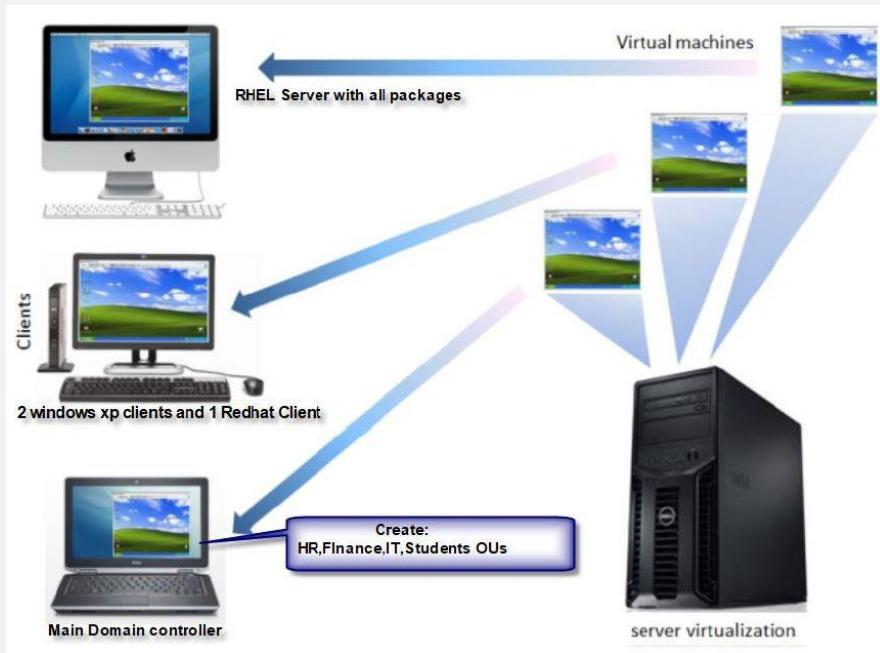


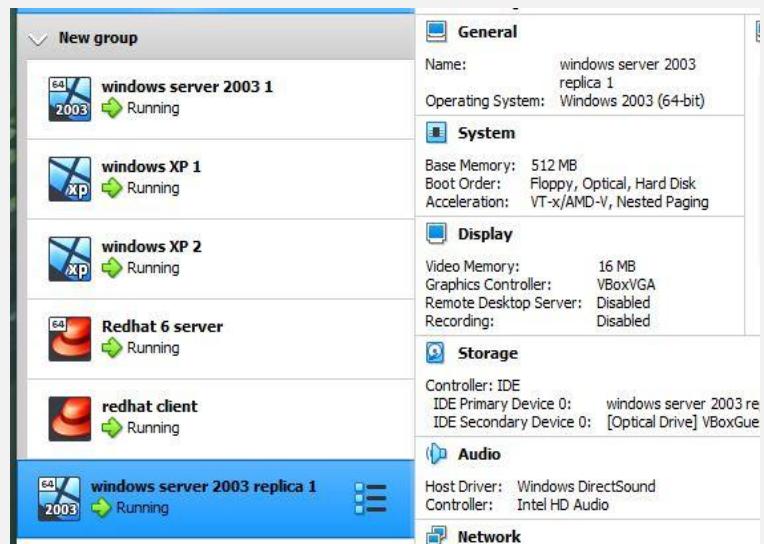
Computer networking project
Individual project: 0/25



Solutions

We were supposed to create 6 Virtual Machines:

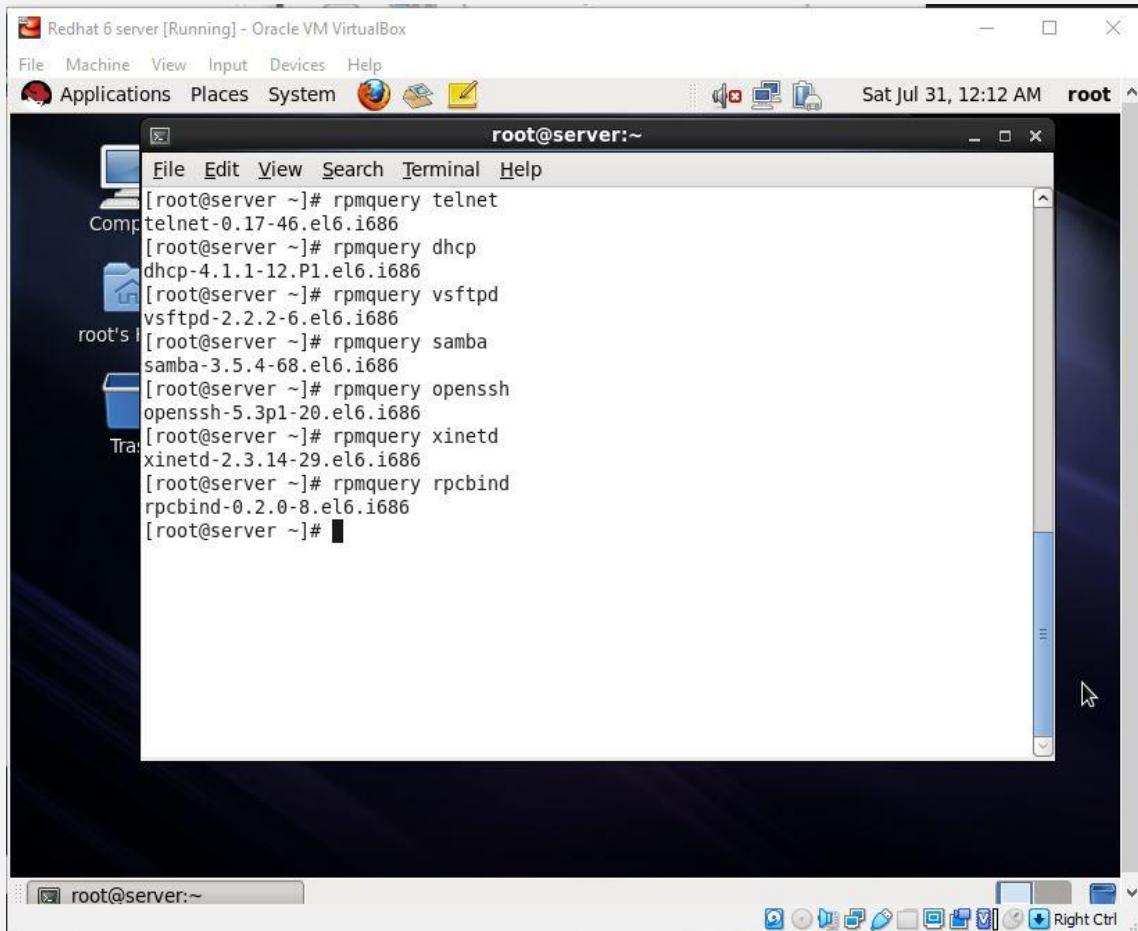
- ✓ 1 -Redhat server
- ✓ 1 -Redhat Client
- ✓ 1 –DC Windows server 2003
- ✓ 1 –DC Replica
- ✓ 2 -Windows XP (XP1 and XP2)



1 Question

RHEL Server with the following services: telnet, DHCP, Samba, FTP, SSH

We installed all packages



The screenshot shows a terminal window titled "root@server:~" running on a Redhat 6 server. The window displays the output of the command "rpmquery" for several services:

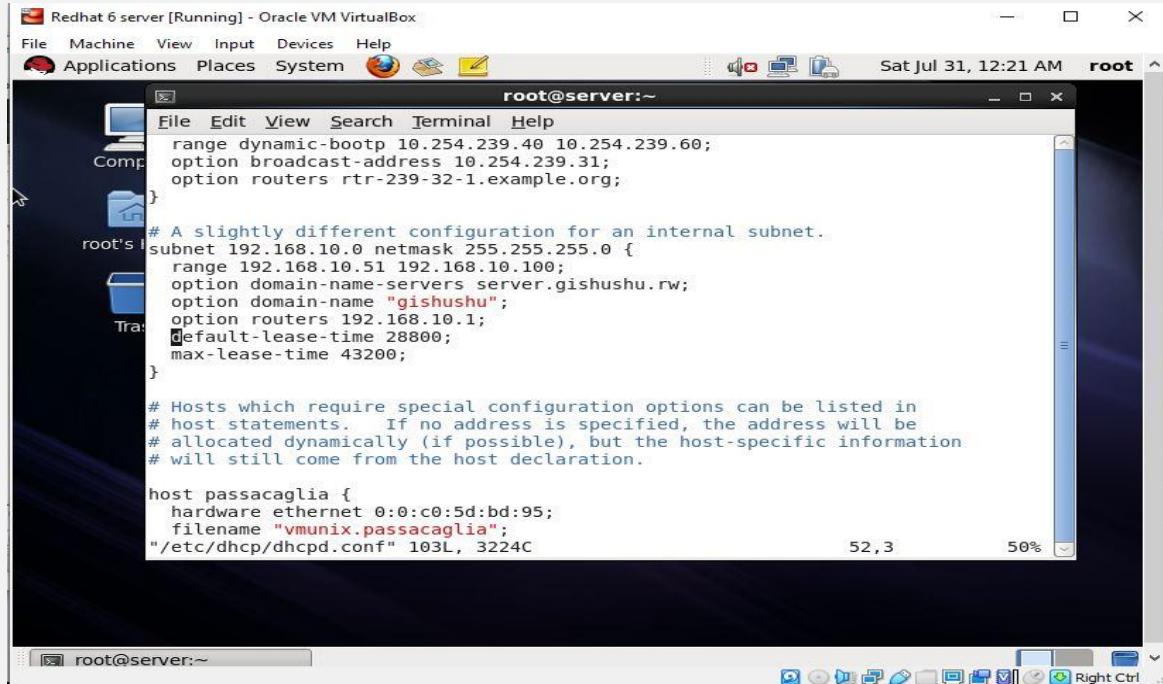
```
[root@server ~]# rpmquery telnet
telnet-0.17-46.el6.i686
[root@server ~]# rpmquery dhcp
dhcp-4.1.1-12.P1.el6.i686
[root@server ~]# rpmquery vsftpd
vsftpd-2.2.2-6.el6.i686
[root@server ~]# rpmquery samba
samba-3.5.4-68.el6.i686
[root@server ~]# rpmquery openssh
openssh-5.3p1-20.el6.i686
[root@server ~]# rpmquery xinetd
xinetd-2.3.14-29.el6.i686
[root@server ~]# rpmquery rpcbind
rpcbind-0.2.0-8.el6.i686
[root@server ~]#
```

2 Question

Linux DHCP should assign IP address automatically to all nodes on the network.

I configured my DHCP to give the ip addresses in range of

192.168.10.51 - 192.168.10.100



```
Redhat 6 server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places System root@server:~ Sat Jul 31, 12:21 AM root ^

root@server:~#
range dynamic-boot 10.254.239.40 10.254.239.60;
option broadcast-address 10.254.239.31;
option routers rtr-239-32-1.example.org;
}

# A slightly different configuration for an internal subnet.
root's subnet 192.168.10.0 netmask 255.255.255.0 {
    range 192.168.10.51 192.168.10.100;
    option domain-name-servers server.gishushu.rw;
    option domain-name "gishushu";
    option routers 192.168.10.1;
    default-lease-time 28800;
    max-lease-time 43200;
}

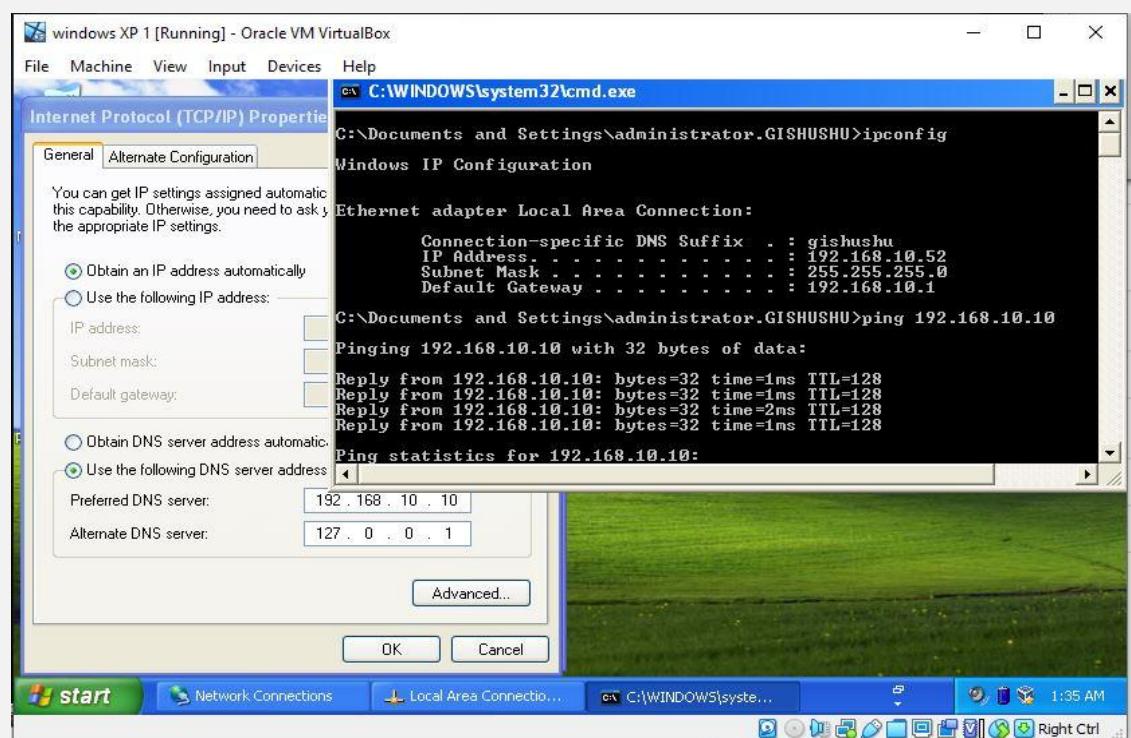
# Hosts which require special configuration options can be listed in
# host statements. If no address is specified, the address will be
# allocated dynamically (if possible), but the host-specific information
# will still come from the host declaration.

host passacaglia {
    hardware ethernet 0:0:c0:5d:bd:95;
    filename "vmlinix.passacaglia";
} /etc/dhcp/dhcpd.conf" 103L, 3224C
52,3 50% Right Ctrl

root@server:~#
```

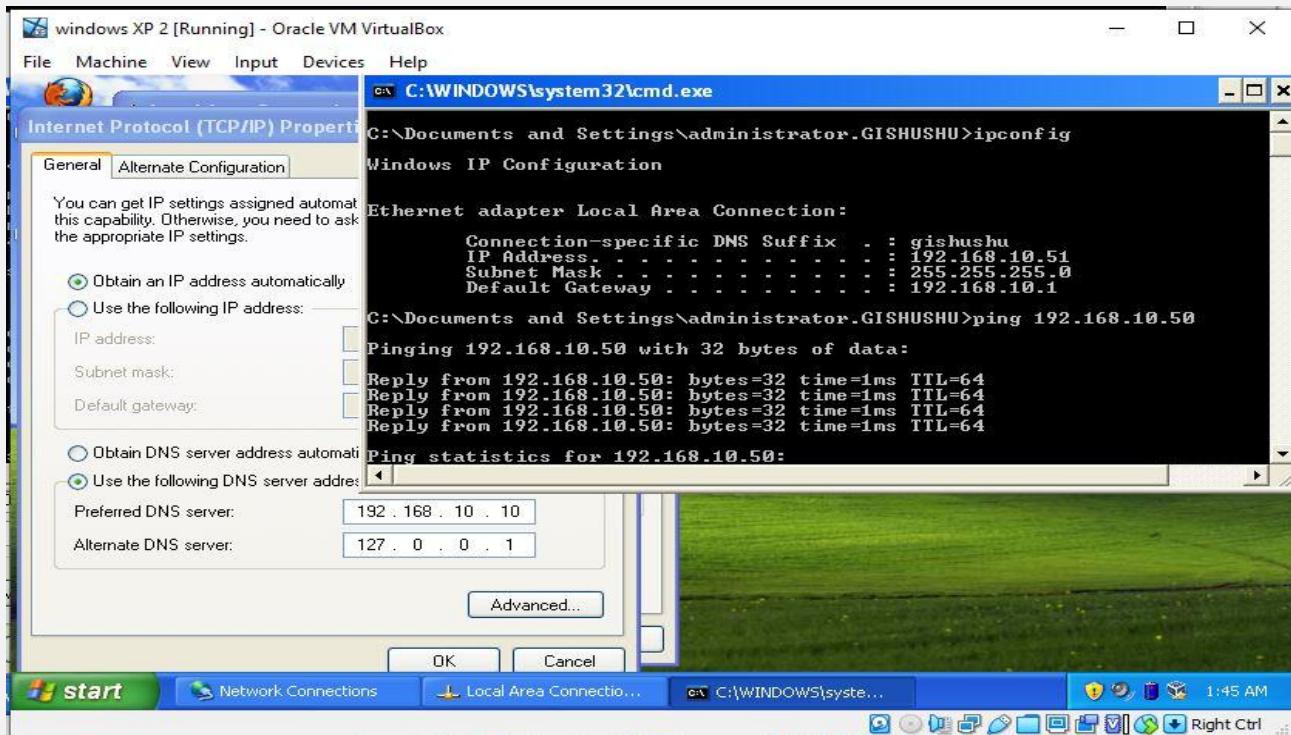
Windows XP1 :

IP address pinging



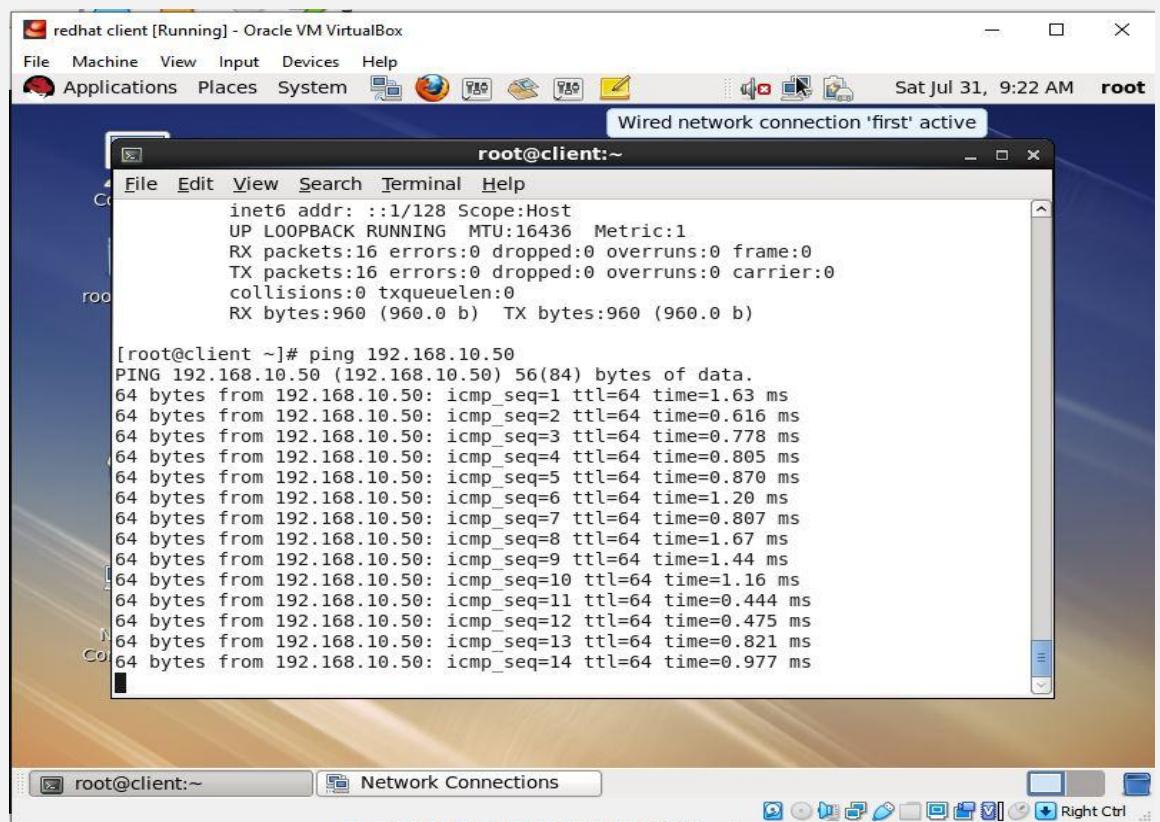
Windows XP2 :

IP address pinging



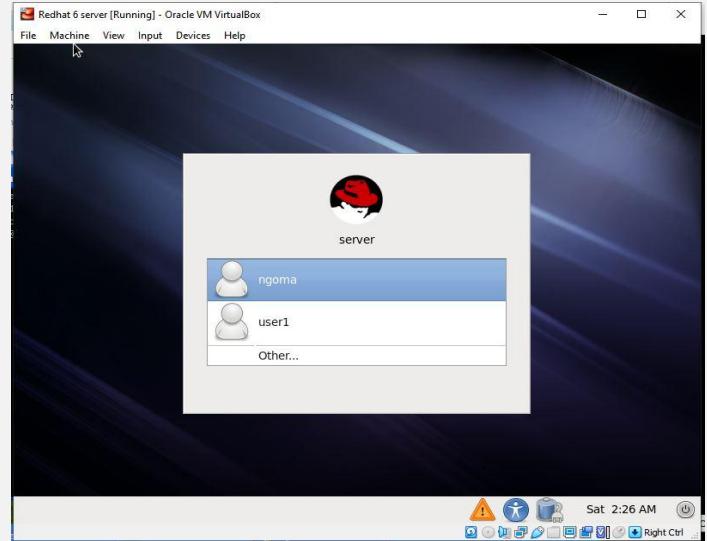
Redhat client:

IP address pinging

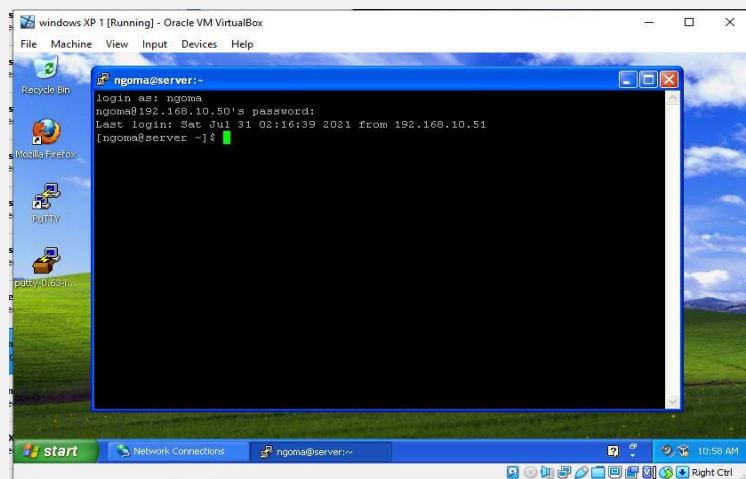


3 Question & 4 Question

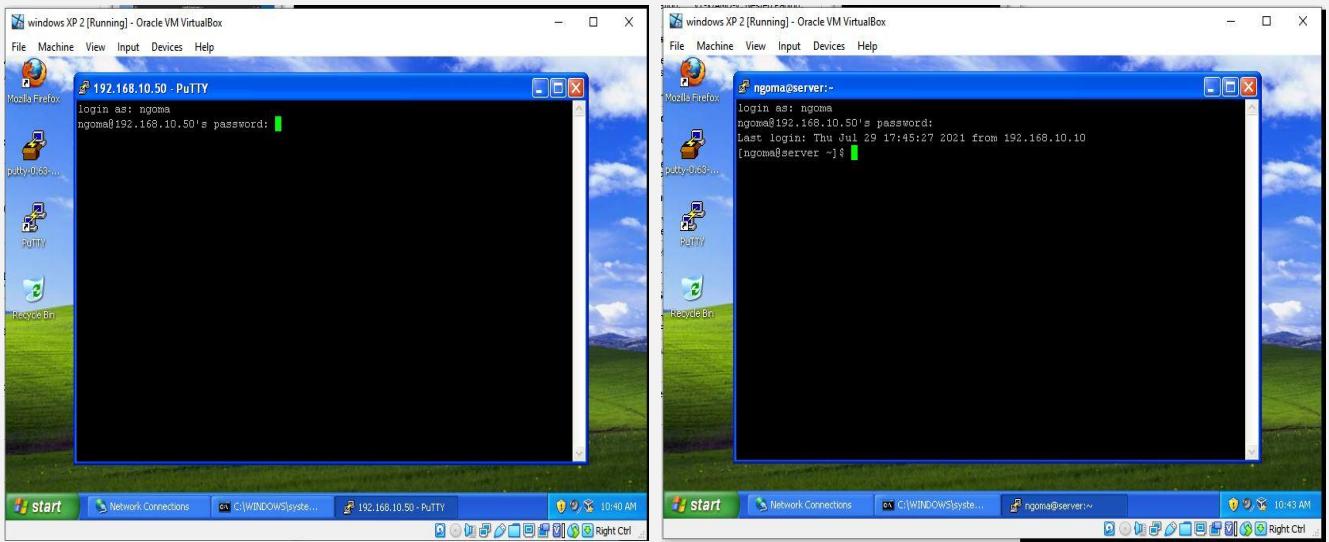
- Users on Linux client and windows client should be able to access telnet, DHCP, Samba FTP
- Users on windows should access all services as well, for ssh on windows use PUTTY to access Linux server
- ❖ **We were able to access Linux server through the user we created (to be able to use telnet)**



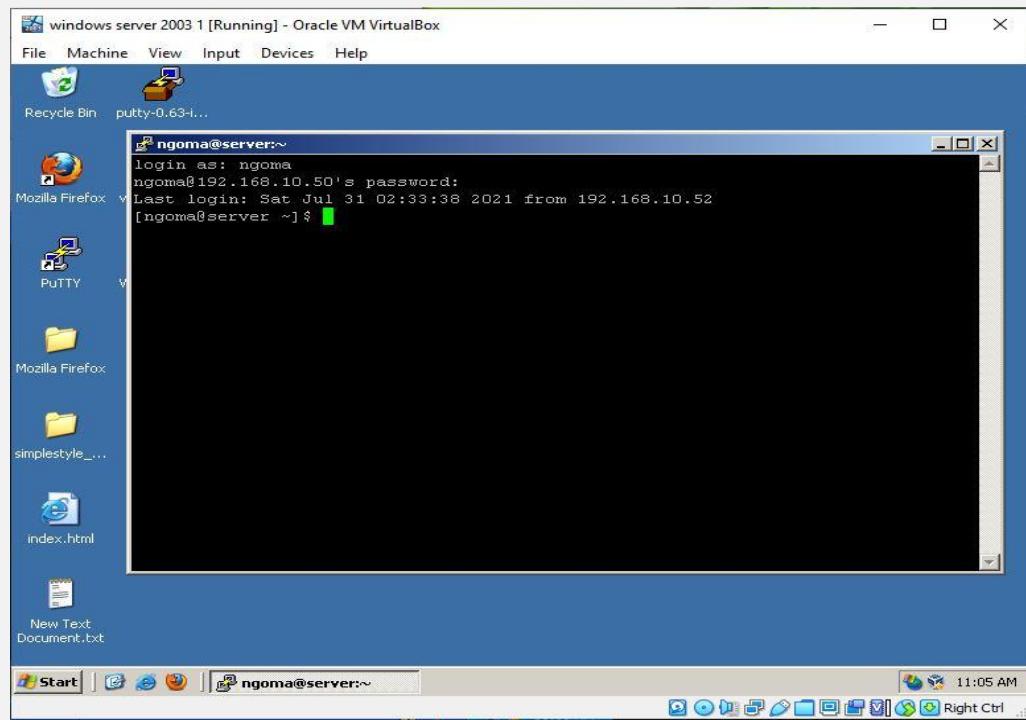
Windows XP1



Windows XP2

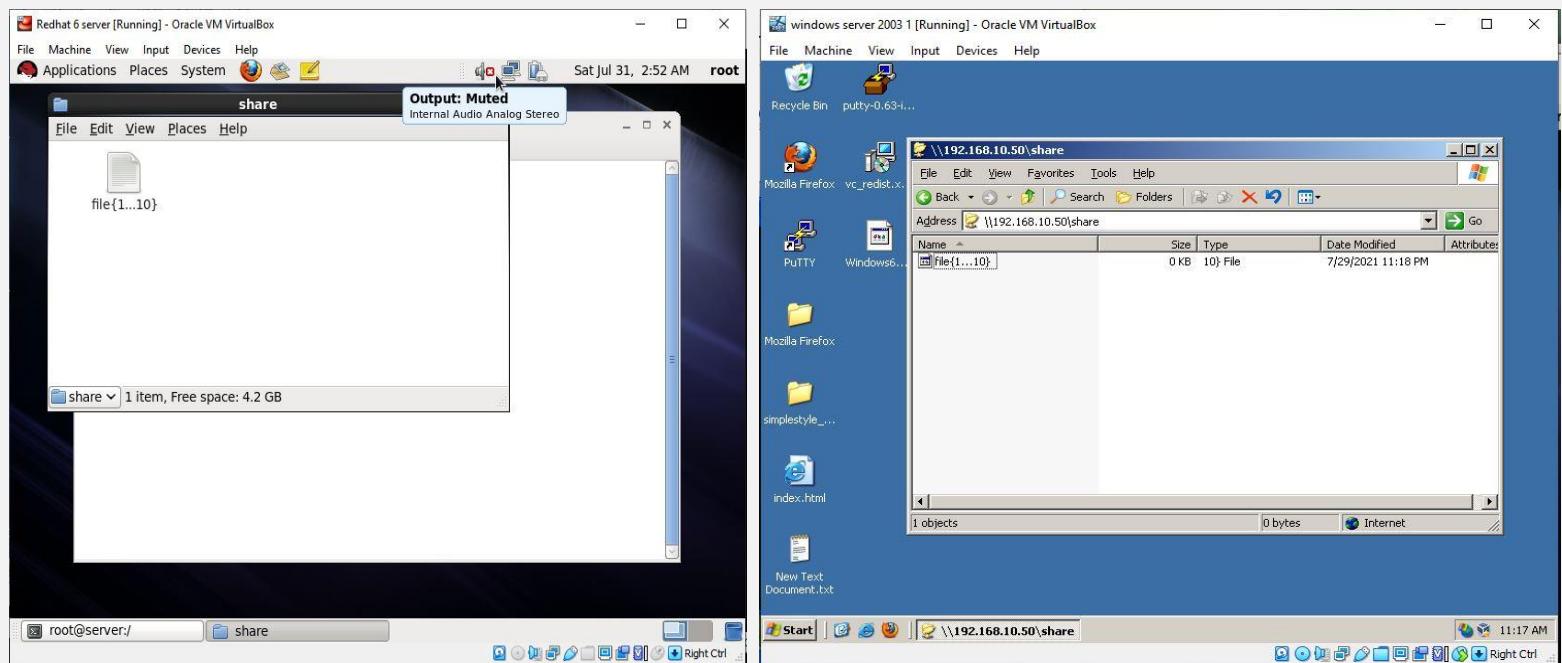


Windows Server 2003



Sharing files between Linux and windows (Samba configuration)

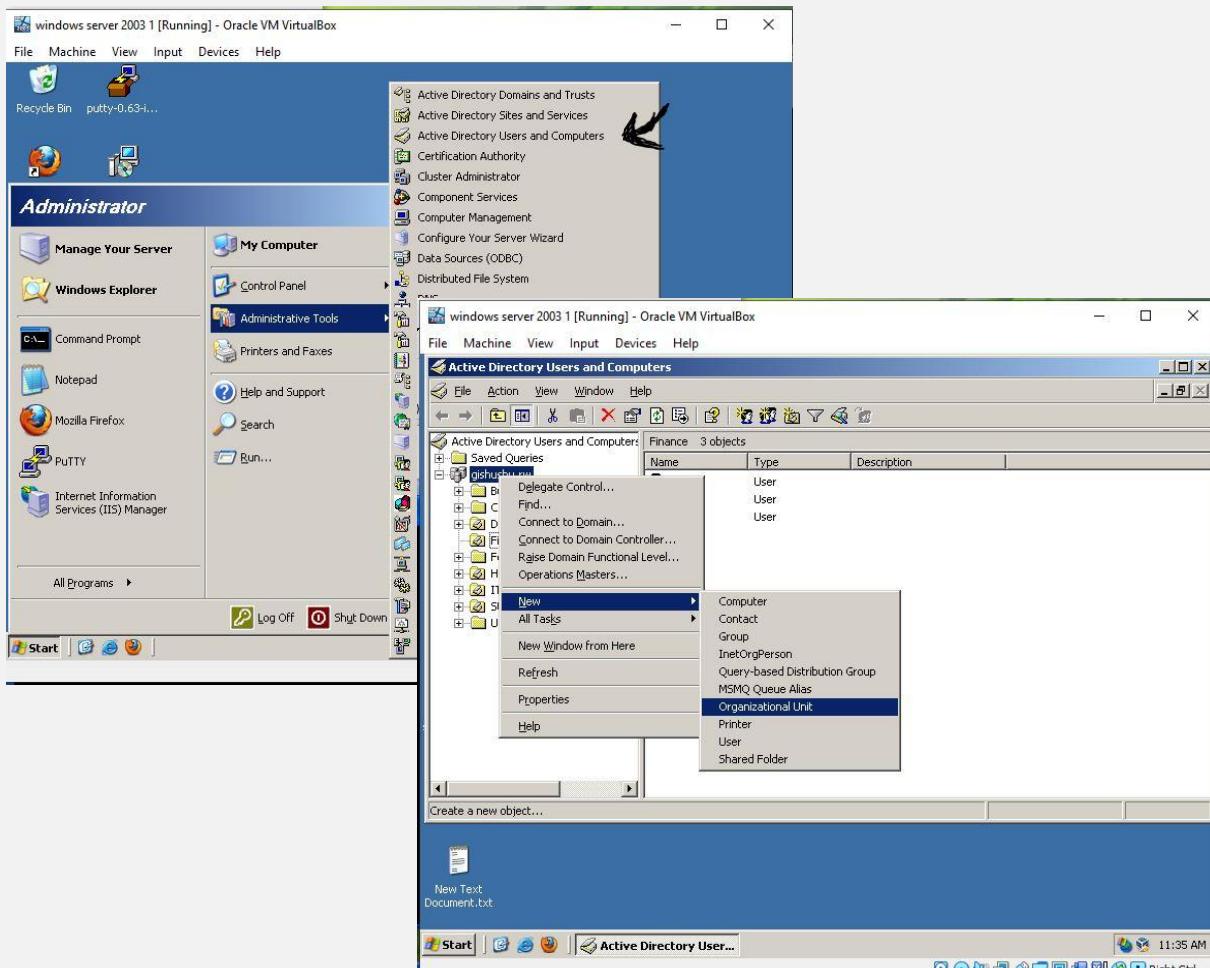
Shared a folder called “Share”



5 Question

Deploy DC with windows 2003 server and create 4 OUs: IT, HR, Students, Finance

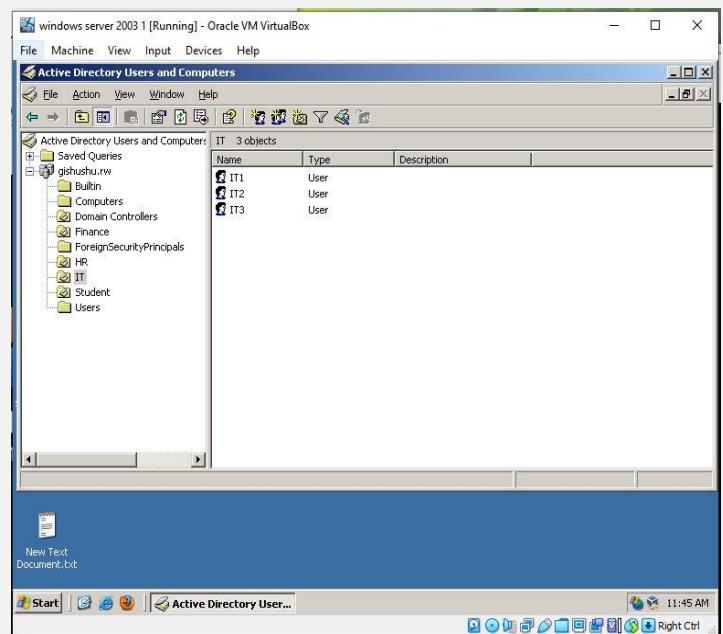
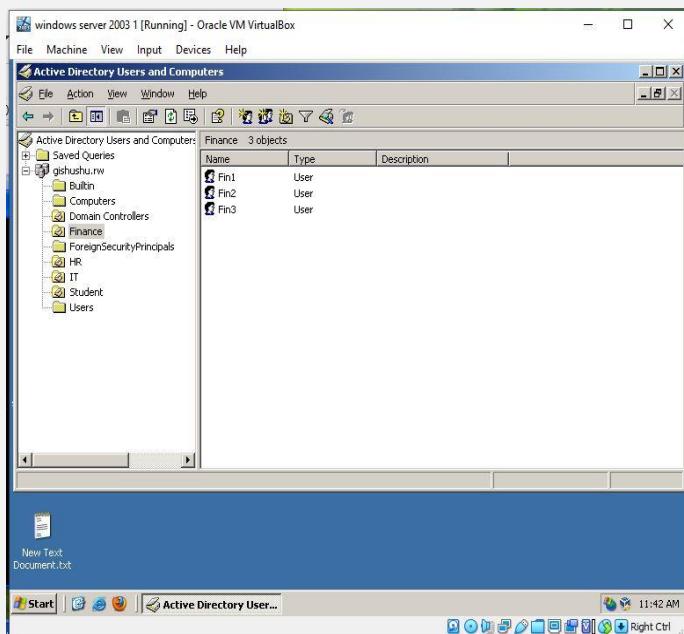
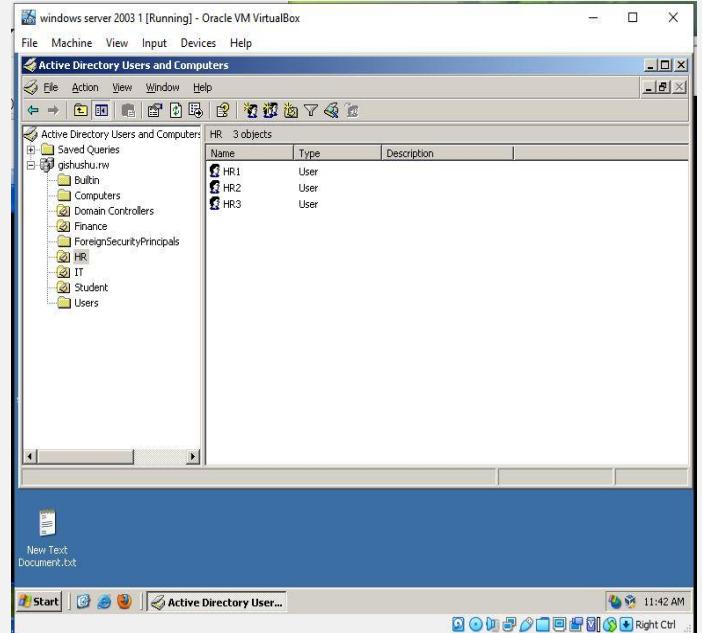
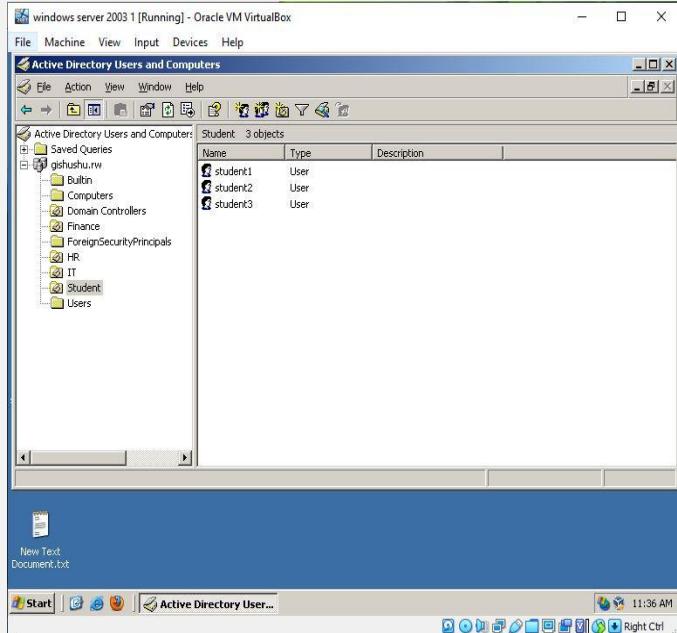
Steps:



6 Question

Create 3 users in each OU names and password should be according to the guidelines above.

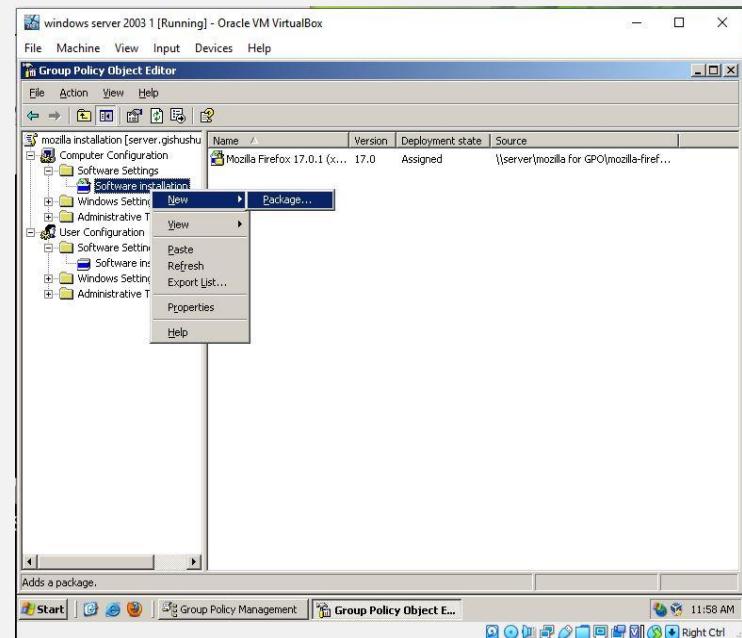
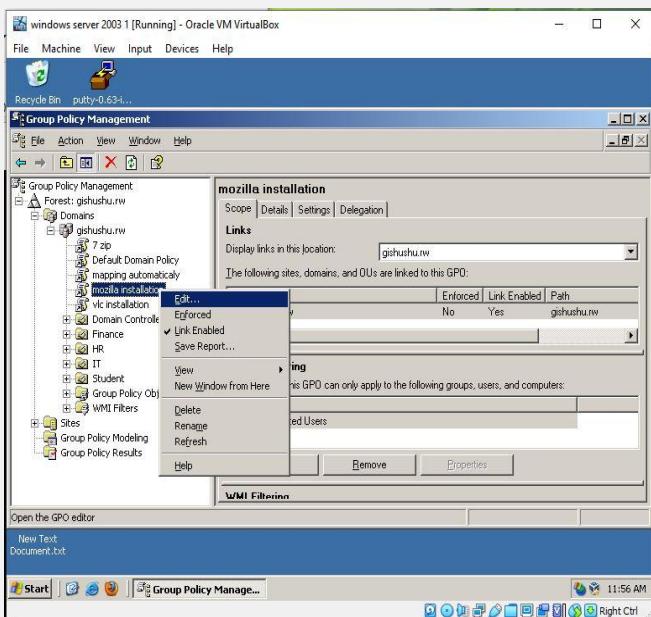
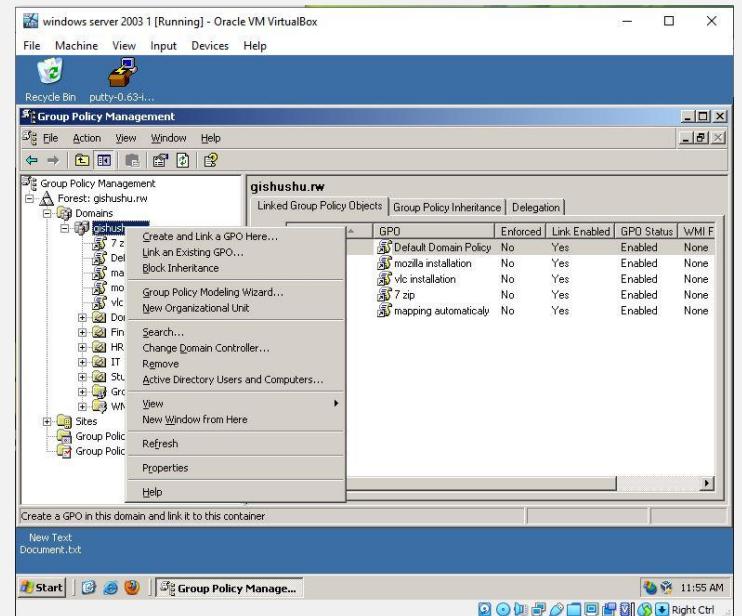
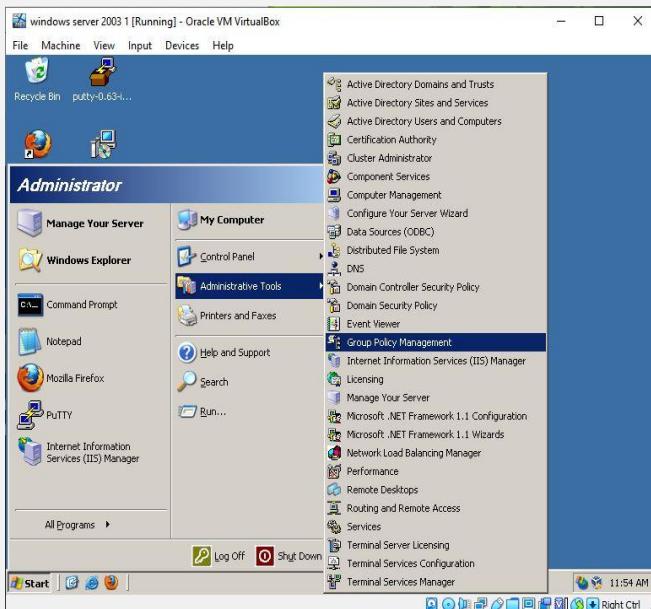
4 OUs (Organization Unit) and users:



7 Question

Users from students OU should have the 3 apps (*.msi) that are deployed from GPO .those apps should be light and useful.(**vlc.msi**, **Mozilla.msi**, **dropbox.msi**) –GPMC-GPO

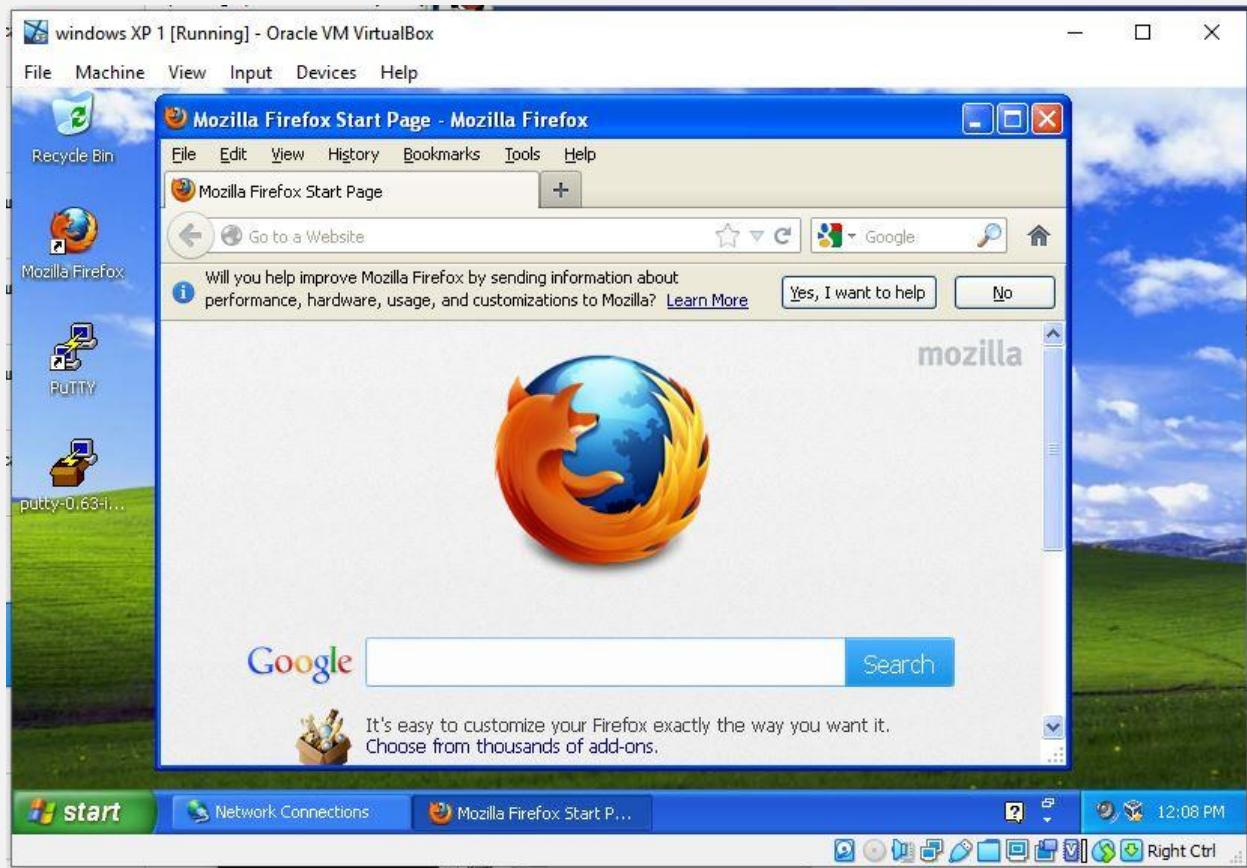
Steps:



Then open **RUN_ (gpupdate /force)** in order to update the group policy

Examples to show that all the machines which are connect to the GISHUSHU domain have installed those apps automatically:

Windows XP

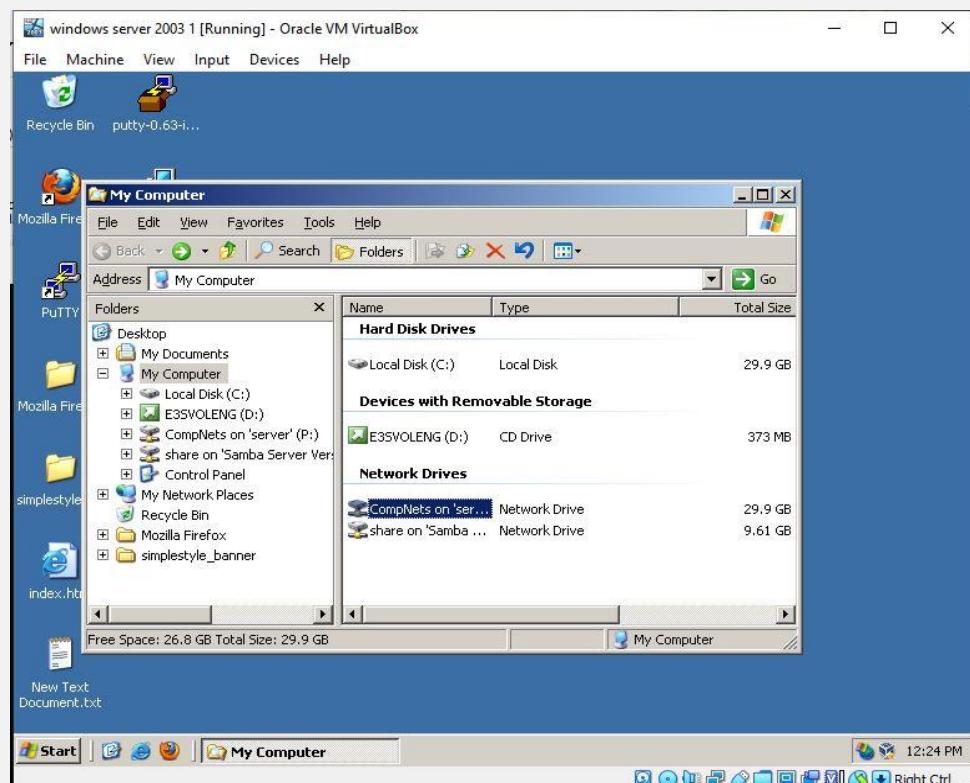
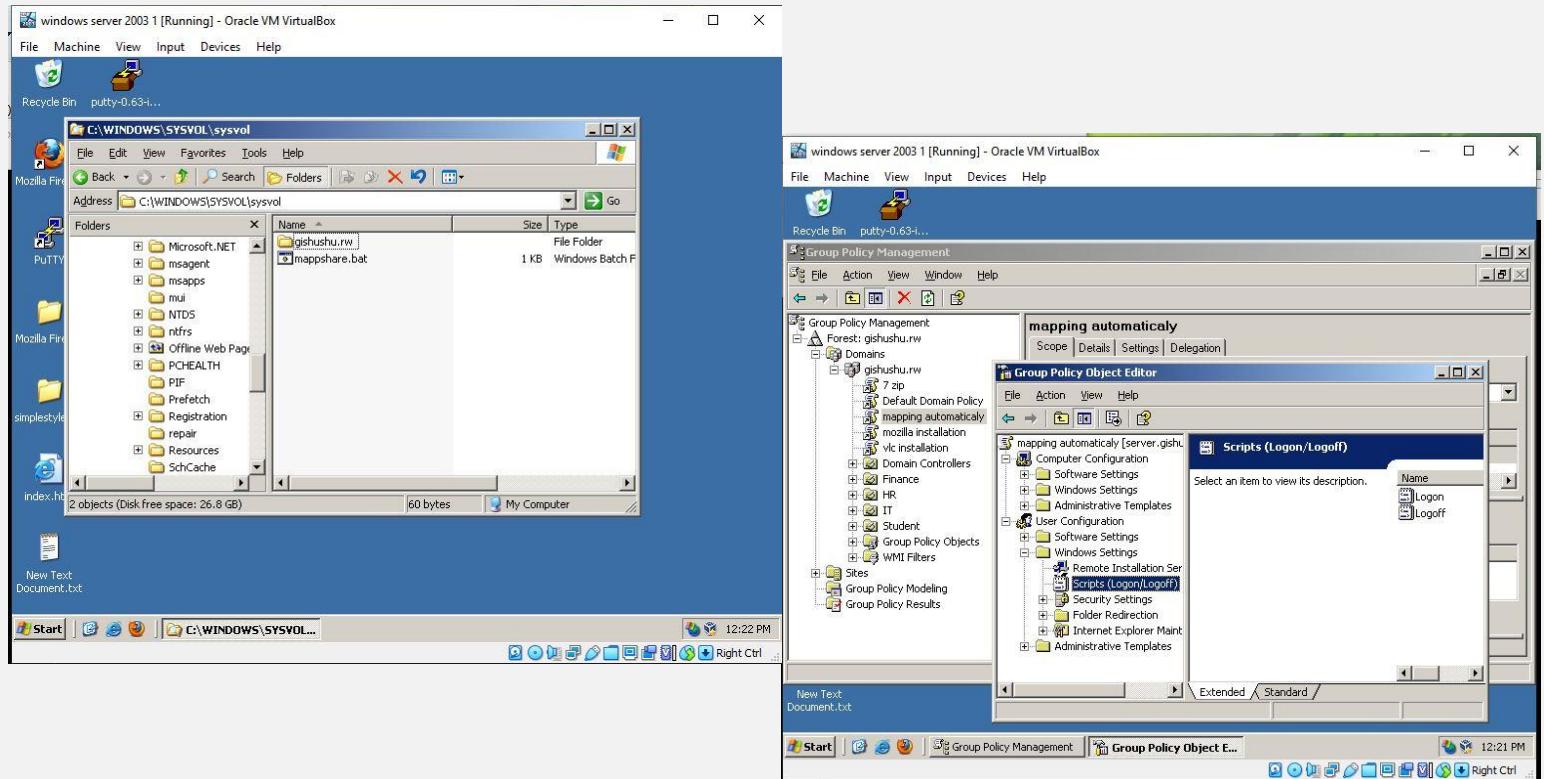


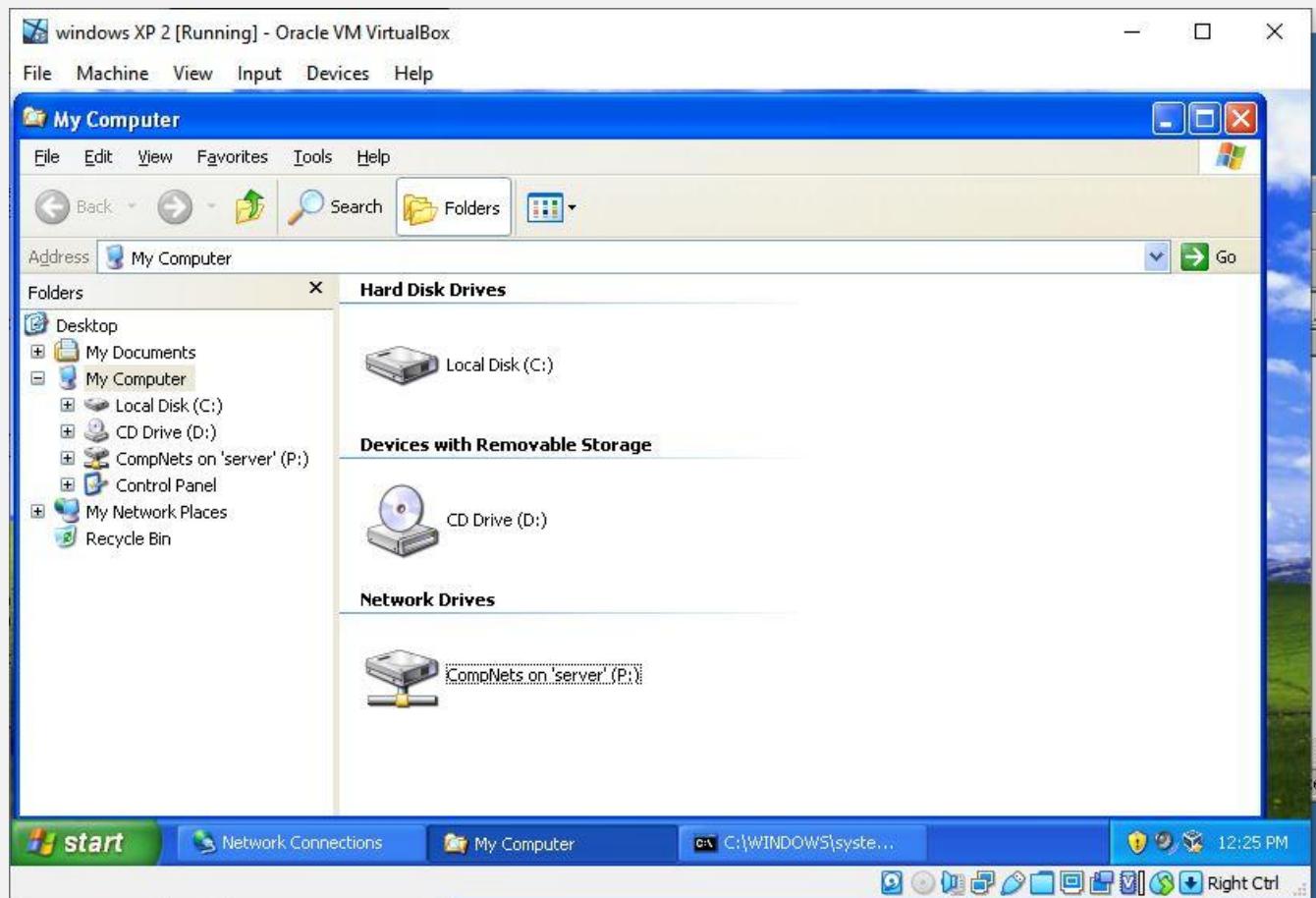
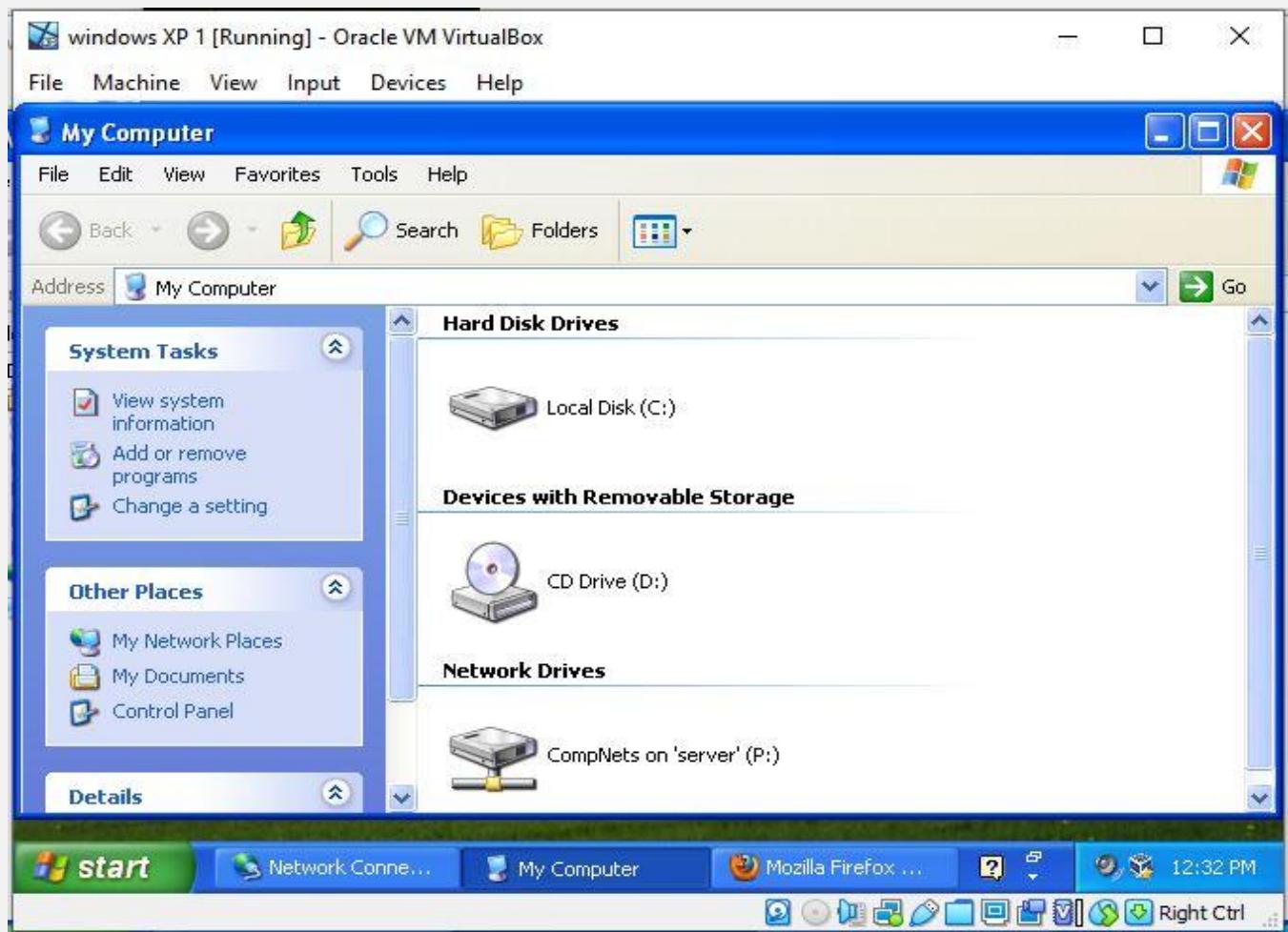
8 Question

In the DC create a directory named **CompNets** and share it across the networked PCs, The shared resource should be mapped **automatically** upon students logging into the system.

We created a bat file in gishushu domain to help us create a new driver called **CompNets**

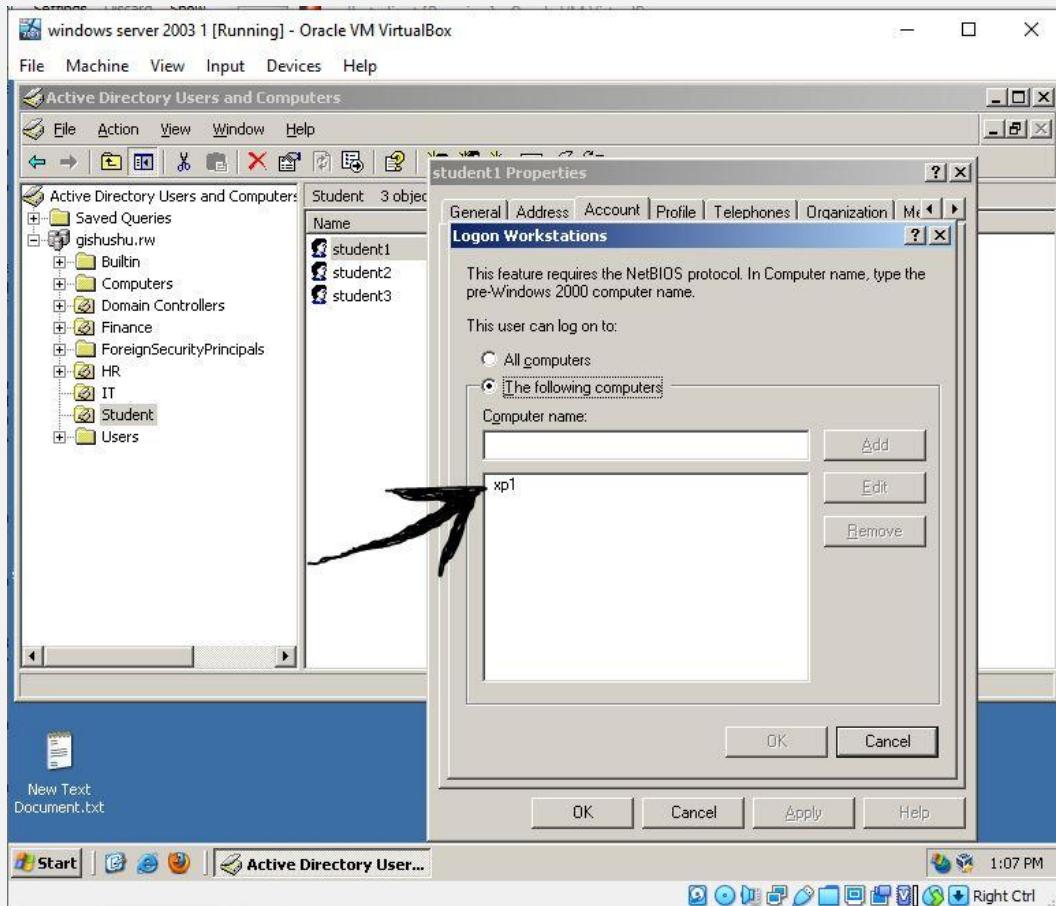
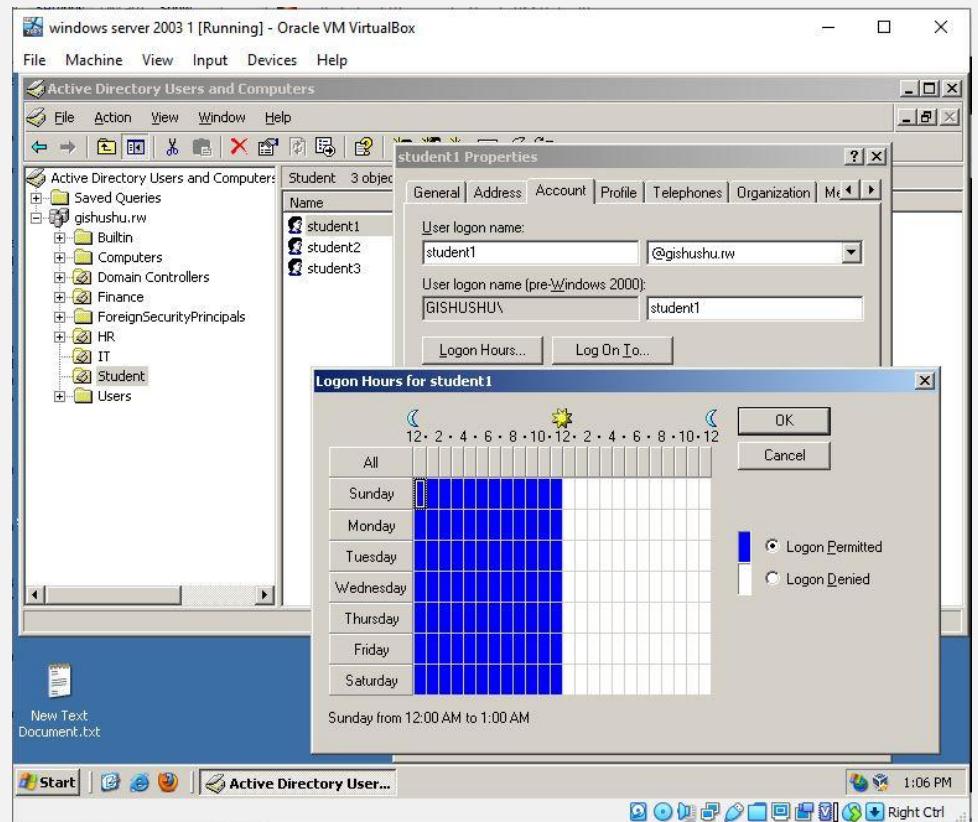
And then we created a new GPO to help us share the drive on all PCs

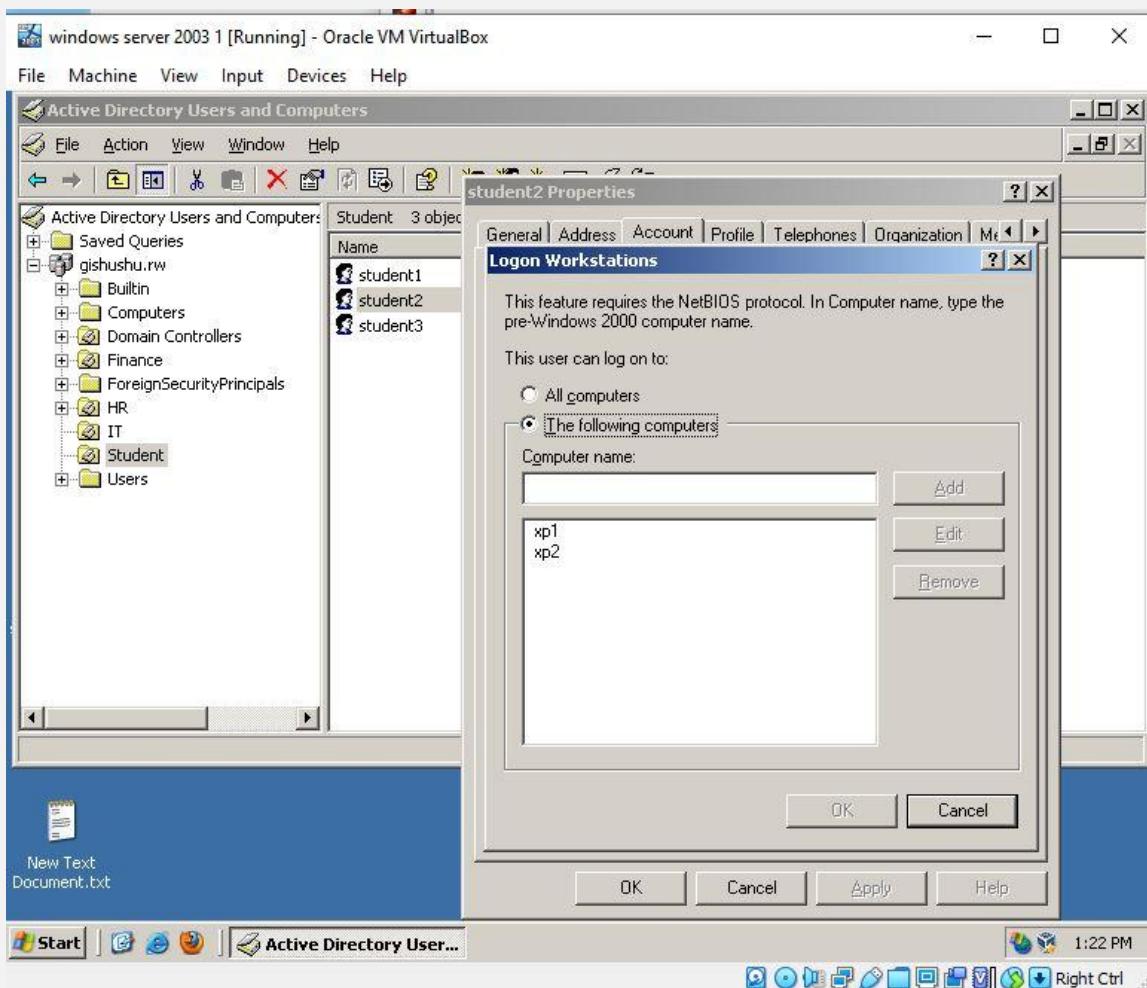
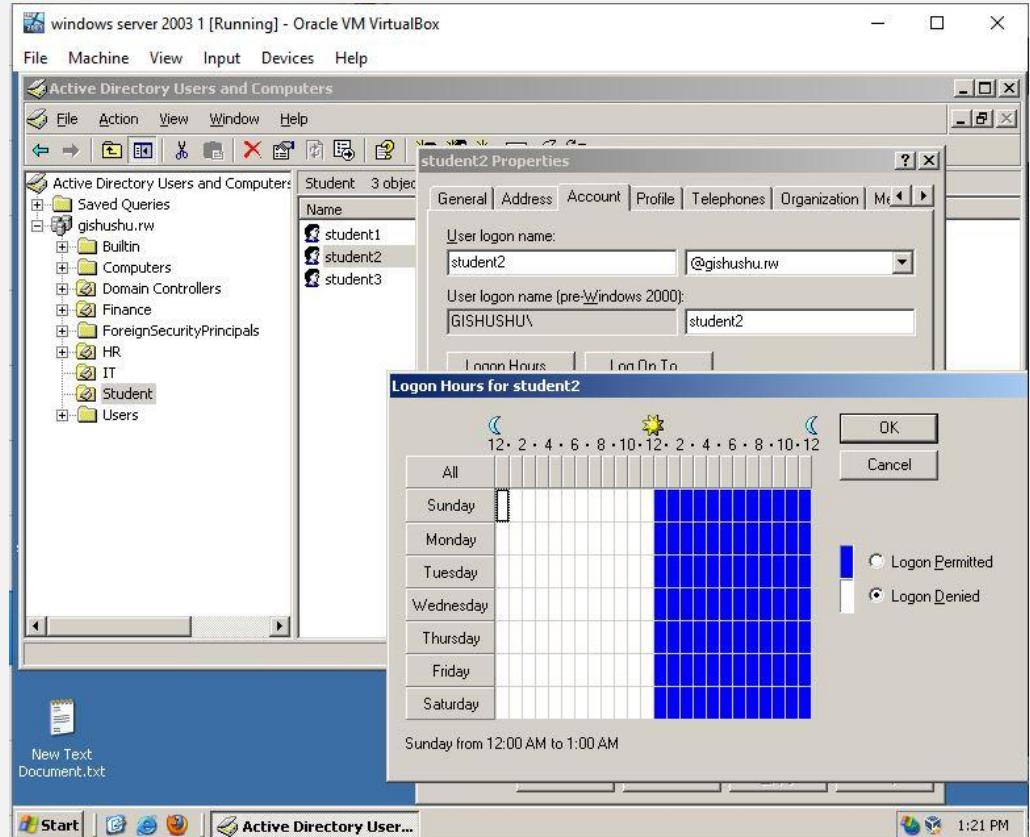




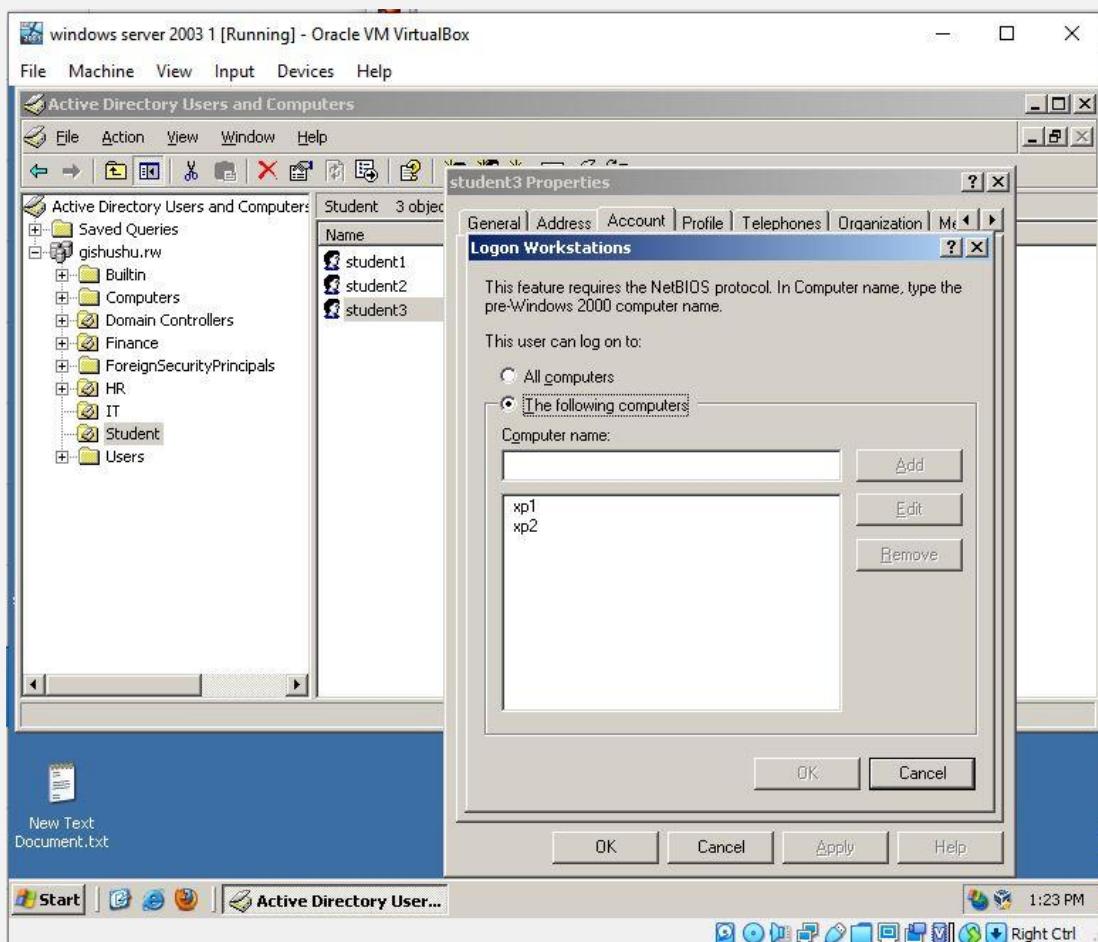
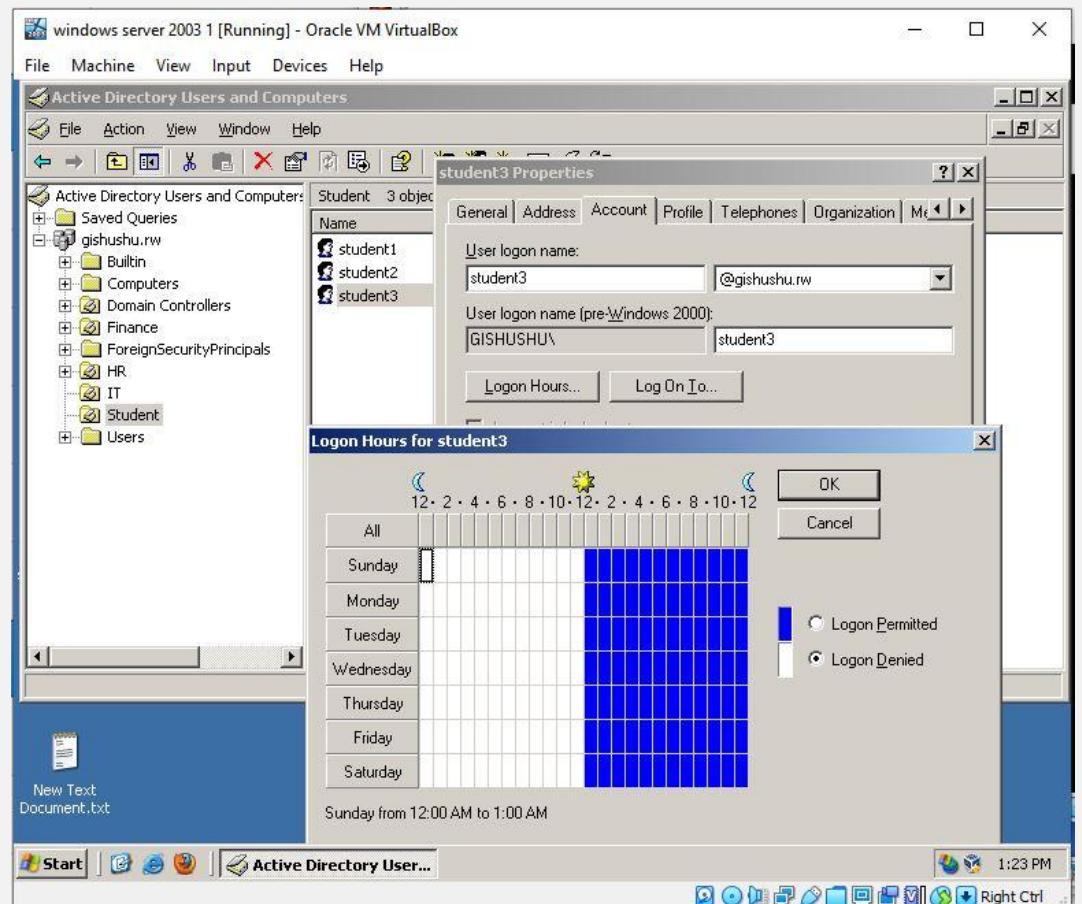
9 Question

Student 1 is allowed to login all morning hours and he should only login **PC1** while his colleagues are allowed to login all machines and every day in the afternoon only.



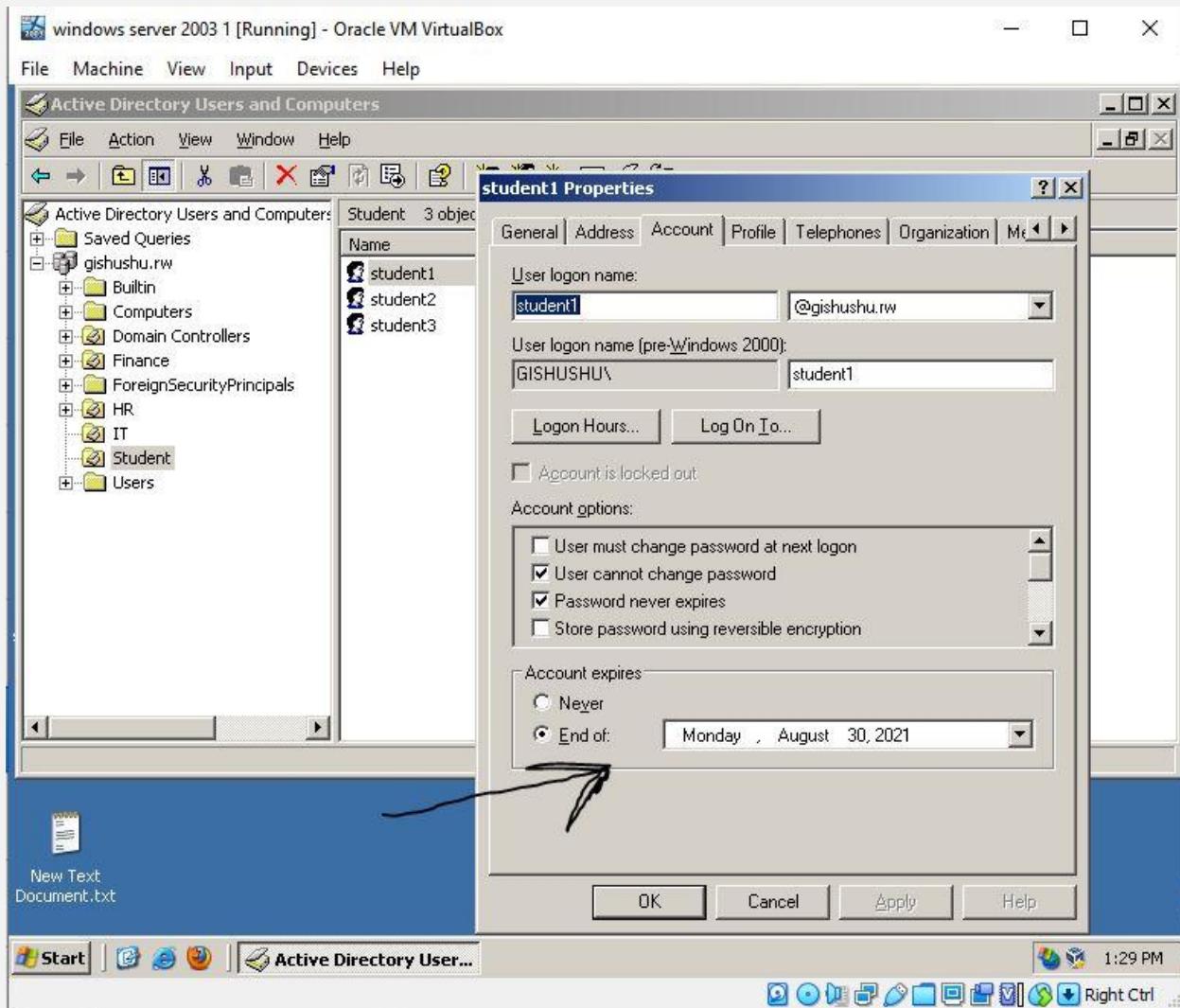


Student3



10 Question

The account for the student 1 who logs in morning hours should expire by the end of august 30 2021

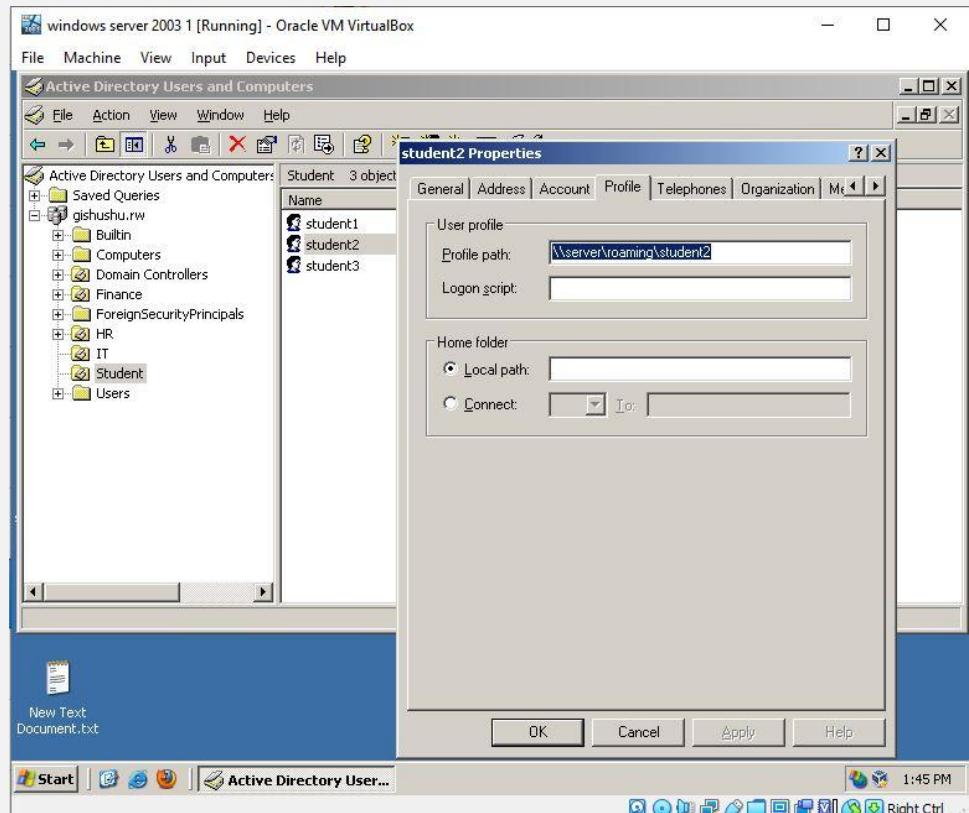


11 Question

The two other student2, 3 who can access all PCs should have their files and docs including desktop files should follow them wherever they login and they should have all the resources shared from the server mapped automatically upon logon. –Roaming profile should be configured.

We first created a folder called roaming which will be used as a profile path the we shared it to the authenticated users,

Then went to the AD to configure the profile path in properties of users



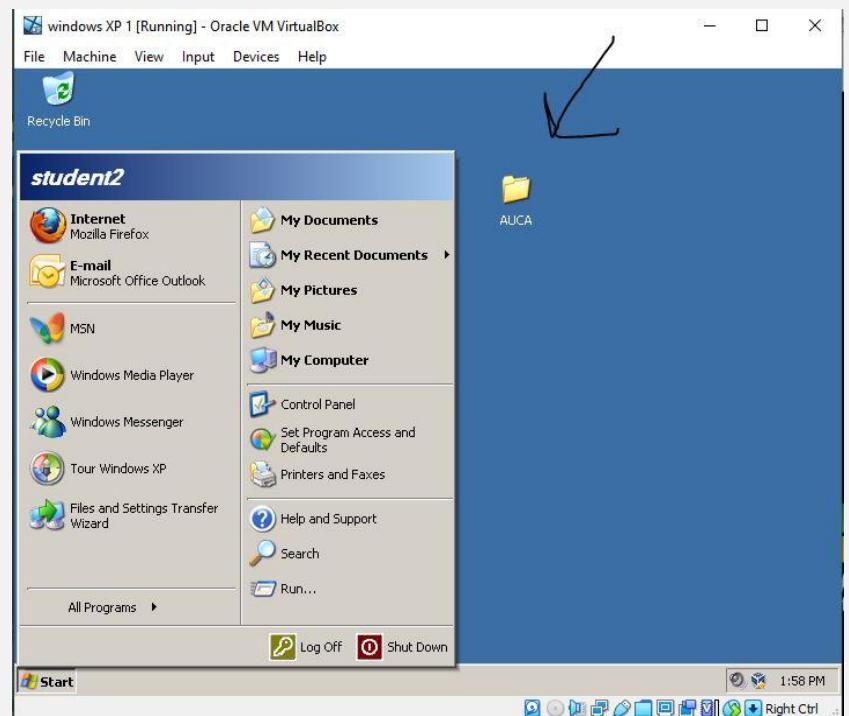
Let us login to the different PCs to see if it's working

Let's create a folder called AUCA in student 2 or 3 anywhere we want

This is **Windows XP1** we logged in as

Student2 .

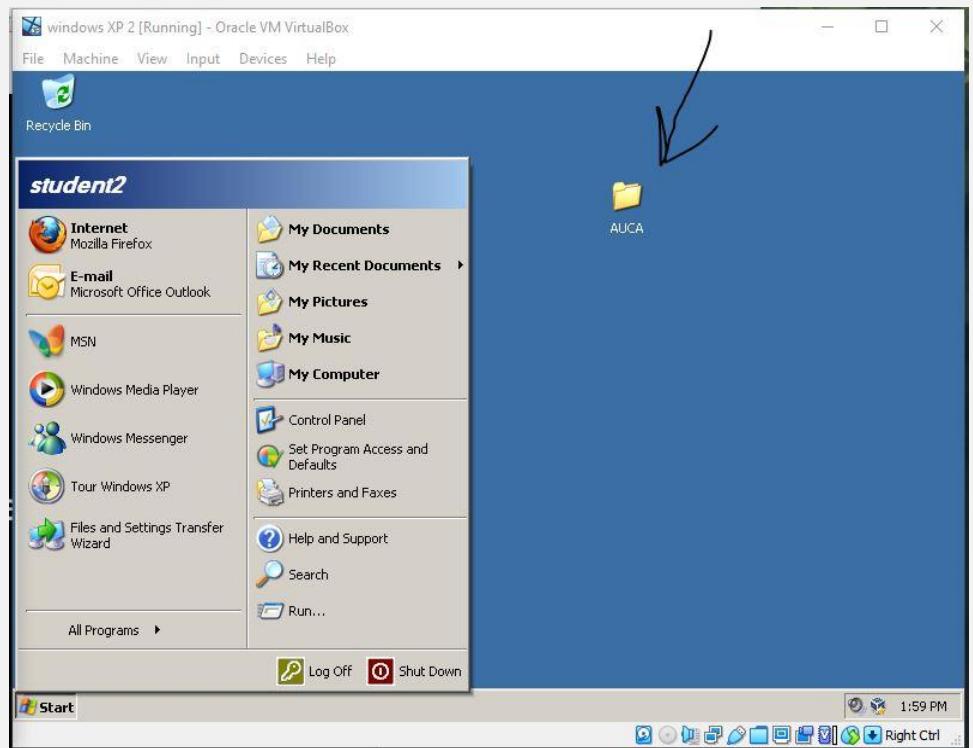
We created a folder called AUCA



This is **WindowsXP2**

We logged in as **student2**

And our folder which we have created goes with us



12 Question

The users from windows PC should be able to access services configured in the linux server where they will access without any problem. When it comes to ftp client (CoreFTP or Filezilla) should be used to give access to the server resources.

Lets first do some configuration to allow some files to be shared on Linux server

- We have already installed the ftp package (**vsftpd**)
- and allowed the **home_dir** so that we may be able to access the linux user (user: **ngoma**) because we can't use the **root** as username
- and created a folder on user **ngoma** called "AUCA"

A screenshot of a Redhat 6 server terminal window titled "Redhat 6 server [Running] - Oracle VM VirtualBox". The window shows a terminal session with the root user. The terminal output is as follows:

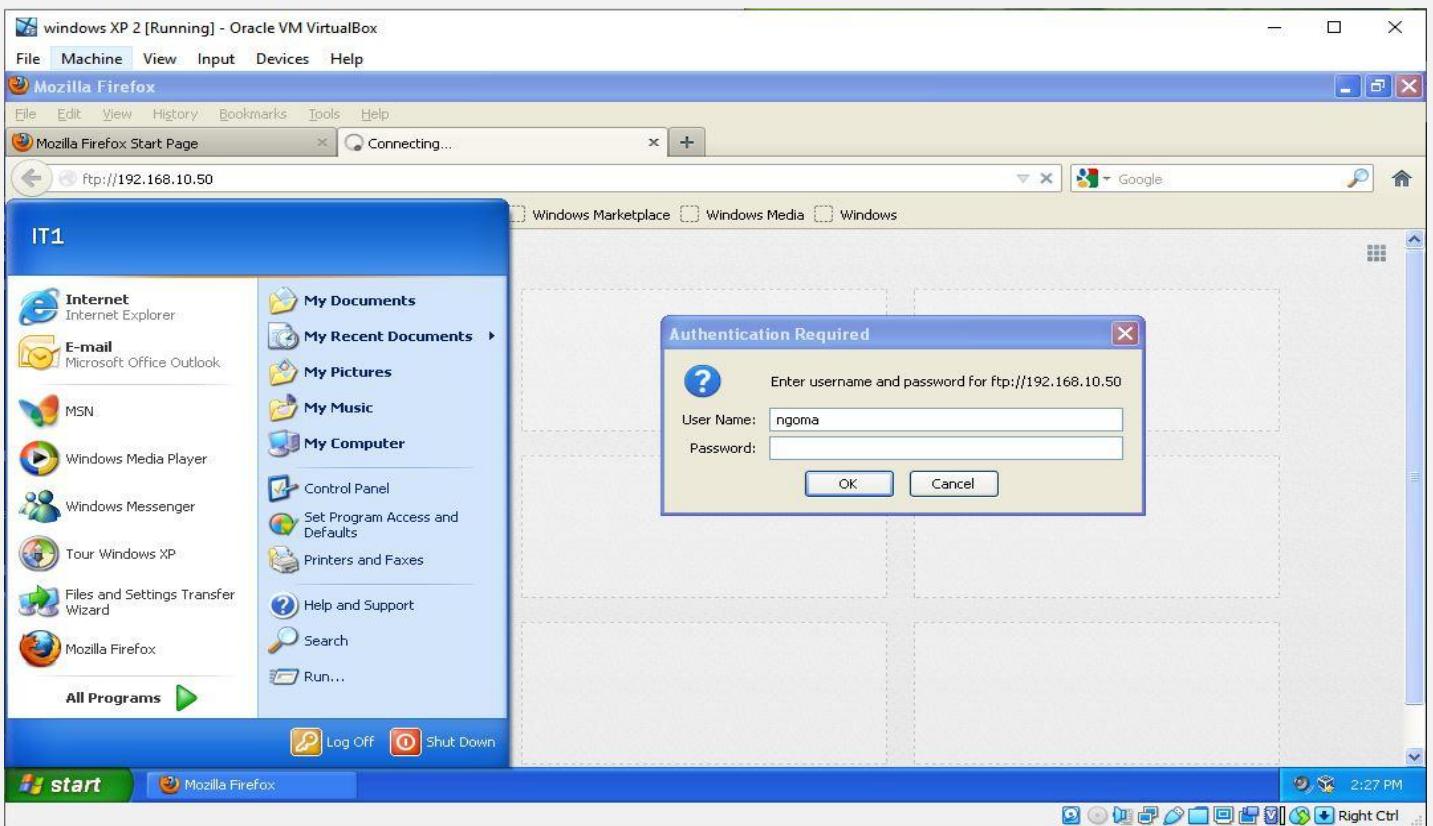
```
[root@server /]# getsebool -a | grep ftp
allow_ftpd_anon_write --> off
allow_ftpd_full_access --> off
allow_ftpd_use_cifs --> off
allow_ftpd_use_nfs --> off
root allow_ftpd_use_home_dir --> on
ftp_connect_db --> off
httpd_enable_ftp_server --> off
sftpd_anon_write --> off
sftpd_enable_homedirs --> off
sftpd_full_access --> off
sftpd_write_ssh_home --> off
tftp_anon_write --> off
[root@server /]# cd /home/ngoma
[root@server ngoma]# mkdir AUCA
[root@server ngoma]# ls
AUCA  s
[root@server ngoma]#
```

The terminal window is part of a desktop environment with a blue taskbar at the bottom containing various icons.

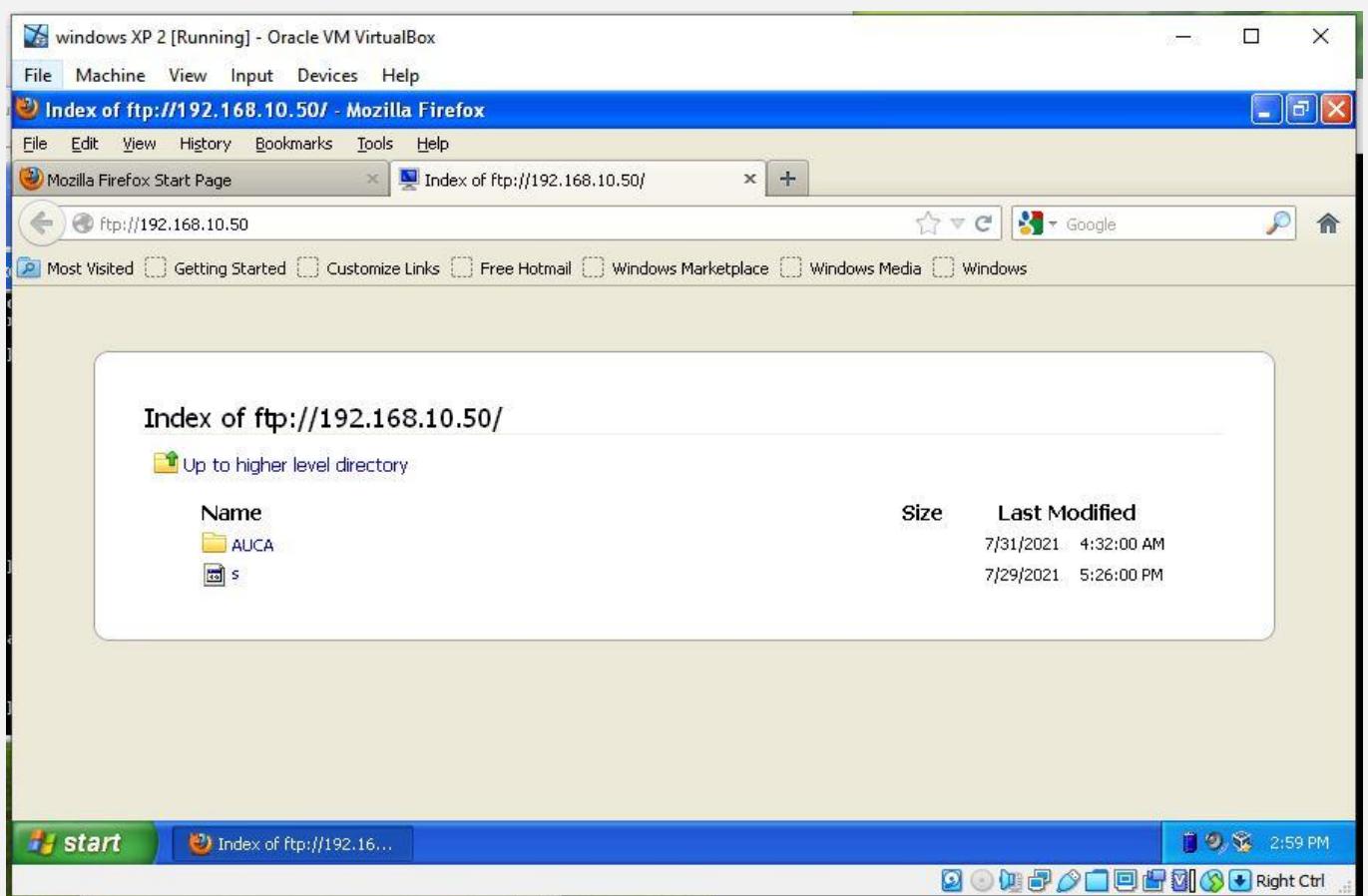
Remember that our IP address on the Linux server is **192.168.10.50**

WindowsXP2

We logged in as IT1 (as one of our users)



As you can see we have two resources as the one in our Linux server (above)

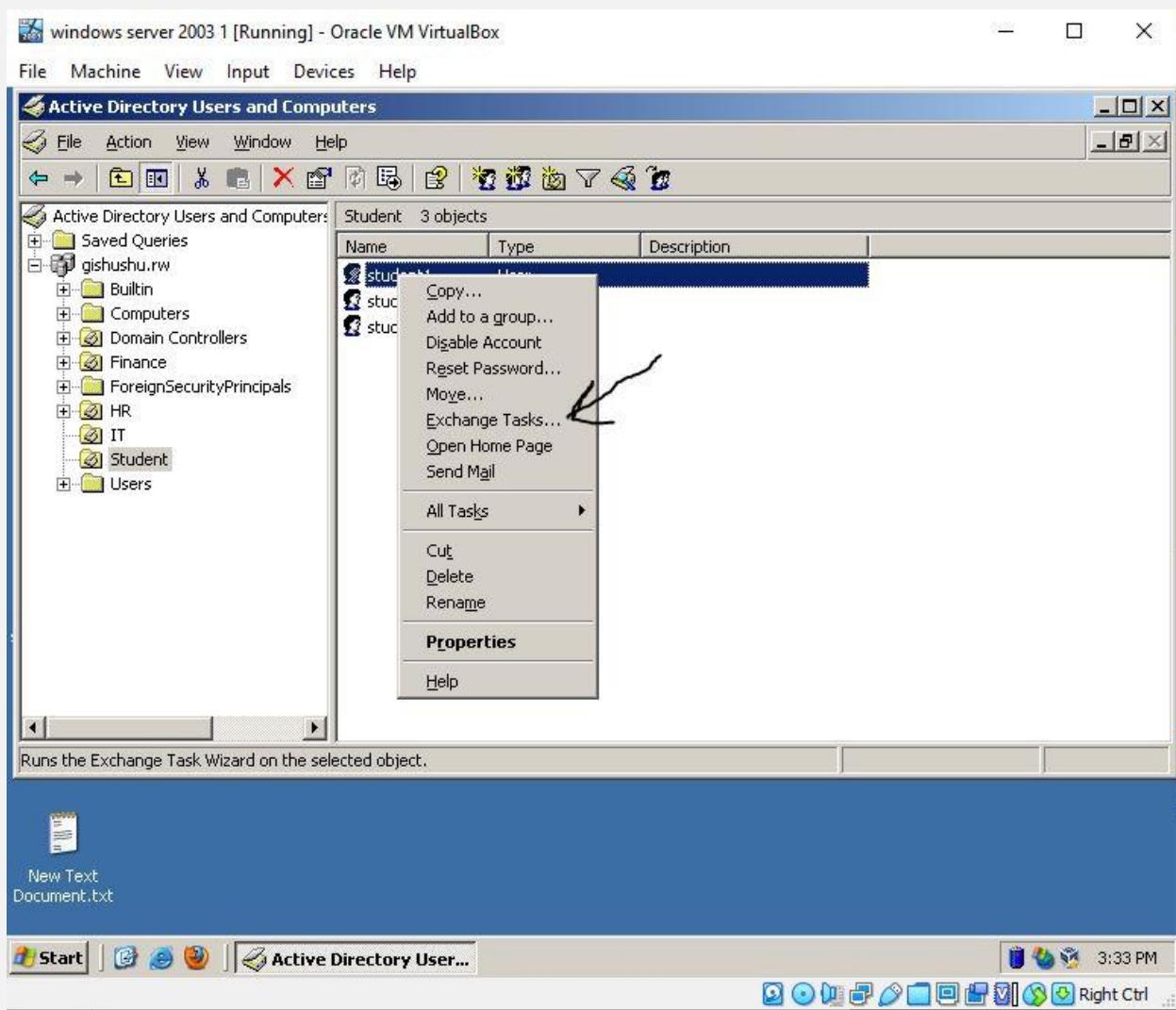


13 Question

Exchange server should be implemented to make sure that users can be able to communicate (send email via outlook) in the intranet without having internet in their premises.

We installed Exchange

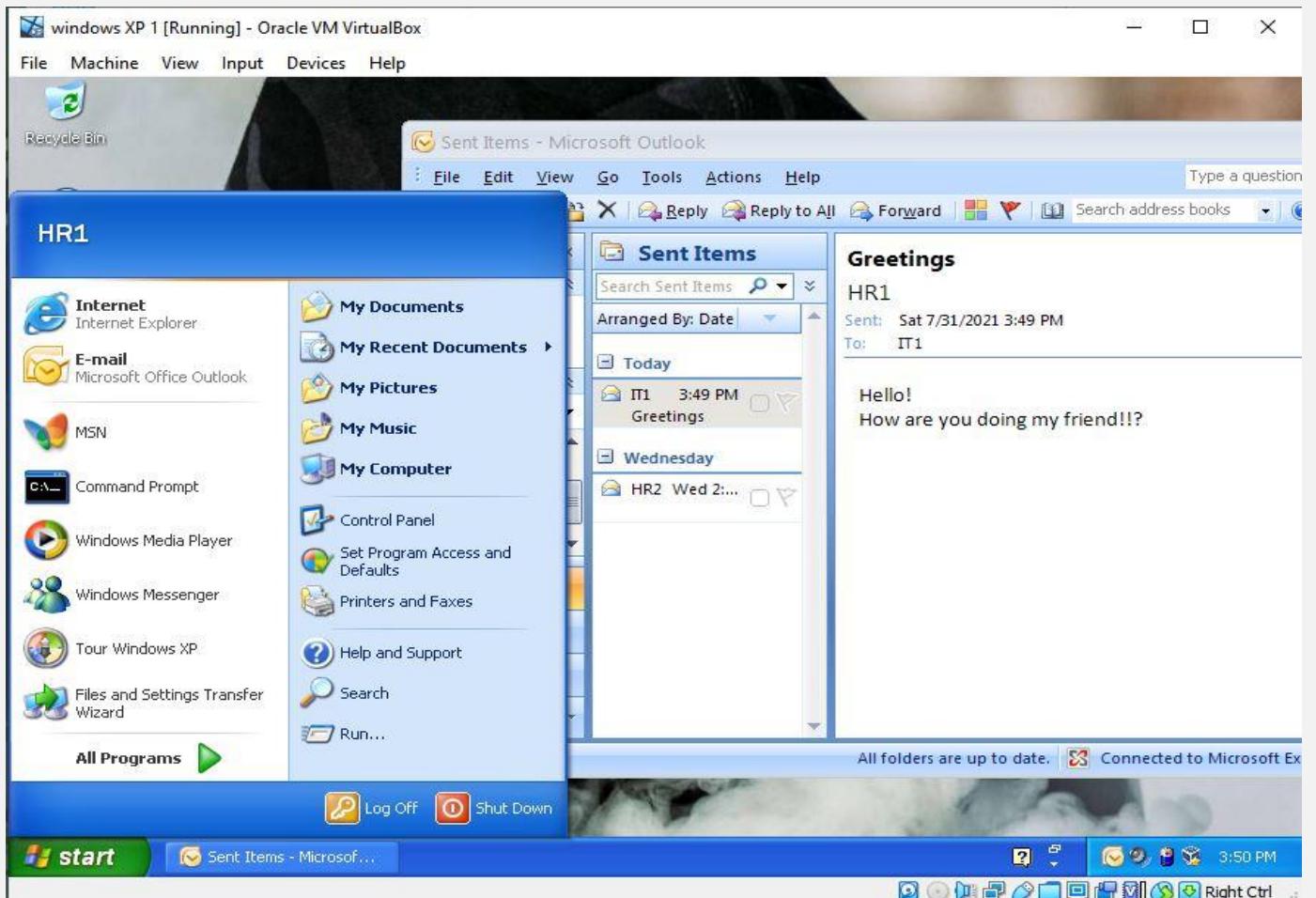
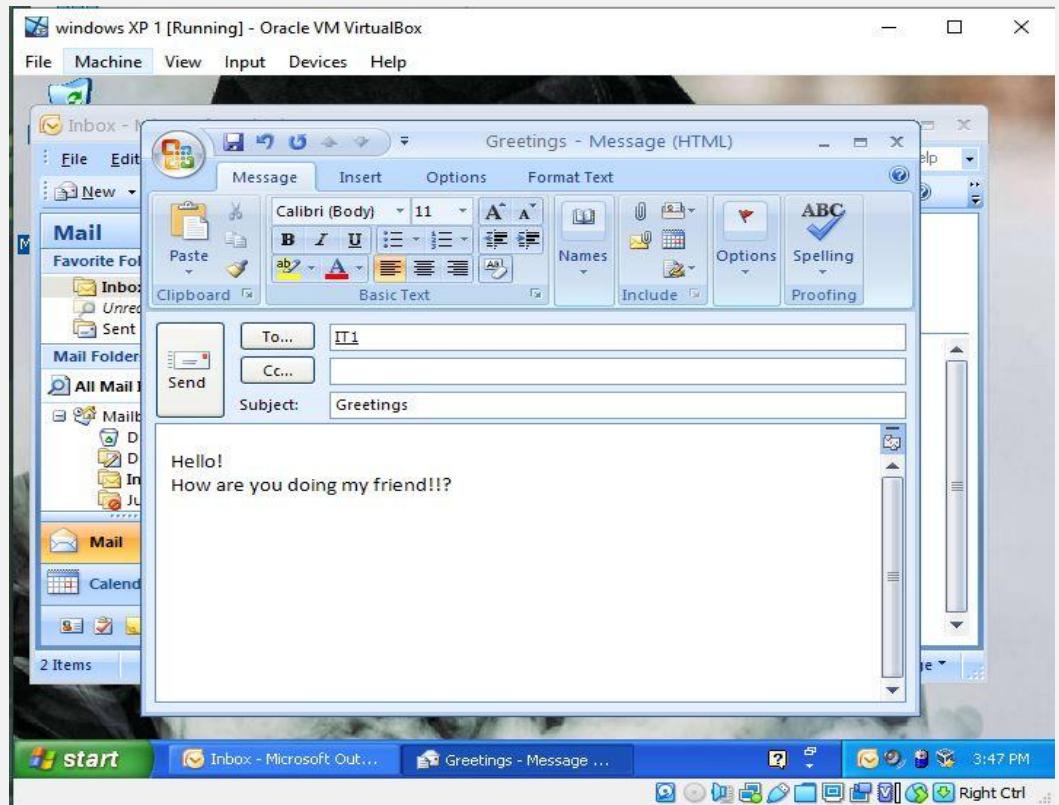
We Deploy it in AD (Active Directory) for the users users to be able to send messages



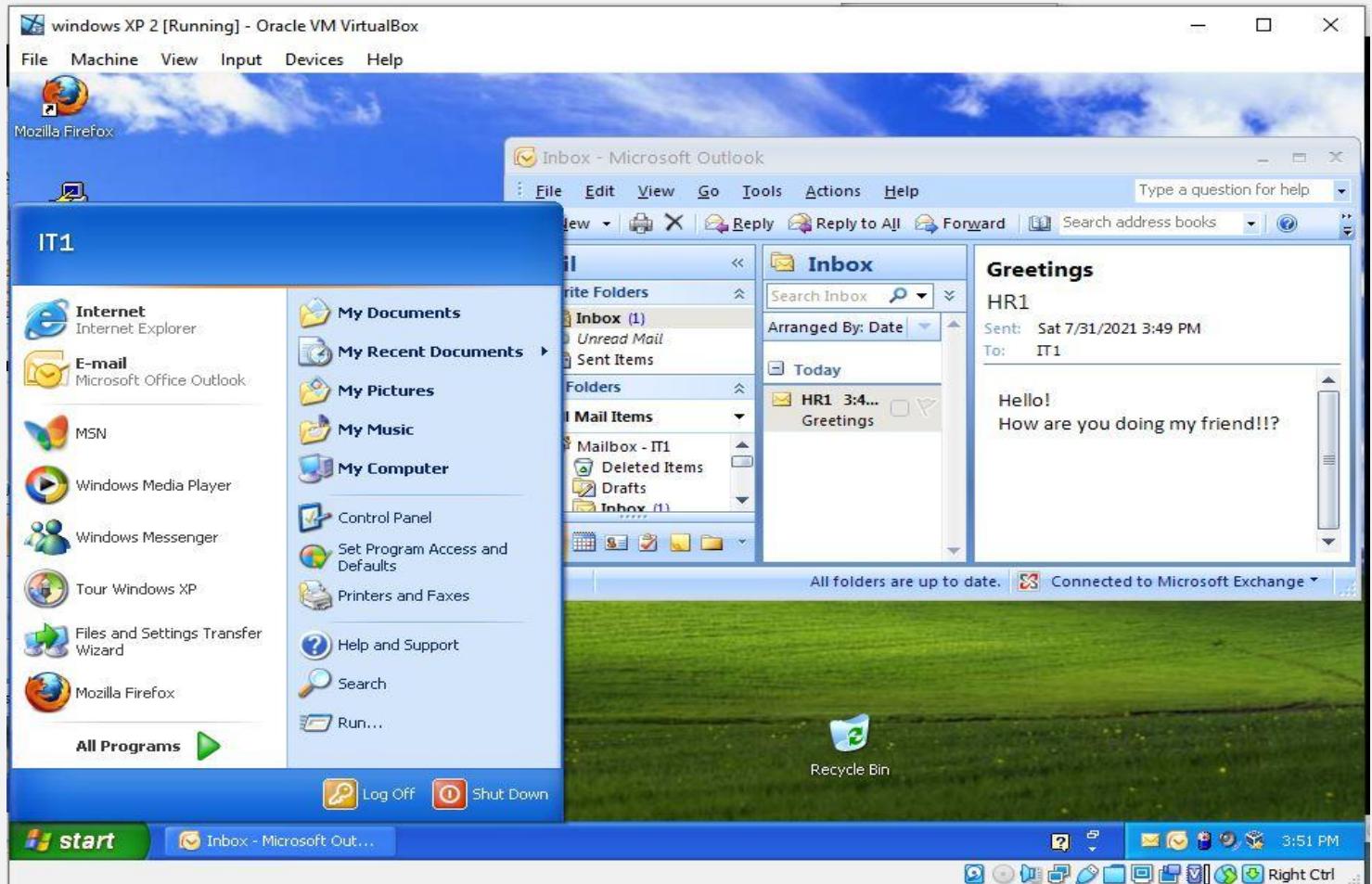
And we have also installed Microsoft Office 2007 to be able to use outlook.

Let's test it by send messages between users via outlook.

As you can see we are
trying to send
A mail to user IT1 from
HR1



Let's check for the user IT1 if the mail has been received



14 Question

The linux server as well should access the resources shared in windows server 2003 vice versa. Via samba

- We have already installed samba package on Linux
- We have created and configured a folder called “**share**”
- And also we have created another folder called “**done**”

Redhat 6 server [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Applications Places System

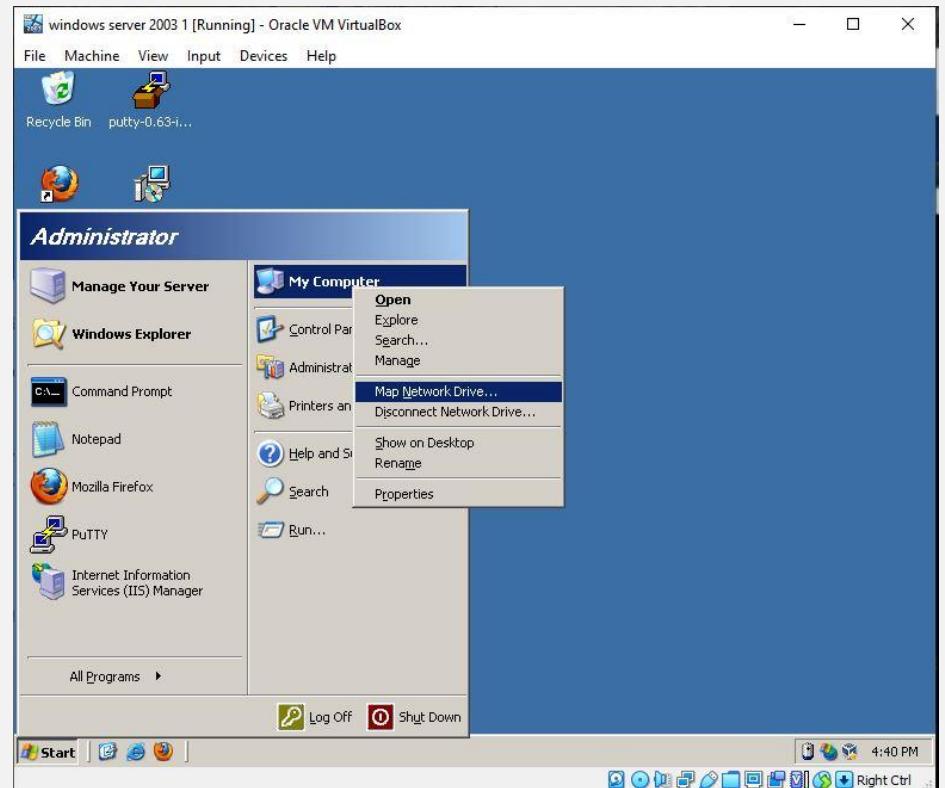
Sat Jul 31, 8:15 AM root

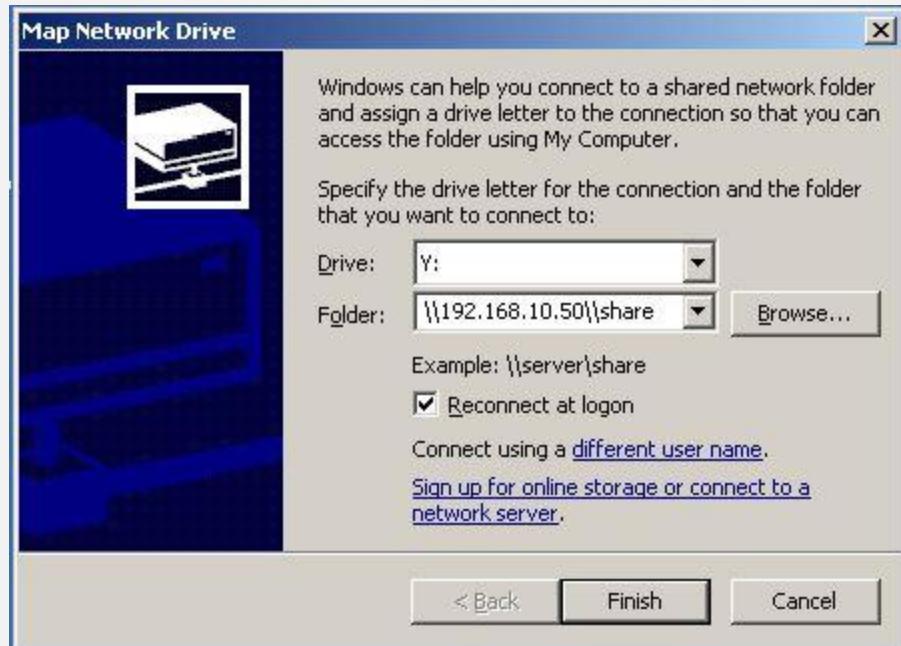
root@server:/share

```
[root@server /]# rpm -q samba
samba-3.5.4-68.el6.i686
[root@server /]# cd /
[root@server /]# ls
root    campus   etc      lib      misc    opt     sbin    srv    usr
bin     cgroup  eva     lost+found  mnt    proc    selinux  sys    var
boot   dev     home   media    net    root    [done]  [done]
[root@server /]# service smb restart
Shutting down SMB services: [ OK ]
Starting SMB services: [ OK ]
[root@server /]# chkconfig smb on;chkconfig nmb on
[root@server /]# cd /share
[root@server share]# mkdir done
[root@server share]# ls
done  file{1...10}
[root@server share]#
```

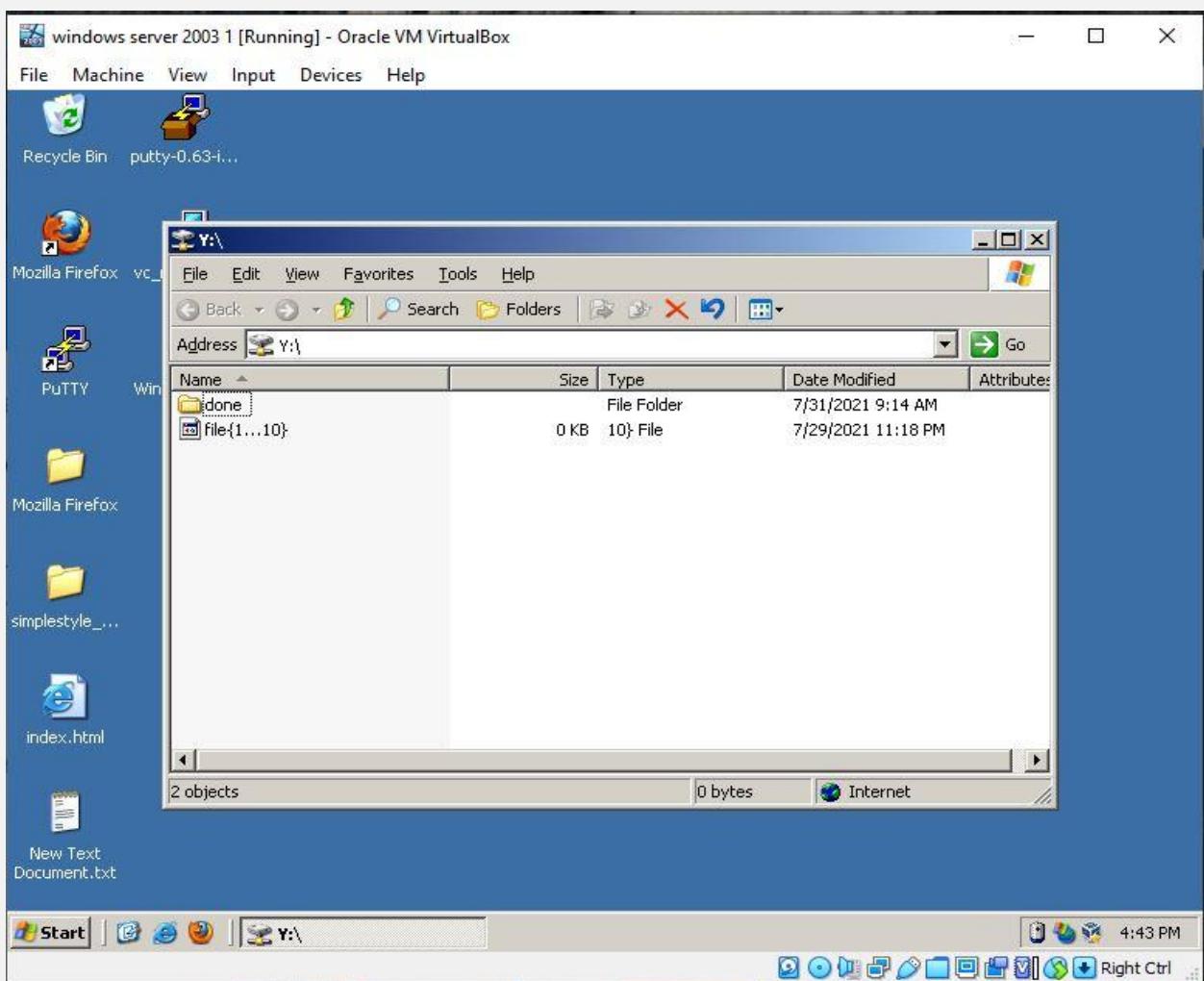
On Windows we have to follow these steps to access the files shared.

We create a new **network drive** in order to share files vice versa

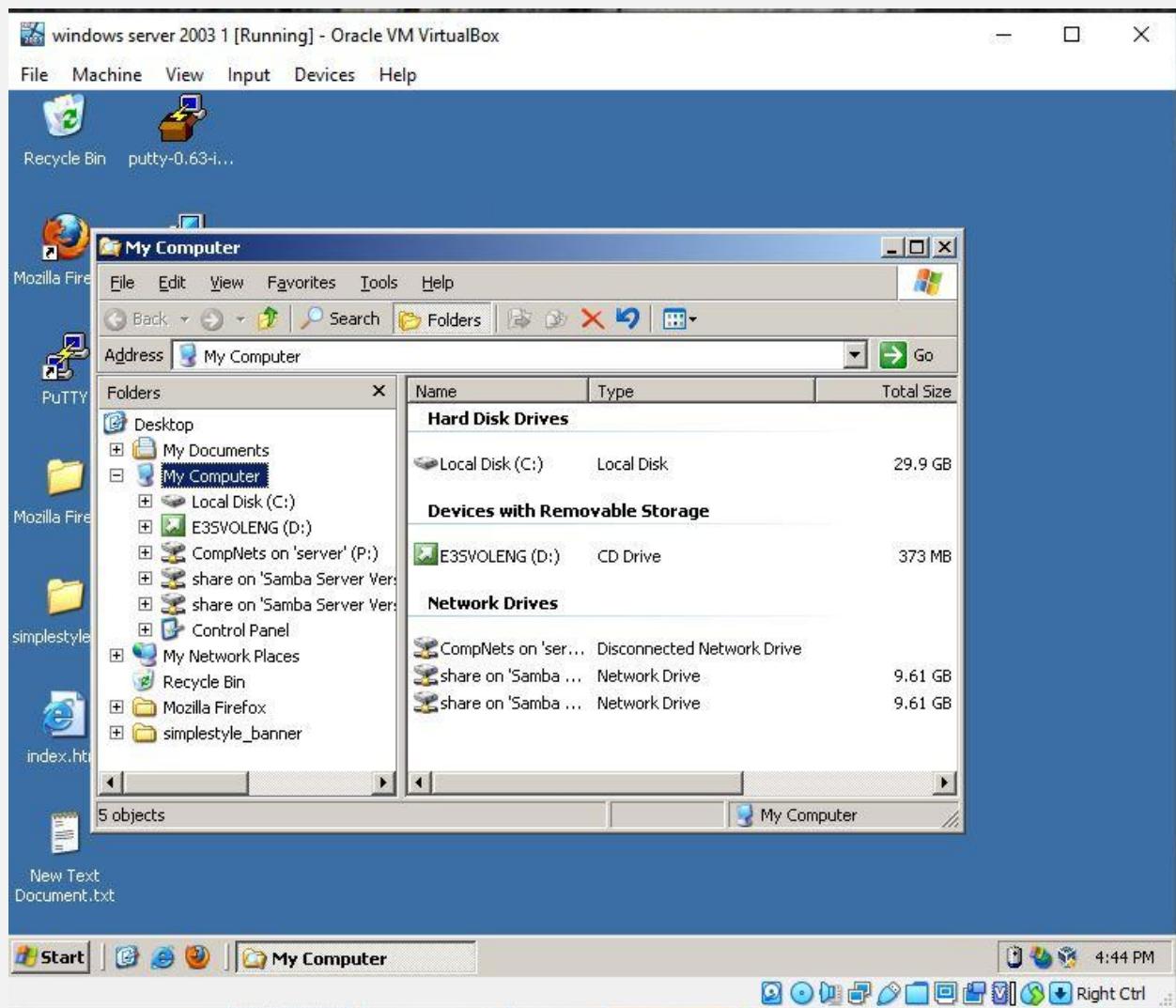




As you see we were able to access the folder share (**read/write**)

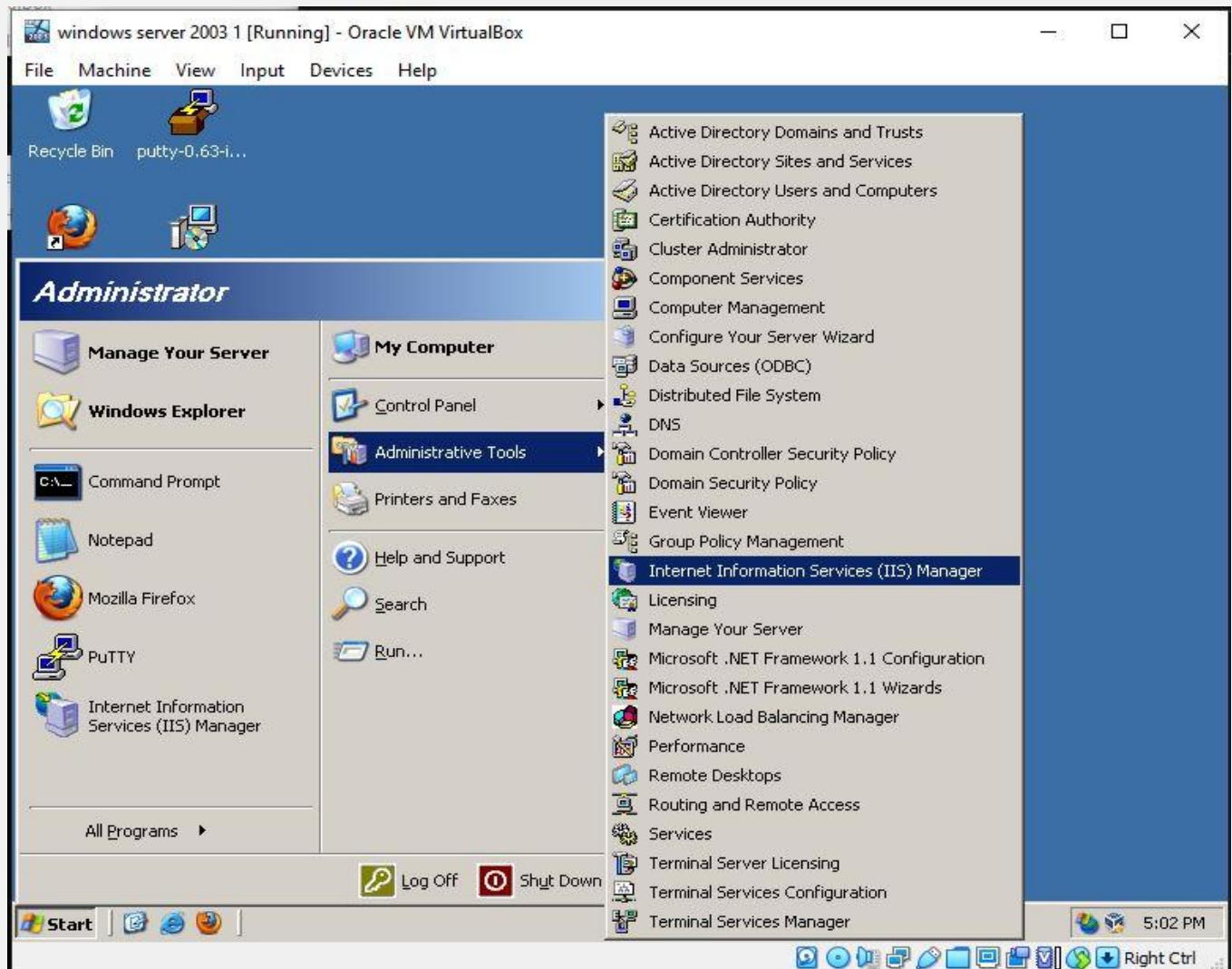


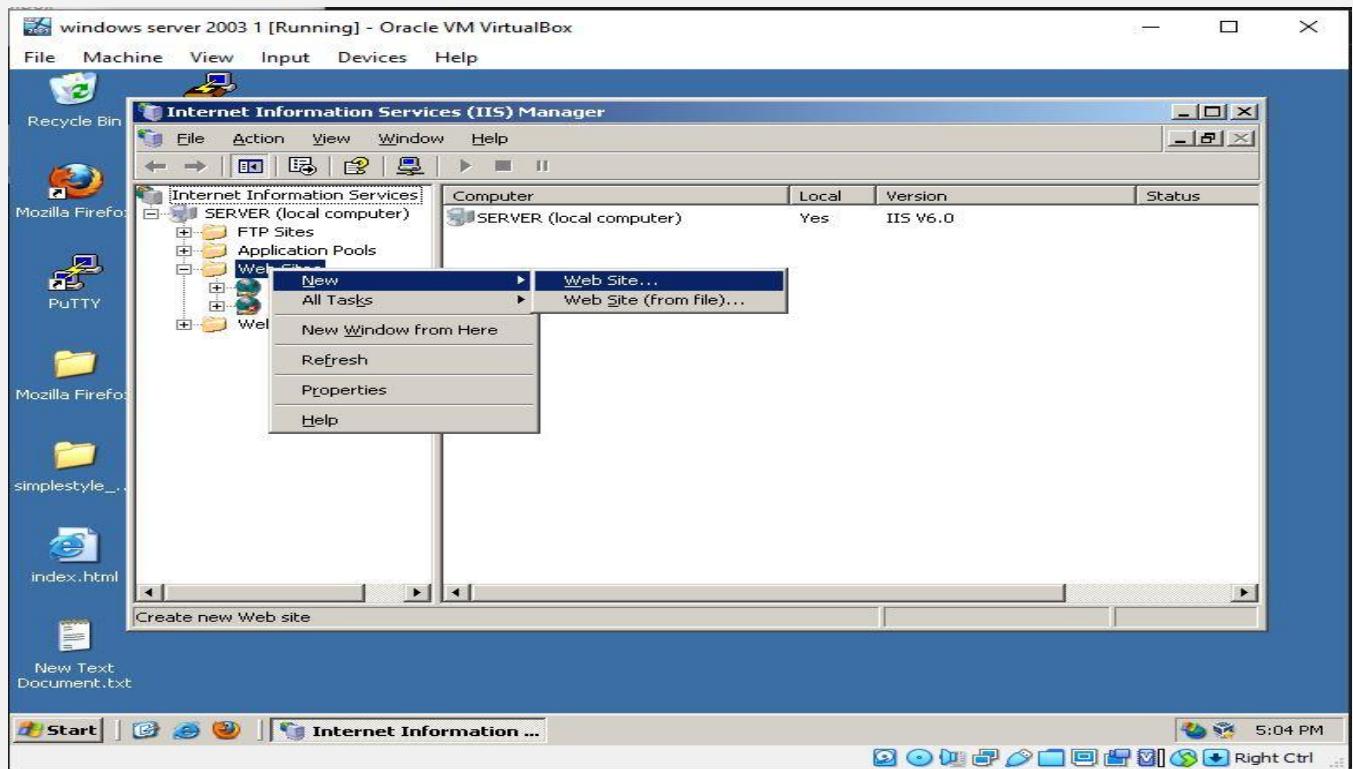
we have also created a new drive



15 Question

Deploy a Web server on windows server 2003 and through **IIS** create a simple site with 3 pages linked together and they can be accessible through all clients- Windows and linux





We created a website of 3 pages :

- Home
- About
- Contact us

AUCA_campus

Adventist University of Central Africa.

- [Home](#)
- [About](#)
- [Contact Us](#)

Latest News

304 awarded degrees in a maiden virtual graduation

July 22, 2021

The Adventist University of Central Africa has, on March 7th, 2021, held its 26th graduation ceremony, in which 304 students were awarded bachelor and masters degrees.

Welcome to the Adventist University of Central Africa

The Adventist University of Central Africa (AUCA) is committed to providing Christ-centered quality education founded on a holistic approach that prepares people for the service of this life and the life to come.

AUCA Background

windows XP 2 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

simplestyle_banner - examples - Mozilla Firefox

File Edit View History Bookmarks Tools Help

simplestyle_banner - examples +

192.168.10.10/auc/examples.html

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Will you help improve Mozilla Firefox by sending information about performance, hardware, usage, and customizations to Mozilla? Learn More Yes, I want to help No

AUCAcampus

Adventist University of Central Africa.

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Undergraduate Requirements

- Application Form
- Secondary school transcripts/reports for senior 4, 5 and senior 6 ;
- A notified copy of the Advanced General Certificate of Secondary Education with a minimum of 2 principal passes;
- Two Passport size photos in color;
- A photocopy of the National ID Card or valid Passport; 6) A proof/copy of health insurance certificate

start simplestyle_banner - ... 5:16 PM Right Ctrl

windows XP 1 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

simplestyle_banner - Mozilla Firefox

File Edit View History Bookmarks Tools Help

simplestyle_banner +

192.168.10.10/auc/index.html

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The Adventist University of Central Africa (AUCA) was founded in 1978. The official opening took place on 15 October 1984 and the university had its definitive operating license via the law n° 0056/05 of 3rd February 1988, granting AUCA the legal personality as a nonprofit making association. At its inception, the University was located at Mudende, former Mutura Commune, Gisenyi Prefecture. Until 1994, just before the genocide against the Tutsi, the AUCA had 7 faculties:

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start simplestyle_banner - ... 5:19 PM Right Ctrl

redhat client [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Applications Places System Sat Jul 31, 4:15 PM root

Firefox Web Browser - Mozilla Firefox

File Edit View History Book Browse the Web

http://192.168.10.10/auc/index.html Google

Most Visited Red Hat Customer Portal Documentation Red Hat Network

simplestyle_banner Red Hat |

AUCA_campus

Adventist University of Central Africa.

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Latest News

304 awarded degrees in a maiden virtual graduation

July 22, 2021

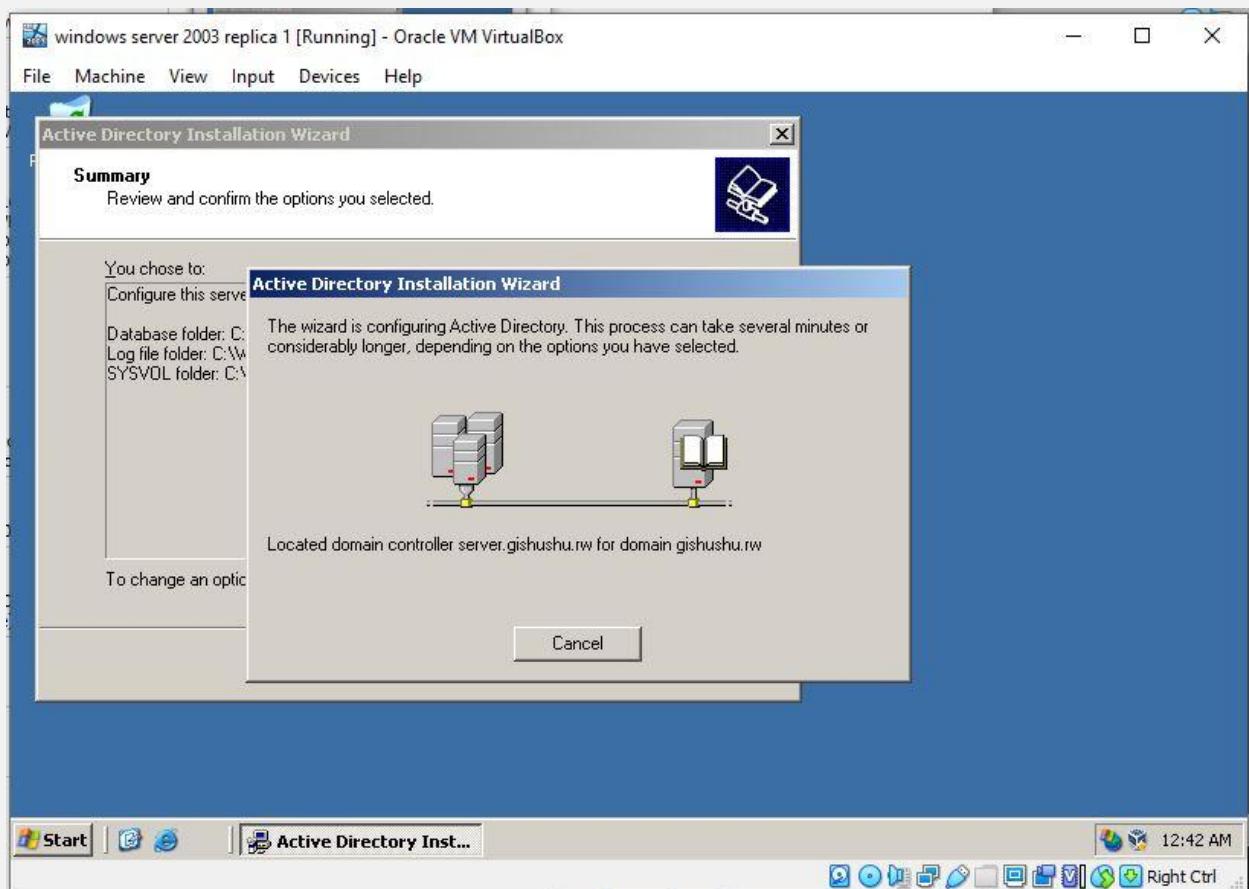
The Adventist University of Central Africa has, on March 7th, 2021, held its 26th graduation ceremony, in which 304 students were awarded bachelor and masters degrees.

Done

simplestyle_banner - ... Right Ctrl

DC replica

To create a DC replica we install Windows server on new machine and then we run **dcpromo** to install Active Directory and in the installation wizard we choose the existing Domain our Domain **gishushu.rw** then we install.



#####END#####