Part 1 Introduction

Part 2 Environment Configuration in Windows

1. VMware virtual machine installation

1.1 Installing VMware

1) Extract the zip file saved under this path, “**configuration file->VMware**”■ √

2) In the extracted file of VMware, and then double click the executable file suffixed with .exe■ √

3) Next, follow the pictures below to install VMware.■ √

4) VMware Workstation offers 30-day free trial. After 30-day trial, you can purchase a license key to activate this software. If you need free resource, please contact us via email.■ √

1.2 Start VMware-related services locally on the computer

1) Search for and open "Computer Management".■ √

2) "Services" in Services and Applications.■ √

3) Right-click on the "Startup" button to start all VMware related services.■ √

Part 3 Linux Installation and Source Replacement

1. VMware Virtual Machine Installation and Configuration

1.1 Create New Virtual Machine

1) Extract Ubuntu image archive.■ √

2) Open virtual machine. Click “**Create a New Virtual Machine**”.■ √

3) Next, click “**custom**” in the pop-up interface, and then click “**Next**”. After that, operate in sequence according to the pictures below.■ √

4) After configuration, the interface should look like this.■ √

5) After installation, enter the password to login the system desktop. And follow the pictures to operate.■ √

1.2 Replace Source(Skipped this step because I'm in Korea)■ √

1.3 Modify Resolution■

1.4 Share Folder■ √

1.4.1 Create and Check Share Folder

1) Power off Ubuntu, and click “**virtual machine->settings**” ■ √

2) Then, click “**Option->Shared Folders->Always Enabled->Add**”.■ √

3) In later pop-up interface, click “**Next->Browse**”, and select the host path where the folder is built. And, name it “**share_test**”.■ √

Note: ensure there is no content in the share holder when first configuration, otherwise it will fail to configure. If share folder contains files, please remove the files first

4) Power on virtual machine and start the system. If it shows that “cannot connect to virtual device”, choose “NO”.■ √

5) Having entered the desktop, press “**Ctrl+Alt+T**” to open command line terminal. ■ √

6) Input command “**sudo apt install open-vm-tools**”, then input password. (The input password will hidden. Press Enter when you finish.)■ √

7) Input “**ls /mnt/**” to check whether “**hgfs**” folder is generated under “**/mnt**” directory after configuring virtual machine.■ √

8) Input command “**sudo mount -t fuse.vmhgfs-fuse .host:/ /mnt/hgfs -o allow_other**” to mount the folder manually, if you found “**hgfs**” folder under “**/mnt**” directory.■ √

Note: if the prompts below occur

Input command “sudo mount -t fuse.vmhgfs-fuse .host:/ /mnt/hgfs -o allow_other -o nonempty” to remount.

9) Input command “**cd /mnt/hgfs/Share**” to enter shared folder when you finish mounting. (Shared folder name should be consistent with name of the folder you create in host device. If not consistent, please change it.)■ √

10) The shared folder is saved in **E:\share**, and ****/mnt/hgfs/share/**** of the virtual machine. Make a test: put “test.txt” into the shared folder of host device.■ √

Part 4 Basic Operation of Linux

Part 5 Linux Directory Introduction

1. Open System Directory

1) Input “**cd ..**” twice and “**ls**” once in sequence in virtual machine.■ √

2. Check System Directory

1) Input “**sudo apt-get install tree**” command and install the software package.■ √

Note: if the message below is threw, the installation ends in failure

Unable to acquire lock /var/lib/dpkg/lock-frontend - open (11: Resource temporarily unavailable) E: Unable to acquire dpkg frontend lock (/var/lib/dpkg/lock-frontend), is another process occupying it?
sudo rm /var/lib/dpkg/lock-frontend■ √

E: Unable to acquire lock /var/cache/apt/archives/lock - open (11: Resource temporarily unavailable) E: Unable to lock directory /var/cache/apt/archives/...
sudo rm /var/cache/apt/archives/lock■ √

After update, input command "**sudo apt-get install tree**" to install again.■ √

2) After installation, we can use tree related commands to check the directory.

tree：Display all files in the form of tree-distribution map.■ √

tree -L N：All folders are displayed in the form of dendrogram(tree-distribution map), and N_{th} layer of the sub folders will be displayed. ■ √

Enter the "**tree -L 1**" command to display the subfolders to the first layer.■ √

3) The function of each directory is listed below.■

Part 6 Common Linux Command

Command #Full name #Function ■ √

ls #List #List the files in the current directory
cd #Change Directory #Change path
pwd #Print Working Directory #Display the current directory
ping #Packet Internet Groper #Test the internet connection
shutdown #Shut down #Shut down
reboot #Reboot #Reboot
cp #Copy #Copy
rm #Remove #delete
mkdir #Make directory #Create a folder
man command #Manual #Display the command info
echo #Echo #Echo the input info to the terminal interface
sudo #Superuser do #Execute commands as system administrator
clear #Clear #Delete the text on terminal
find #Find #Search
mv #Move #Read the date/time of the system

1. Linux Command Form■ √

Linux command is in the form of "**command+option+operation object**". ■ √

2. Practical Operation■

3. Effective Way to Input Command■

Part 7 Linux Permission

1. Change User

1) set root password. "**sudo passwd**"■ √

2) input “**su**”, and then input the password to switch to root directory. (**$** at the end of the command changes to **#**)■ √

2. File Permission■ √

Linux	Octal	Explanation
r--	4	Read permission only
-w-	2	Write permission only
--x	1	Execute permission only
r-x	5	Read and execute permission
rw-	6	Read and write permission
-wx	3	Write and execute permission
rwx	7	Write read and execute permission

3. Change Permission

EX1:
1) Open the terminal interface, and input “**touch test.txt**” command to create txt file.■ √

2) Then enter “**ls -al**” command to list the files under this path and display their specific properties. ■ √

3) For example, we can grant execute permission to group and other users. Input “**chmod 777 test.txt**” command.■ √

EX2:
1) Open the terminal interface, and input “**touch test_1.txt**” command to create txt file.■ √

2) Take granting execute permission to owner, group and other users separately for example.■ √

chmod u+x test_1.txt
chmod g+x test_1.txt
chmod o+x test_1.txt

3) If you don’t want to set separately, for example, we can input “**chmod a+w test_1.txt**” command to set write permission for three roles. And “**a**” represents three roles.■ √

4) If want to remove the permission from visitor, we can change “**+**” as “**-**”.
For example, remove the execute permission of other users.

Input “**chmod o-x test_1.txt**” command.■ √

5) “**Ctrl+D**” Logging out of the root user■ √