EXPERIMENT NO. 4

TRANSFER FILES FROM ONE VIRTUAL MACHINE TO ANOTHER VIRTUAL MACHINE

AIM: Find a procedure to transfer the files from one virtual machine to another virtual machine

SOFTWARE: VirtualBox-6.1.34a-150636-Win, VMDK image ubuntu-18.04-amd64-disk001

THEORY: VirtualBox is a powerful x86 and AMD64/Intel64 virtualization product for enterprise as well as home use. VirtualBox is extremely feature rich, high performance product for enterprise customers, it is also the only professional solution that is freely available as Open Source Software under the terms of the GNU General Public License (GPL) version 3.

Presently, VirtualBox runs on Windows, Linux, Macintosh, and Solaris hosts and supports a large number of guest operating systems including but not limited to Windows (NT 4.0, 2000, XP, Server 2003, Vista, Windows 7, Windows 8, Windows 10), DOS/Windows 3.x, Linux (2.4, 2.6, 3.x and 4.x), Solaris and Open Solaris, OS/2, and OpenBSD.

VirtualBox is being actively developed with frequent releases and has an ever growing list of features, supported guest operating systems and platforms it runs on. VirtualBox is a community effort backed by a dedicated company.

VMDK (short for **Virtual Machine Disk**) is a file format that describes containers for virtual hard disk drives to be used in virtual machines like VMware Workstation or VirtualBox.

Initially developed by VMware for its proprietary virtual appliance products, VMDK became an open format with revision 5.0 in 2011, and is one of the disk formats used inside the Open Virtualization Format for virtual appliances.

The maximum VMDK size is generally 2TB for most applications, but in September 2013, VMware vSphere 5.5 introduced 62TB VMDK capacity.

All VMware virtualization products support VMDK; this includes VMware Workstation, VMware Workstation Player, VMware Server, VMware Fusion, VMware ESX, VMware ESXi, and all software-plus-service offerings that incorporate them.

Third-party software that support VMDK include:

- Parallels Desktop for Mac version 10
- QEMU
- VirtualBox
- former SUSE Studio
- former Sun xVM
- Norton Ghost
- Paragon Hard Disk Manager
- Disk Internals VMFS Recovery

The VMDK format includes multiple differing subformats, some of which store metadata in an external descriptor file, while others embed it with the main data in a single file. A flat image allocates space ahead of time while a sparse images grows as the virtual machine writes to it. Flat images can use the underlying file system's sparse file capability, as is done with the *vmfs* format on ESXi. An image can also refer to a parent image and only store changes made in a copy-on-write fashion. This enables creating a snapshot of a virtual machine's state.

PROCEDURE:

1. Download and install Oracle's Virtual Box. (Reboot needed after installation)
2. Download Ubuntu VMDK Image.
3. Launch Virtualbox and create a new VM.
4. Click on new and mention the Name and the machine folder along with the Type and Version of the Machine to be created.
5. Assign memory size for our VM (1024 MB sufficient for now).
6. Select the option Use an existing virtual hard disk file and locate the donwloaded VMDK image below and create VM.
7. Now we have to create a NAT Network so go to File -> Preferences -> Network -> Add a New NAT Network (Click on +)
8. Right click and edit the Network name and CIDR if needed.

   Example : Name - My VMbox Network

   CIDR - 172.168.2.0/24 and save the changes.

9. Repeat the process of launching the VM for 2 instances.
10. Now go to the setting, go to the network setting and change the adapter to NAT Network and and select the NAT Network you made (in our case : **My VMbox Network**) and click ok.
11. Launch the VM now.
12. Install the net-tools to know the IP's of the instance.

    $ sudo apt install net-tools
    $ sudo apt update

13. To know the IP address

    $ ifconfig

Now the IP will be in the range of **172.168.2.***

* - any number in the range of 1 to 254 (total 256 addresses)

14. Now create a file and write something into it.

    $ touch tranfer.txt
    $ nano transfer.txt
    -> hey, How are you?
    ctrl + X and save

Some Commands for Linux Based Distros:

ls - list all the files and directories
cat - show the content inside a file
scp - it will help us to copy files from one vm to other
cd - change directory
mkdir - make a new directory
touch - it makes a new file
nano - nano is a editor inside linux os

15. If your file is on the VM with IP **172.168.2.4** and the second VM's IP is **172.168.2.5**.

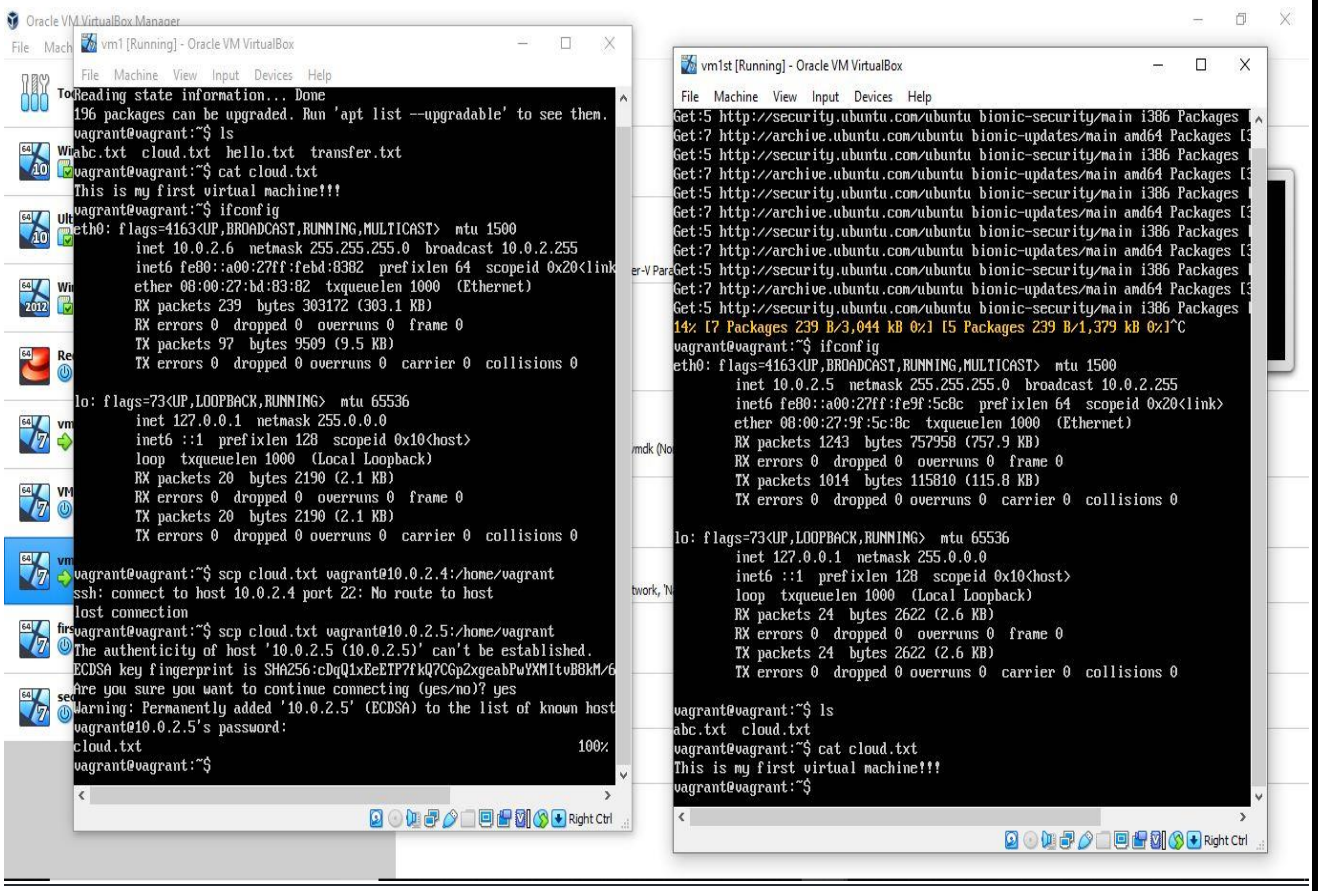
16. Transfer the file using **SCP**

    $ scp tranfer.txt vagrant@172.168.2.5:/home/vagrant

    Put in the password of the 2nd VM and done.

17. Check for the file in the Second VM under the **/home/vagrant** directory.

OUTPUT:



CONCLUSION: