# Cloud Computing Lab

## Experiment-6

## Find a procedure to transfer the files from one virtual machine to another virtual machine.

**Objective:**

1. To learn about Virtual machines(VM).
2. To learn the Basics of the File transfer mechanism.
3. To transfer the files from one VM to another VM.

**Requirements:**

1. Two Virtual machines installed. (For example, we have Ubuntu 21 and Kali Linux for this assignment)

**Theory:**

**What is a virtual machine?**

A virtual machine is an application providing a platform-independent programming runtime that allows applications to execute in the same manner on different platforms. The virtual machine acts as a bridge to the real environment, hiding the details of the operating system. Do not confuse this term with system virtual machines, such as VMware, Virtual server, Xen which enables one to run multiple OS on a single piece of hardware.

**Types of virtualization techniques:**

1. Guest Operating system virtualization
2. Shared Kernel Virtualization
3. Kernel Level Virtualization
4. Hypervisor Virtualization

**Types of virtual machines:**

We can classify virtual machines into two types:

**System Virtual Machine:**

These types of virtual machines give us complete system platform and gives the execution of the complete virtual operating system. Just like virtual box, system virtual machine is providing an environment for an OS to be installed completely. We can see in below image that our hardware of Real Machine is being distributed between two simulated operating systems by Virtual machine monitor. And then some programs, processes are going on in that distributed hardware of simulated machines separately.

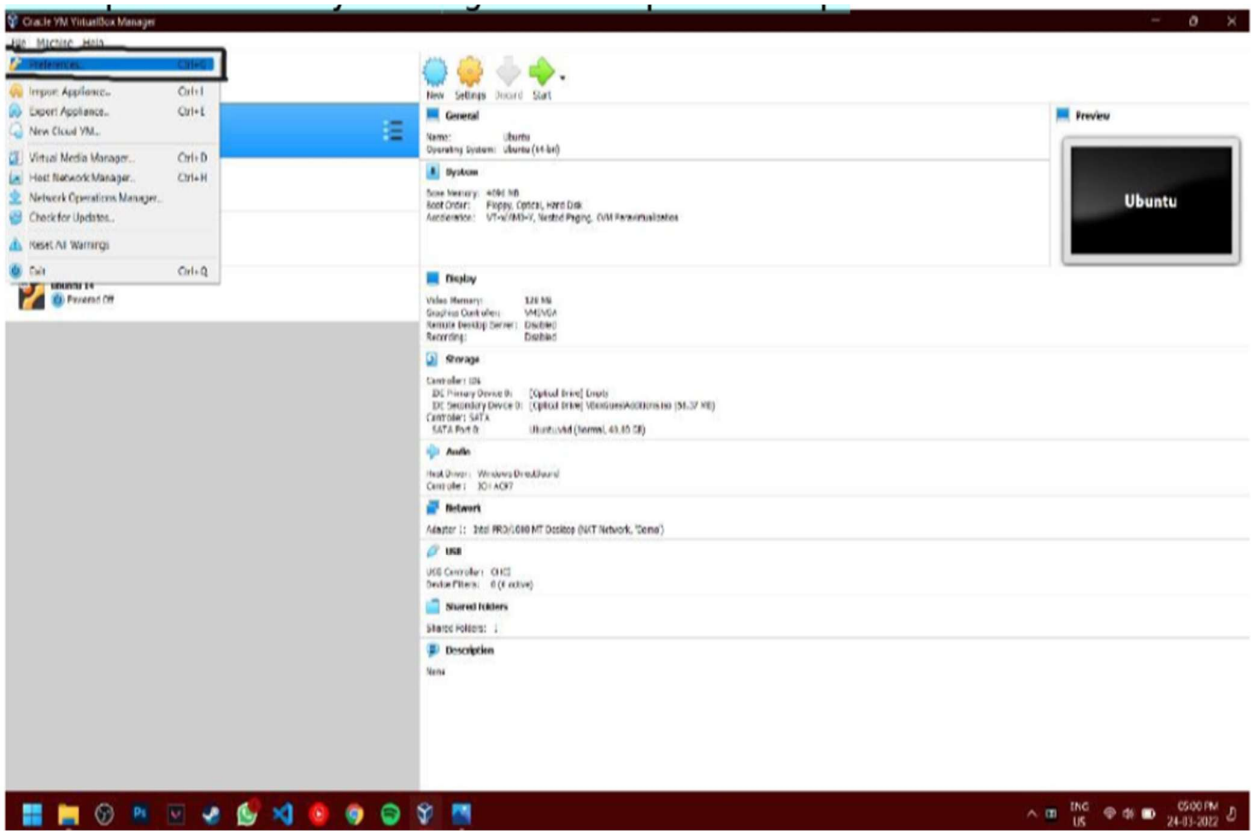
**Process Virtual Machine:**

While process virtual machines, unlike system virtual machines, do not provide us with the facility to install the virtual operating system completely. Rather it creates a virtual environment of that OS while using some app or program and this environment will be destroyed as soon as we exit from that app. Like in the below image, there are some apps running on the main OS as well some virtual machines are created to run other apps. This shows that as those programs required different OS, process virtual machine provided them with that for the time being those programs are running.

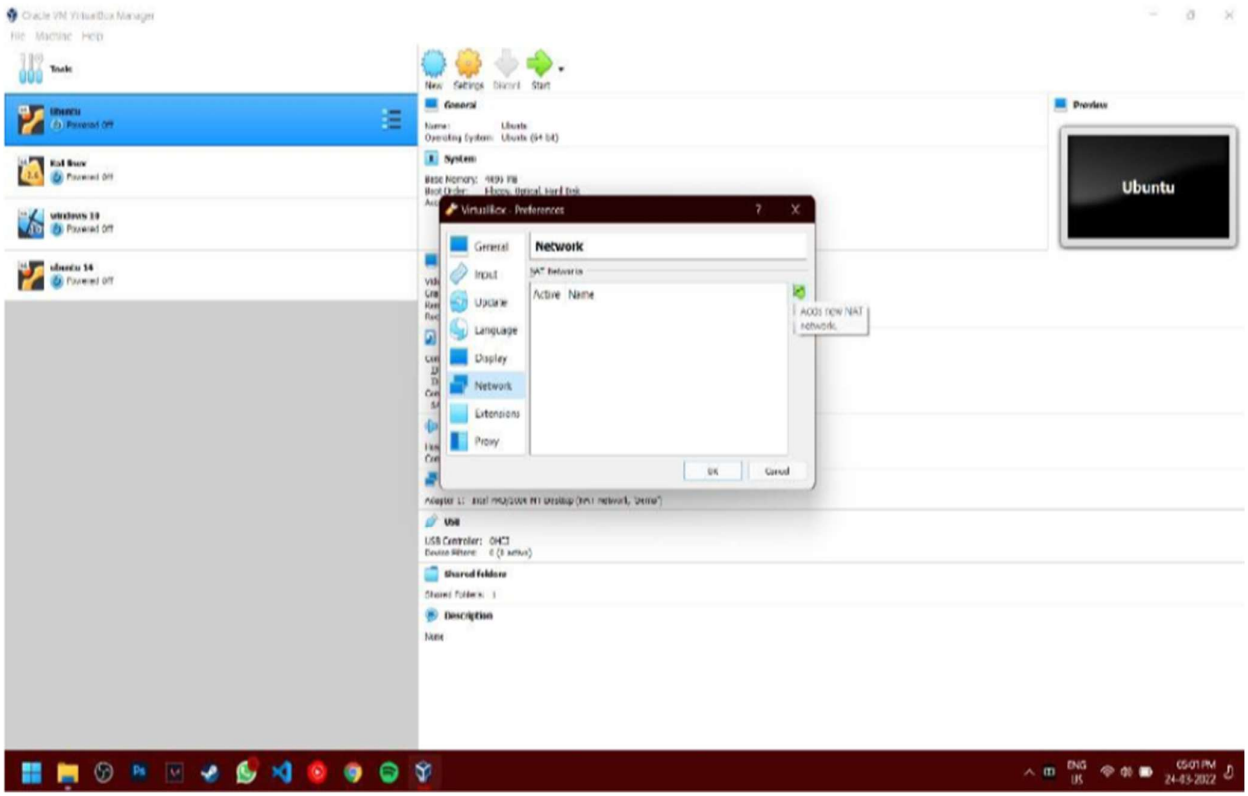
**Steps:**

**Step 1**. Create a Nat network in which 2 virtual machines can communicate.

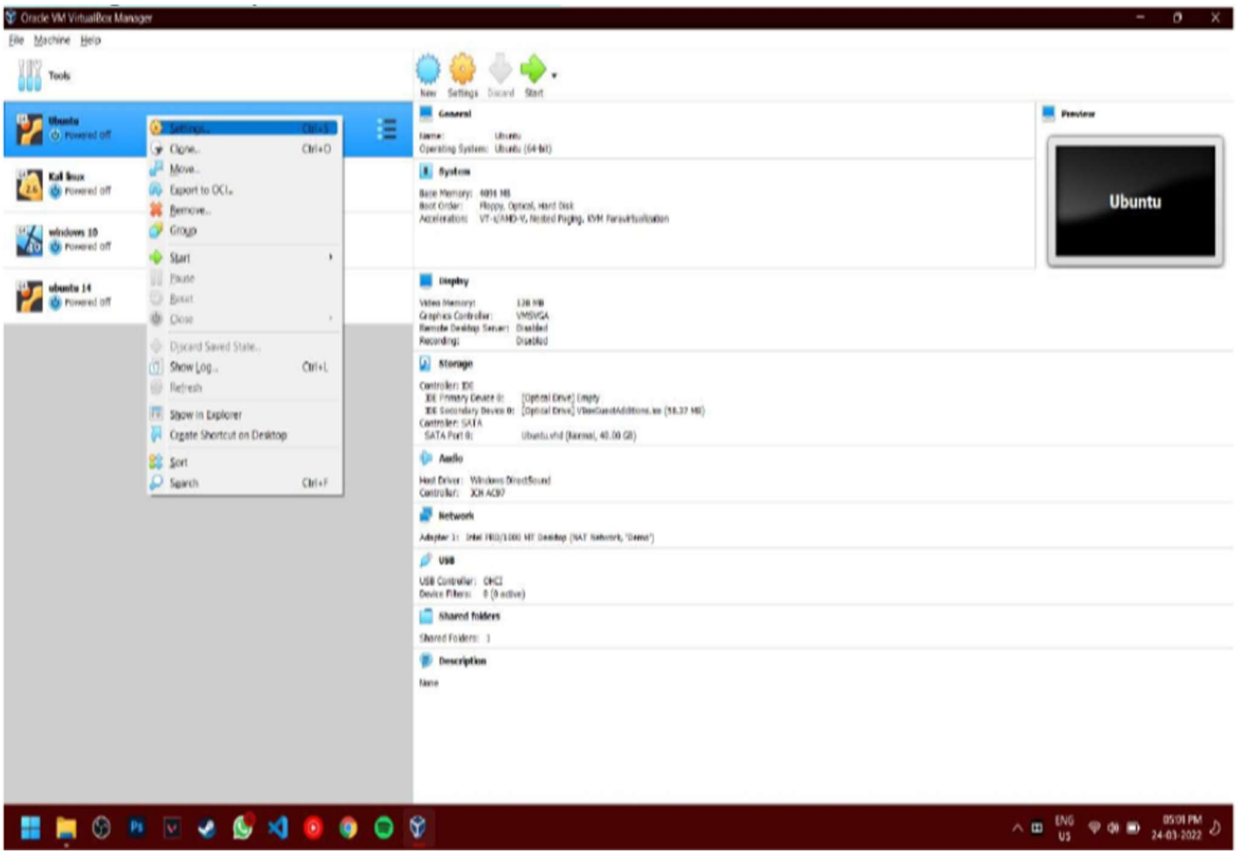
Go to preferences by clicking the File option in Top.



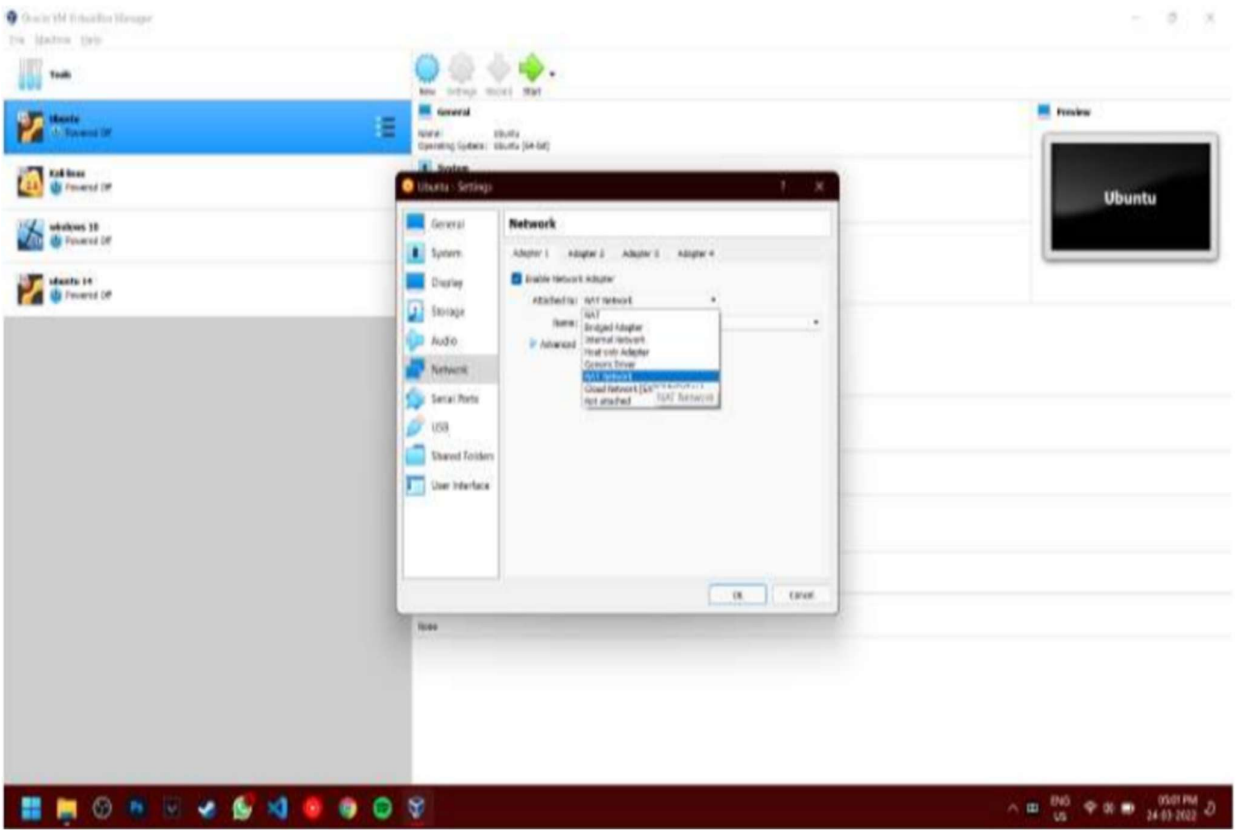

Now select the network option and create a new NAT network

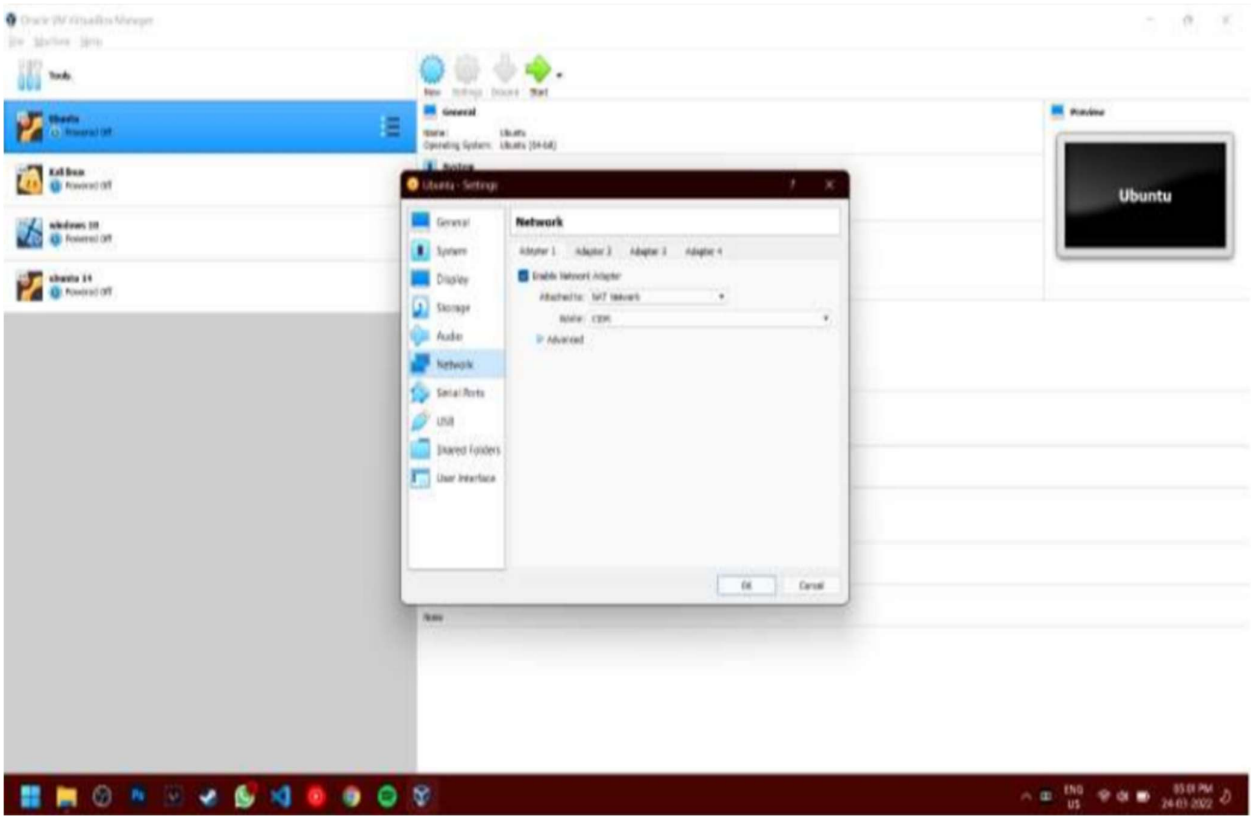



After creating a NAT network, now go to virtual machine setting by right clicking on the preferred machine.




Now go to Network and change the attached option to “NAT network” and select the network we created earlier.

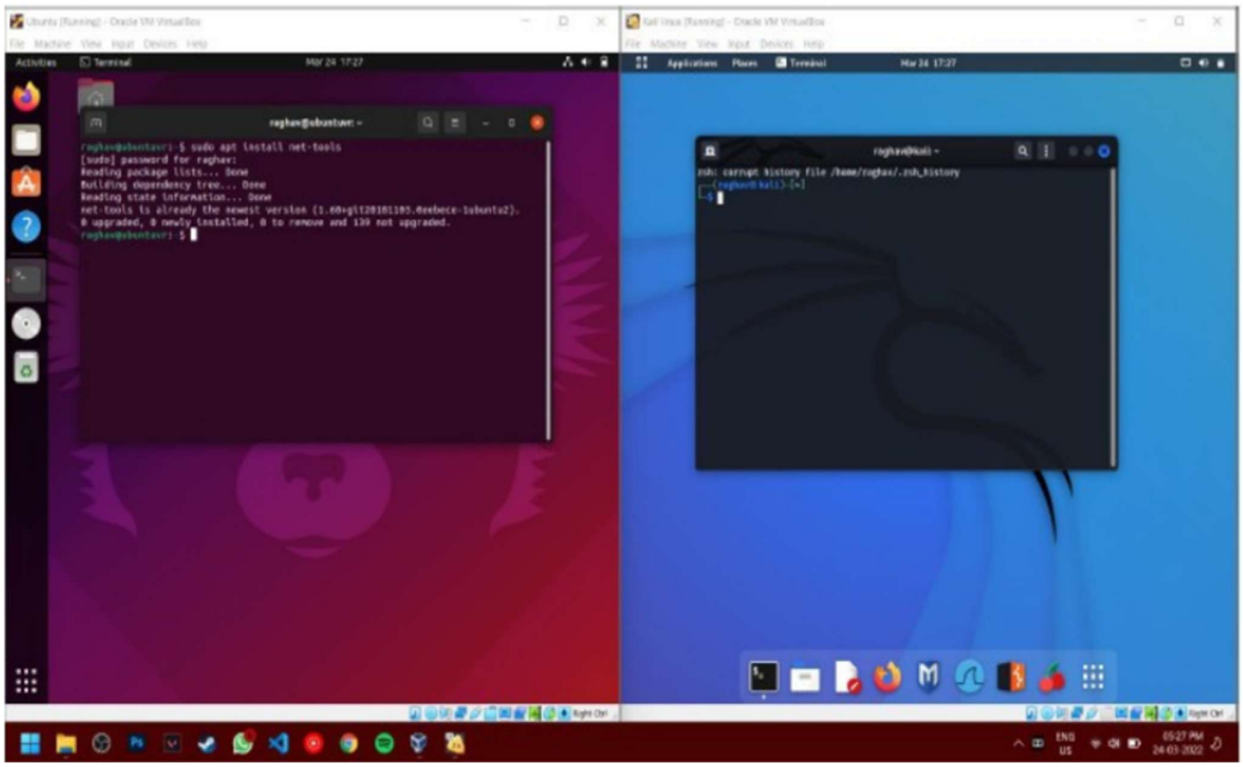




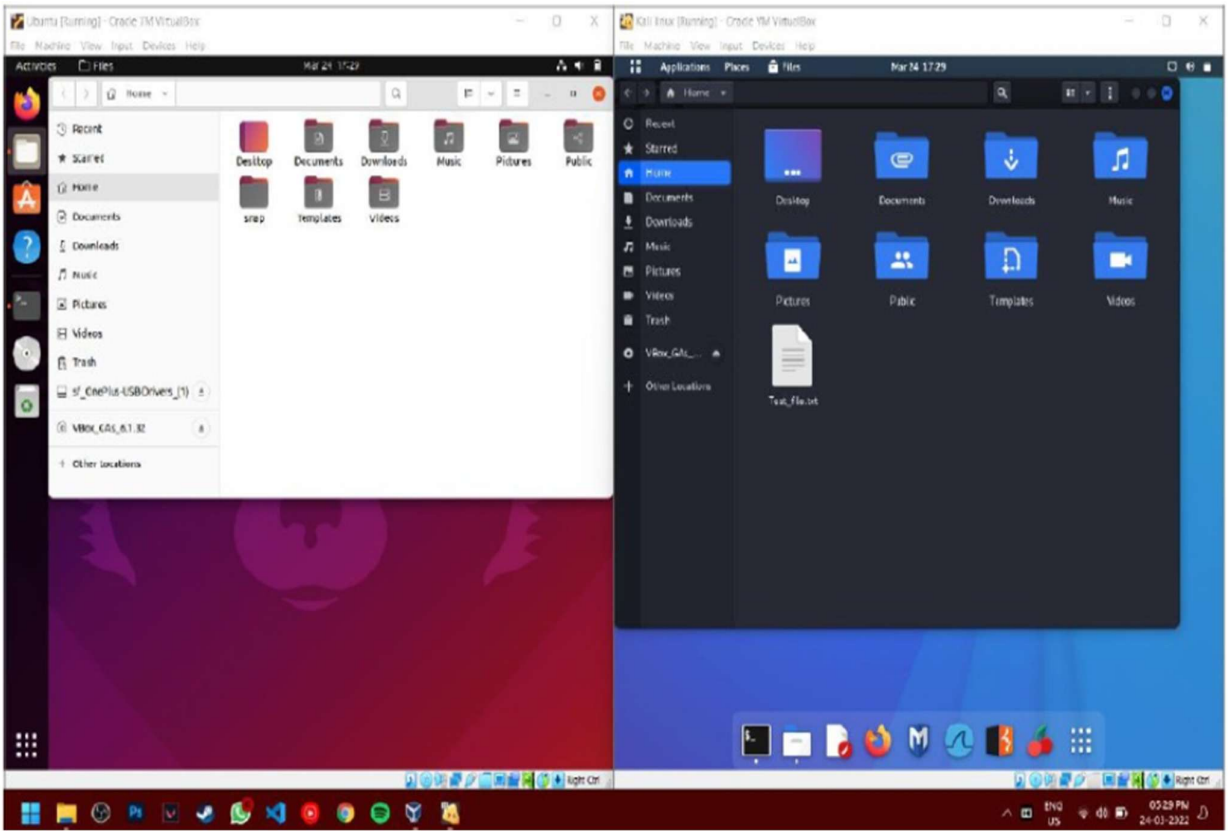

Now repeat the same process for another machine

**Step 2**. Launch both virtual machines

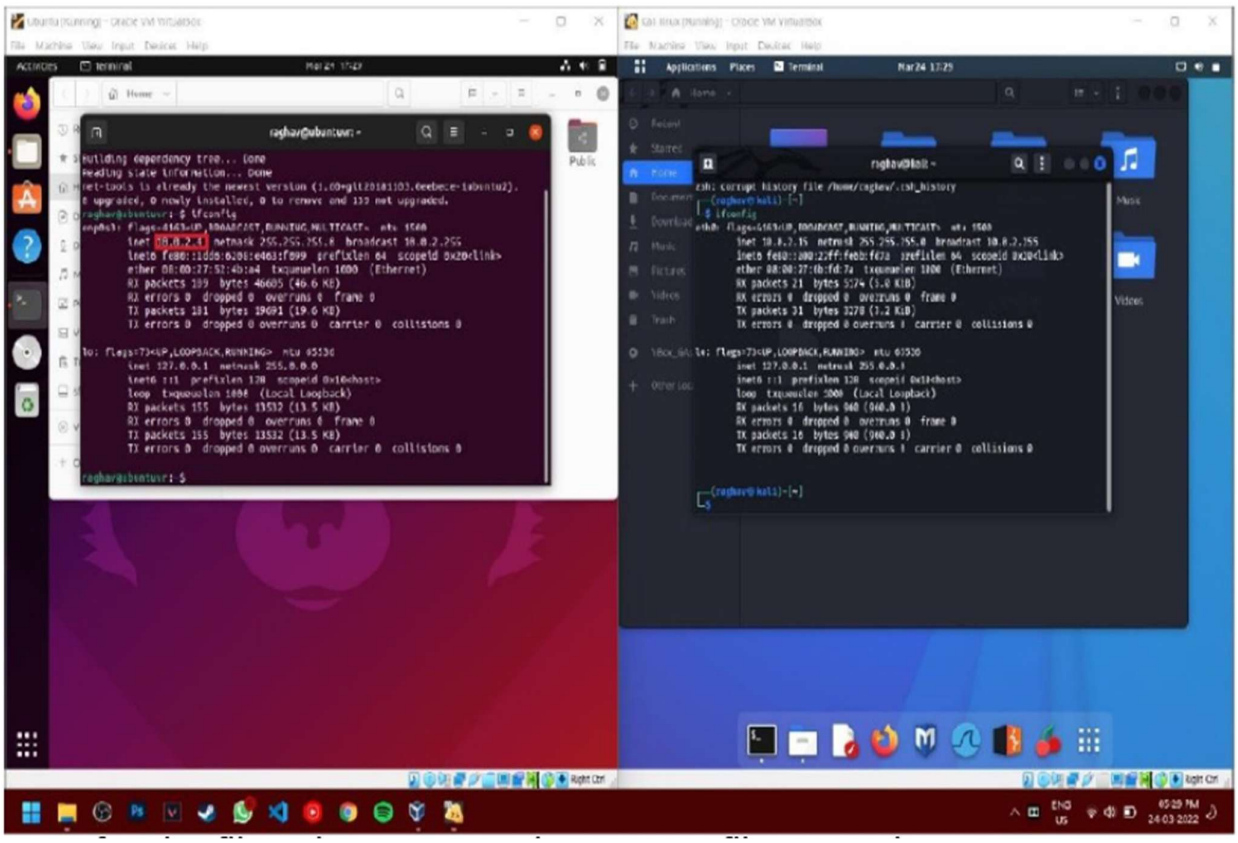
Now install “Net-tools” on both machine which will help to identify i/p address of the machine. Command: sudo apt install net-tools



Now create a file in Home folder using any text editor. Here we have used “Test_file.txt” and will transfer from Kali Linux (Right Machine) to Ubuntu (left Machine)

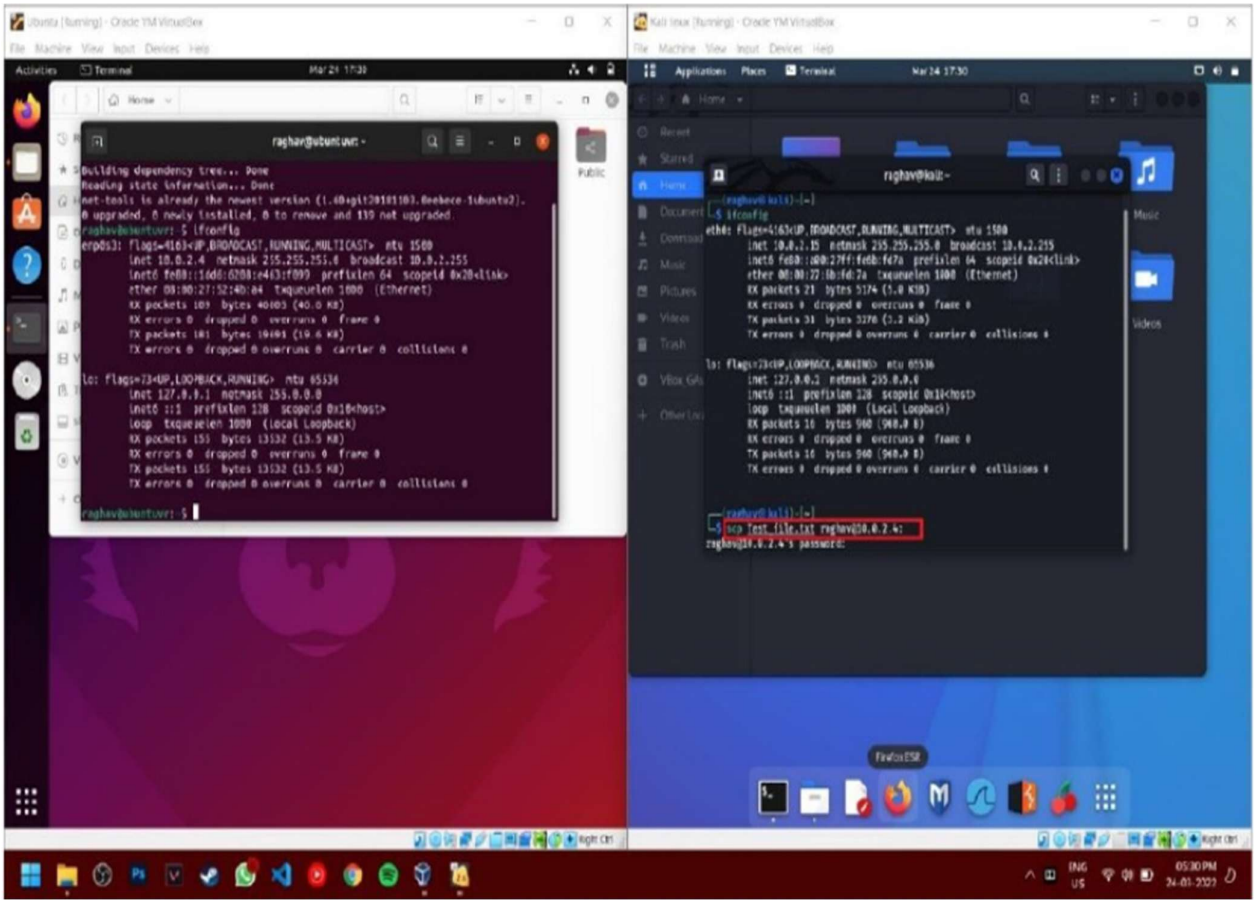


Now we can check i/p address of Ubuntu where we want to transfer the file using " ifconfig " command. Here Ubuntu has i/p address 10.0.2.4.



Transfer the file using command- scp Test_file.txt raghav@10.0.2.4: Where Test_file.txt is our file raghav is the username of the Ubuntu 10.0.2.4 is ip address of Ubuntu (left machine)

Optional: if scp is not installed then install by using the command: sudo apt install openssh-server



Now enter the password for Ubuntu(left machine) admin, after enter the password, the file will be sent from Kali Linux(Right machine) to Ubuntu(Left machine)