

# Operating System lab1

Lab1: Introduction to operating system

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Email subject: **fci-os-2021**

Github Repo: <https://github.com/SamarShabanCS/Operating-Sytem-2021>

Slack workspace: <https://fu-fci-os-2021.slack.com>



# Agenda

- Operating sytem
- Linux history
- Environment setup
- Linux file system
- Assignment

# Operating System

- An operating system or OS is a software program that enables the computer hardware to communicate and operate with the computer software.

- ☐ Microsoft Windows
- ☐ Apple Mac-OS
- ☐ Ubuntu Linux
- ☐ Google Android
- ☐ iOS



# Linux history

# Linux Distributions



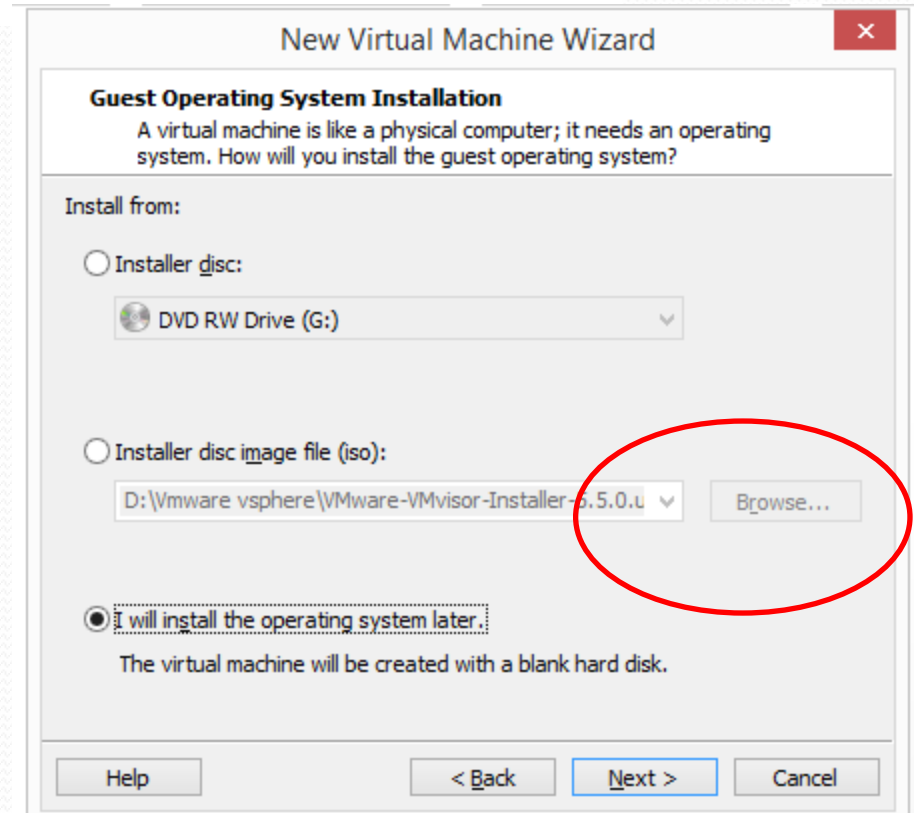
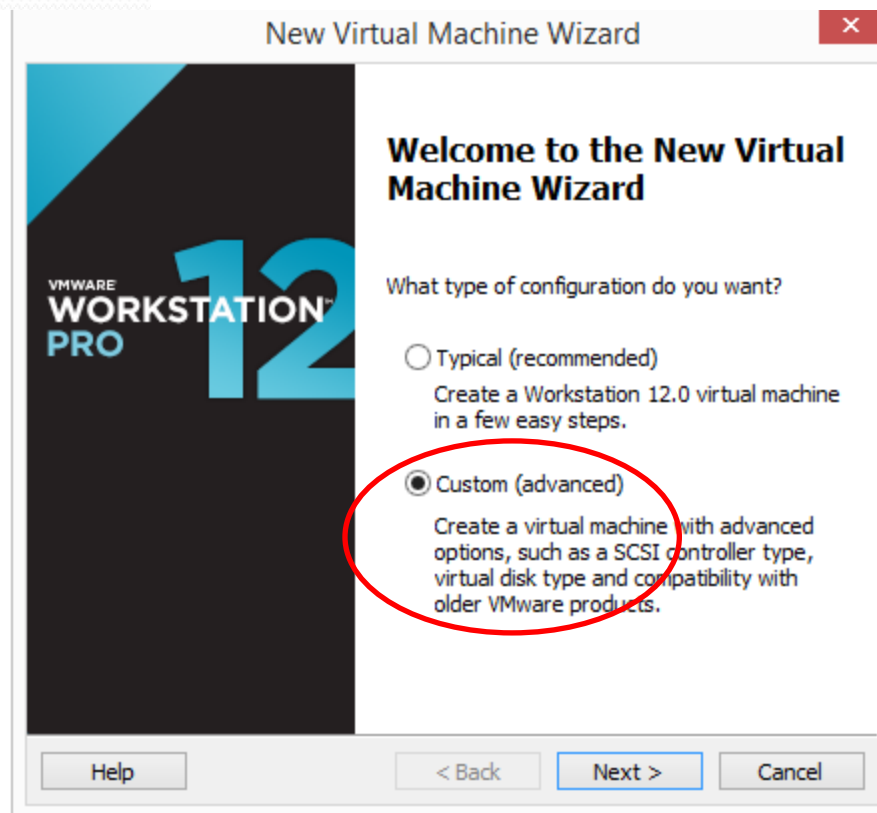
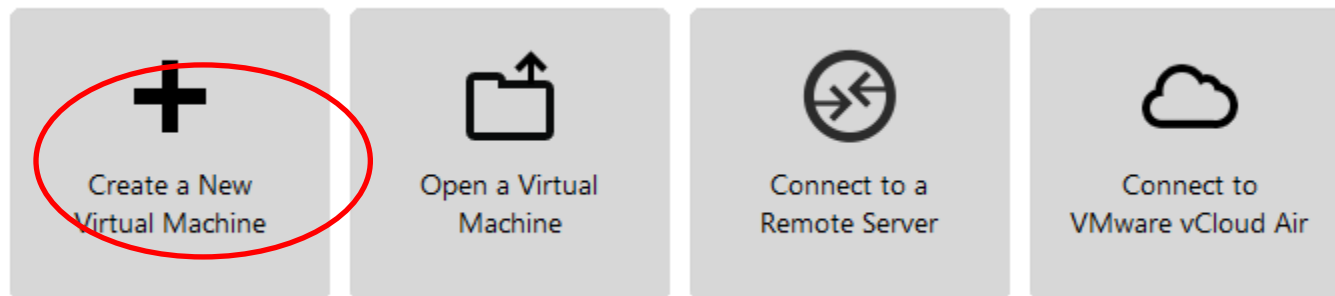
# Environment setup

- Ubuntu Image:

<https://ubuntu.com/download#download>

- VMware Player:

<https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html>




### New Virtual Machine Wizard

#### Guest Operating System Installation

A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?


Install from:

☐ Installer disc:

 DVD RW Drive (G:) ▼

☒ Installer disc image file (iso):

H:\samar partition\OS-2021\ubuntu image\ubuntu-20. ▼ Browse...

 Ubuntu 64-bit 20.04.2.0 detected.  
This operating system will use Easy Install. [\(What's this?\)](#)

☐ I will install the operating system later.  
The virtual machine will be created with a blank hard disk.

Help < Back Next > Cancel

### New Virtual Machine Wizard

#### Easy Install Information

This is used to install Ubuntu 64-bit.

Personalize Linux

Full name:

User name:

Password:

Confirm:

Help < Back Next > Cancel



## New Virtual Machine Wizard



### Select a Guest Operating System

Which operating system will be installed on this virtual machine?

Guest operating system

- ☐ Microsoft Windows
- ☒ Linux
- ☐ Novell NetWare
- ☐ Solaris
- ☐ VMware ESX
- ☐ Other

Version

Ubuntu

Help

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Cancel

## New Virtual Machine Wizard



### Name the Virtual Machine

What name would you like to use for this virtual machine?

Virtual machine name:

Ubuntu

Location:

C:\Users\Administrator\Documents\Virtual Machines\Ubuntu

Browse...

The default location can be changed at Edit > Preferences.

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Cancel

## New Virtual Machine Wizard



### Processor Configuration

Specify the number of processors for this virtual machine.

#### Processors

Number of processors:

1

Number of cores per processor:

1

Total processor cores:

1

Help

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Cancel

## New Virtual Machine Wizard



### Memory for the Virtual Machine

How much memory would you like to use for this virtual machine?

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

64 GB -  
32 GB -  
16 GB -  
8 GB -  
4 GB -  
2 GB -  
1 GB -  
512 MB -  
256 MB -  
128 MB -  
64 MB -  
32 MB -  
16 MB -  
8 MB -  
4 MB -

Memory for this virtual machine:

1024 MB

Maximum recommended memory:  
13764 MB

Recommended memory:  
1024 MB

Guest OS recommended minimum:  
512 MB

Help

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Cancel

### New Virtual Machine Wizard

**Network Type**  
What type of network do you want to add?

Network connection

☒ **Use bridged networking**  
Give the guest operating system direct access to an external Ethernet network. The guest must have its own IP address on the external network.

☐ Use network address translation (NAT)  
Give the guest operating system access to the host computer's dial-up or external Ethernet network connection using the host's IP address.

☐ Use host-only networking  
Connect the guest operating system to a private virtual network on the host computer.

☐ Do not use a network connection

Help < Back Next > Cancel

### New Virtual Machine Wizard

**Select a Disk**  
Which disk do you want to use?

Disk

☒ **Create a new virtual disk**  
A virtual disk is composed of one or more files on the host file system, which will appear as a single hard disk to the guest operating system. Virtual disks can easily be copied or moved on the same host or between hosts.

☐ Use an existing virtual disk  
Choose this option to reuse a previously configured disk.

☐ Use a physical disk (for advanced users)  
Choose this option to give the virtual machine direct access to a local hard disk.

Help < Back Next > Cancel

### New Virtual Machine Wizard

#### Specify Disk Capacity

How large do you want this disk to be?

Maximum disk size (GB):

Recommended size for Ubuntu: 20 GB

☐ Allocate all disk space now.

Allocating the full capacity can enhance performance but requires all of the physical disk space to be available right now. If you do not allocate all the space now, the virtual disk starts small and grows as you add data to it.

☒ Store virtual disk as a single file

☐ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

[Help](#) [< Back](#) [Next >](#) [Cancel](#)

### New Virtual Machine Wizard

#### Specify Disk File


Where would you like to store the disk file?

Disk File

One 20 GB disk file will be created using the file name provided here.

[Browse...](#)

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- 
- Host vs guest
  - .vmdk file vs .vmx file
  - How to create/transfer VM using vmdk file

# File system

- The way the files of an operating system are organized on the disk.
- All the files are grouped together in the directory structure. The file-system is arranged in a hierarchical structure, like an inverted tree. The top of the hierarchy is traditionally called root (written as a slash /).
- EXT 2, EXT<sub>3</sub>, EXT 4

Directory	Description
/	The root directory, all directories are below the / (root directory) of the system.
/bin	Contains binary commands available to all users.
/boot	Contains kernel and boot loader files.
/dev	Contains device files.
/etc	Contains system configuration files.
/home	Contains by default the user home directories.
/lib	Contains shared programs libraries and kernel modules.
/root	Home directory for the root user.
/media	Mount point for removable media.
/mnt	Mount point for mounting a file system temporarily.
/opt	Add-on application software packages.
/sbin	Contains system binary commands.
/proc	Contains information about system state and processes.
/srv	Contains the files for services like FTP and Web servers.
/tmp	Contains temporary files.
/usr	Contains system commands and utilities.
/var	Contains data files that are changed constantly.

# Assignment

- Try the following commands on your VM:
  - Pwd
  - Ls
  - Ls -a
  - Ls -al
  - Cd
  - Cd /
  - Echo 'your name'
- Send screenshot from your terminal.