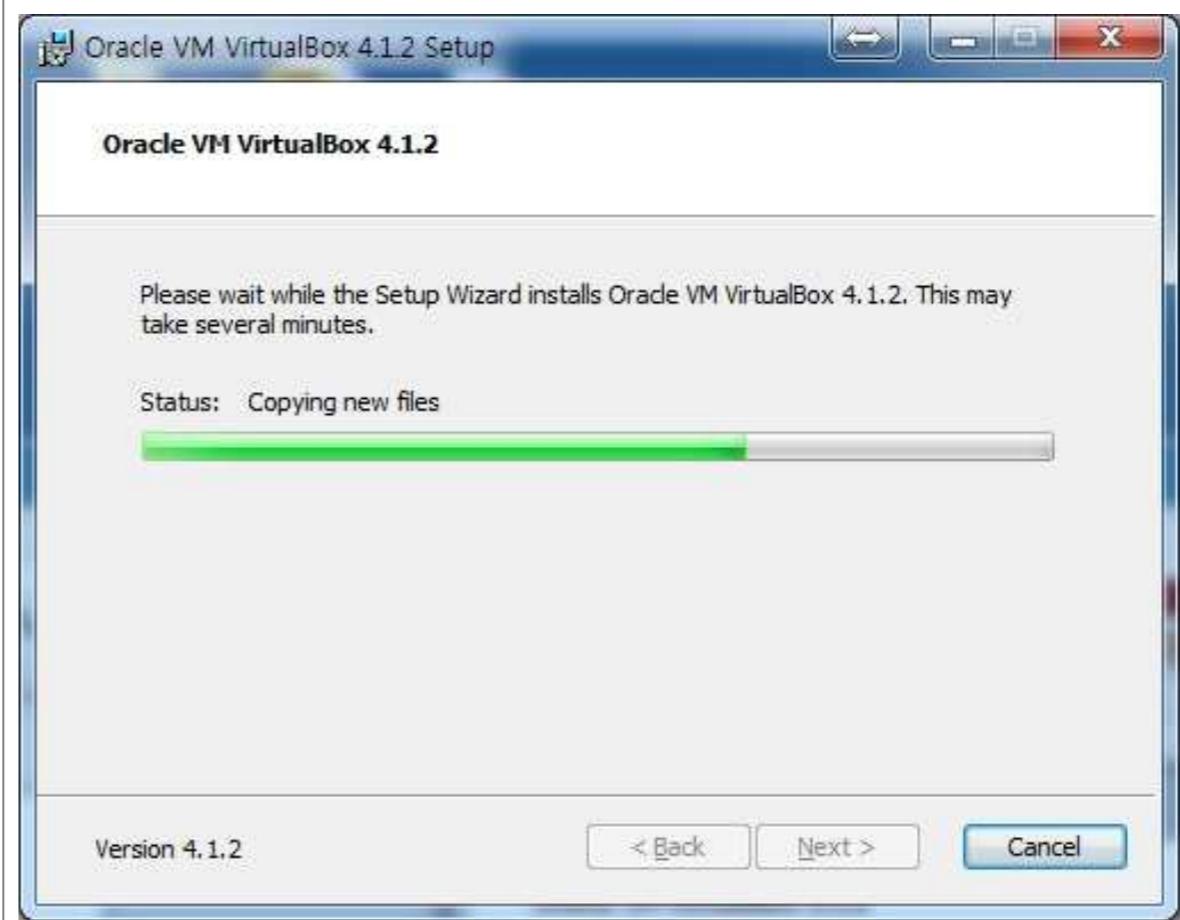
Install VirtualBox

4. Click continue and finish installing VirtualBox

MAC



PC



5. When finished installation, close the window.

Download Linux

1. Visit the page

<http://www.ubuntu.com/download/ubuntu/download>

2. Choose the Latest version of Ubuntu and 32-bit
and click “Start Download”

The screenshot shows the Ubuntu download page. At the top, there's a navigation bar with links: Download (highlighted in orange), Windows Installer, Alternative downloads, CDs, Upgrade, and 下载 Ubuntu. Below the navigation, a large orange button labeled '1 Download Ubuntu' is visible. To its right, there's a text box containing instructions: 'Click the big orange button to download the latest version of Ubuntu. You will need to create a CD or USB stick to install Ubuntu.' Below this text, there are two dropdown menus labeled 'Download options': 'Ubuntu 11.04 - Latest version' and '32-bit (recommended)'. A red box highlights these dropdown menus. To the right of these options is a large orange button labeled 'Download started' with the text 'Ubuntu 11.04 32-bit' underneath it. An arrow labeled 'CLICK' points to this 'Download started' button. At the bottom of the page, there are three sections: 'Additional options', 'If you're running Windows', and 'Other ways to get Ubuntu'. The 'Additional options' section has a link to 'Take a look at a full list of our previous versions and alternative downloads >'. The 'If you're running Windows' section has a link to 'Ubuntu Windows Installer >'. The 'Other ways to get Ubuntu' section has links to 'Order CDs >' and 'Ubuntu Server >'.

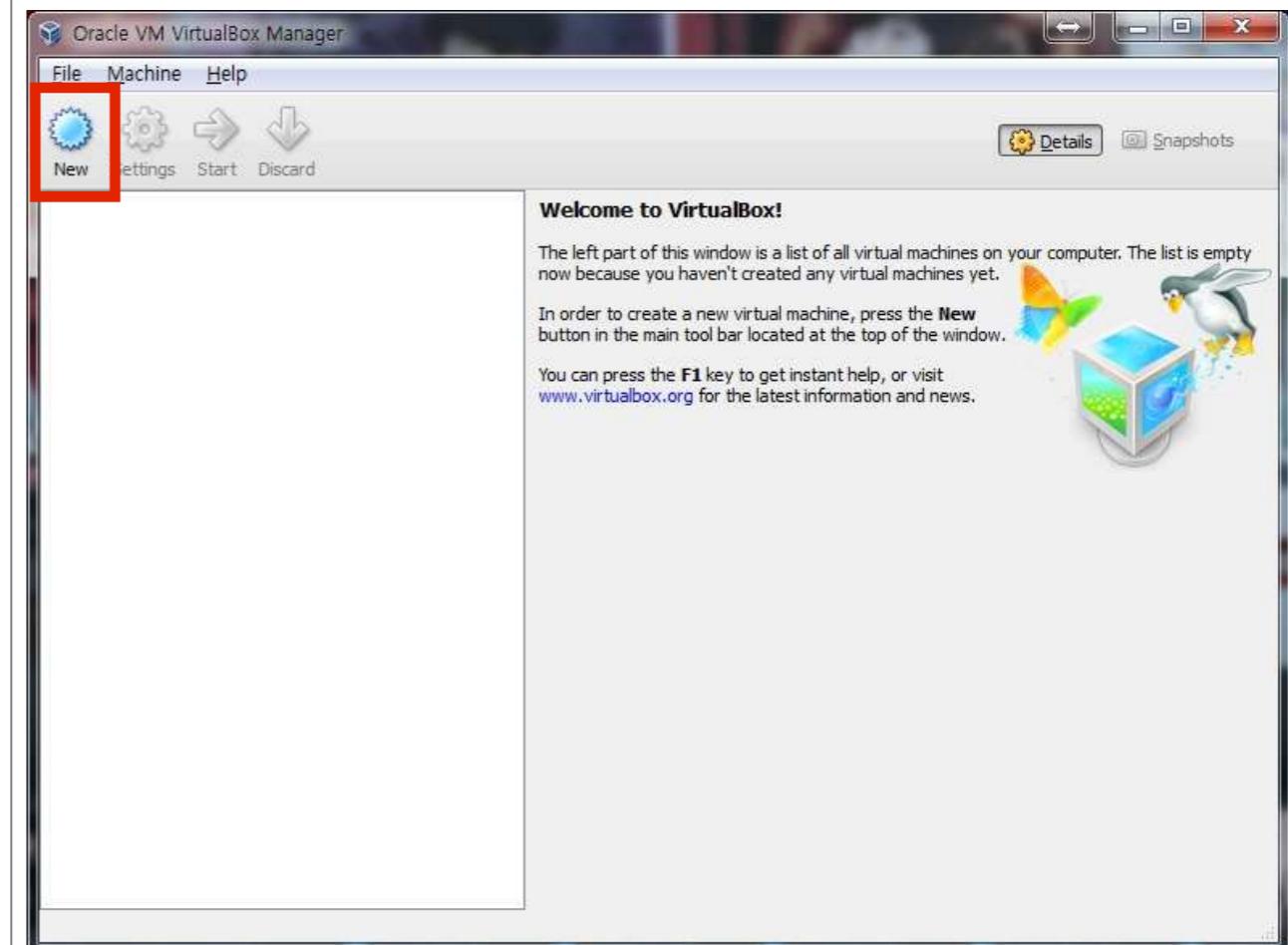
Install Linux using Virtual Box

1. Run VirtualBox by double-clicking the icon
2. Click “New” button on the top left corner

MAC



PC

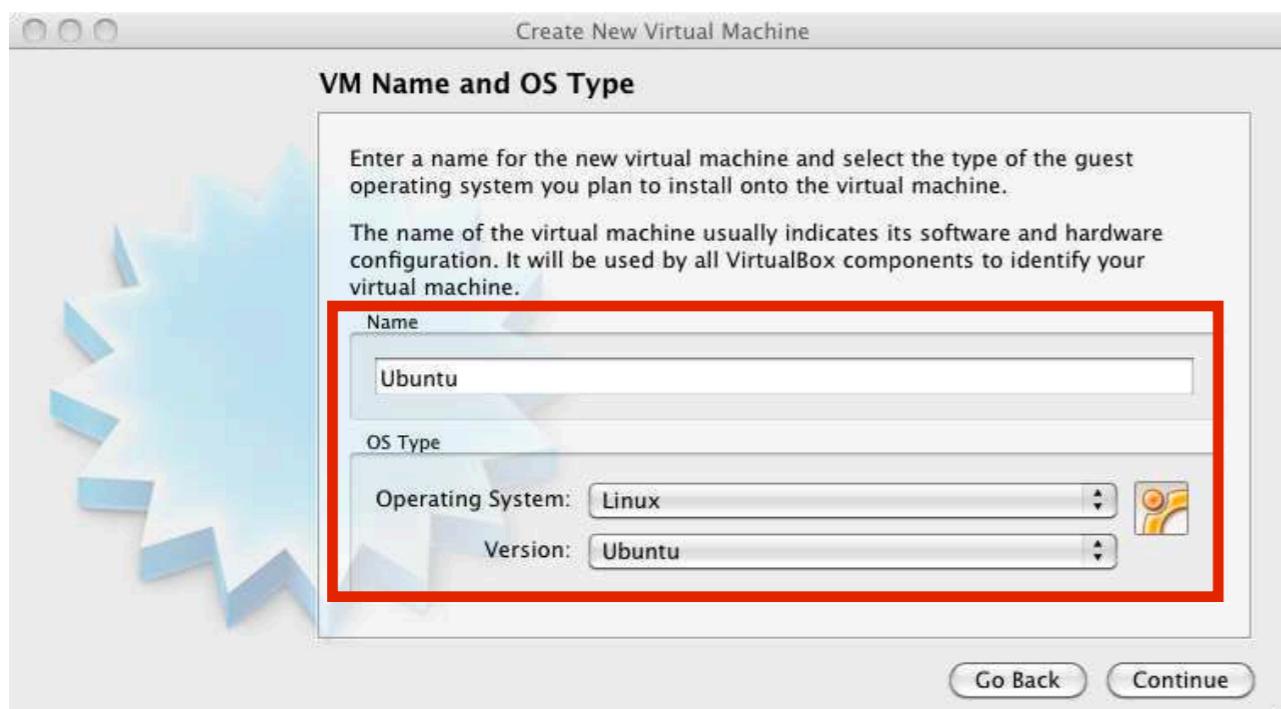


Install Linux using Virtual Box

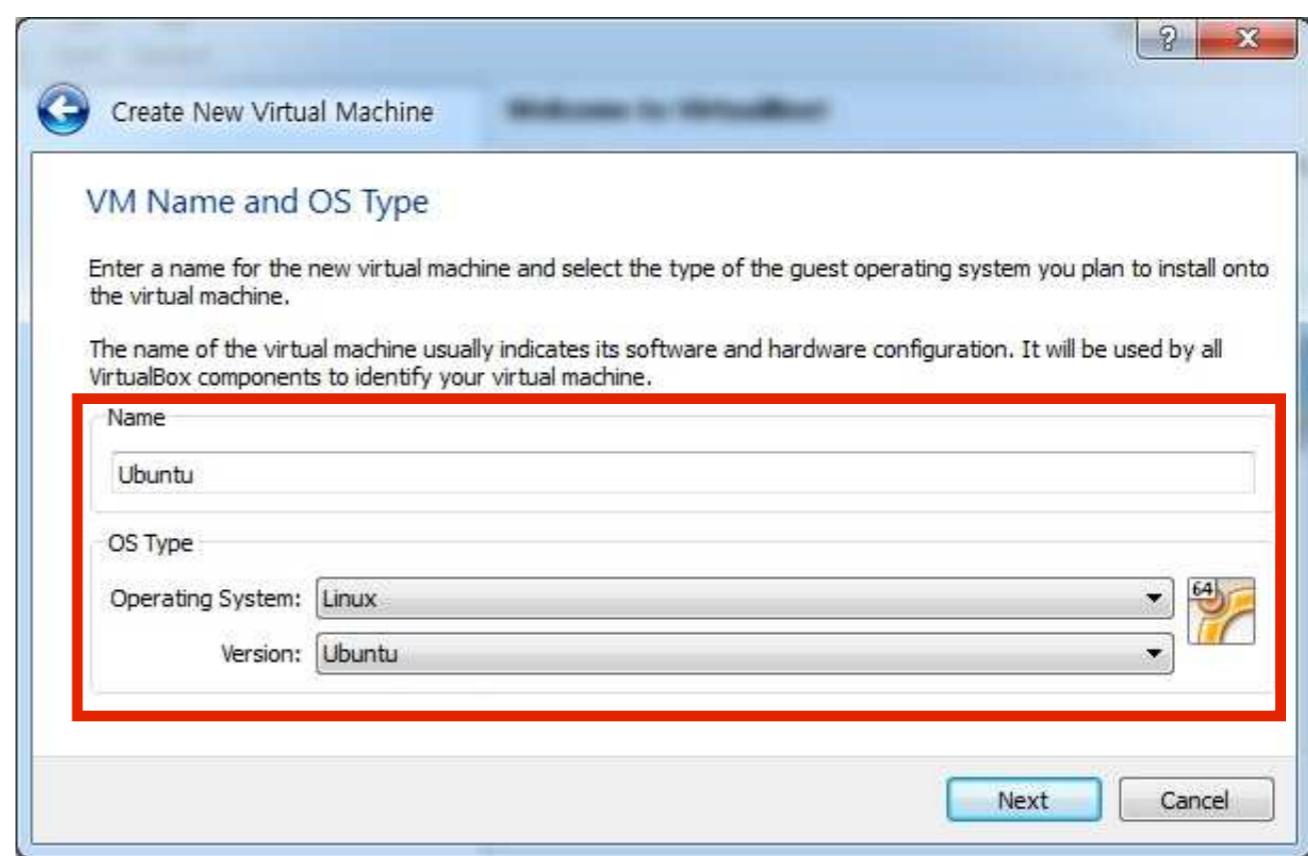
3. Click “Continue” on the pop-up window

4. Type VM name, select “Linux” for the OS and choose “Ubuntu” for the version.

MAC



PC

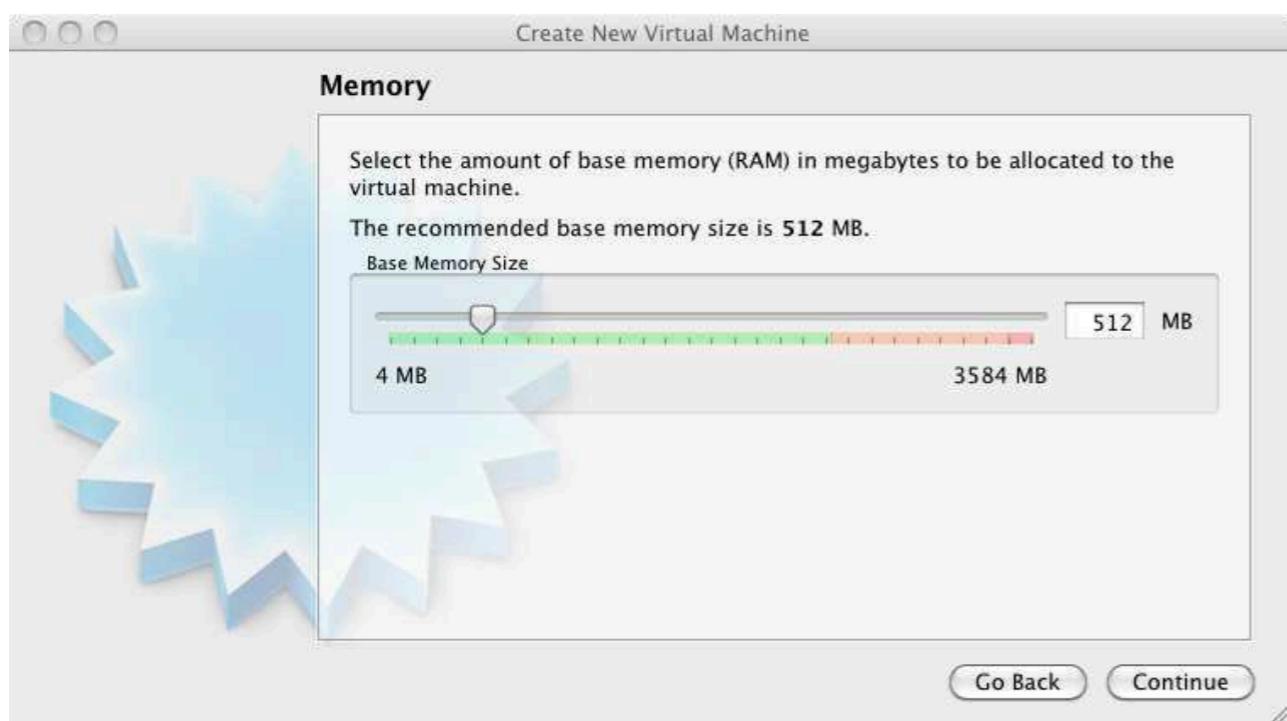


Install Linux using Virtual Box

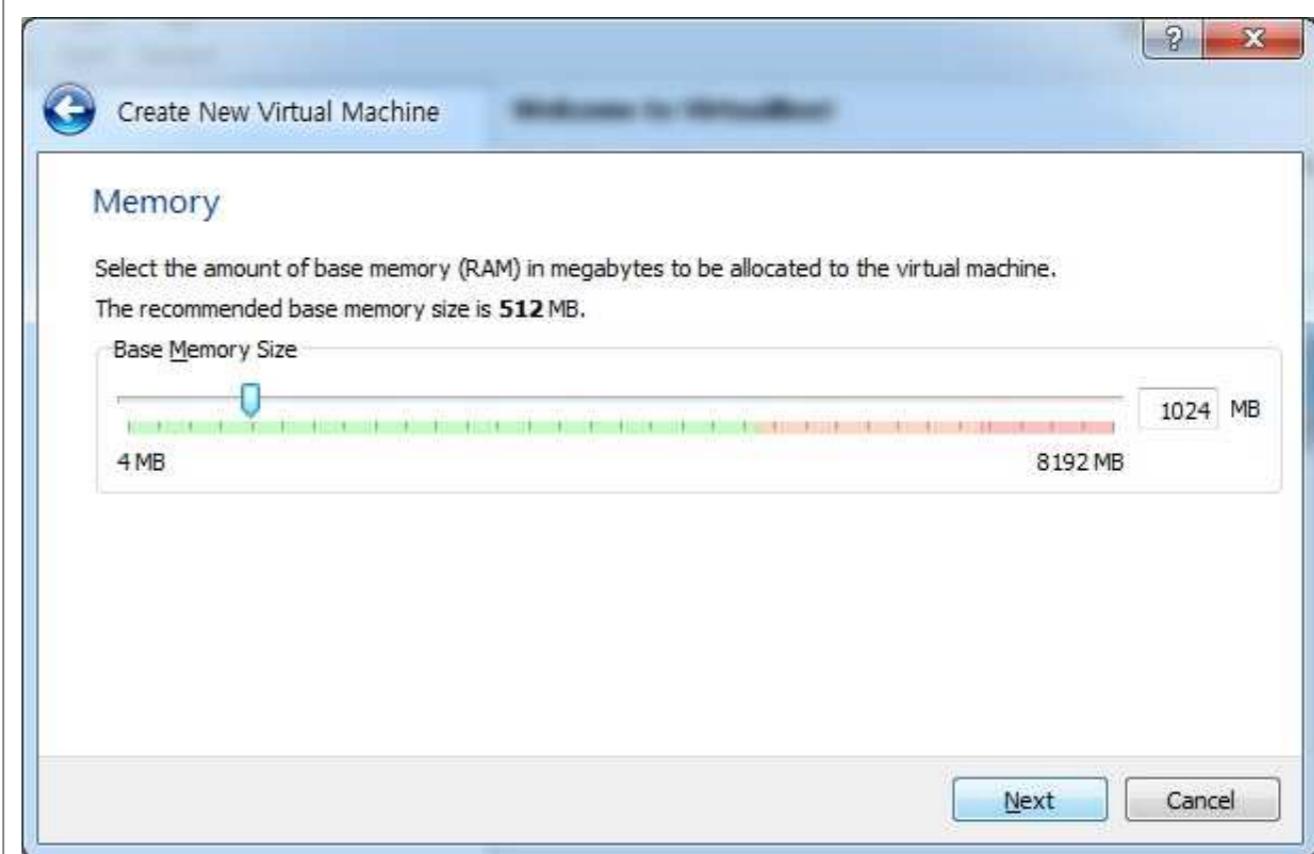
5. Choose the amount of memory to allocate (I suggest choosing between 512 MB to 1024 MB)

6. Click Continue or Next

MAC



PC



Install Linux using Virtual Box

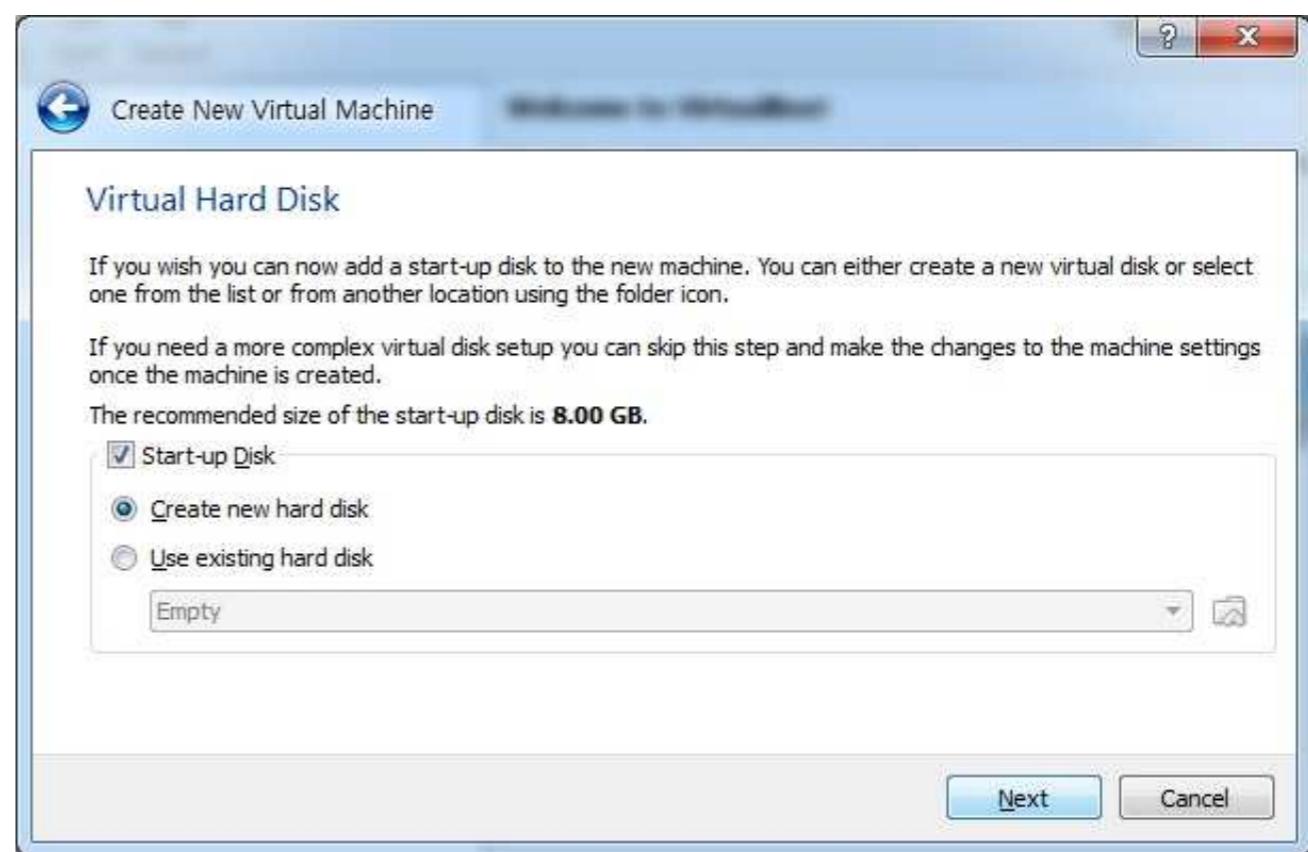
7. Choose create a new virtual hard disk

8. Click Continue or Next

MAC



PC



Install Linux using Virtual Box

9. Choose VDI (VirtualBox Disk Image)

10. Click Continue or Next

MAC



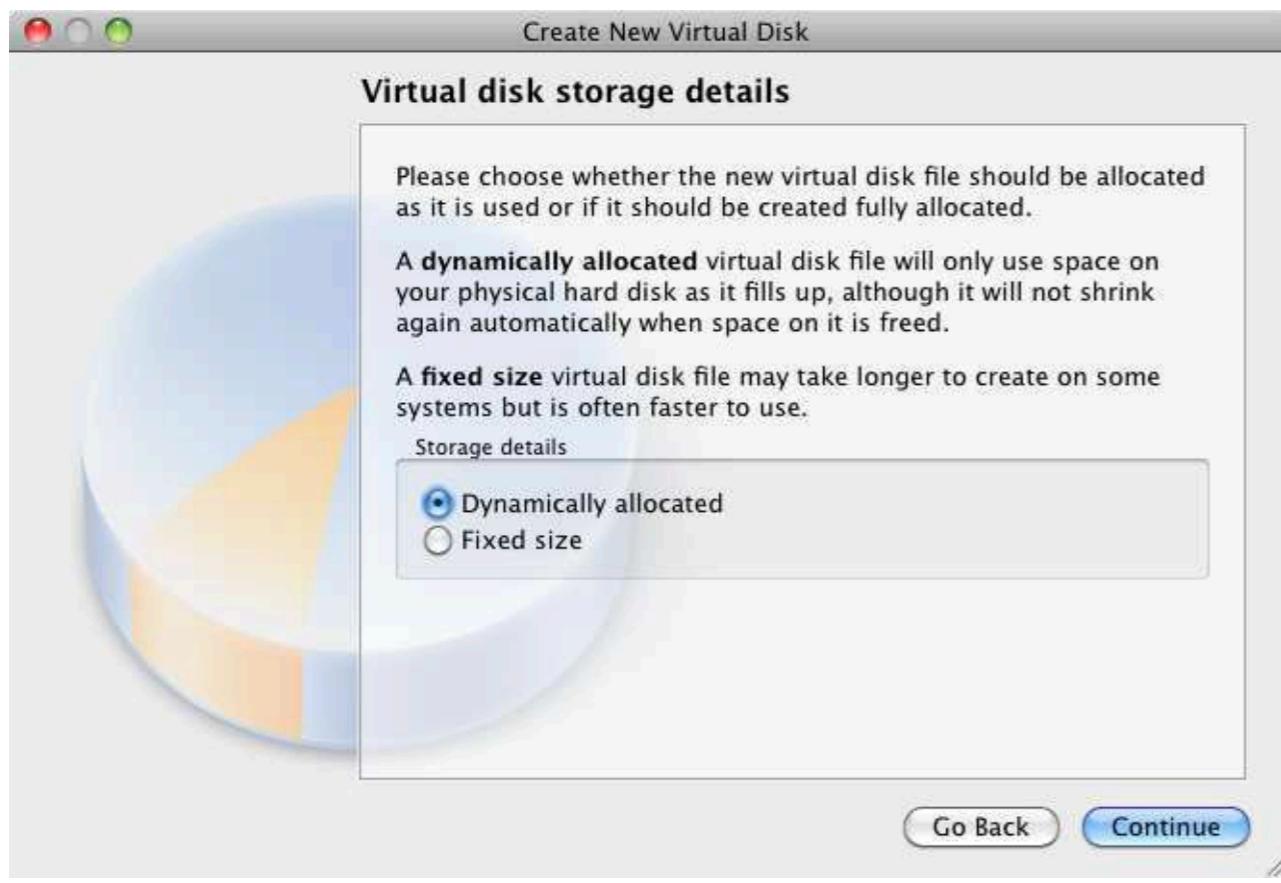
PC



Install Linux using Virtual Box

III. Choose “Dynamically Allocated” click continue.
This way, the size of your Virtual Hard Disk will grow
as you use.

MAC



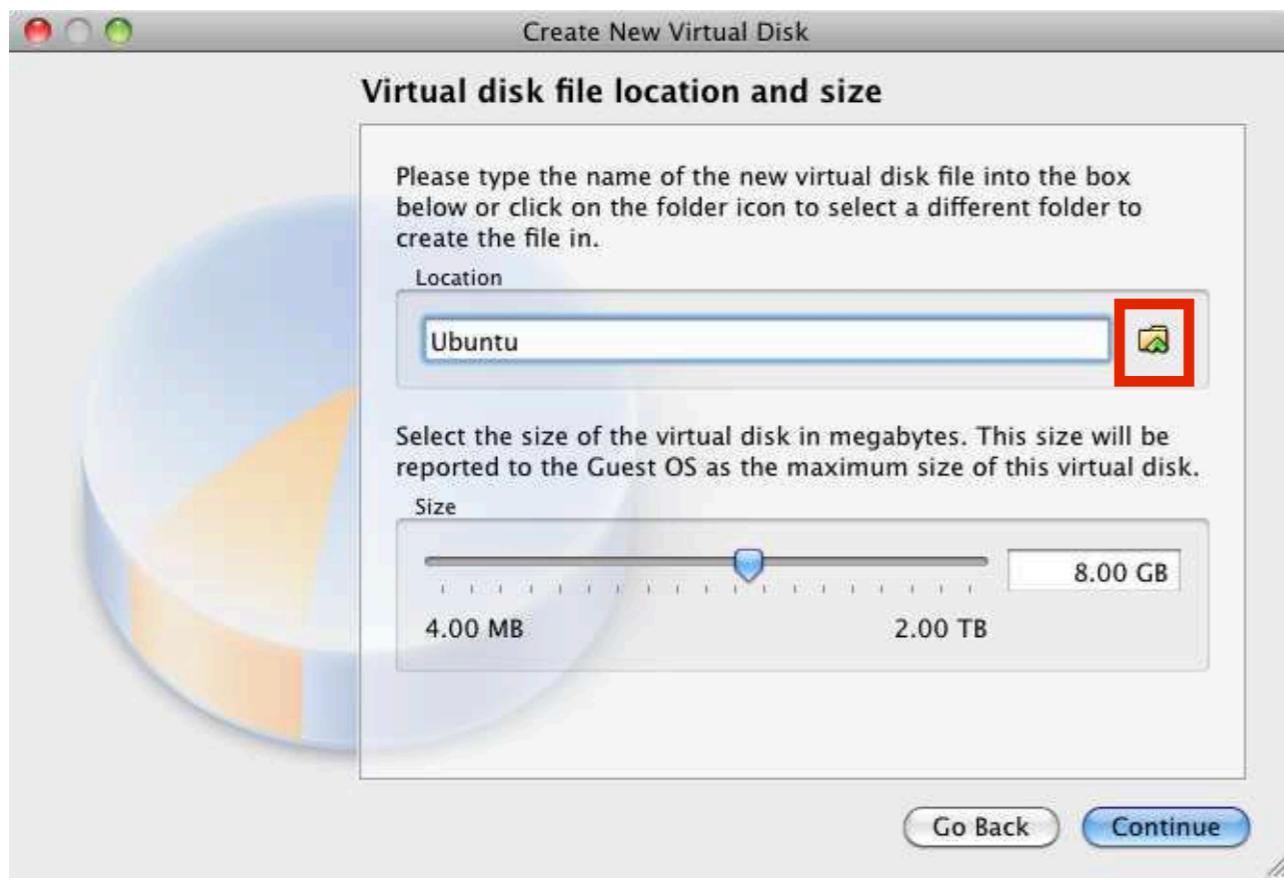
PC



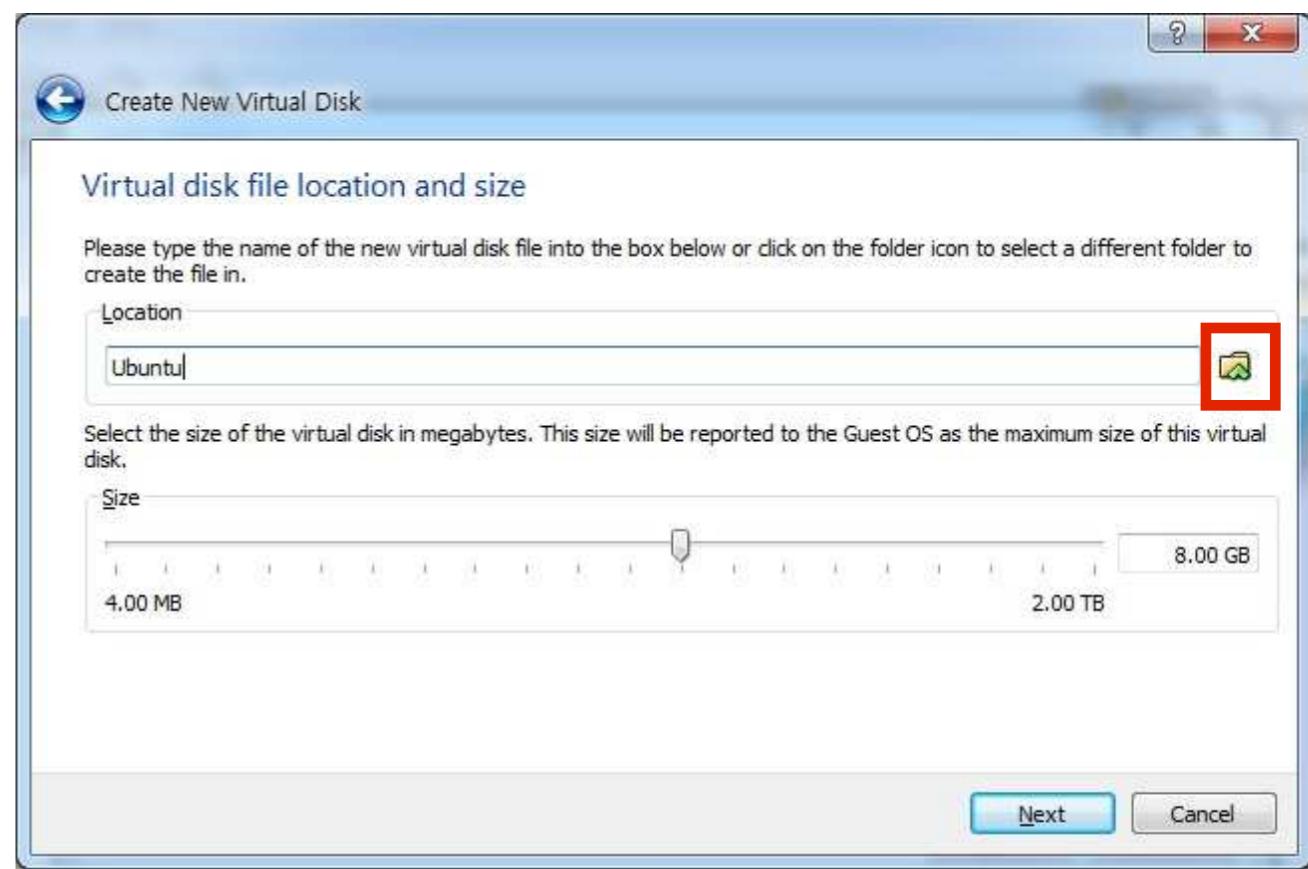
Install Linux using Virtual Box

12. Click the folder icon and choose the ubuntu iso file you downloaded.
13. Select the size of the Virtual Disk (I recommend choosing 8 GB) and click continue

MAC



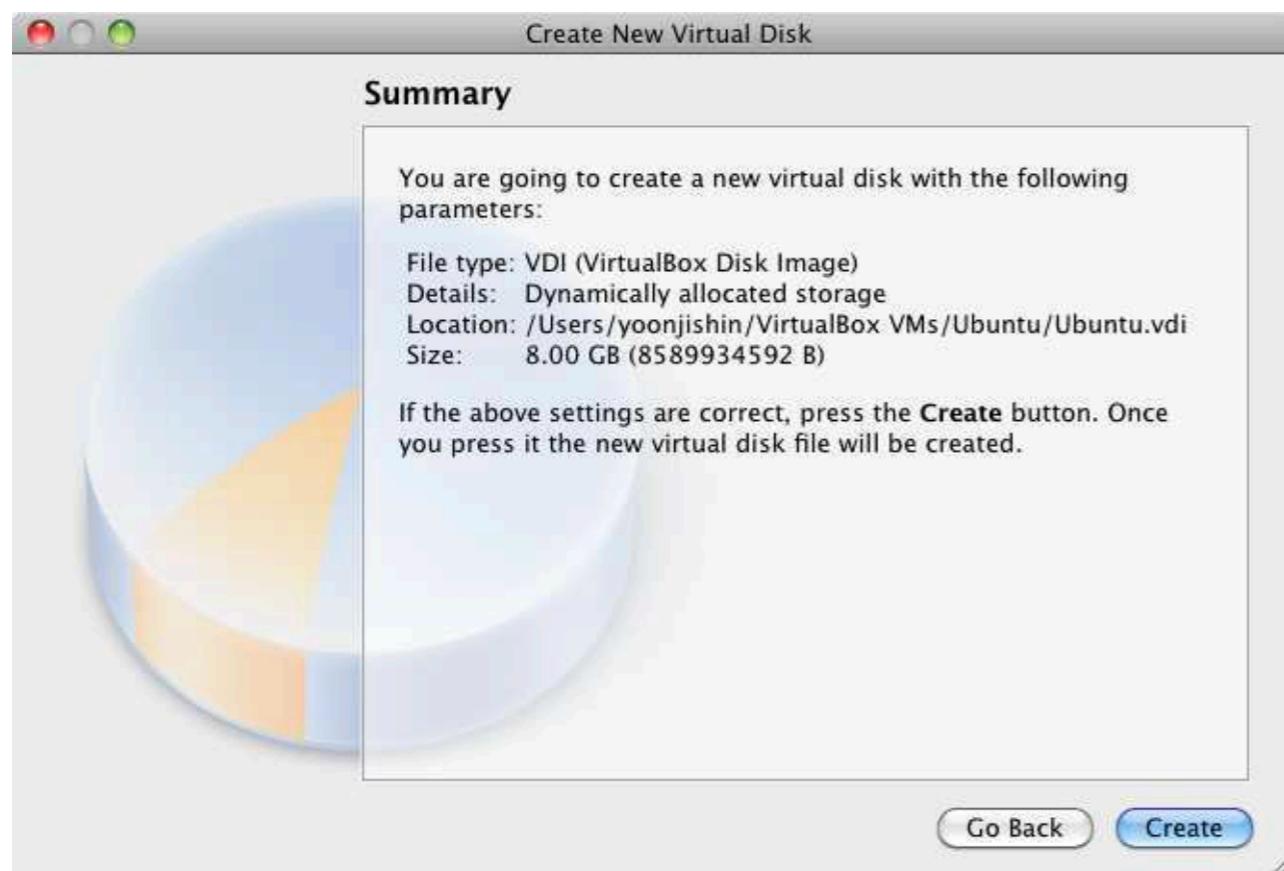
PC



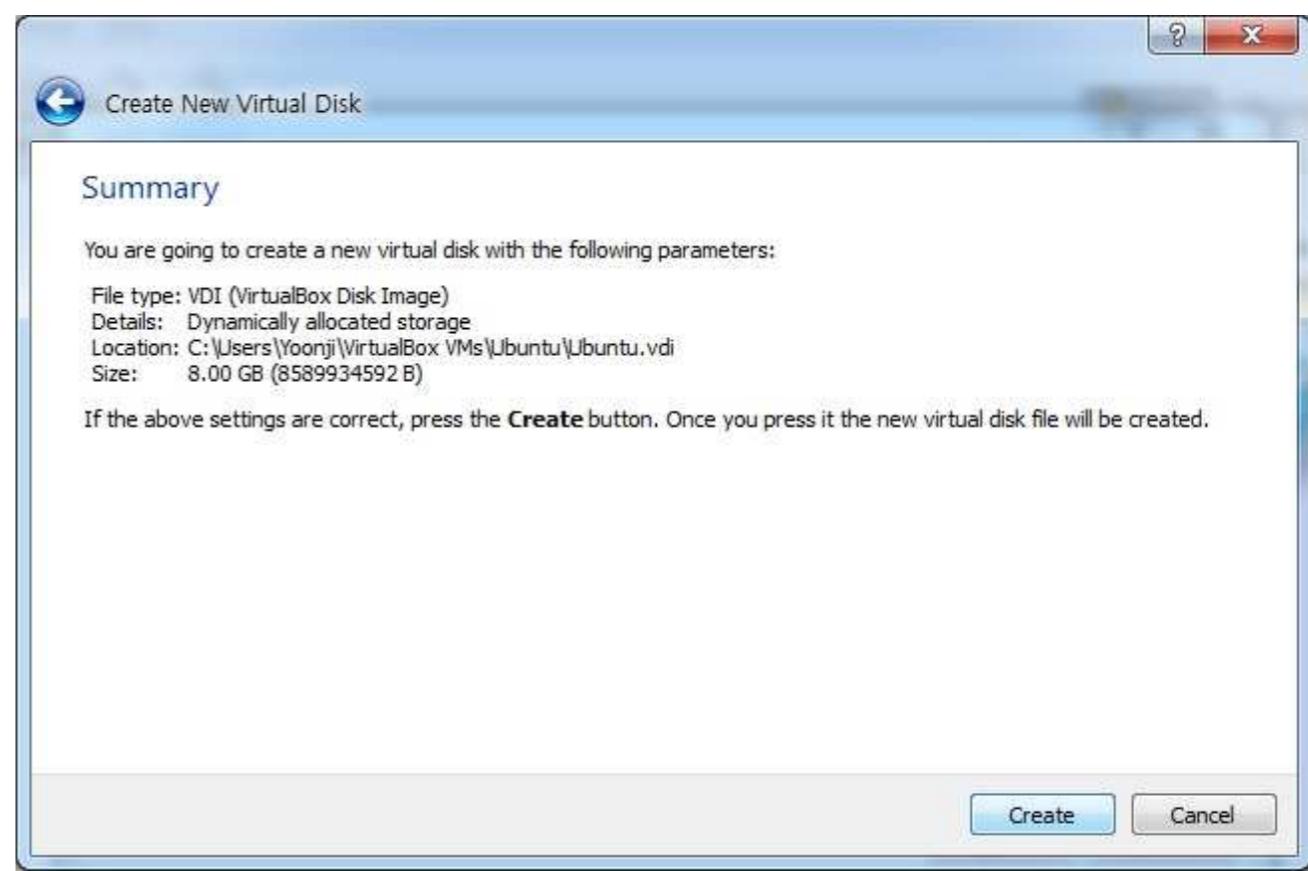
Install Linux using Virtual Box

I4. Click Create

MAC



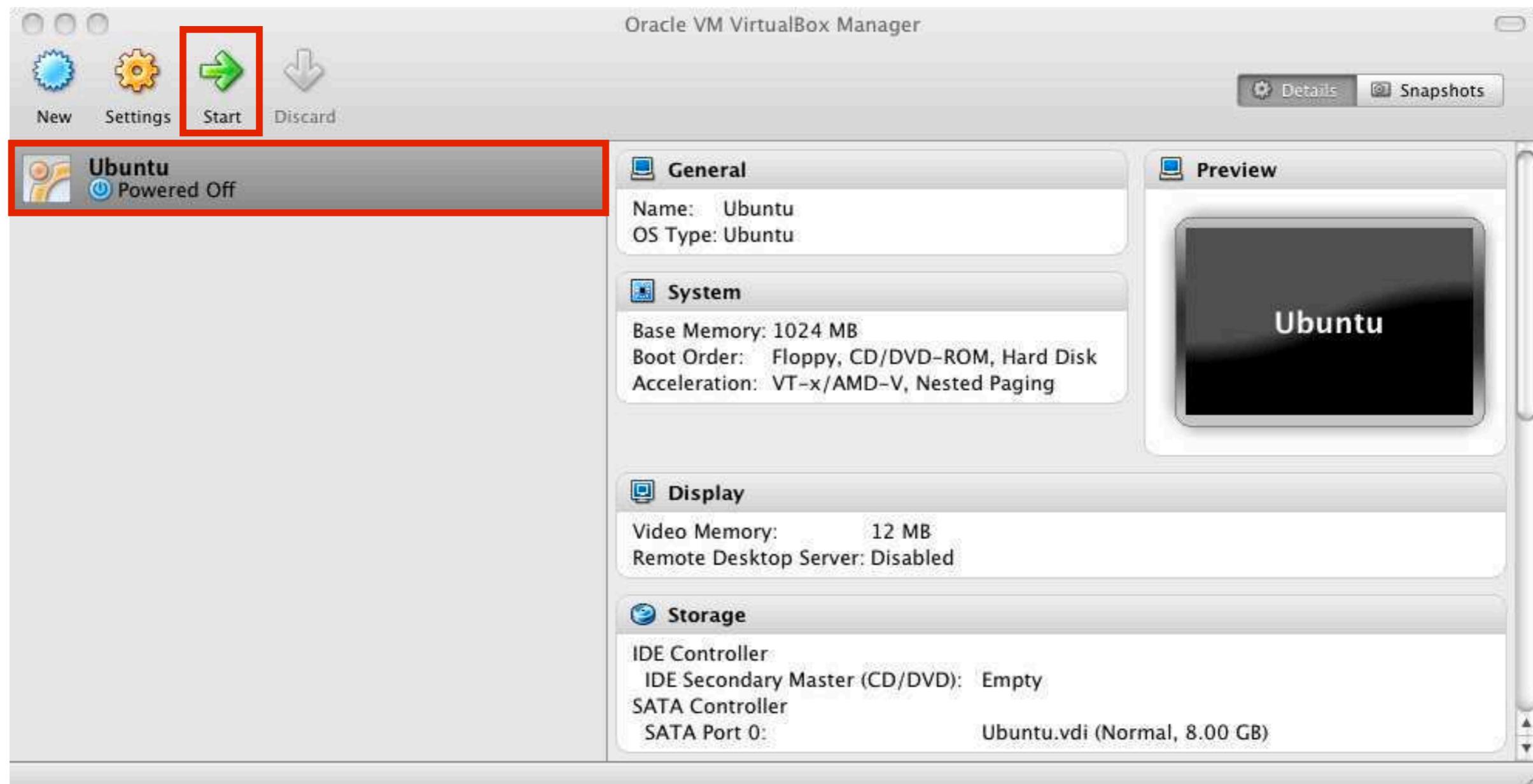
PC



Running Linux

I. Choose Ubuntu from left column and click Start

MAC & PC



Running Linux

2. Click continue on pop-up window

MAC



PC



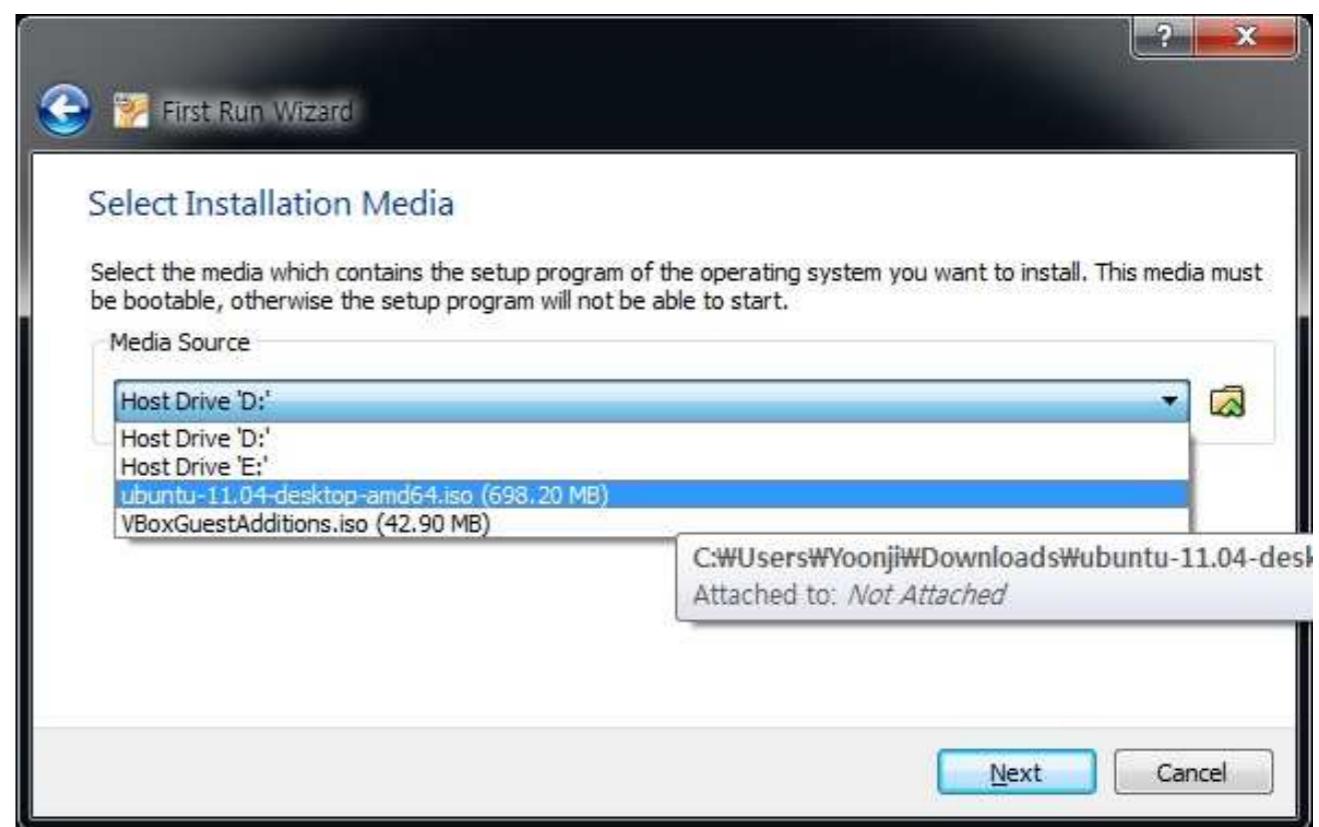
Running Linux

3. Click the folder icon and choose the ubuntu iso file you downloaded and click continue and start

MAC

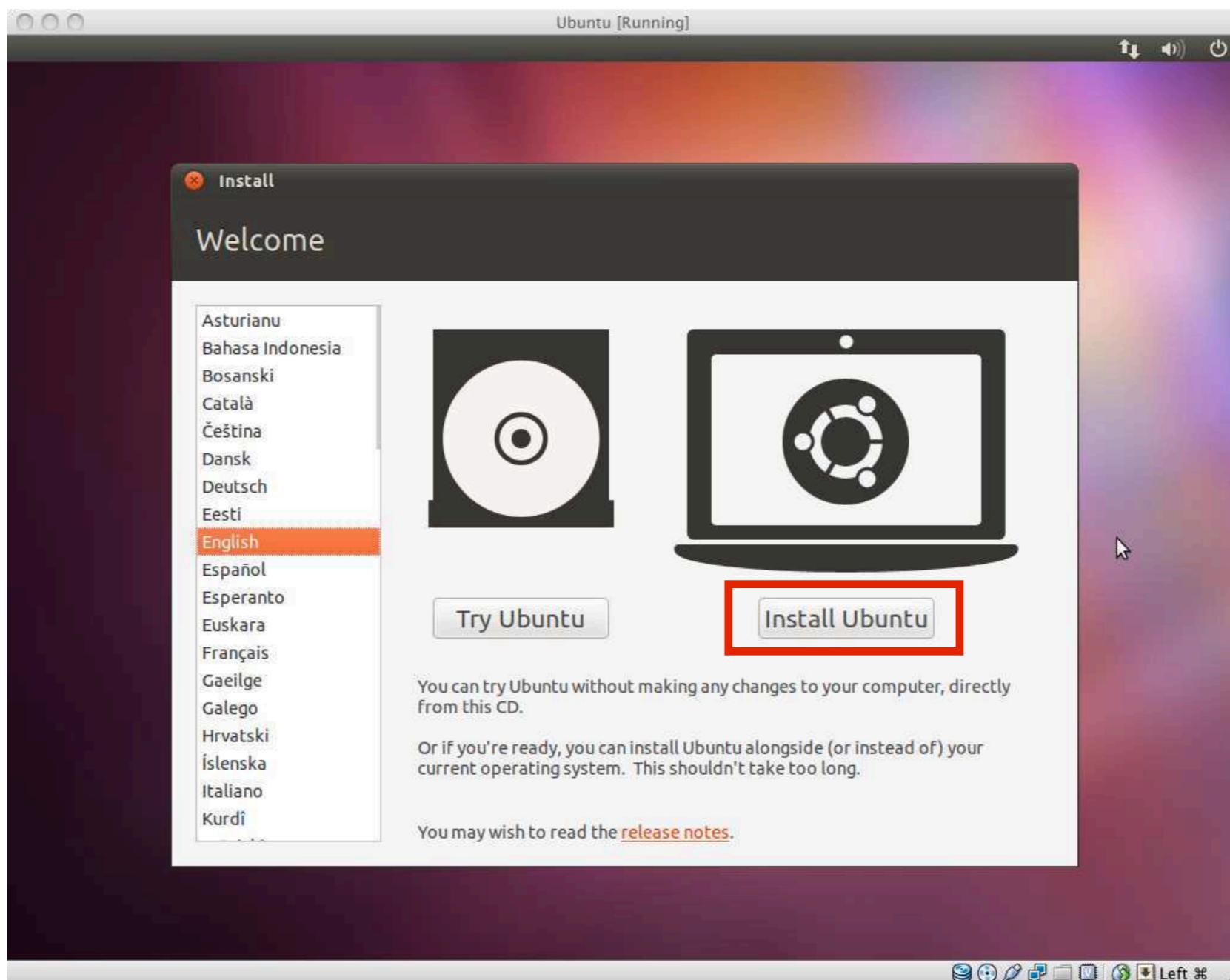


PC



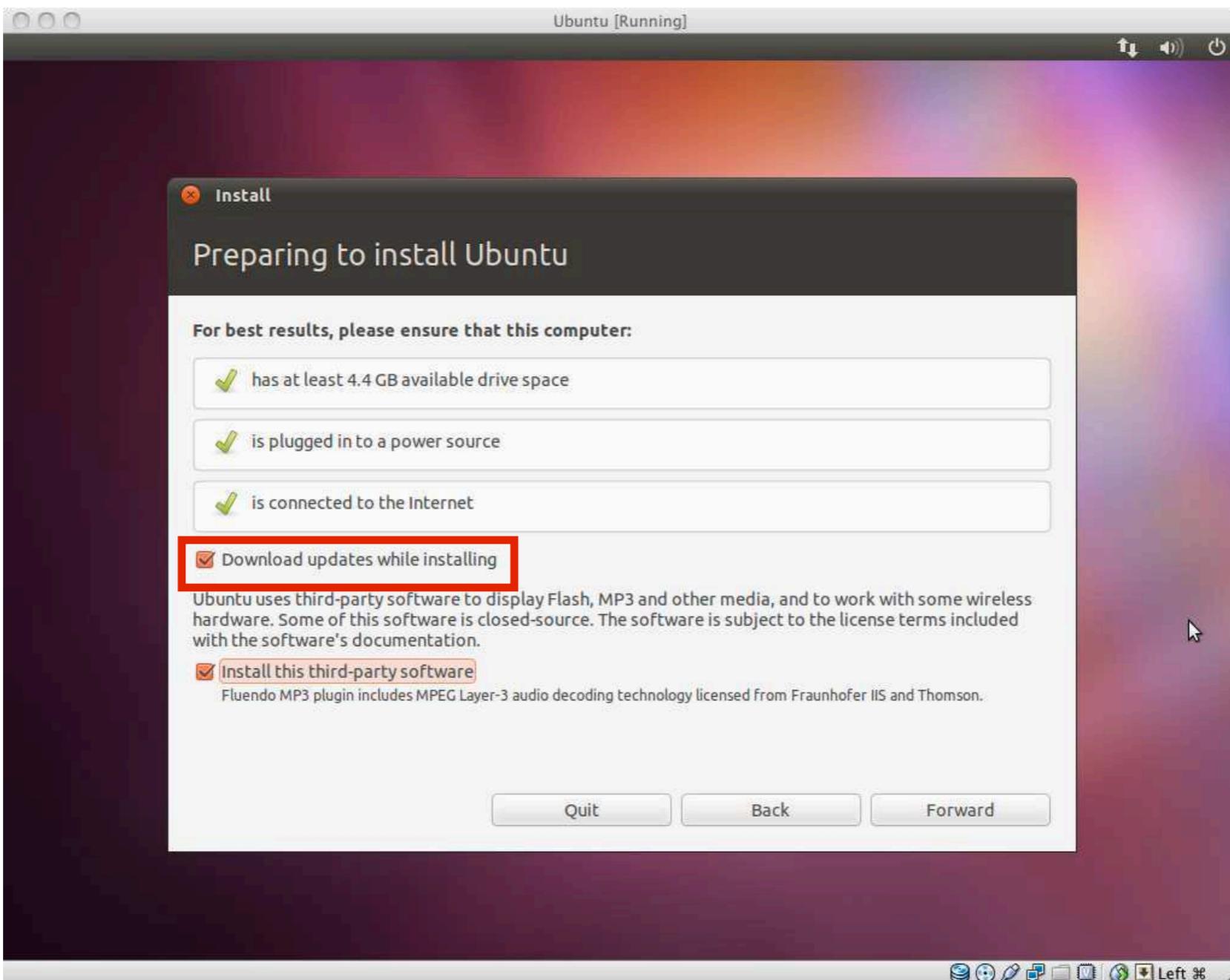
Running Linux

4. Click Install Ubuntu



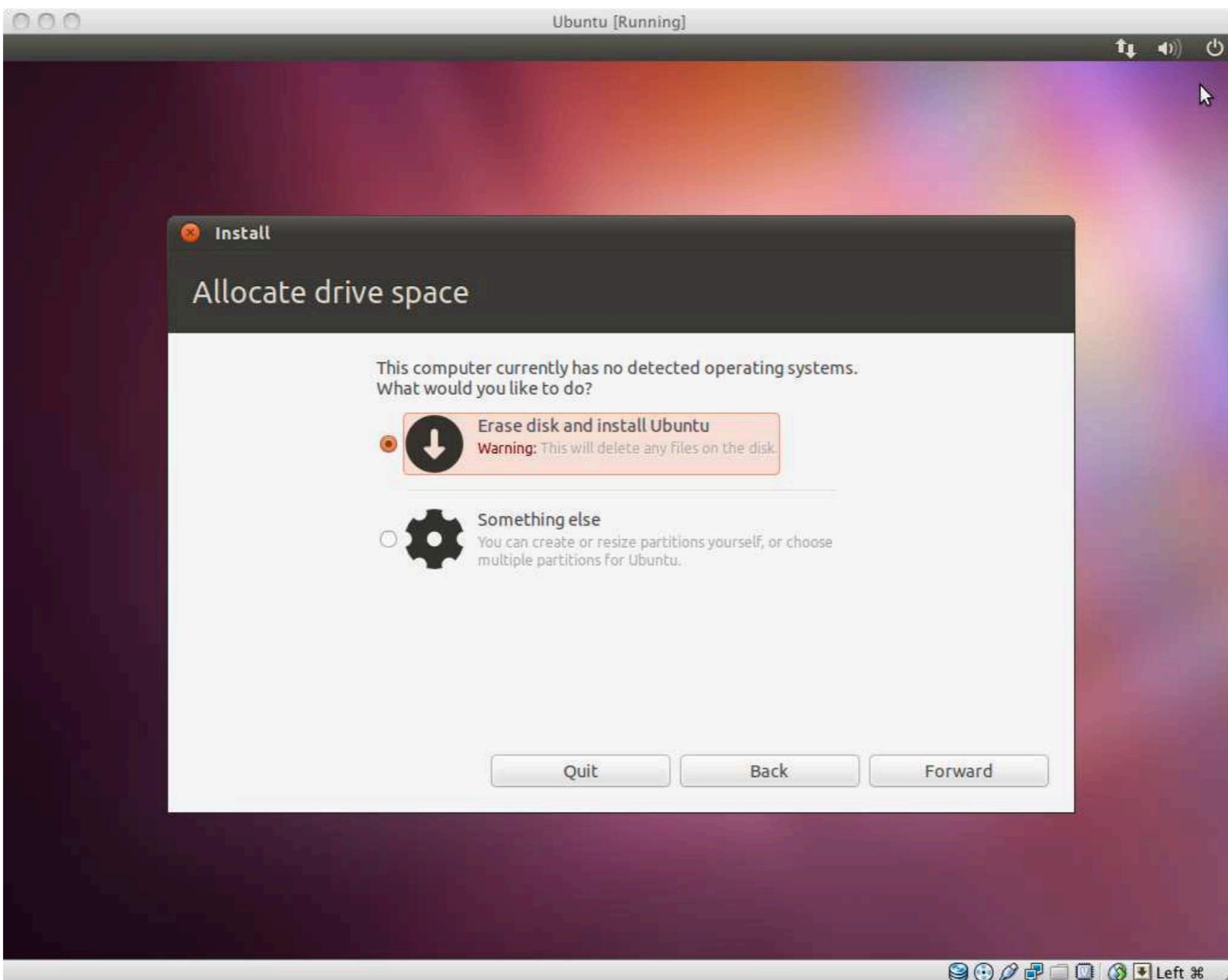
Running Linux

4. Check “Download updates” and click Forward



Running Linux

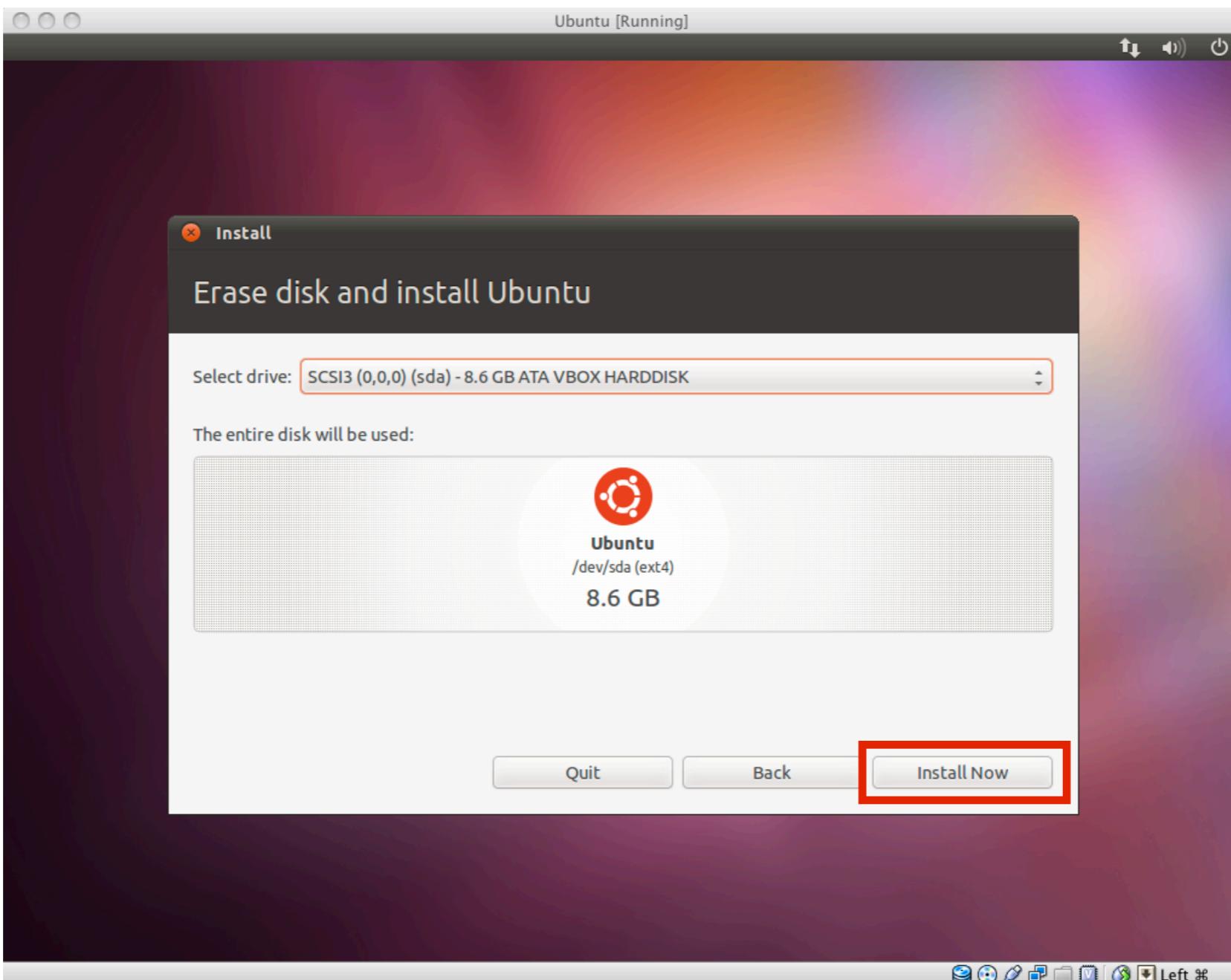
5. Choose “Erase disk and install Ubuntu” and click Forward (Don’t worry, it won’t wipe your computer)



Running Linux

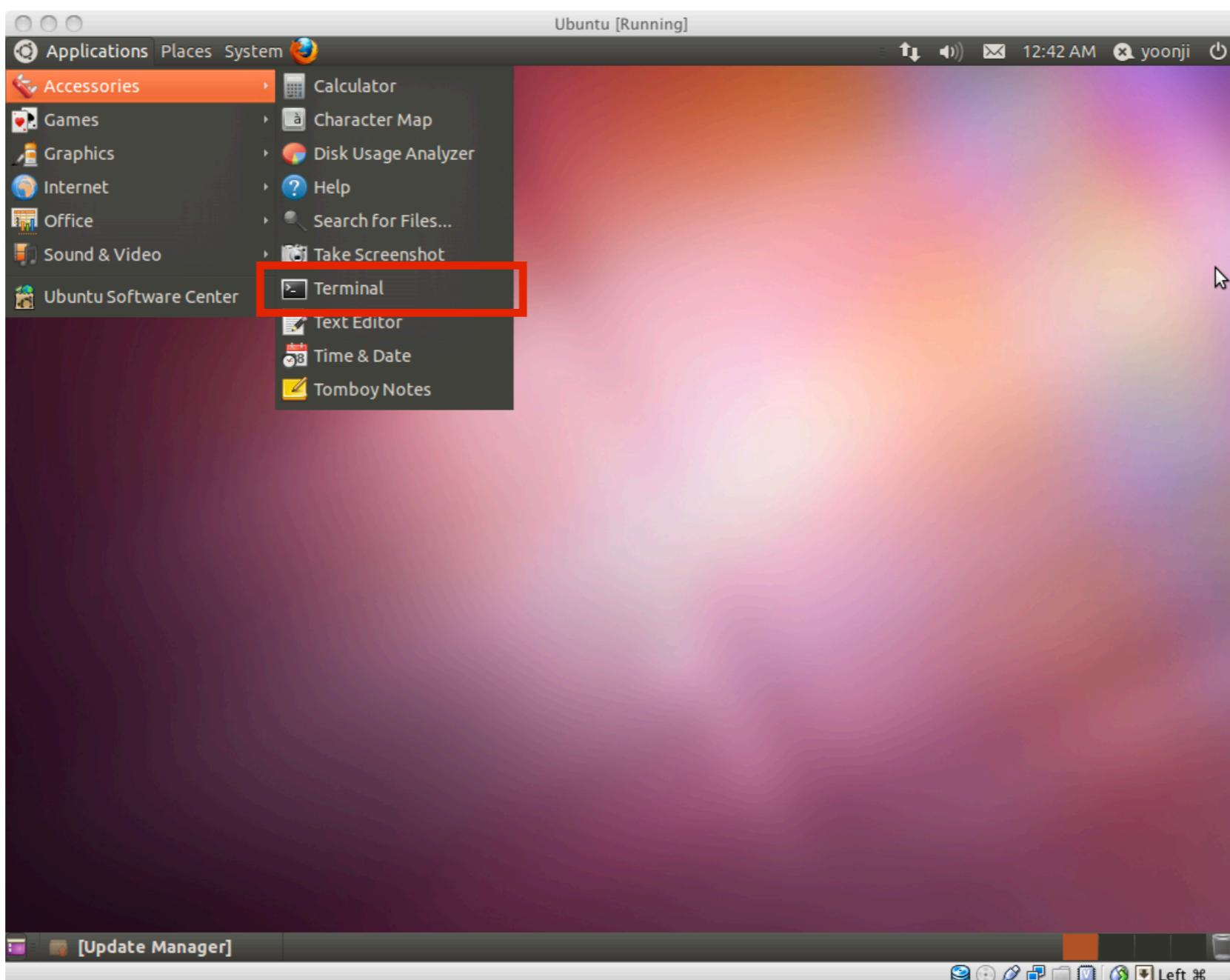
6. Click “Install Now” and wait. Maybe grab a snack.

7. When finished, click Restart and press Enter.



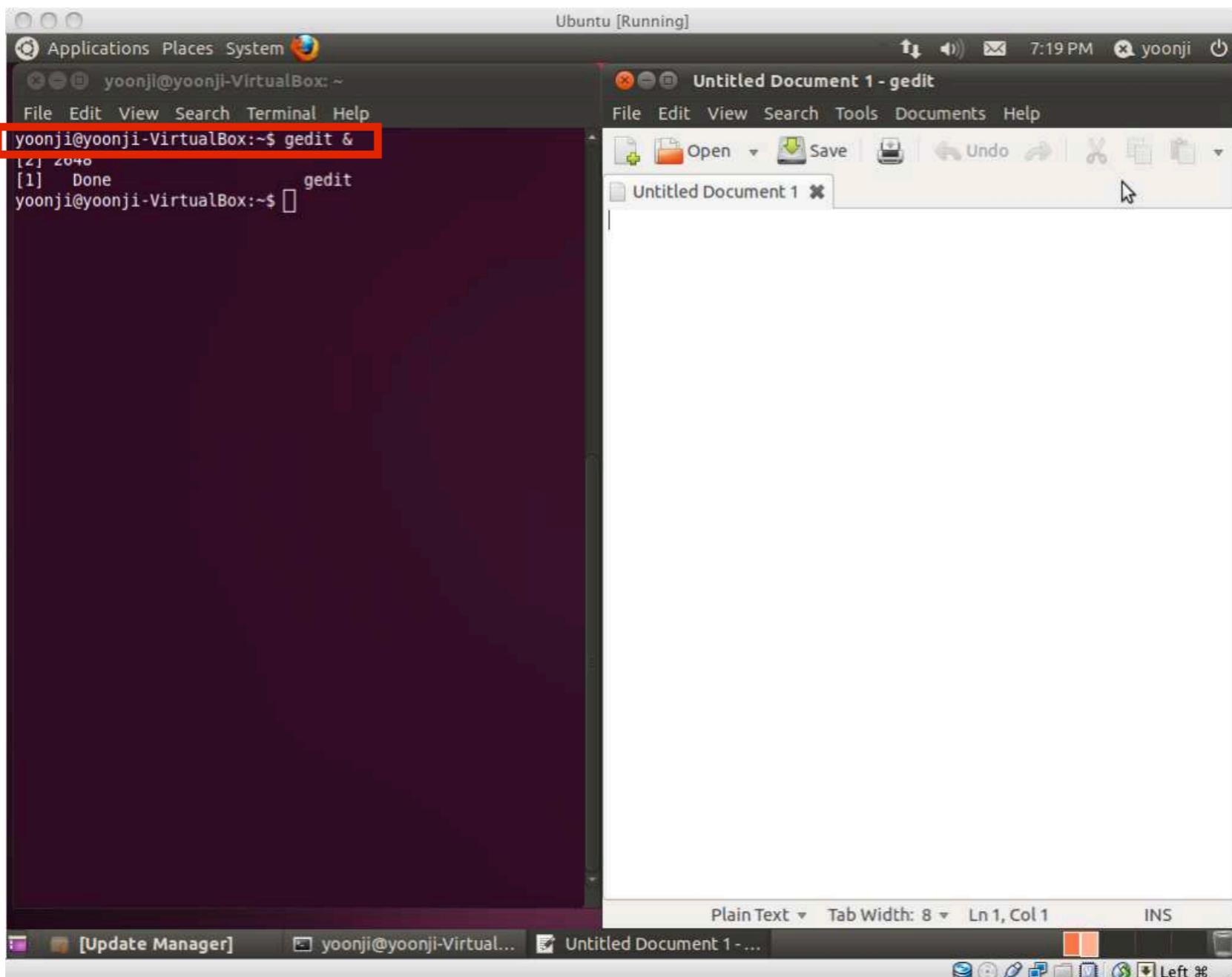
C Programming on Linux

I. Open Terminal (Applications-Accessories-Terminal)



C Programming on Linux

2. Open gedit by typing “gedit &” on terminal
(You can also use any other Text Editor application)

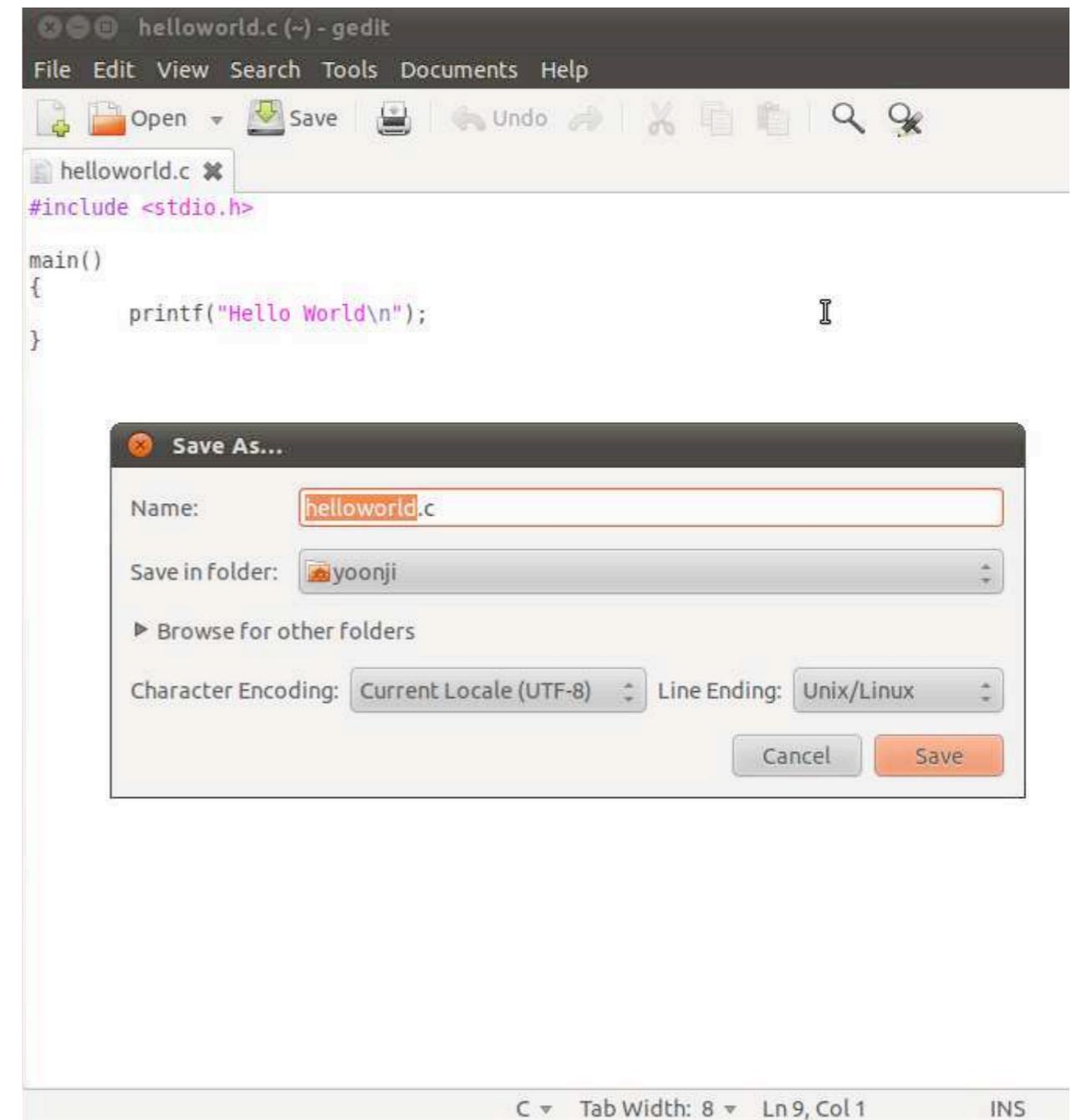


C Programming on Linux

3. Type the following on gedit (or any other text editor)

```
#include<stdio.h>

main()
{
    printf("Hello World\n");
}
```



C Programming on Linux

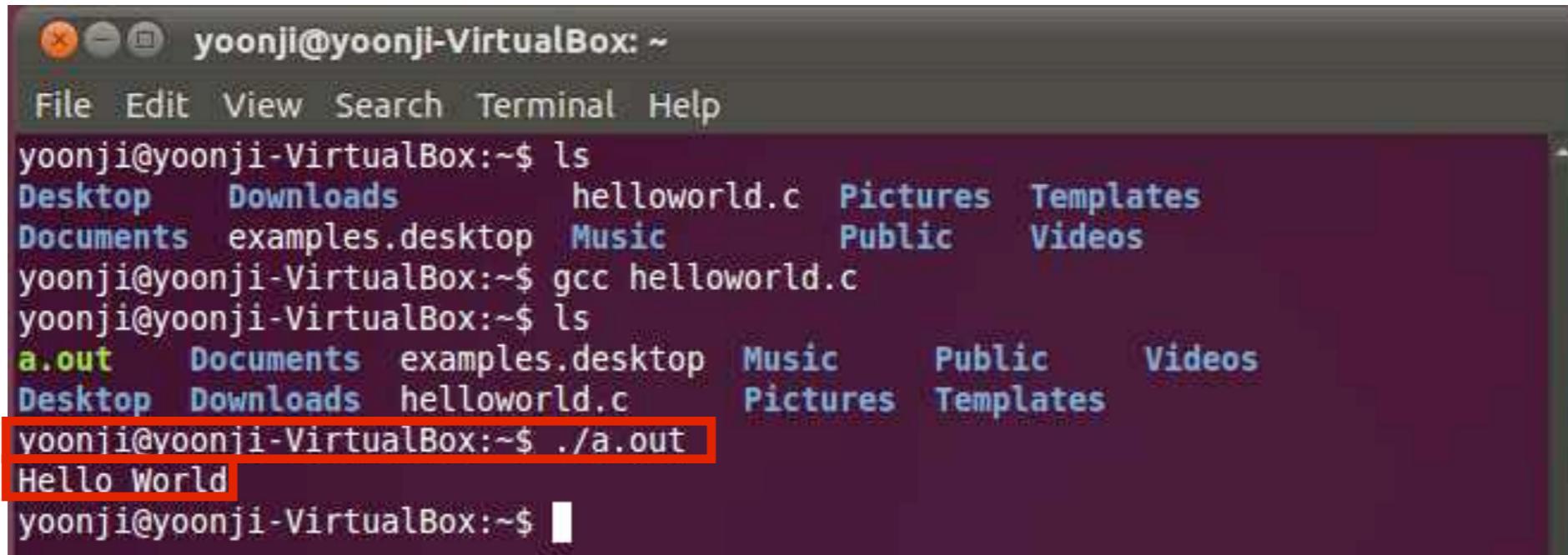
5. Type “ls” on Terminal to see all files under current folder
6. Confirm that “helloworld.c” is in the current directory.
If not, type `cd DIRECTORY_PATH` to go to the directory that has “helloworld.c”
7. Type “`gcc helloworld.c`” to compile, and type “ls” to confirm that a new executable file “a.out” is created

The screenshot shows a terminal window with a dark background and light-colored text. The window title is "yoonji@yoonji-VirtualBox:~". The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal prompt is "yoonji@yoonji-VirtualBox:~\$". The user runs the command "ls" to list files, which shows "Desktop", "Downloads", "helloworld.c", "Pictures", "Templates", "Documents", "examples.desktop", "Music", "Public", and "Videos". The user then runs "gcc helloworld.c" to compile the program. Finally, the user runs "ls" again, and the newly created executable file "a.out" is listed along with the other files.

```
yoonji@yoonji-VirtualBox:~$ ls
Desktop  Downloads  helloworld.c  Pictures  Templates
Documents examples.desktop  Music    Public    Videos
yoonji@yoonji-VirtualBox:~$ gcc helloworld.c
yoonji@yoonji-VirtualBox:~$ ls
a.out    Documents  examples.desktop  Music    Public    Videos
Desktop  Downloads  helloworld.c      Pictures  Templates
yoonji@yoonji-VirtualBox:~$
```

C Programming on Linux

8. Type “./a.out” on Terminal to run the program
9. If you see “Hello World” on the next line,
you just successfully ran your first C program!
10. Try other codes from “A Shotgun Introduction to C”
on professor Edwards’s webpage. You can also find many
C programming guides online. (just google it!) Enjoy :)



The screenshot shows a terminal window with a dark background and light-colored text. The window title is "yoonji@yoonji-VirtualBox: ~". The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal prompt is "yoonji@yoonji-VirtualBox:~\$". The user runs the command "ls" which lists directory contents: Desktop, Downloads, helloworld.c, Pictures, Templates, Documents, examples.desktop, Music, Public, Videos. Then, the user runs "gcc helloworld.c". After compilation, the user runs "ls" again, showing the newly created executable "a.out" along with the other files. Finally, the user runs "./a.out", and the output "Hello World" is displayed in red, indicating it was the last line of the terminal output.

```
yoonji@yoonji-VirtualBox:~$ ls
Desktop  Downloads      helloworld.c  Pictures  Templates
Documents examples.desktop  Music        Public    Videos
yoonji@yoonji-VirtualBox:~$ gcc helloworld.c
yoonji@yoonji-VirtualBox:~$ ls
a.out    Documents  examples.desktop  Music      Public    Videos
Desktop  Downloads  helloworld.c    Pictures  Templates
yoonji@yoonji-VirtualBox:~$ ./a.out
Hello World
yoonji@yoonji-VirtualBox:~$
```