

Linux Installation on VirtualBox

Practical Class 1

**Systems and Storage Laboratory
Department of Computer Science and Engineering
Chung-Ang University**

Index

- ❖ **VirtualBox**
- ❖ **Prerequisites for Virtual Box**
- ❖ **How to install VirtualBox**
- ❖ **How to install Linux on VirtualBox**
- ❖ **Appendix**

VirtualBox

❖ VirtualBox is a cross-platform virtualization application

- It extends the capabilities of your existing computer so that it can run multiple OSs, inside multiple virtual machines, at the same time.

❖ Why Useful?

- Running multiple operating systems simultaneously
- Easier software installations
- Testing and disaster recovery
- Infrastructure consolidation

VirtualBox

❖ Recommended setting

- disk \geq 50GB, RAM \geq 4GB, # CPU \geq 2
- The more the better. Especially for Disk capacity, because we will compile our own kernel in the following weeks.

❖ Add port forwarding rule

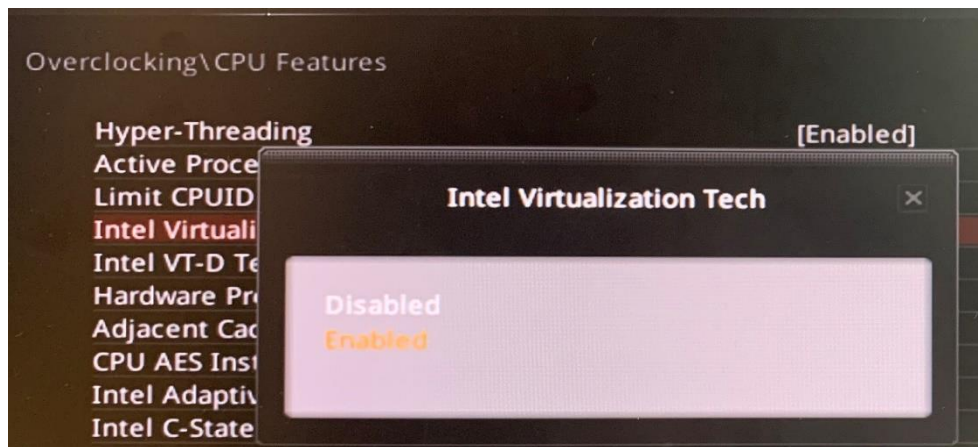
- protocol: TCP, host IP: 127.0.0.1
- host port: 2222, guest port: 22

❖ Use Shared folders for file sharing between Linux VM and your host machine.

Prerequisites for Virtual Box (1/2)

❖ Enable Bios Configuration

- If you are using Intel CPU:
 - **Intel Virtualization** or **VT-x**
 - **Intel VT-d** (optional)
- If you are using AMD CPU:
 - **AMD-V** or **SVM**
 - **AMD IOMMU** (optional)
- Source: [Enabling Virtualization in your PC BIOS \(berkeley.edu\)](http://enablingvirtualization.berkeley.edu)



Prerequisites for Virtual Box (2/2)

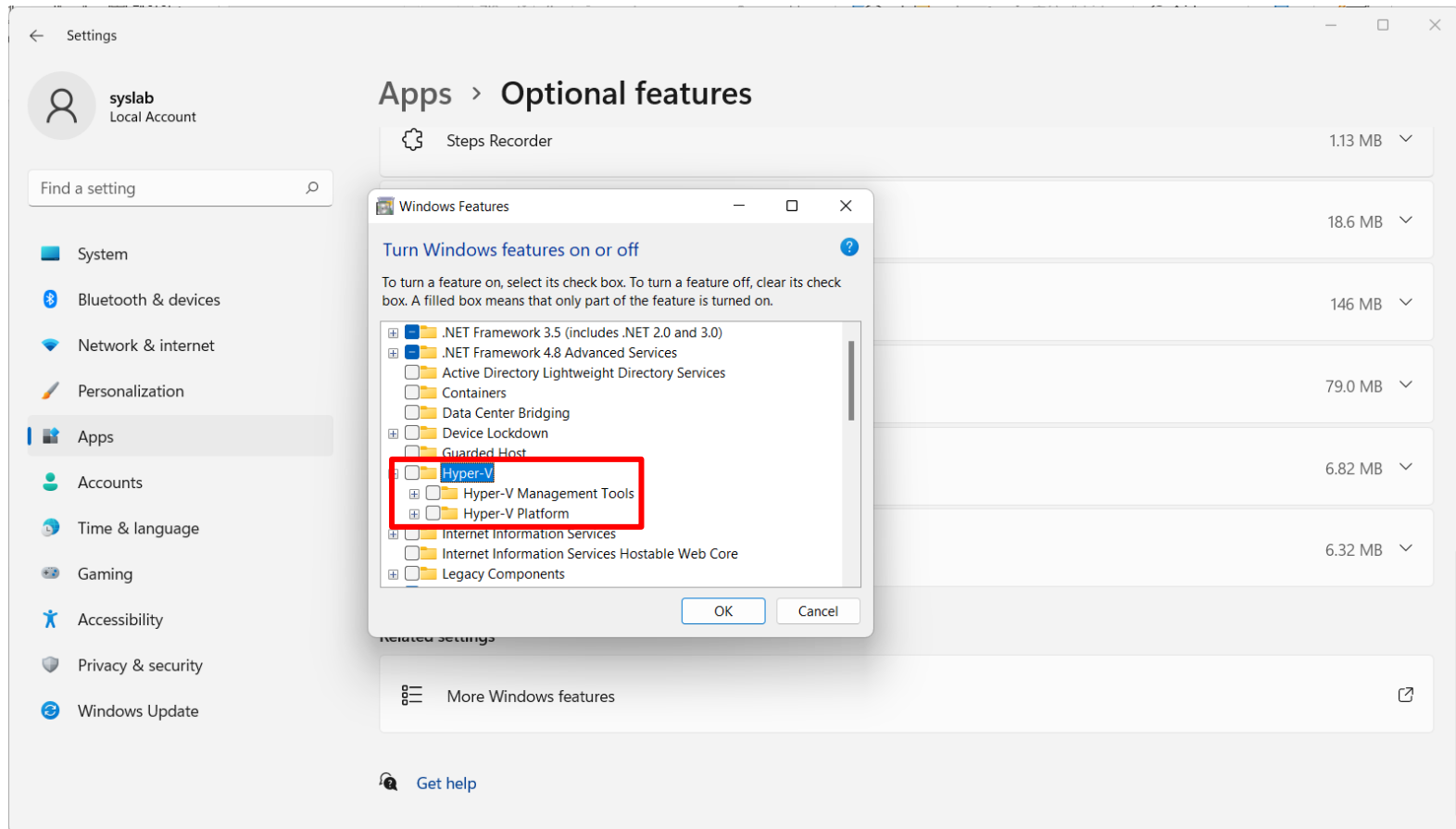
❖ Disable Hyper-V

- This is an **optional** configuration for Windows users.
- Before Windows 10 1803 version and VirtualBox 6.0 were released, the Hyper-V functionality and VirtualBox virtual machine cannot run at the same time.
- However, if you are using the latest version of Windows 10 and VirtualBox, the limitation is gone.
- As a result, this configuration is only for the users that use old version softwares.
- You can check the [changelog of VirtualBox](#) to know more details

Prerequisites for Virtual Box (2/2)

❖ Disable Hyper-V

- Settings -> Apps -> Optional features -> More Windows features -> turn off **Hyper-V**



How to install VirtualBox

❖ Installation

- Download VirtualBox 6.X.X platform package
- Download VirtualBox Extension Pack
- Source : <https://www.virtualbox.org/wiki/Downloads>



The screenshot shows the VirtualBox Downloads page in a web browser. The browser's address bar displays 'virtualbox.org/wiki/Downloads'. The page features the VirtualBox logo on the left and a large 'VirtualBox' title. Below the title, the section 'Download VirtualBox' is followed by a paragraph stating that links to binaries and source code will be found here. The 'VirtualBox binaries' section includes a disclaimer about terms and conditions and a note about the discontinuation of 5.2 packages in favor of 6.0. The 'VirtualBox 6.0.10 platform packages' section lists four options: Windows hosts, OS X hosts, Linux distributions, and Solaris hosts. The 'VirtualBox 6.0.10 Oracle VM VirtualBox Extension Pack' section lists one option: All supported platforms. The 'All supported platforms' link is highlighted with a red box.

virtualbox.org/wiki/Downloads

VirtualBox

Download VirtualBox

Here you will find links to VirtualBox binaries and its source code.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective hosts.

If you're looking for the latest VirtualBox 5.2 packages, see [VirtualBox 5.2](#) hosts, as this has been discontinued in 6.0. Version 5.2 will remain supported.

VirtualBox 6.0.10 platform packages

- [Windows hosts](#)
- [OS X hosts](#)
- [Linux distributions](#)
- [Solaris hosts](#)

VirtualBox 6.0.10 Oracle VM VirtualBox Extension Pack

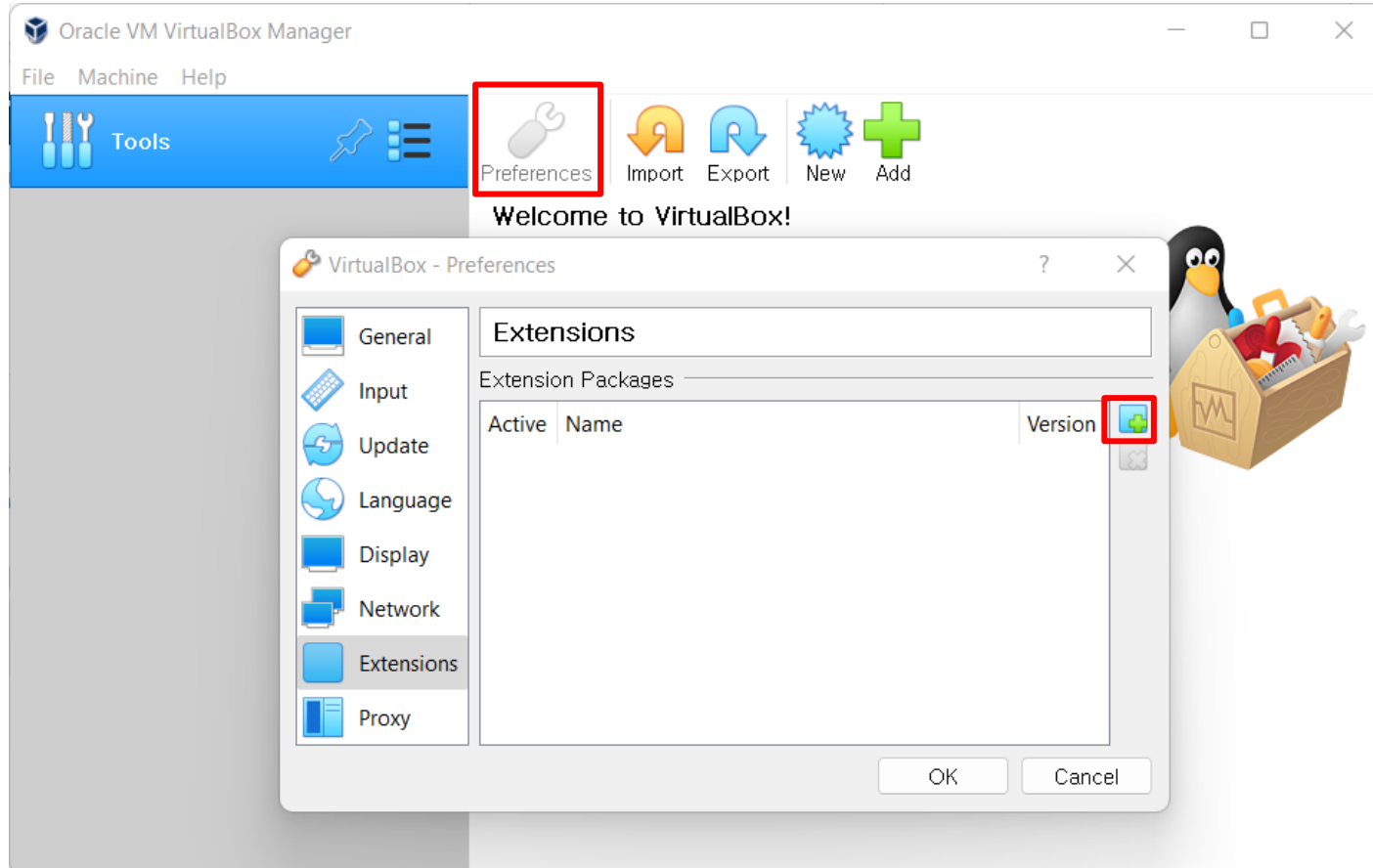
- [All supported platforms](#)

Support for USB 2.0 and USB 3.0 devices, VirtualBox RDP, disk encryption, [Manual](#) for an introduction to this Extension Pack. The Extension Pack binary [License](#) (PUEL). Please install the same version extension pack as your installation.

How to install VirtualBox

❖ Environment setting

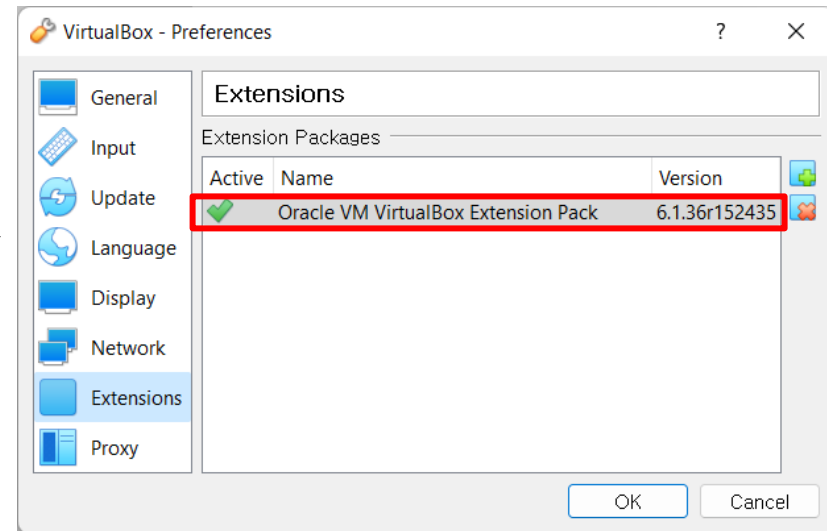
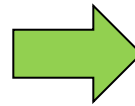
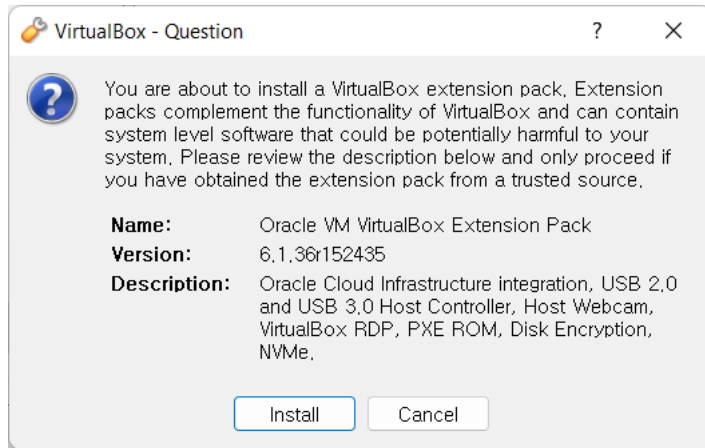
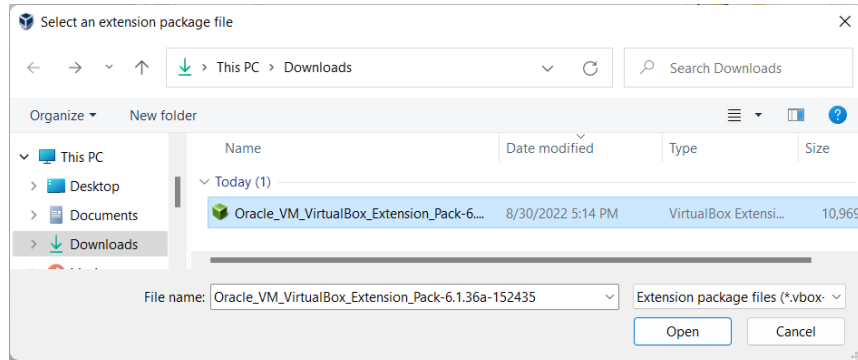
- Install VirtualBox Extension Pack



How to install VirtualBox

❖ Environment setting

■ Install VirtualBox Extension Pack



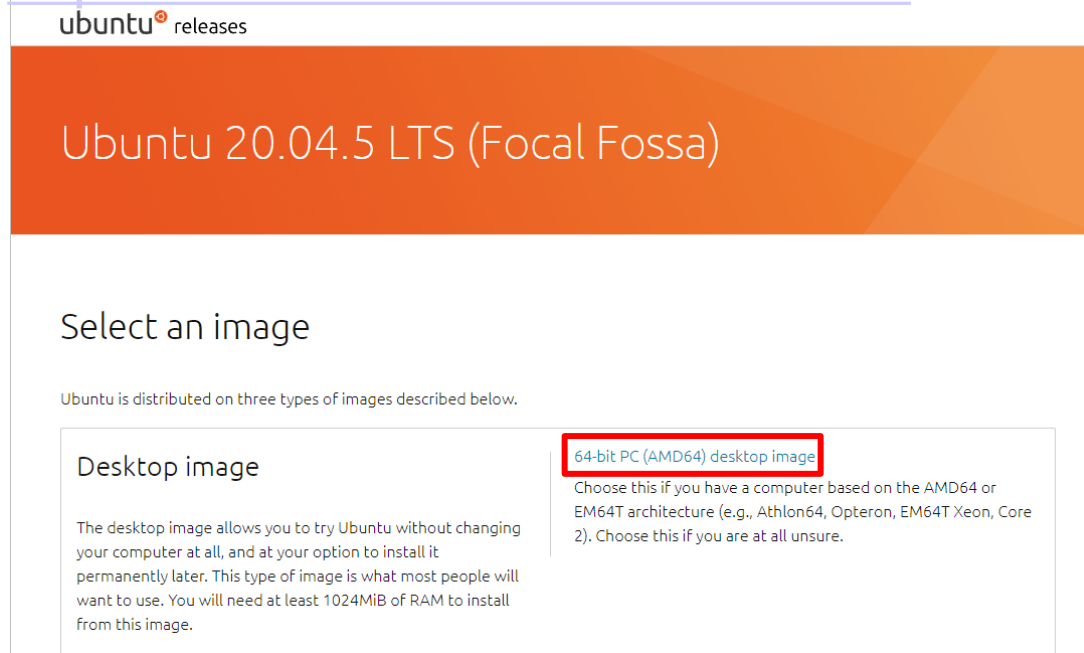
How to install Linux on VirtualBox

❖ Preparations

- Install VirtualBox 6.X.X
- Download Ubuntu 20.04 image file
- Disable Hyper-V

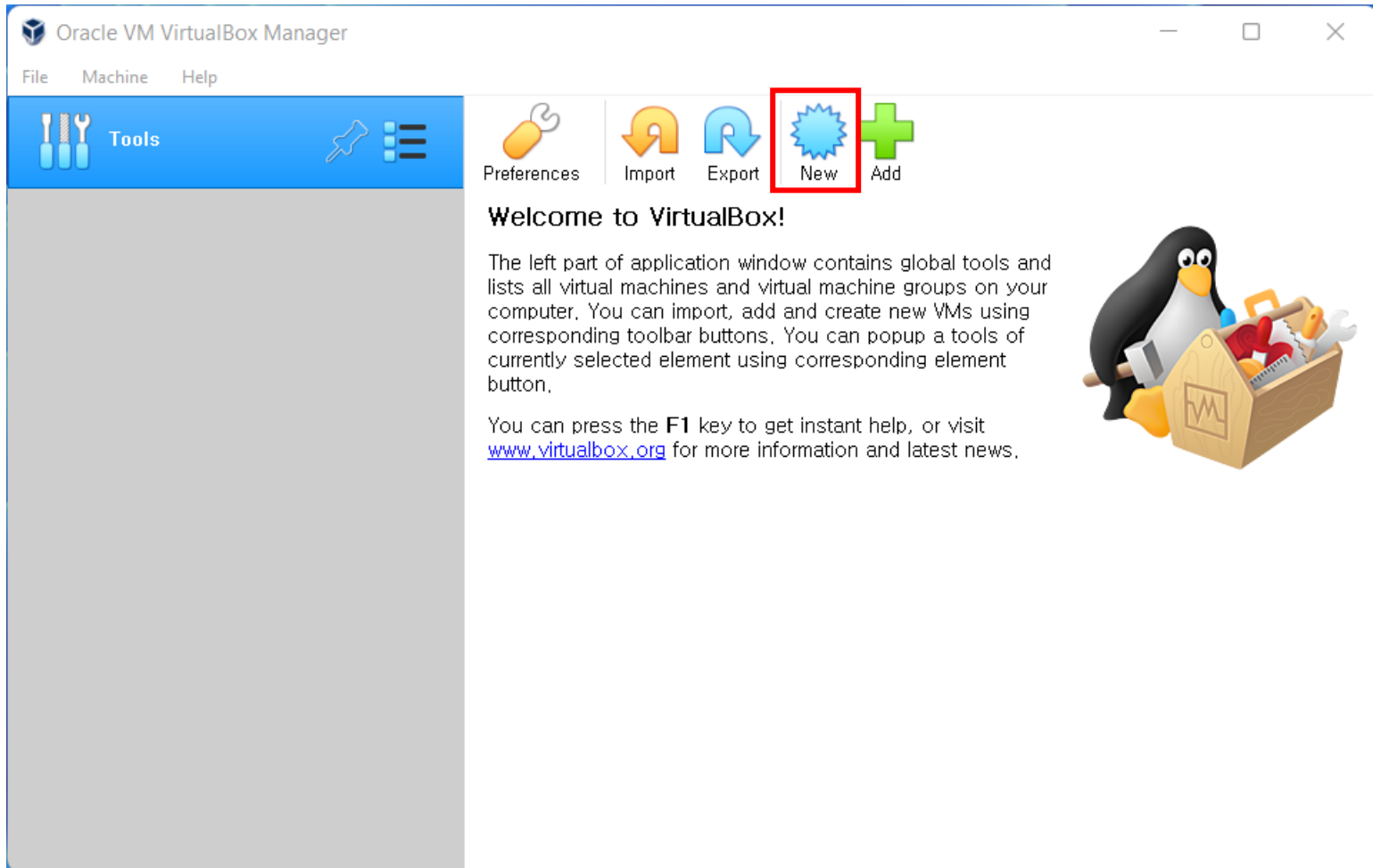
❖ Download Ubuntu 20.04 image file

- Link: <https://releases.ubuntu.com/20.04/>



How to install Linux on VirtualBox

❖ Create Virtual Machine



How to install Linux on VirtualBox

❖ Create Virtual Machine

- Minimum size RAM should be at least 4GB

The image displays two sequential screenshots of the VirtualBox 'Create Virtual Machine' wizard.

Left Screenshot: Name and operating system

- Name:** Ubuntu 20.04
- Machine Folder:** C:\Users\Wsyslab\VirtualBox VMs
- Type:** Linux (highlighted with a red box)
- Version:** Ubuntu (64-bit) (highlighted with a red box)

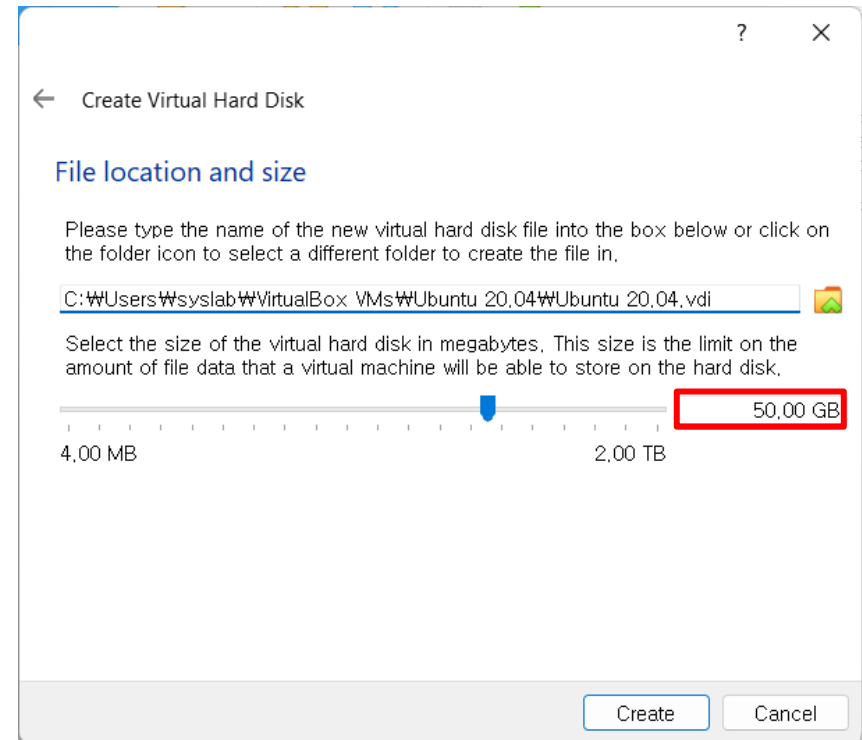
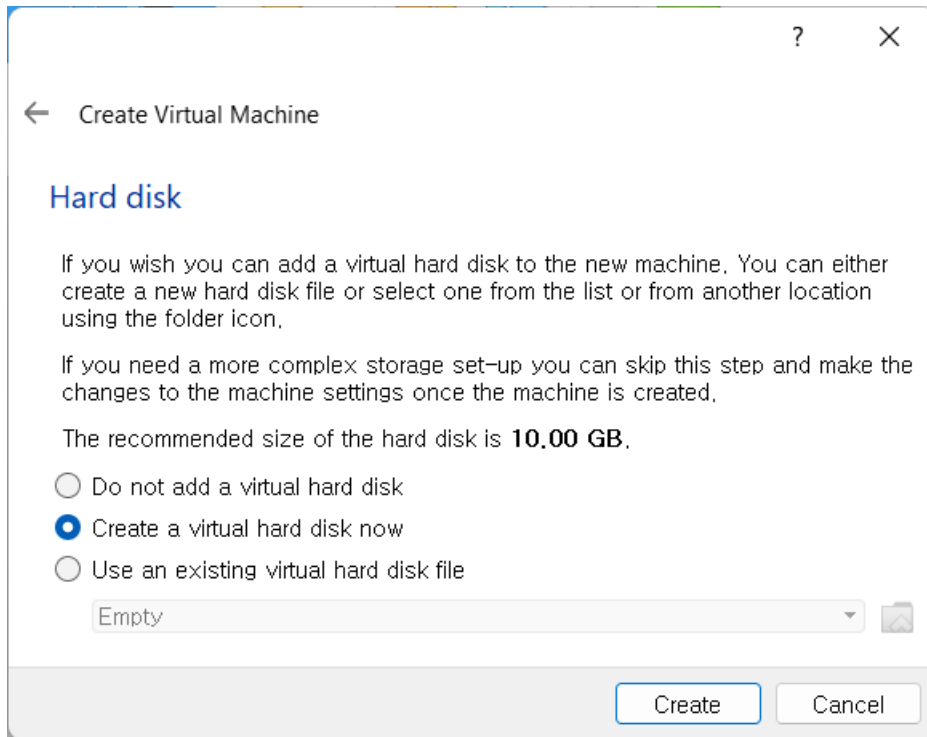
Right Screenshot: Memory size

- Memory size:** 4096 MB (highlighted with a red box)

How to install Linux on VirtualBox

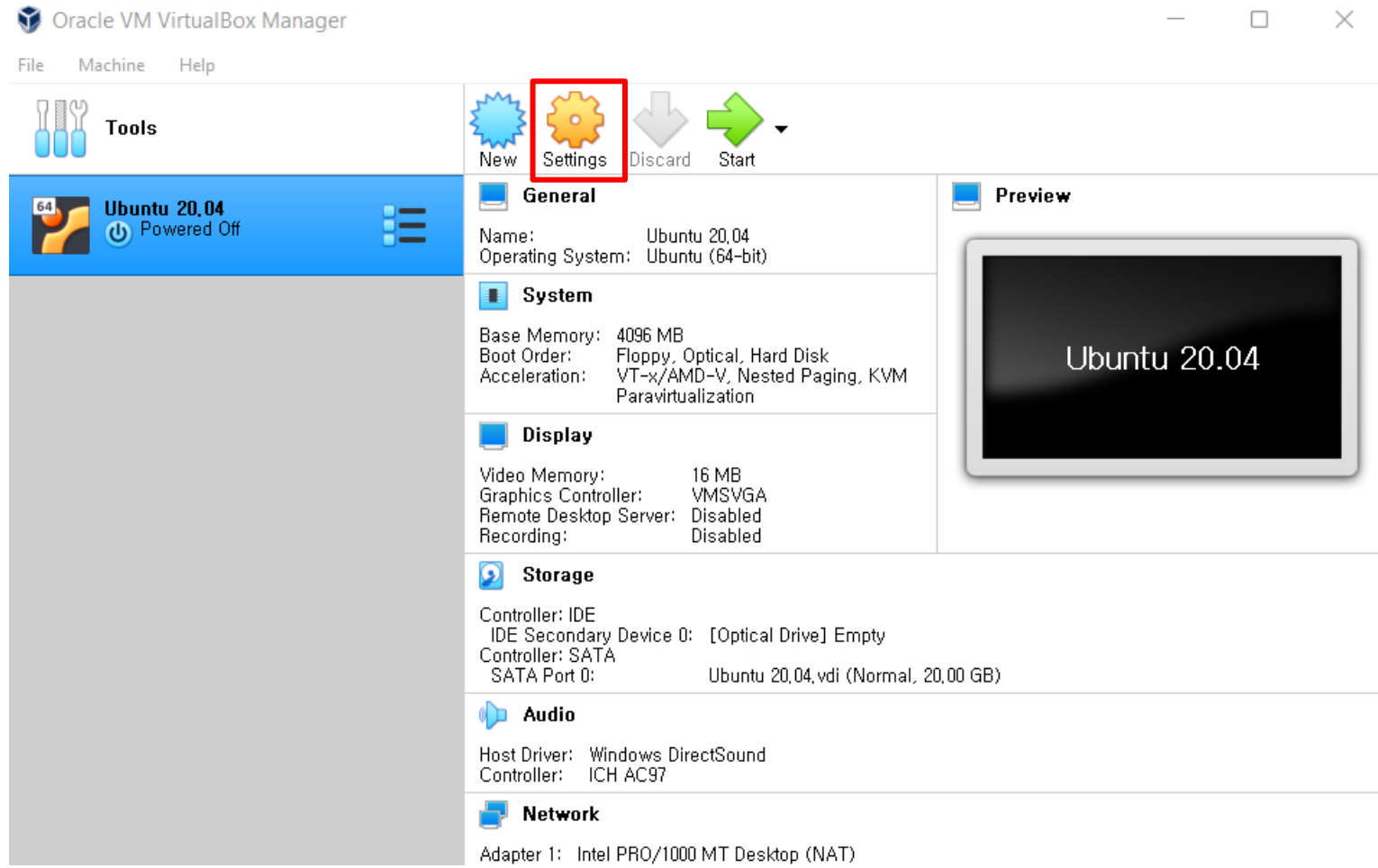
❖ Create a Virtual Machine

- Virtual Hard disk size should be more than 50 GB (**At least 40GB**)



How to install Linux on VirtualBox

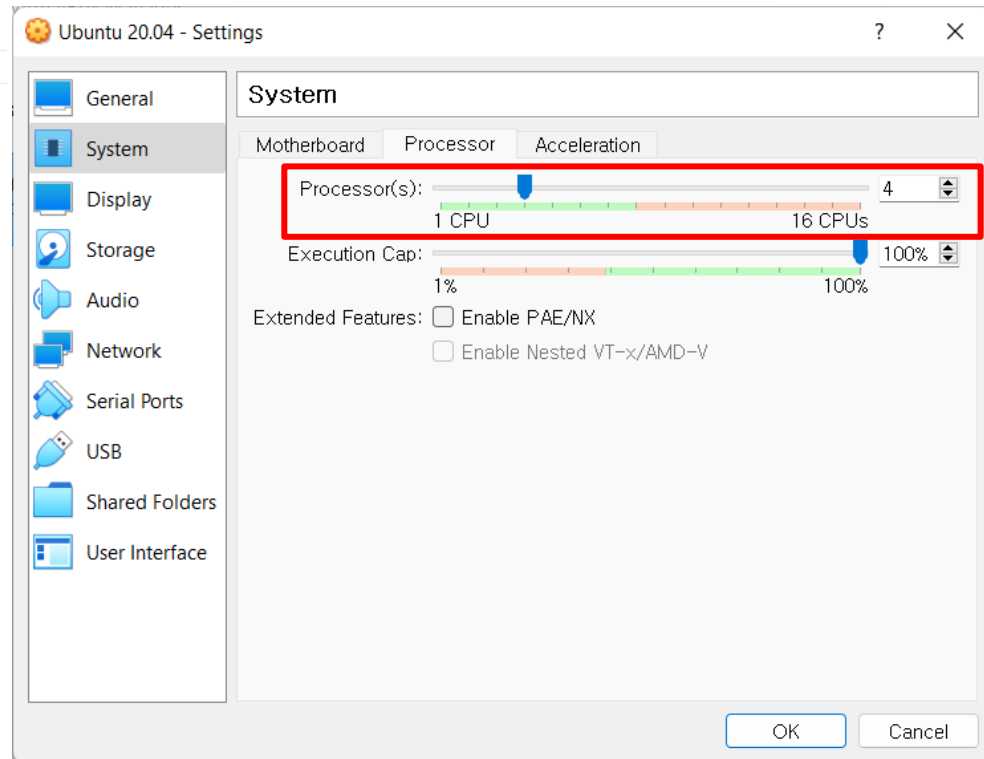
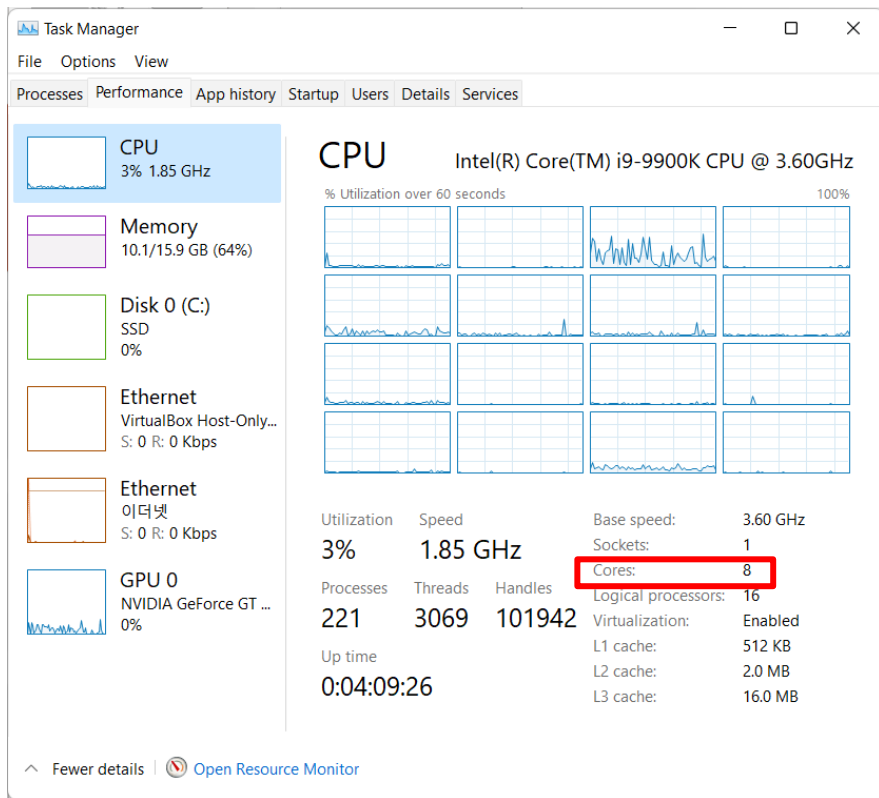
❖ Virtual Machine Settings



How to install Linux on VirtualBox

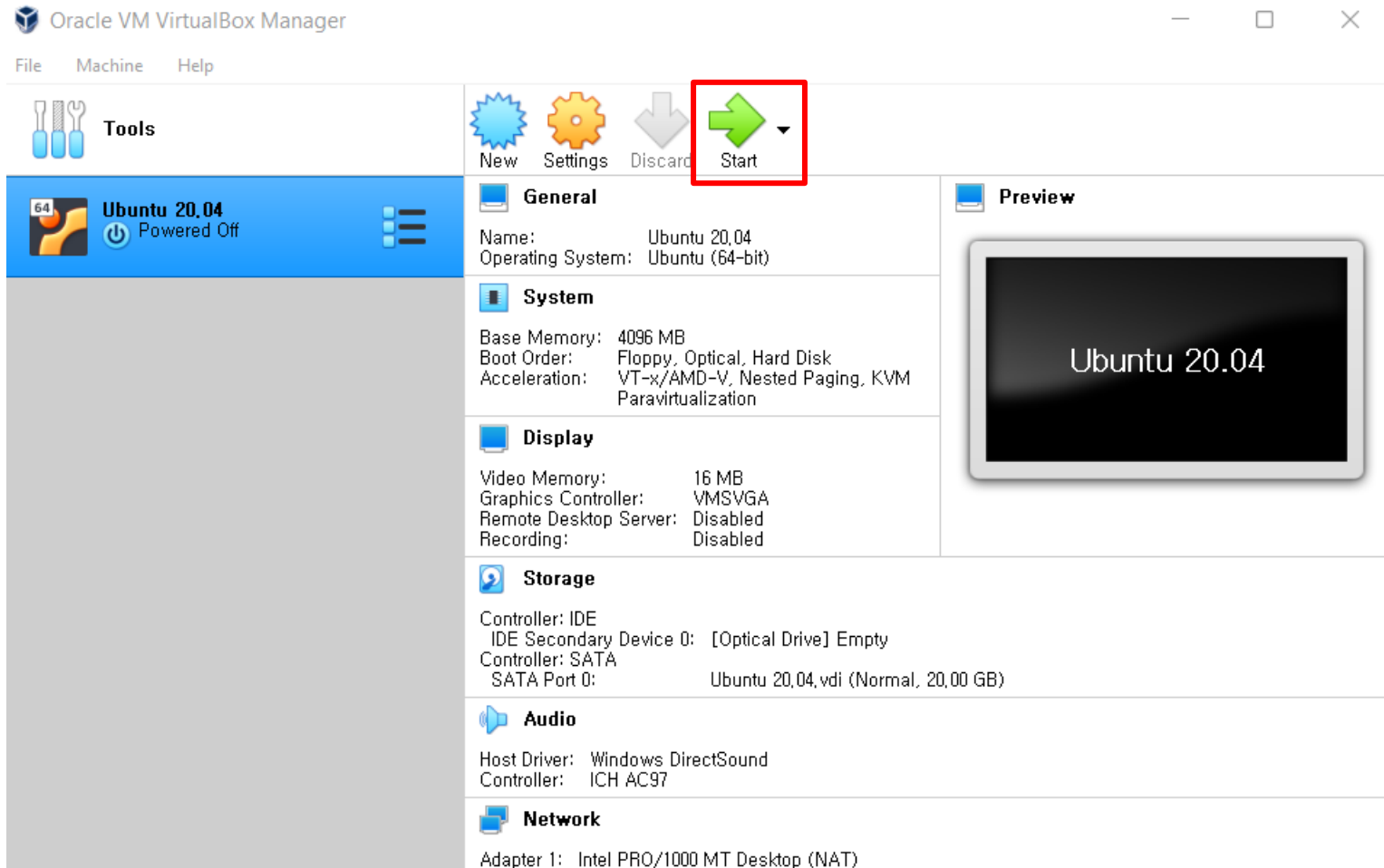
❖ Configure a Virtual Machine

- You can control the number of cores to be used
- The number of processors should be lower than your machine's physical cores



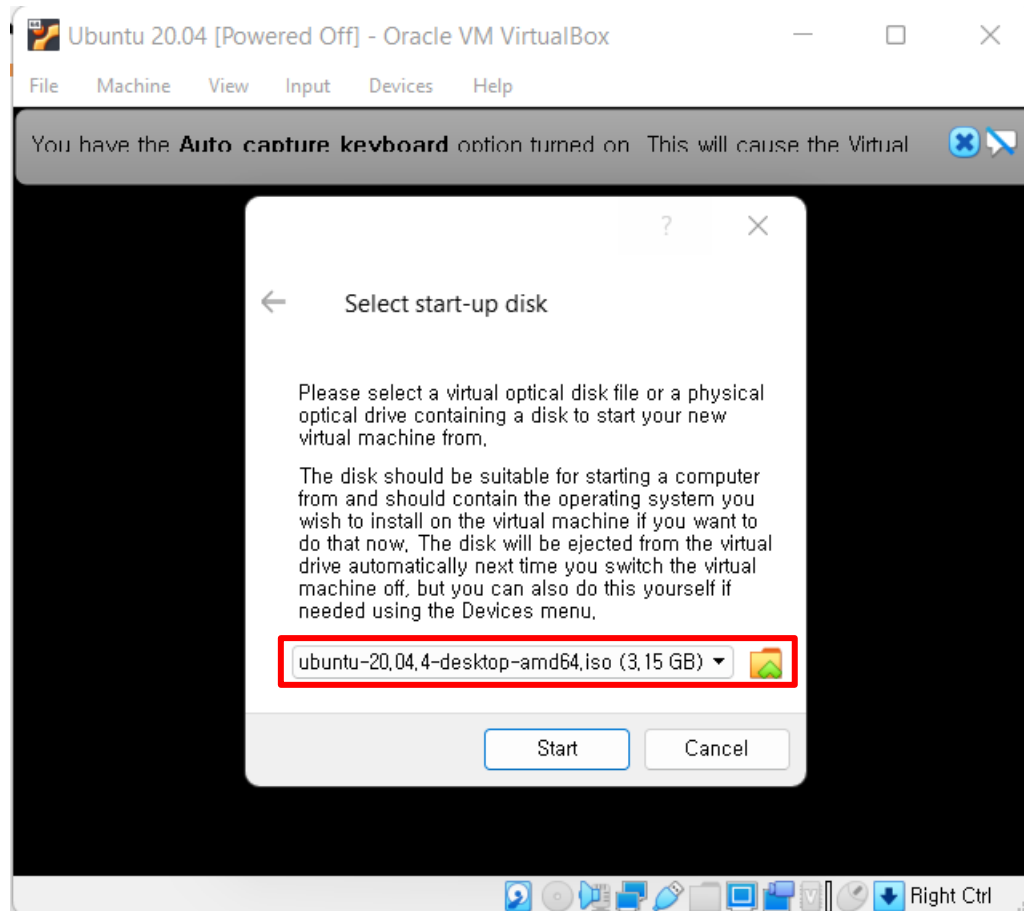
How to install Linux on VirtualBox

❖ Start a Virtual Machine



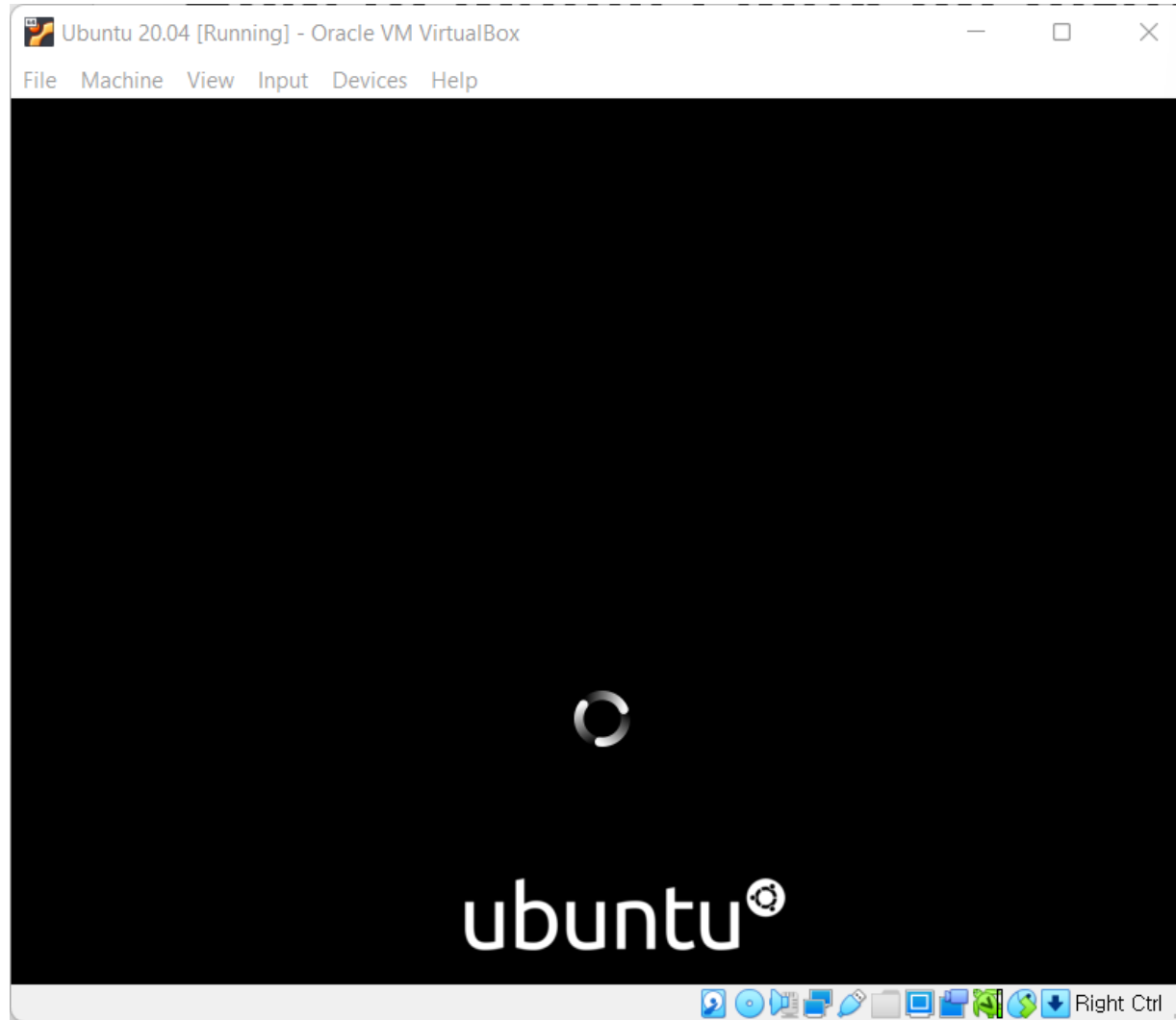
How to install Linux on VirtualBox

❖ Insert Ubuntu iso file



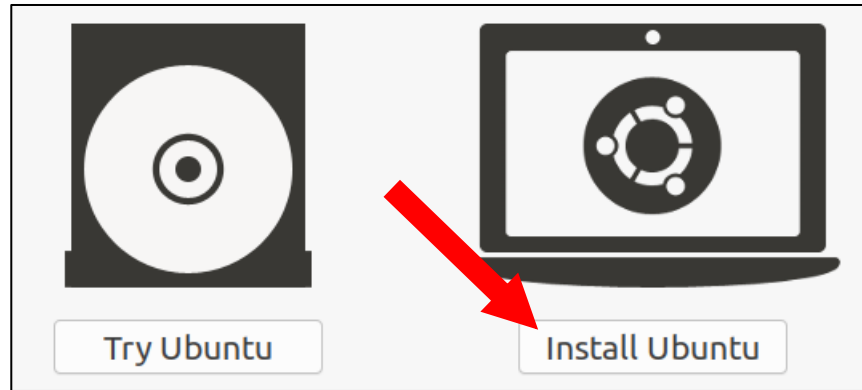
How to install Linux on VirtualBox

❖ Booting



How to install Linux on VirtualBox

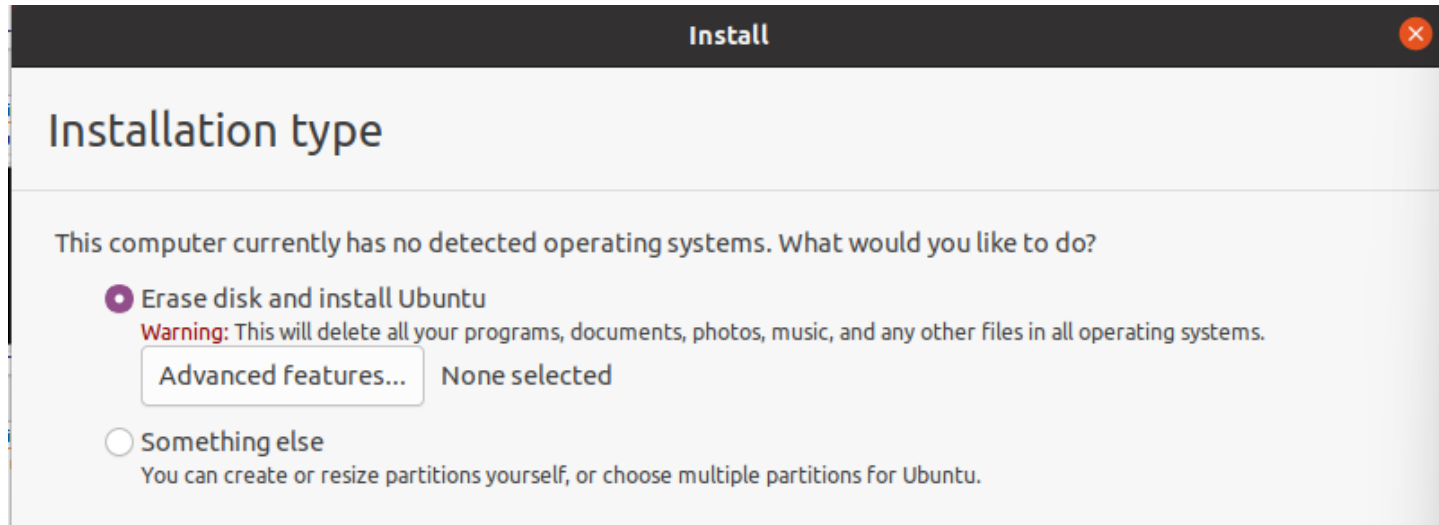
❖ Start to install



- Click the “**Install Ubuntu**” button
- There are some personal configuration options that Ubuntu asks you to choose, which are not that important
- The only configuration we should pay attention to is “where to install the OS”
- (see next slide)

How to install Linux on VirtualBox

❖ Start to install

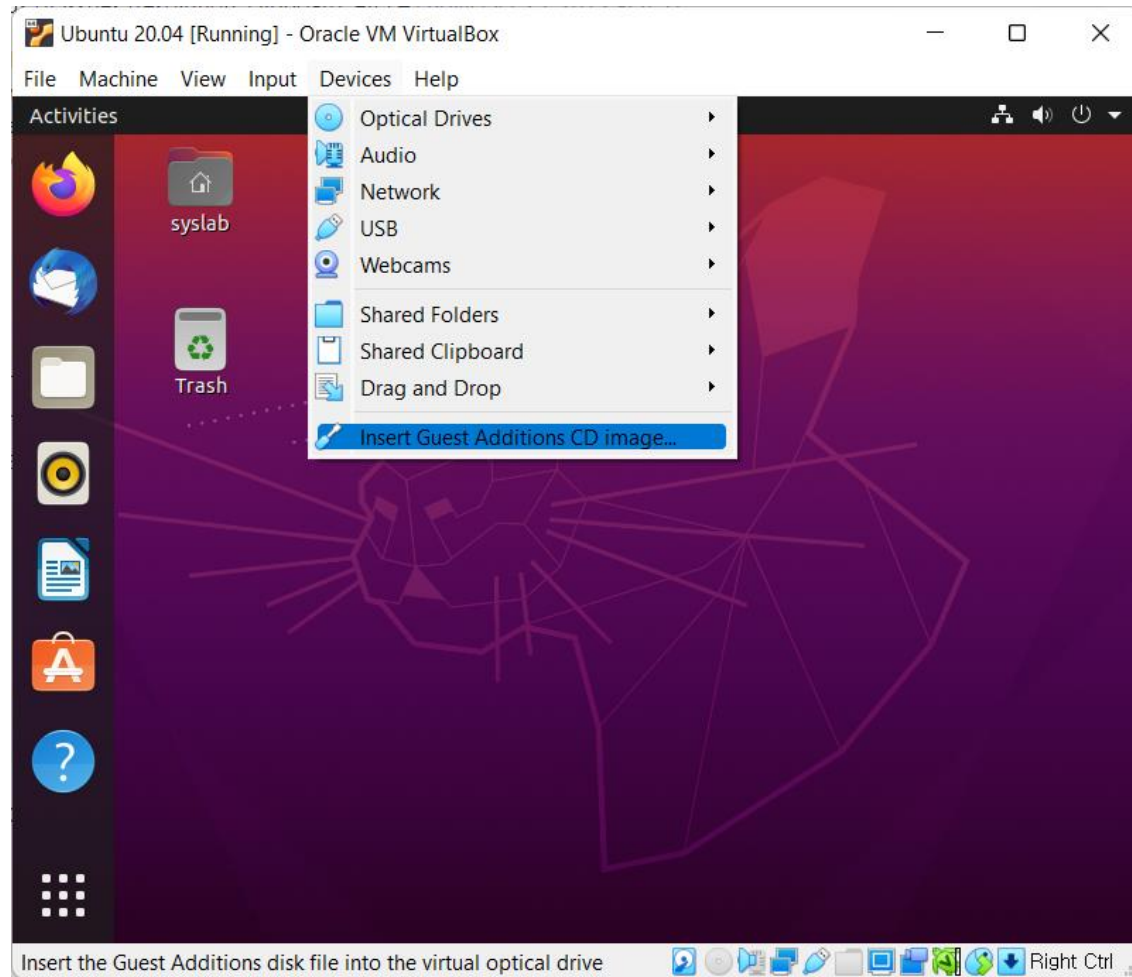


- We choose the “**Erase disk and install Ubuntu**” option here because we are using a new virtual machine
- If you plan to install Ubuntu on your host machine directly, please make sure that you choose the right disk
- Some tutorials online may tell you to create disk partition for root, swap mount point. You do not need to do that unless you know what you really want

Appendix

❖ Installing Guest Additions

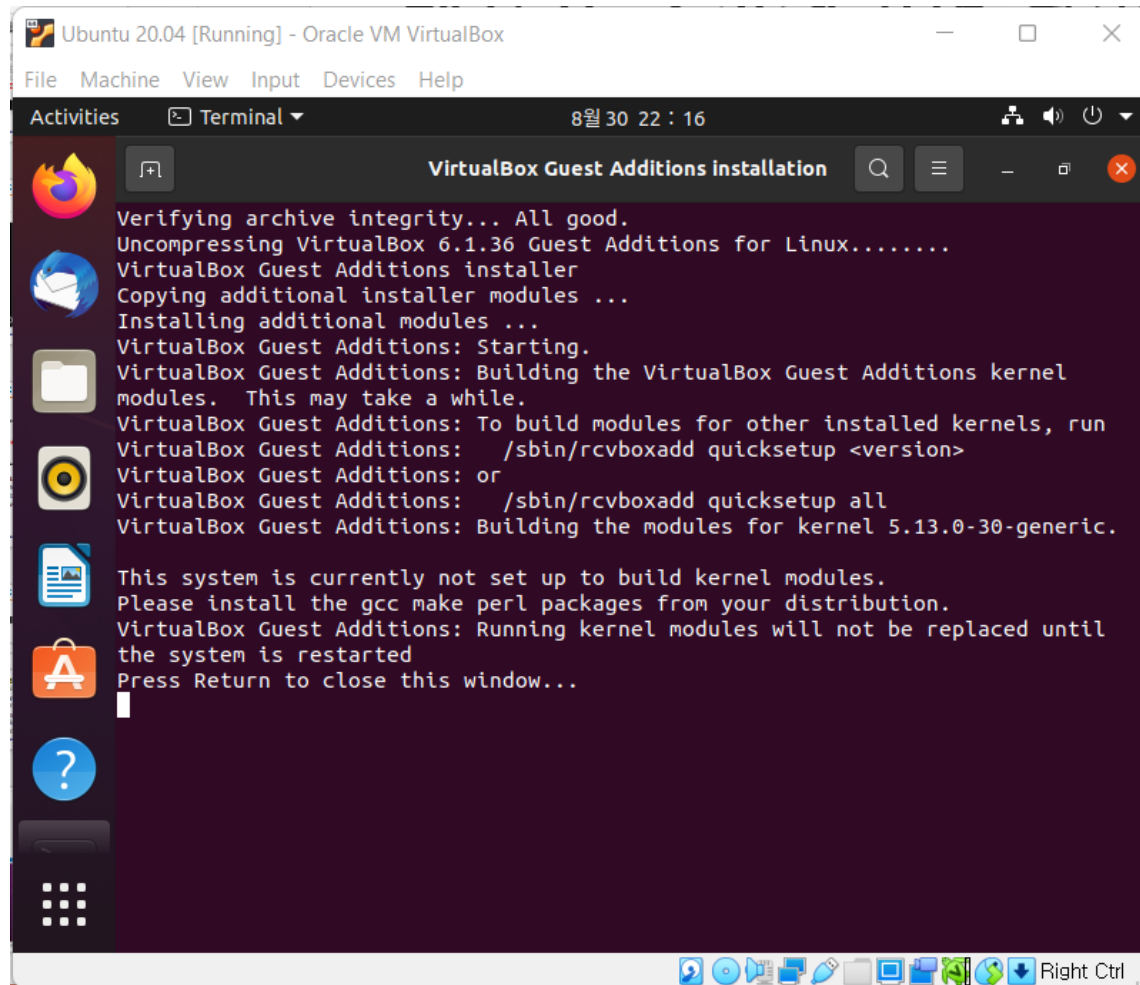
- Devices -> Insert Guest Additions CD image...



Appendix

❖ Installing Guest Additions

- Automatically installs VirtualBox Guest Additions



```
Ubuntu 20.04 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal 8월 30 22 : 16
VirtualBox Guest Additions Installation
Verifying archive integrity... All good.
Uncompressing VirtualBox 6.1.36 Guest Additions for Linux.....
VirtualBox Guest Additions installer
Copying additional installer modules ...
Installing additional modules ...
VirtualBox Guest Additions: Starting.
VirtualBox Guest Additions: Building the VirtualBox Guest Additions kernel
modules. This may take a while.
VirtualBox Guest Additions: To build modules for other installed kernels, run
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup <version>
VirtualBox Guest Additions: or
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup all
VirtualBox Guest Additions: Building the modules for kernel 5.13.0-30-generic.

This system is currently not set up to build kernel modules.
Please install the gcc make perl packages from your distribution.
VirtualBox Guest Additions: Running kernel modules will not be replaced until
the system is restarted
Press Return to close this window...
█
```