



Assignment Title: **Observational Tasks**

Module Title: **ACCC5003 Network Operating Systems and Security**

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Worksheet 1: Building the NOS infrastructure using Active Directory

Prerequisites:

- Create and configure two virtual machines using VirtualBox:
 - Server1 - Windows Server 2008 R2
 - Client1 - Windows 7

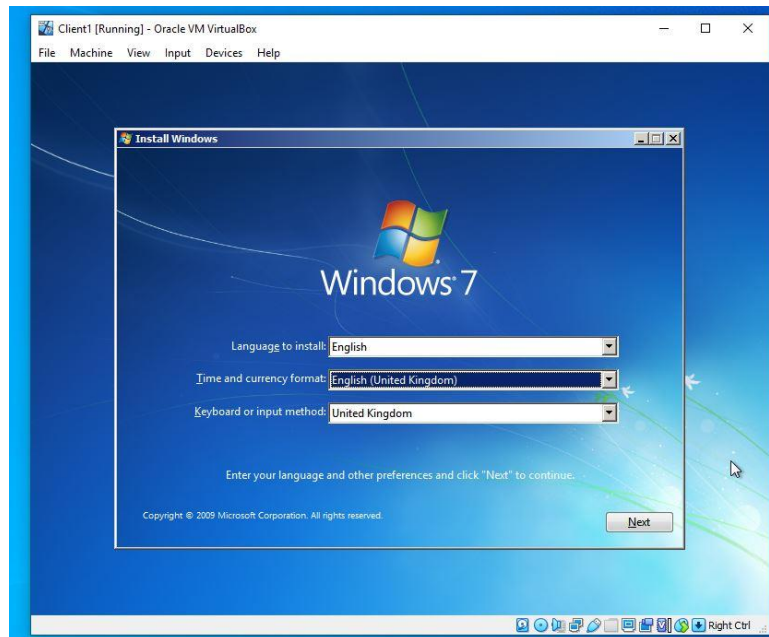


Figure 1: Install client1 - Windows 7

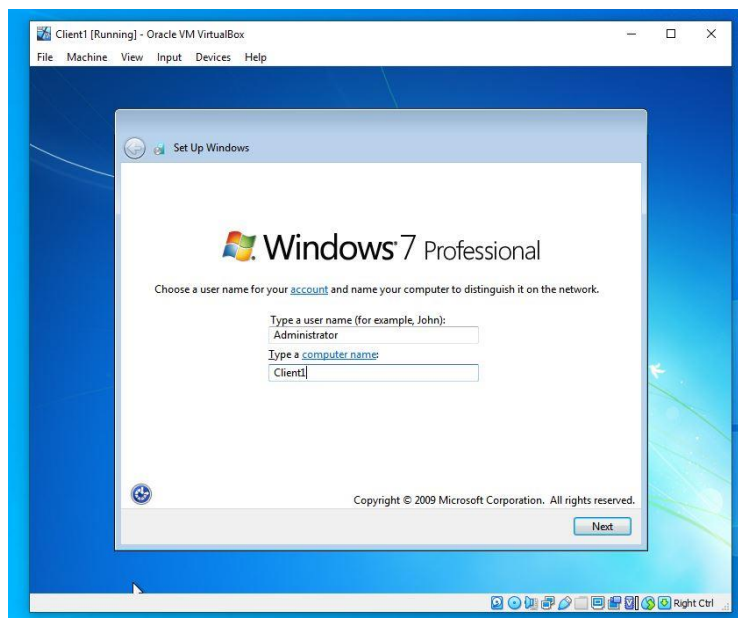


Figure 2: Set client1 – username and computer name

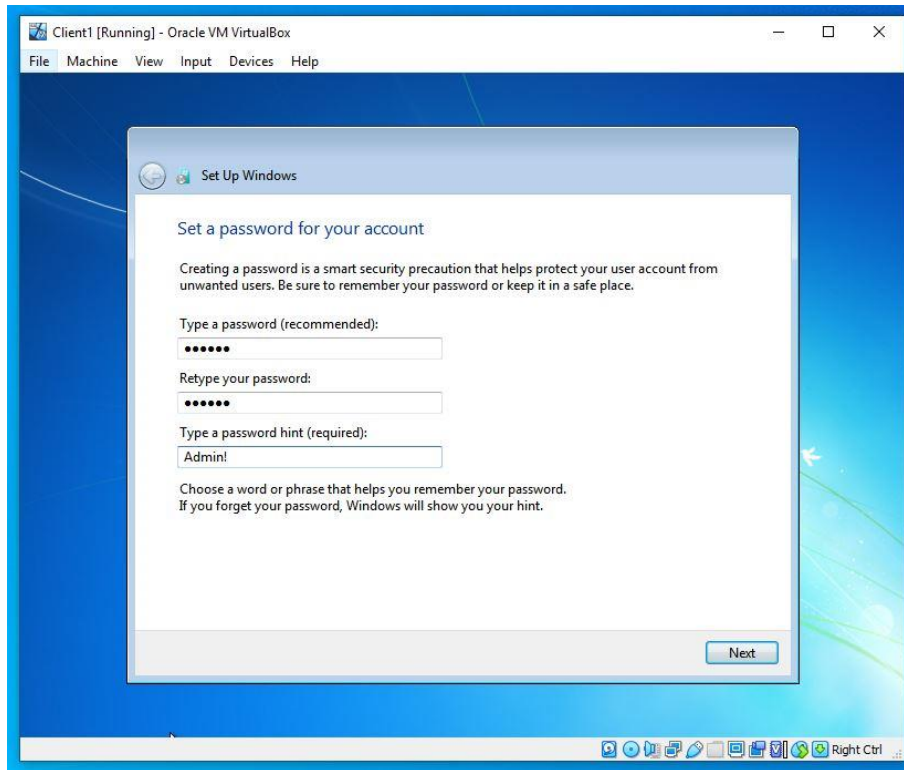


Figure 3: Set client1 password

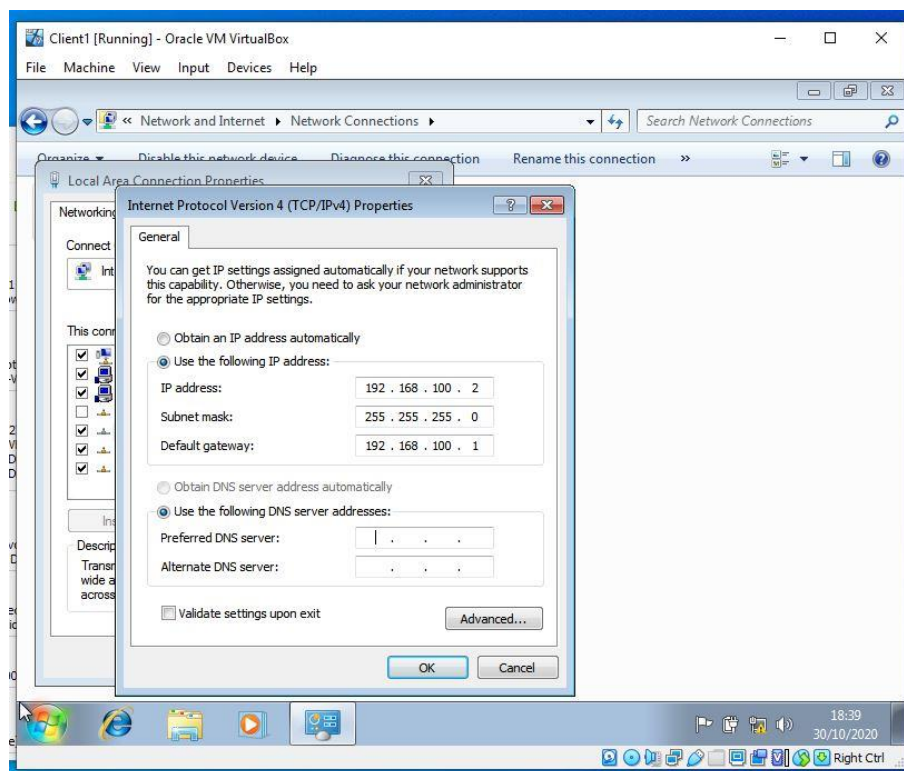


Figure 4: Set client1 IP address

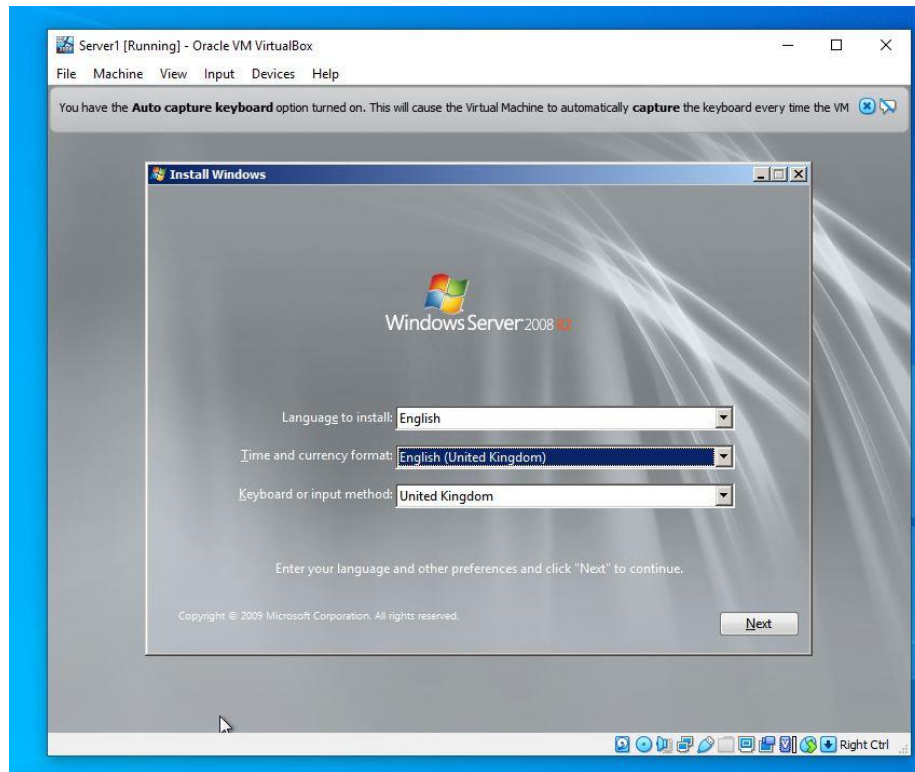


Figure 5: Install server1 – Windows Server 2008 R2

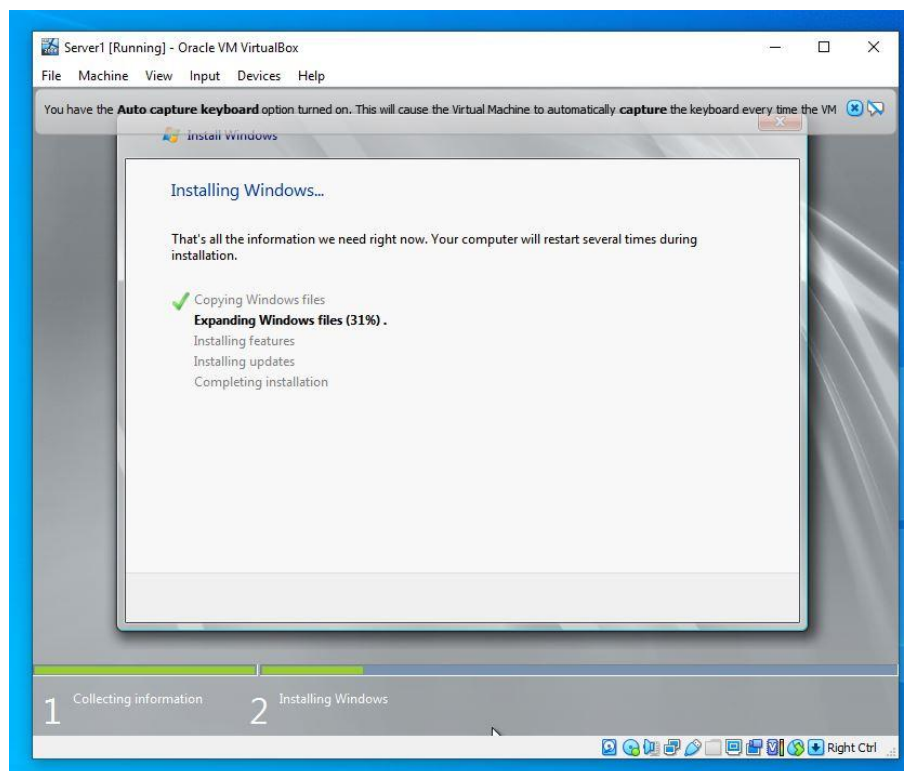


Figure 6: server1 installation progress

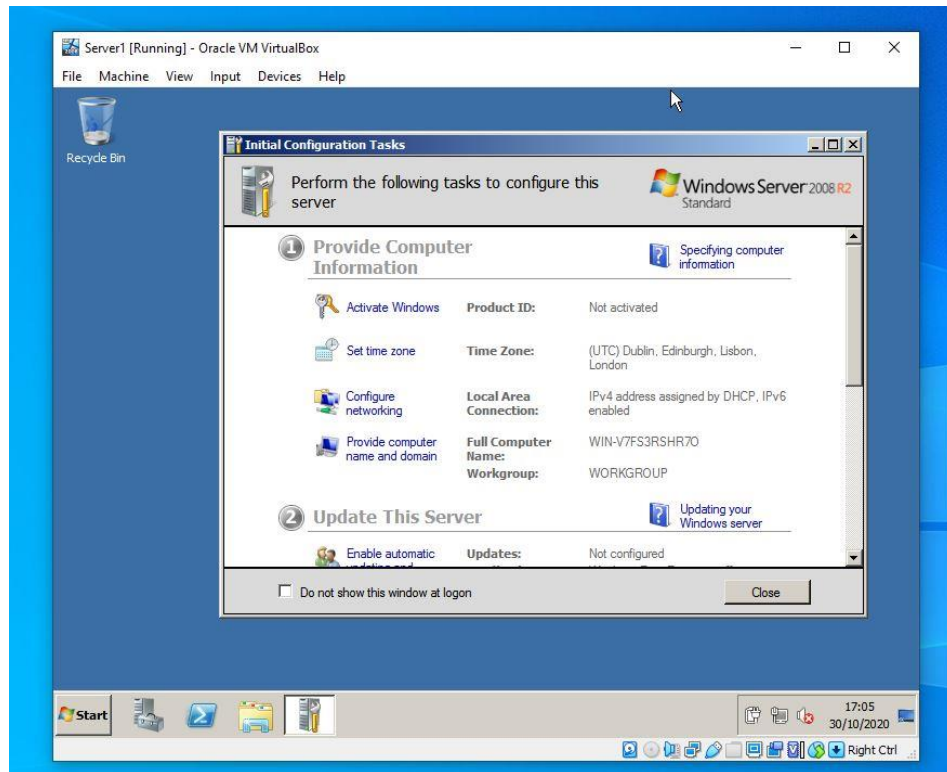


Figure 7: Installed server1

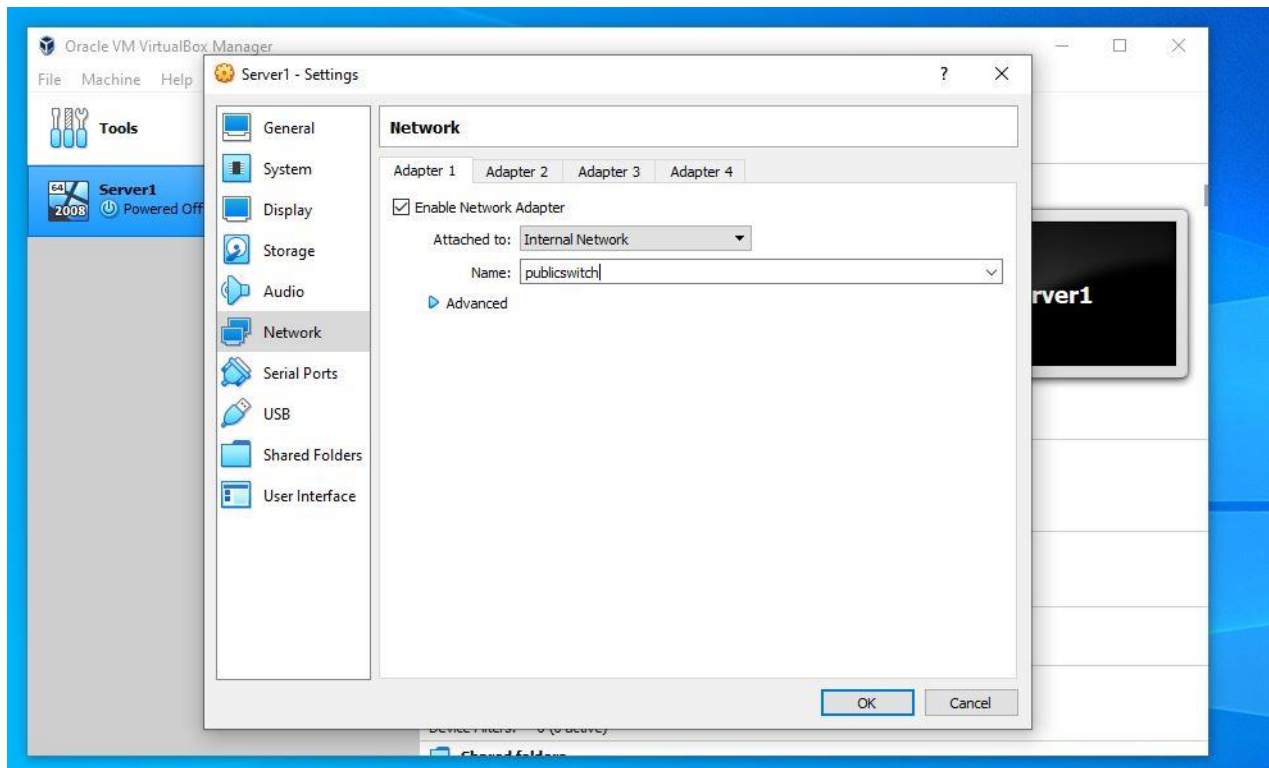


Figure 8: Set network adapter1 publicswitch on server1

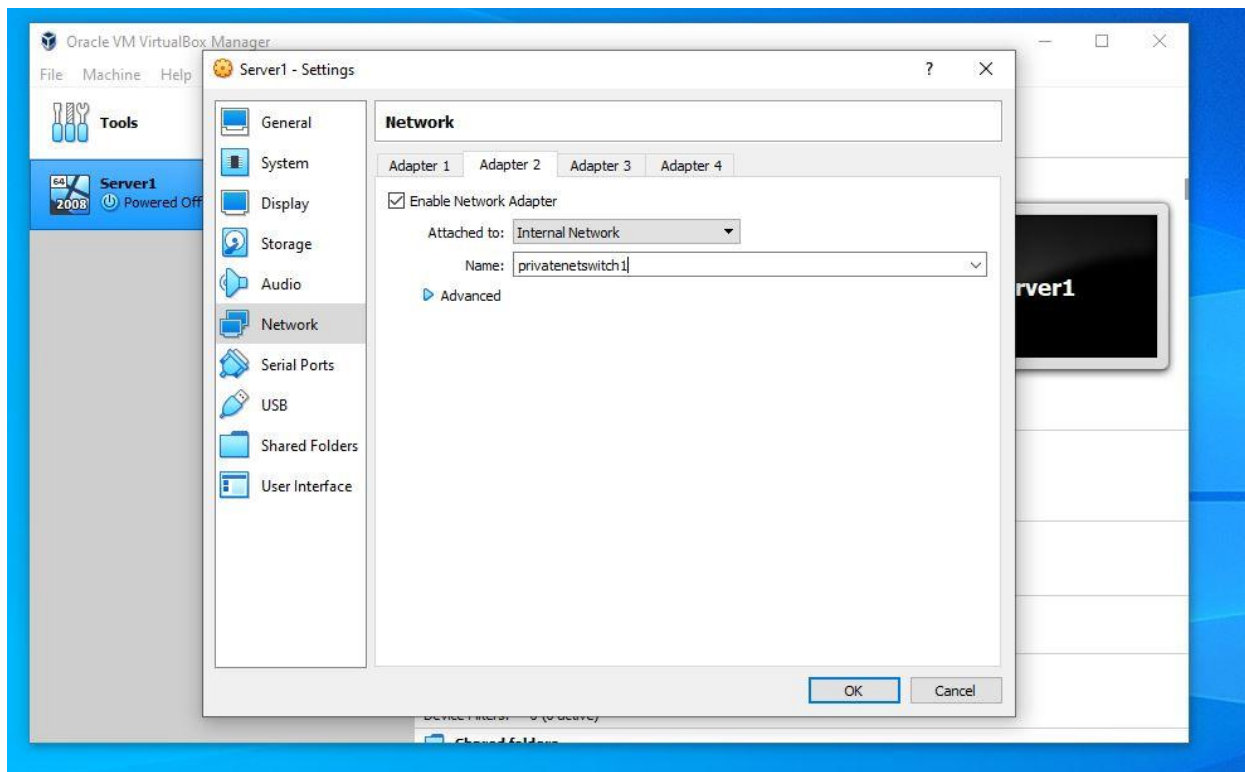


Figure 9: Set network adapter2 privatenetswitch1 on server1

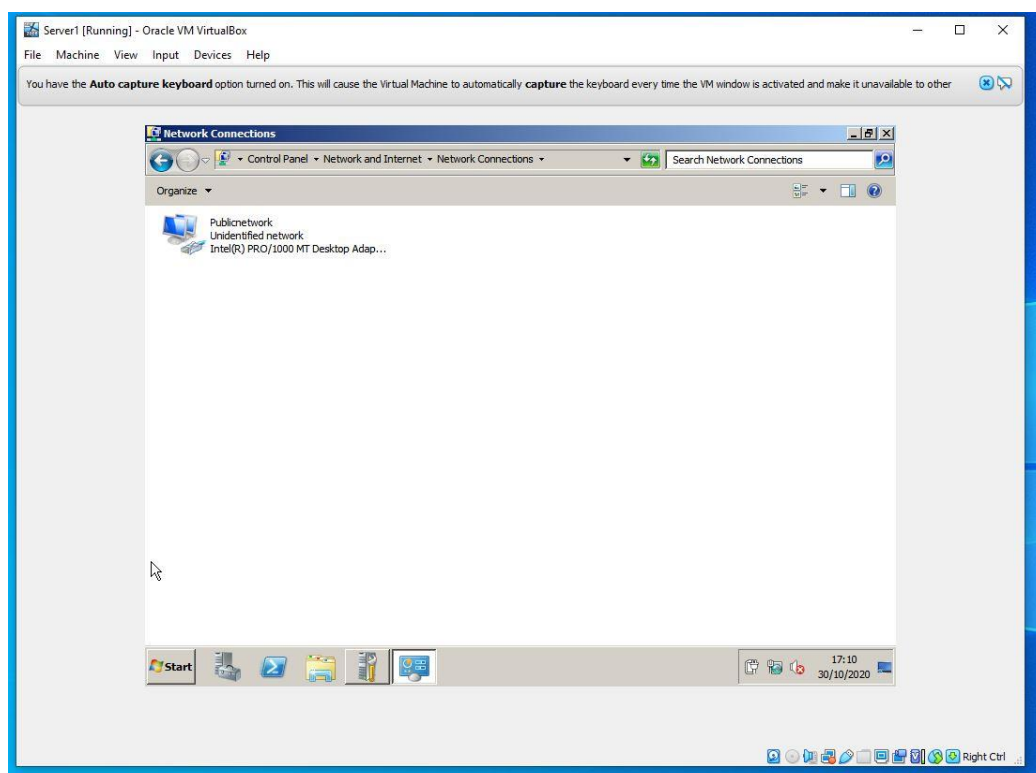


Figure 10: Rename network connection to Publicnetwork on server1

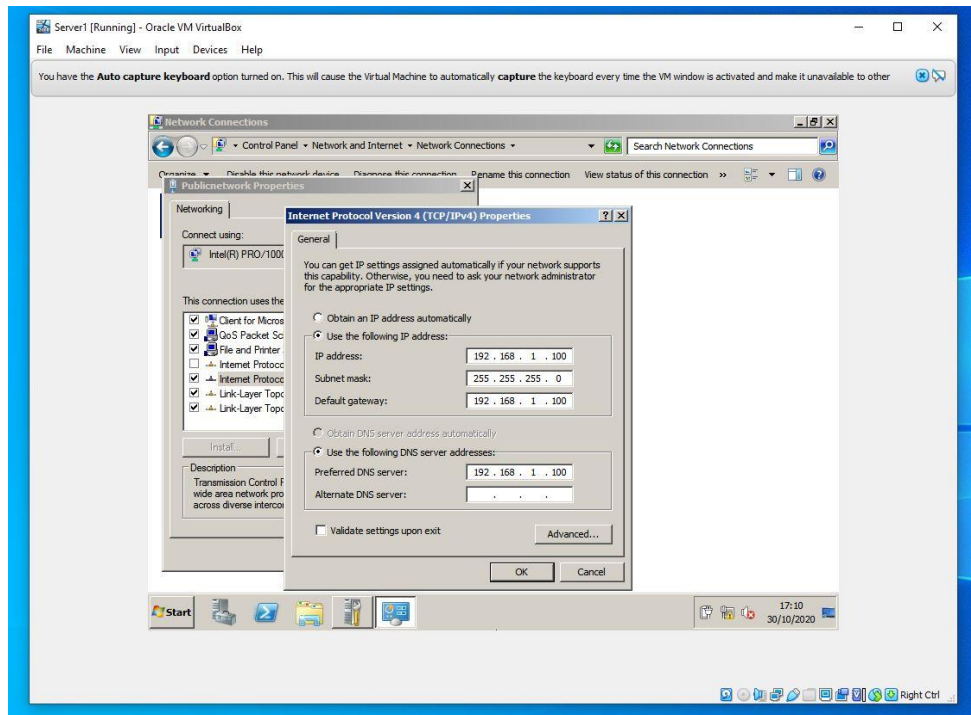


Figure 11: Set IP address to Publicnetwork network connection

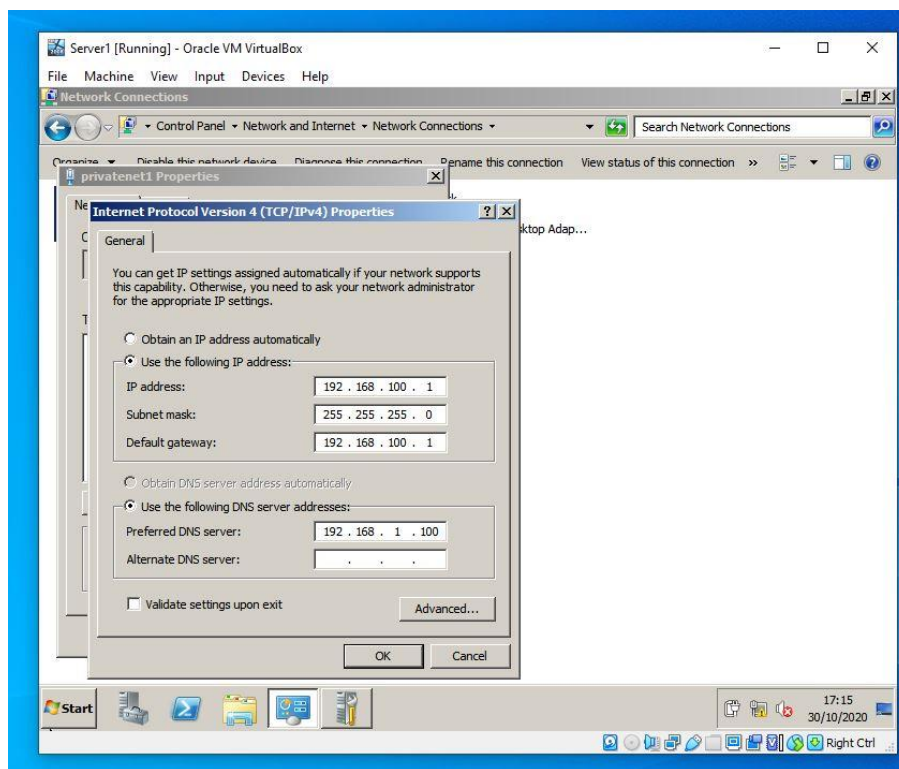


Figure 12: Set IP address on privatenet1 network connection

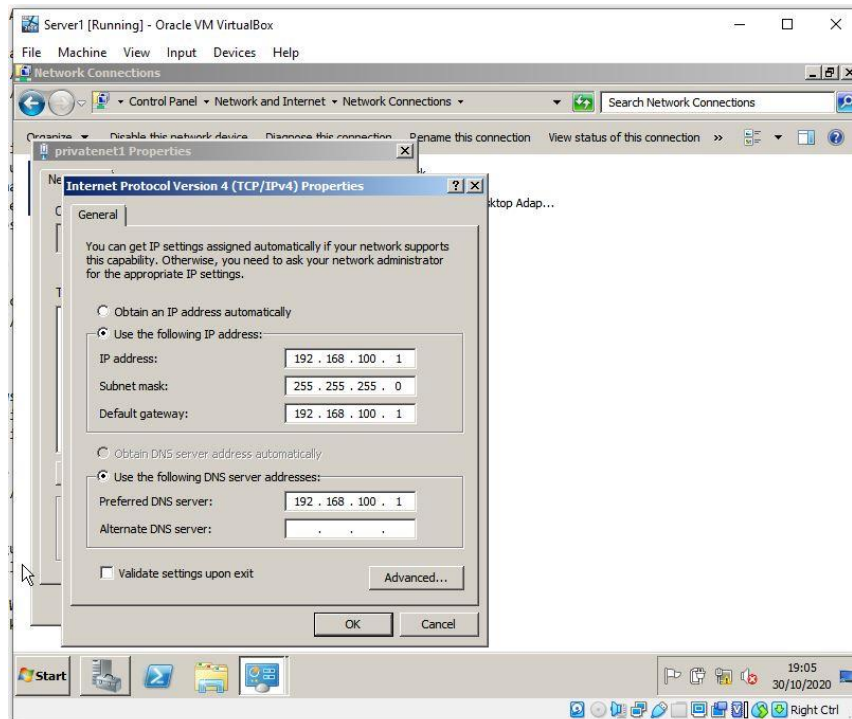


Figure 13: Set DNS on privatenet1 network connection on server1

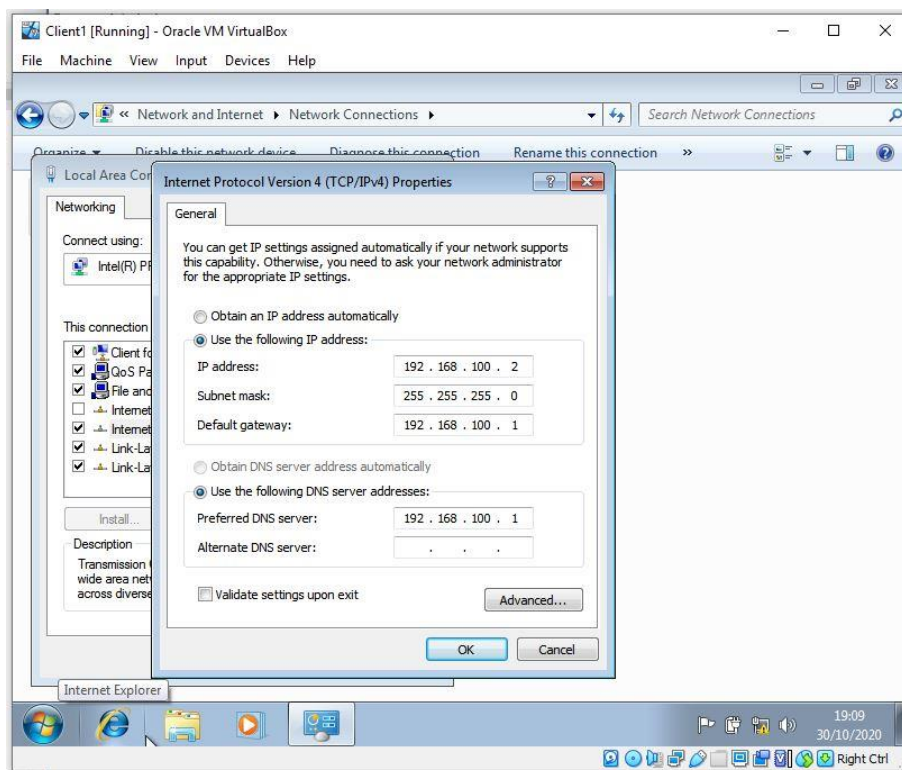


Figure 14: Set DNS on Local Area Connection on client1

- Task 1: Configure Virtual Networking and use the dcpromo tool to upgrade a Member server to a Domain Controller

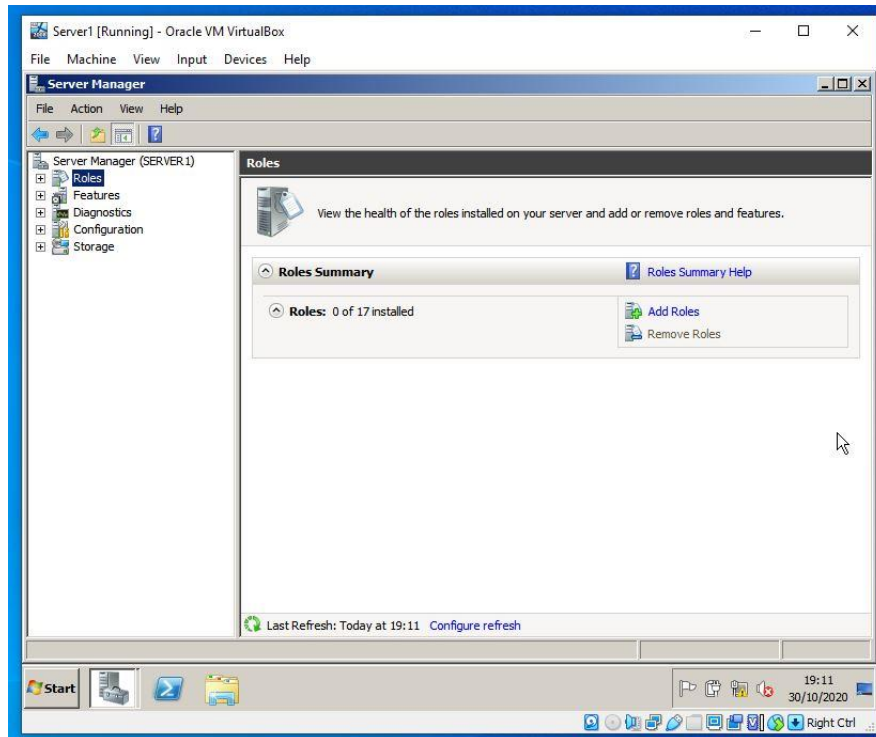


Figure 15: Install Active Directory Domain Services – roles step

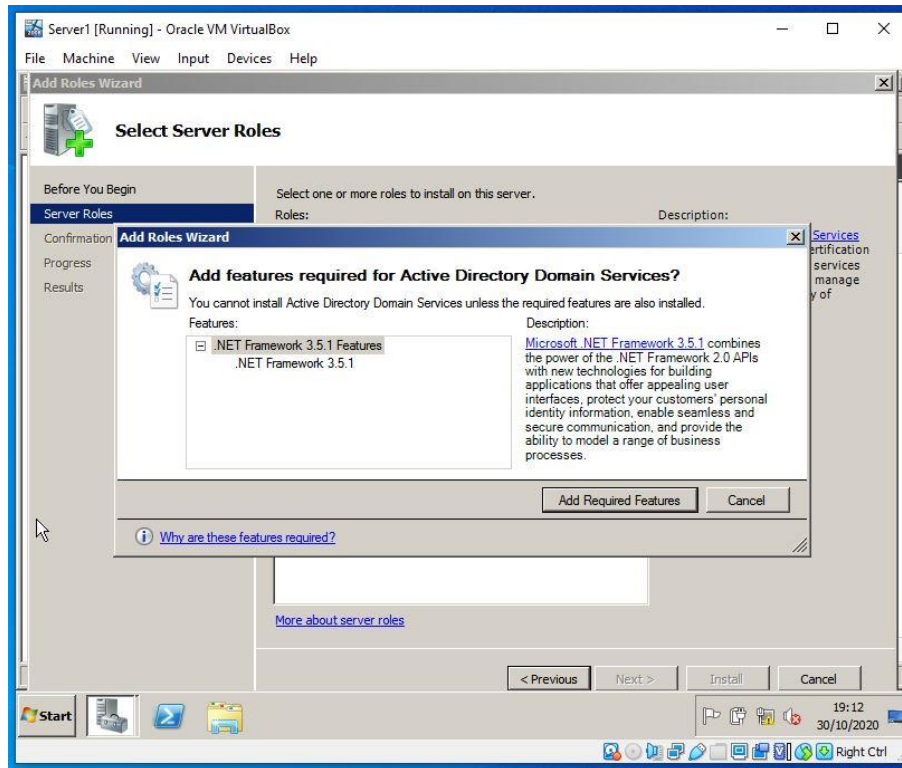


Figure 16: Install Active Directory Domain Services - .net framework step

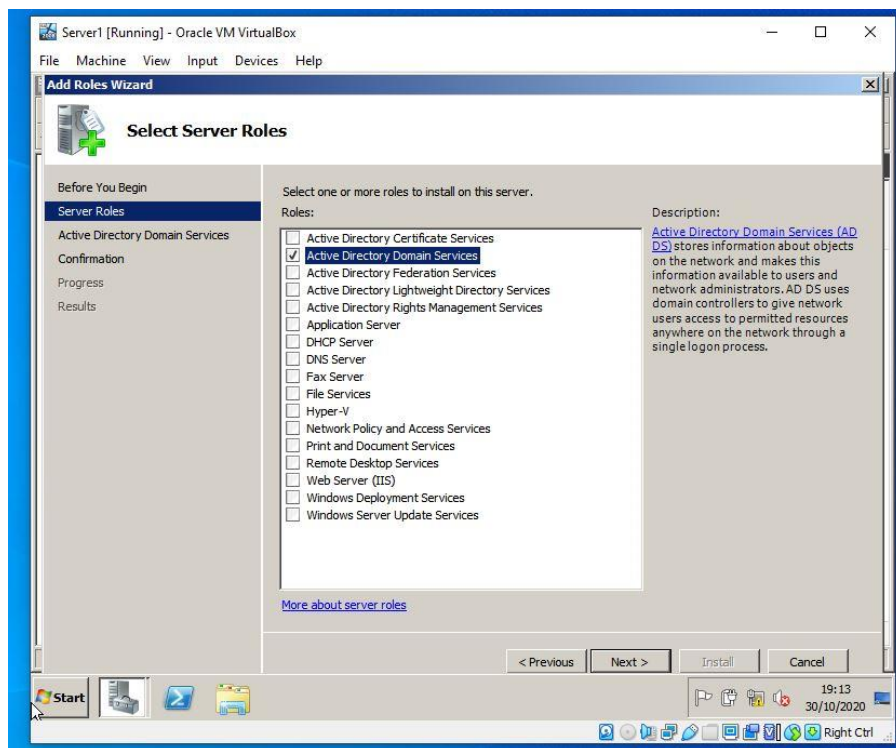


Figure 17: Install Active Directory Domain Services – server roles step

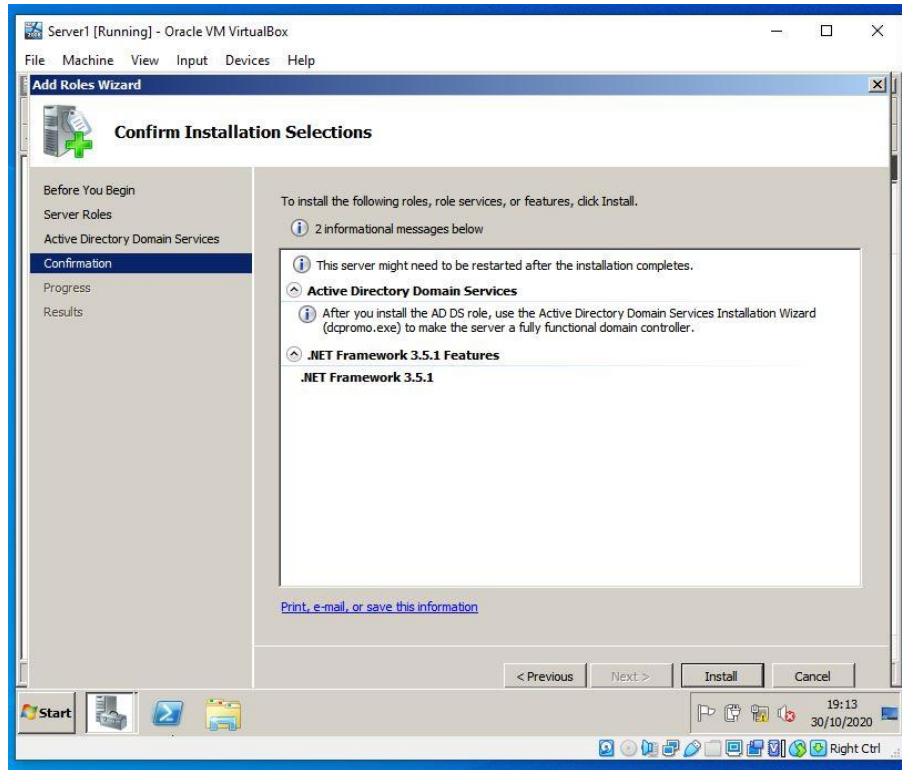


Figure 18: Install Active Directory Domain Services – confirmation step

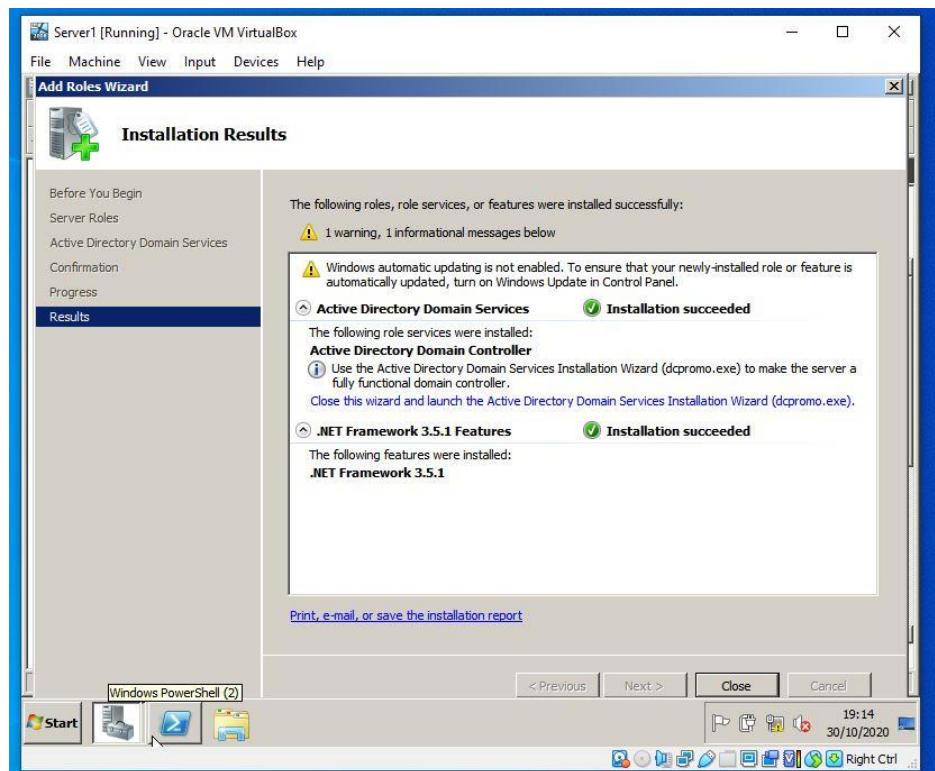


Figure 19: Install Active Directory Domain Services – results step

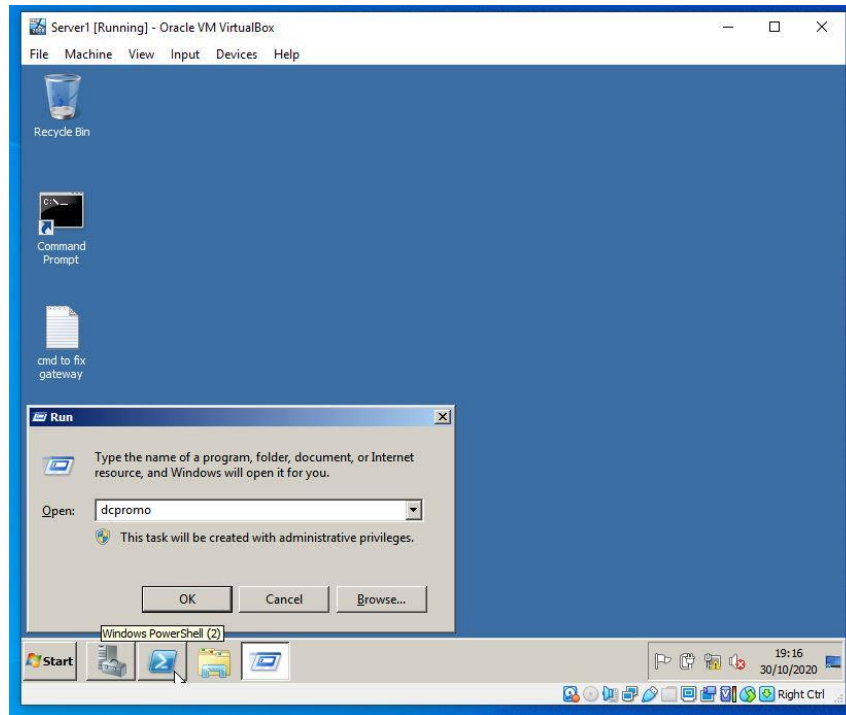


Figure 20: Run dcpromo (domain controller promotion) command

➤ Task 2: Installing Client Computers and Basic Object creation in the Active Directory

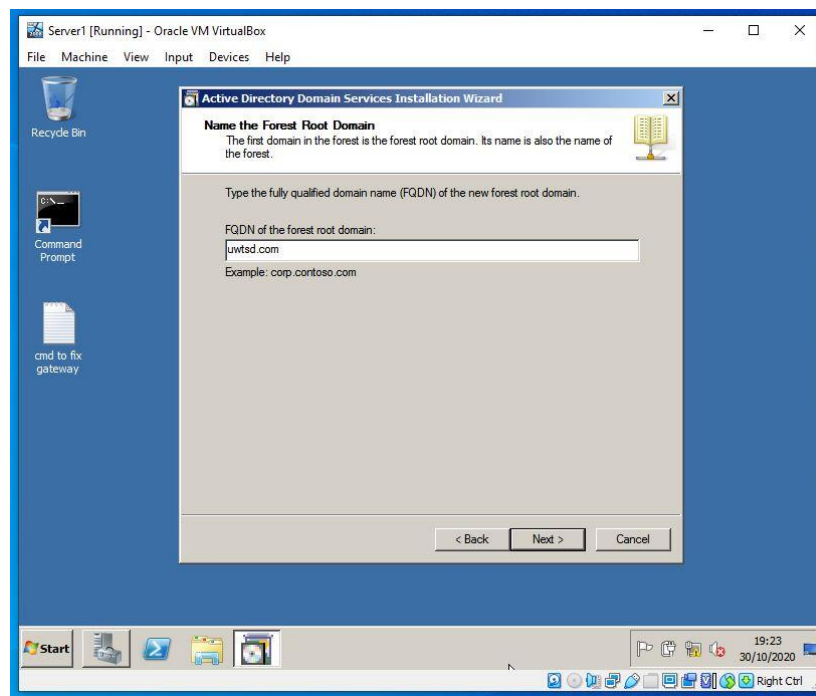


Figure 21: Set Active Directory Domain Services – domain name

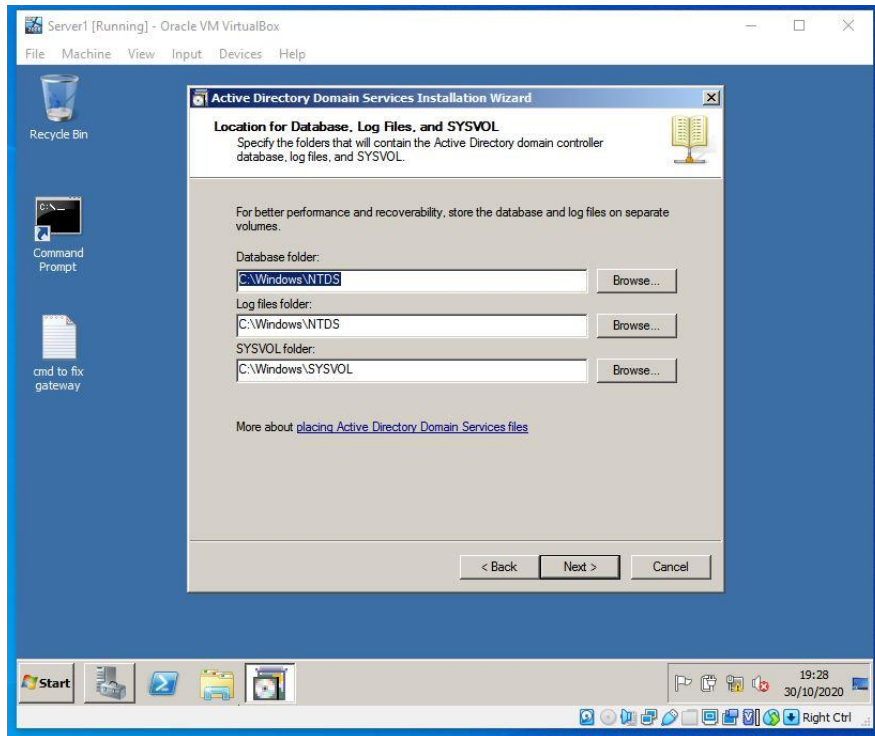


Figure 22: Set Active Directory Domain Services – database, logs and SYSVOL folders

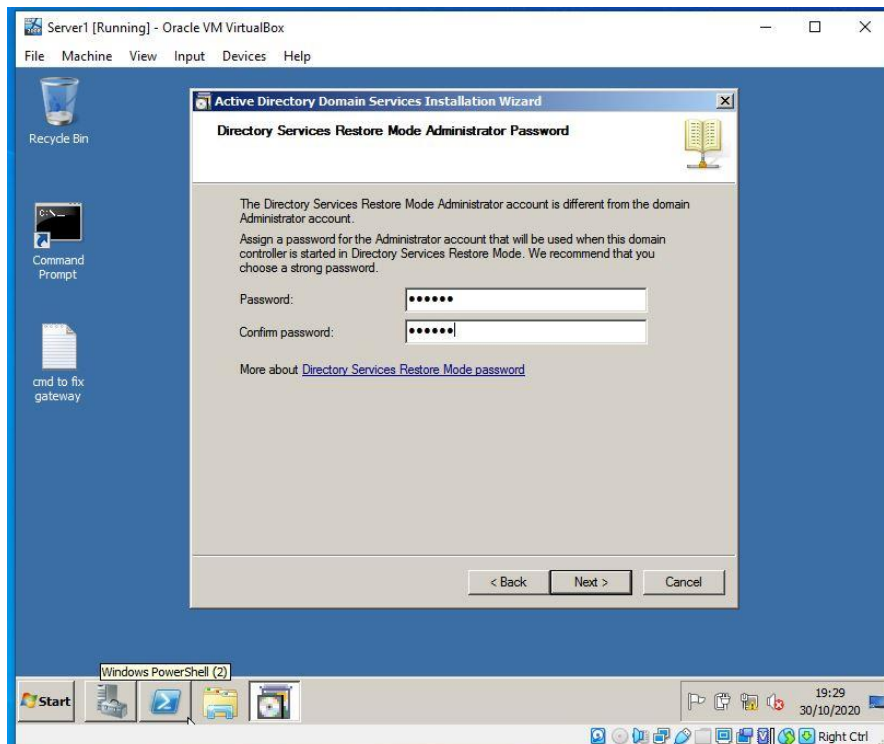


Figure 23: Set Active Directory Domain Services – administrator password

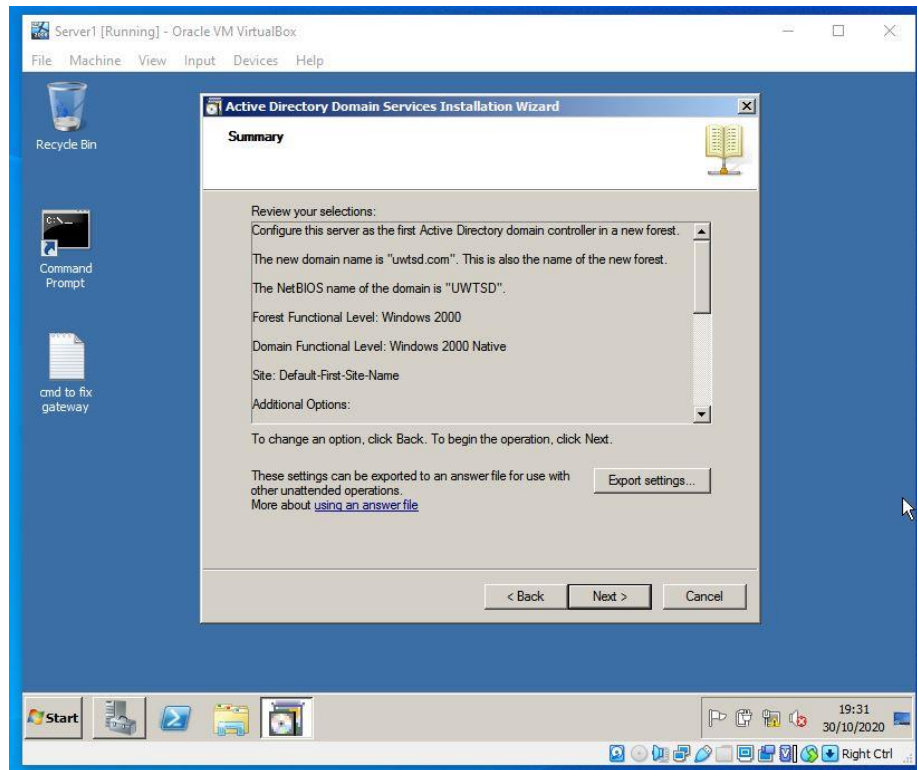


Figure 24: Active Directory Domain Services – summary review

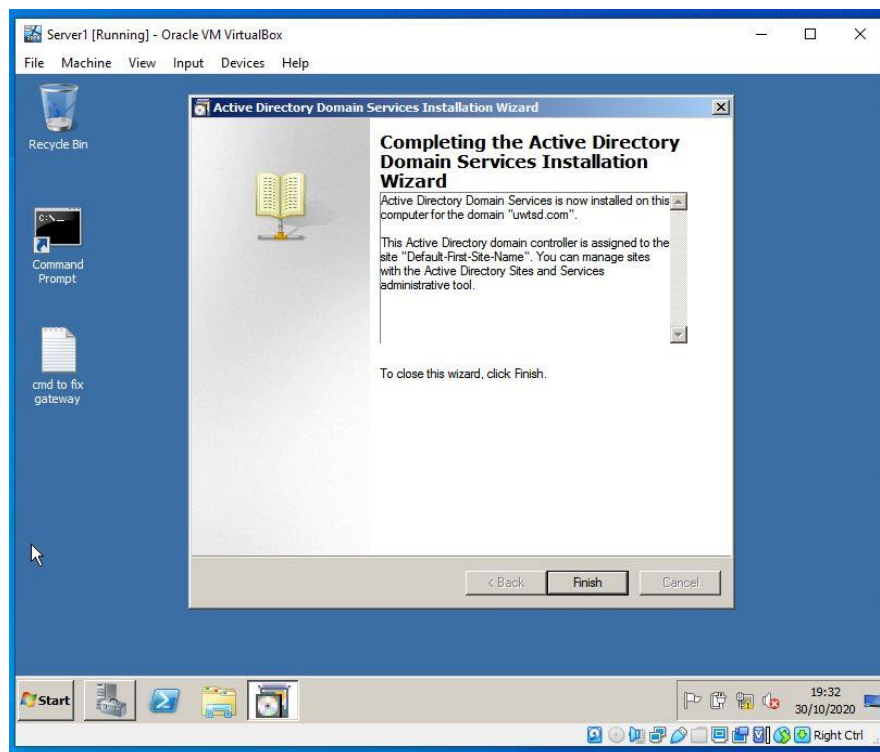


Figure 25: Active Directory Domain Services – installation completed

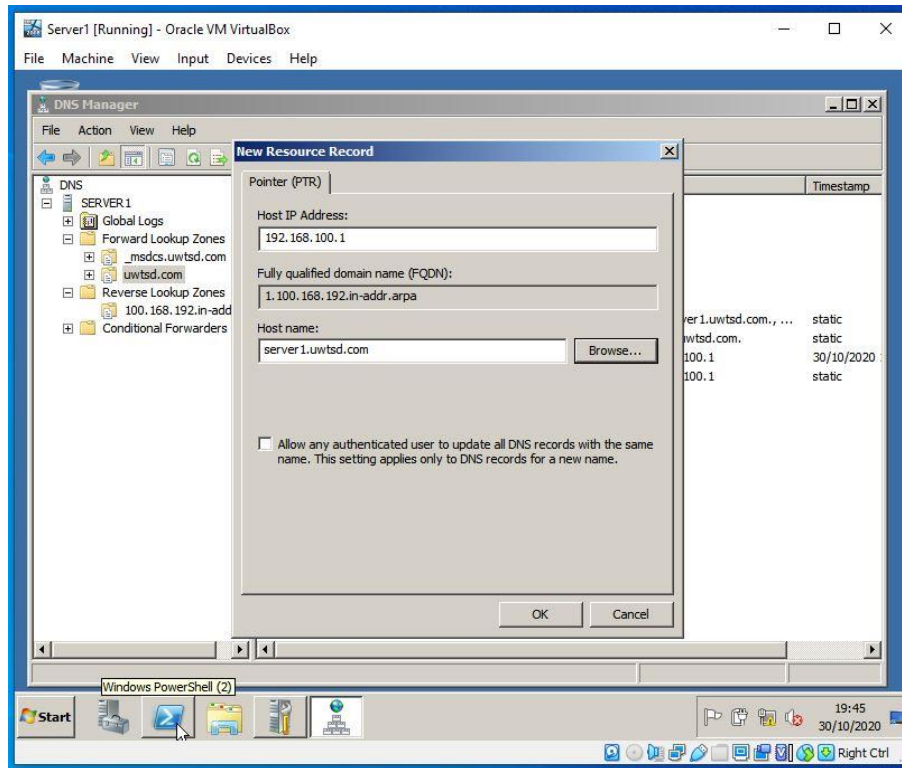


Figure 26: Set new Resource Record (pointer) on server 1

- Connect client1 (Windows 7) to the domain

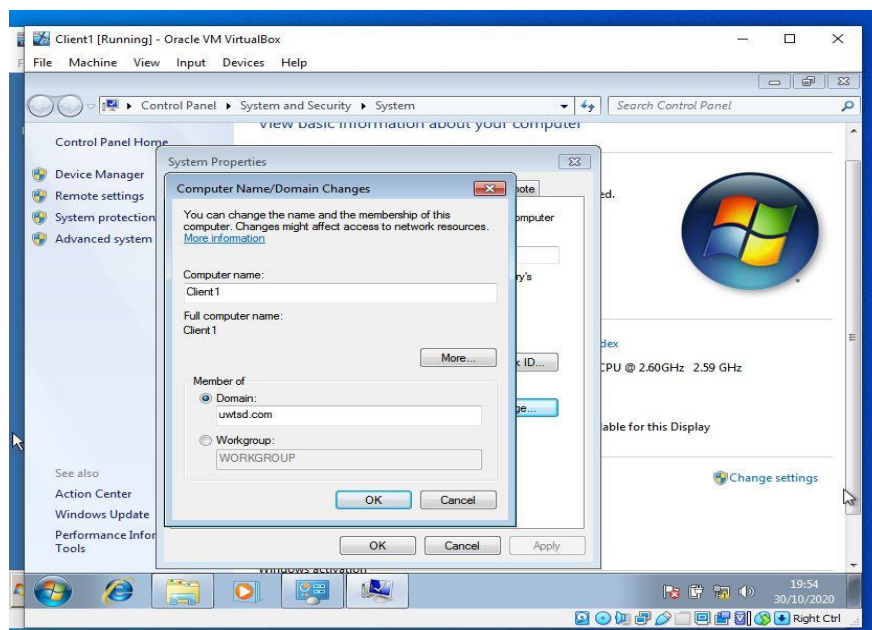


Figure 27: Add client1 into uwtsd.com domain

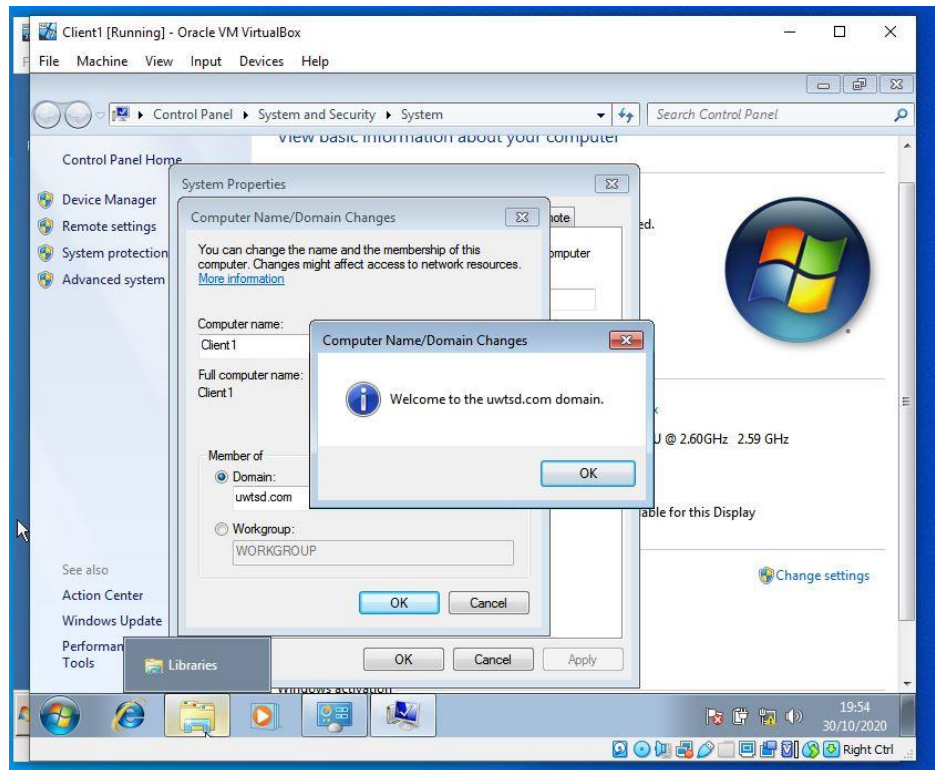


Figure 28: client1 registered into domain – confirmation

- Verifications:
- Check server1 is configured
 - Check server1 is register into uwtscd domain
 - Connect remotely from client1 to server1
 - Ping server1 from client1
 - Ping client1 from server1

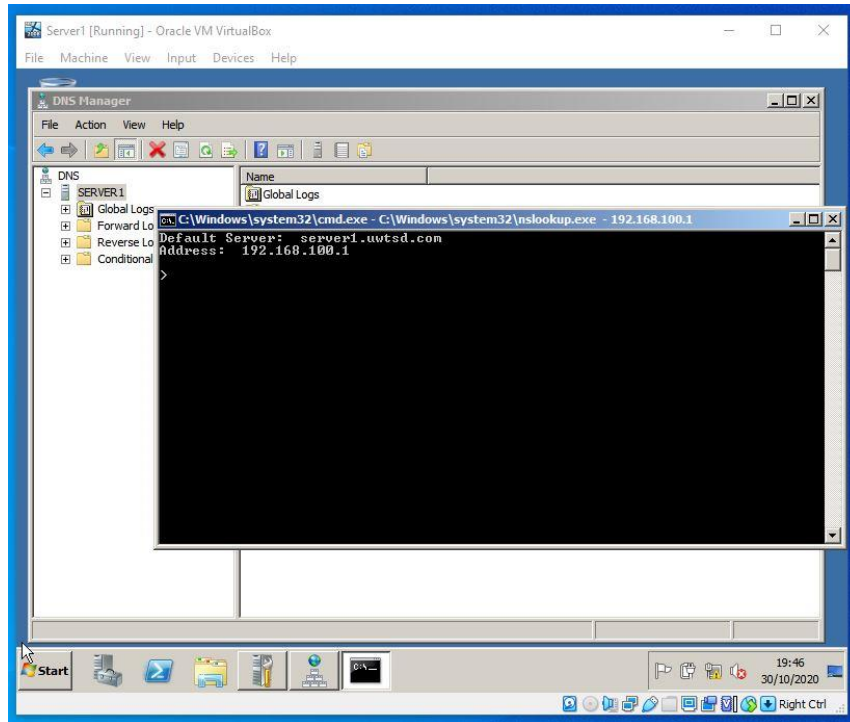


Figure 29: Run nslookup.exe - server1 configuration completed

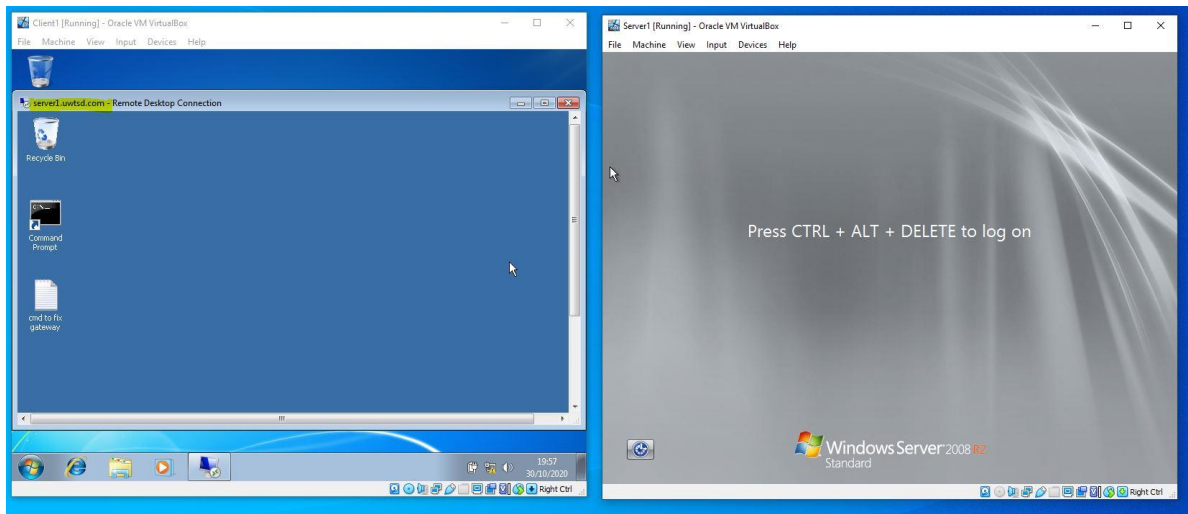


Figure 30: Connect remotely from client1 to server1

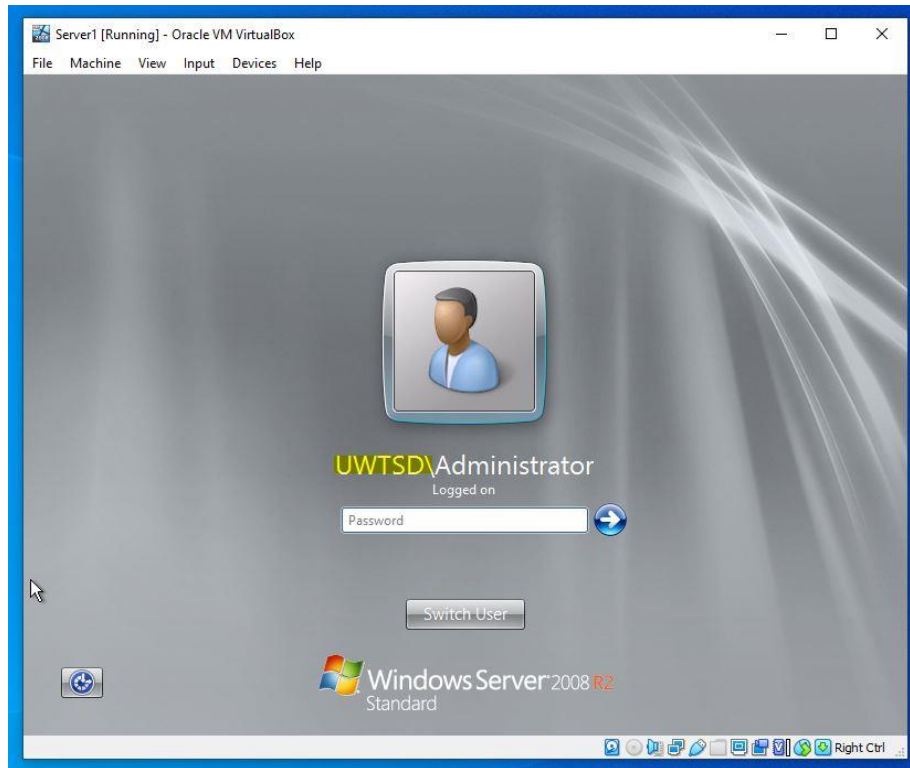


Figure 31: See domain set on server1

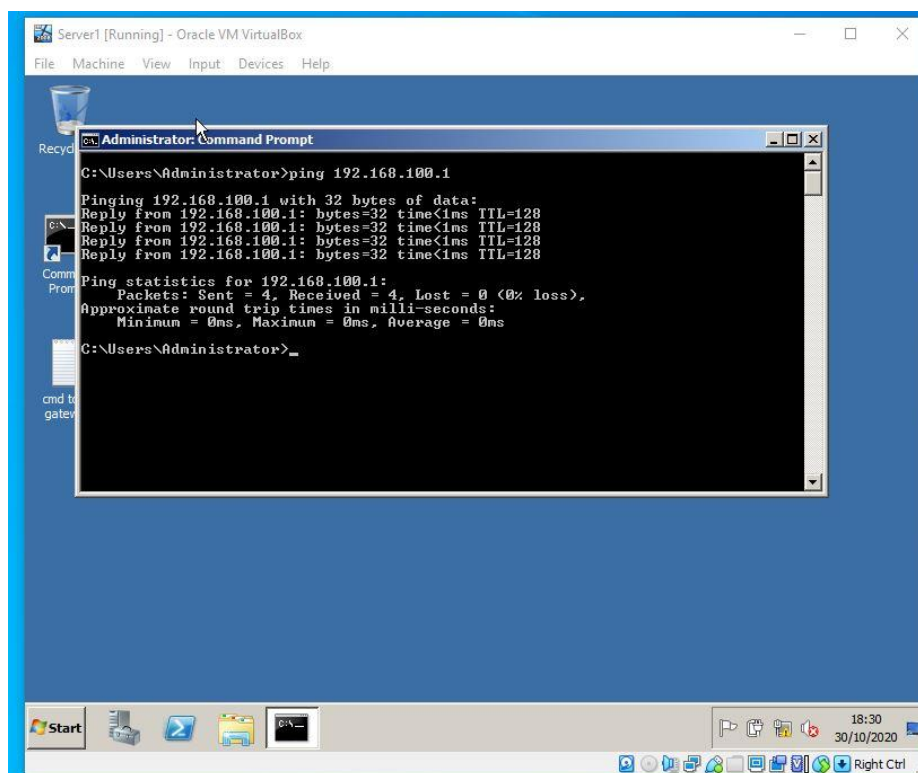


Figure 32: Ping client1 from server1

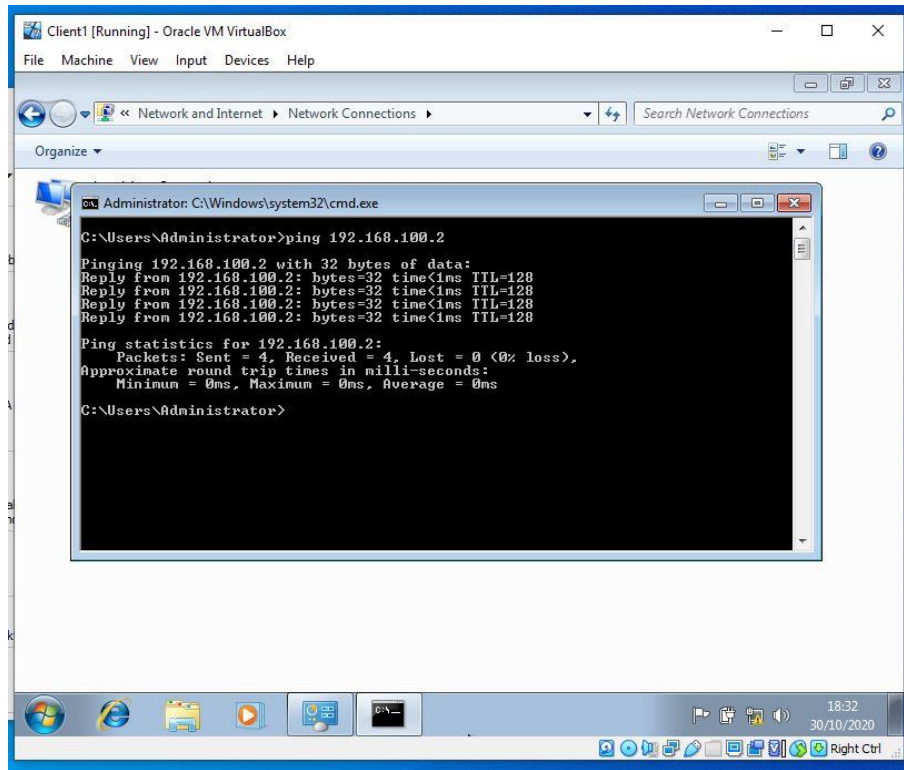


Figure 33: Ping server1 from client1

Worksheet 2: Resource Management in Active Directory: Users, Computers and Groups

➤ Task 1: Creating an Organizational Unit Hierarchy

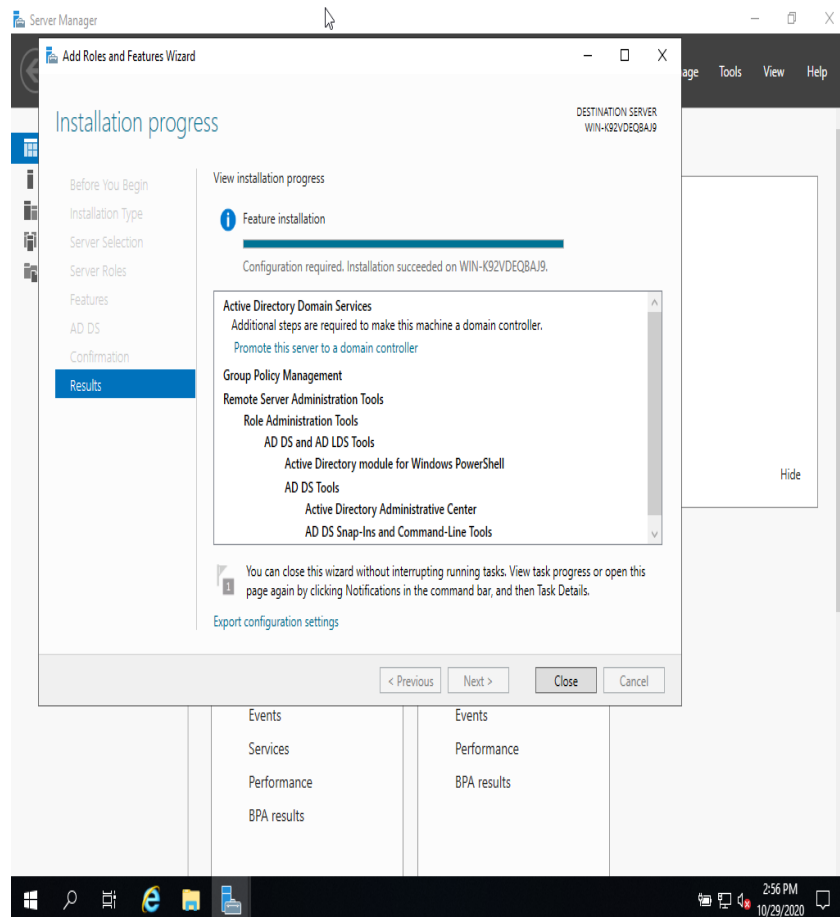


Figure 34: Create the first set of OU's at Domain Level

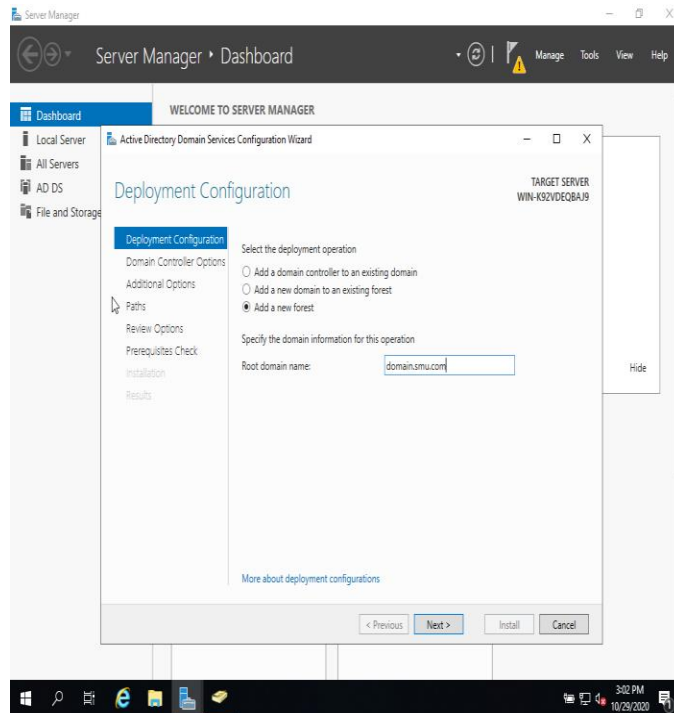


Figure 35: Create the first set of OU's at Domain Level

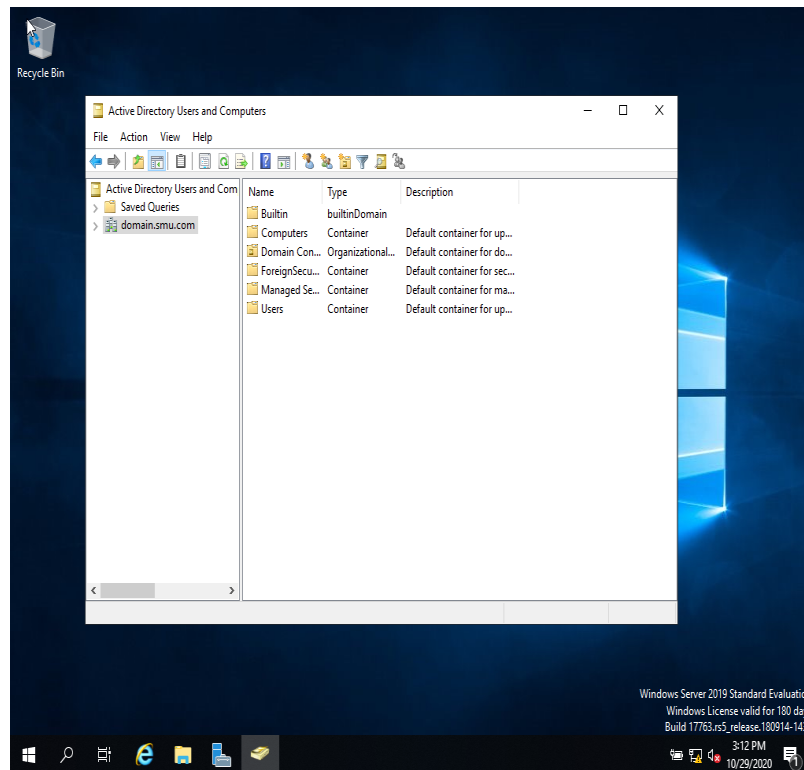


Figure 36: Create the first set of OU's at Domain Level

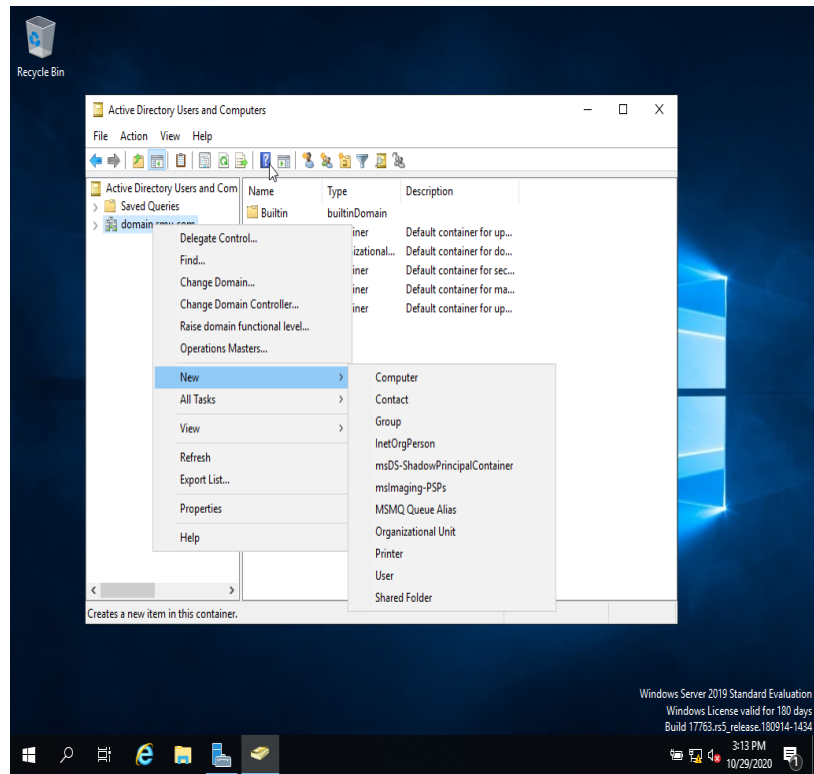


Figure 37: Create the first set of OU's at Domain Level

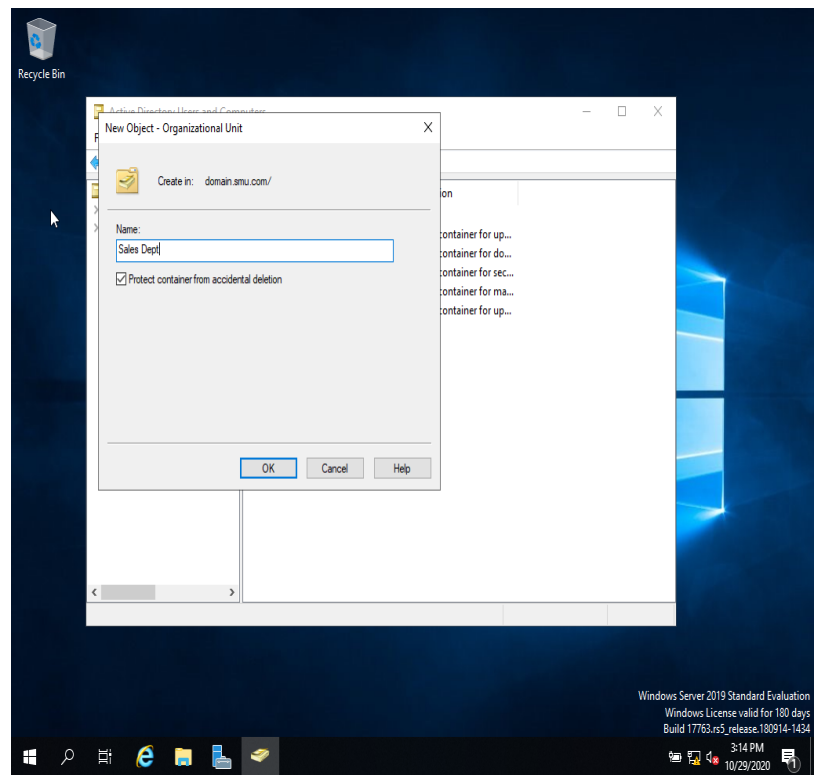


Figure 38: Create Sales Dept

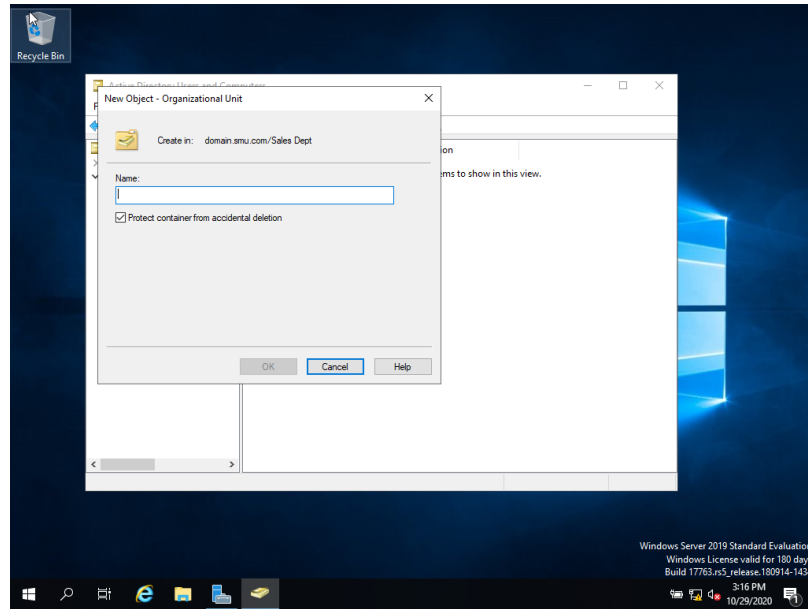


Figure 39: Create two further OUs

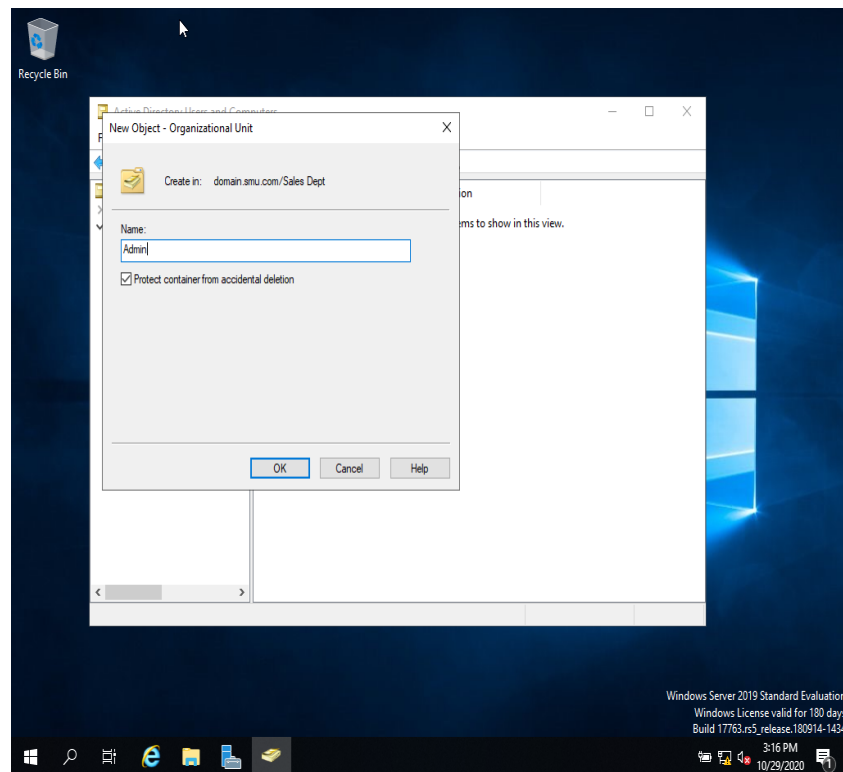


Figure 40: Create Admin in Sales Depart

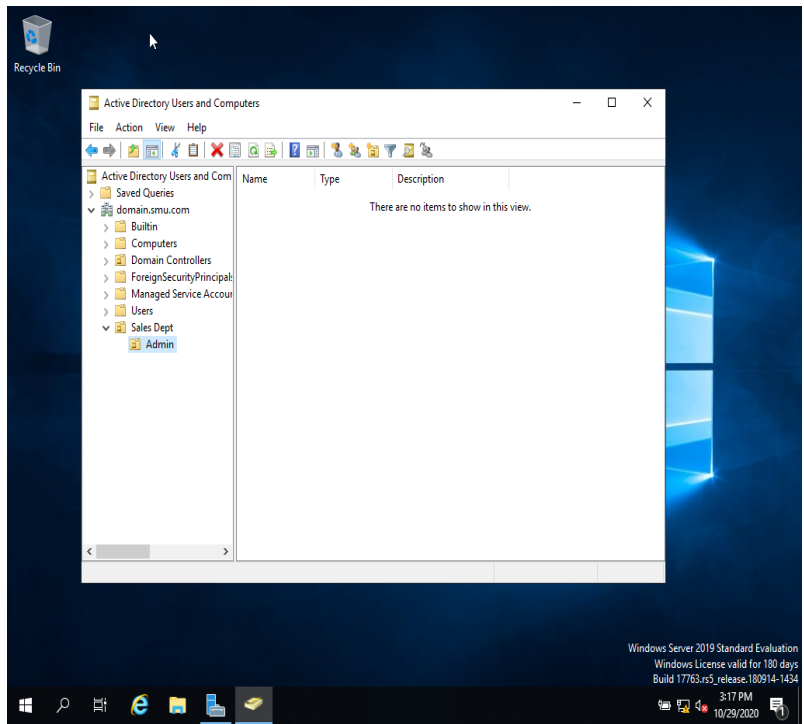


Figure 41: Create Admin in Sales Depart

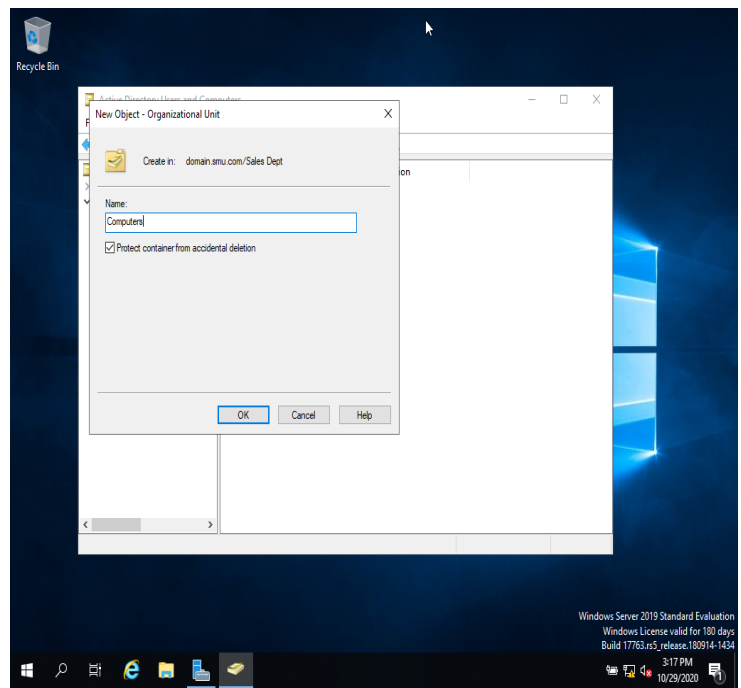


Figure 42: Create Computers in Sales Depart

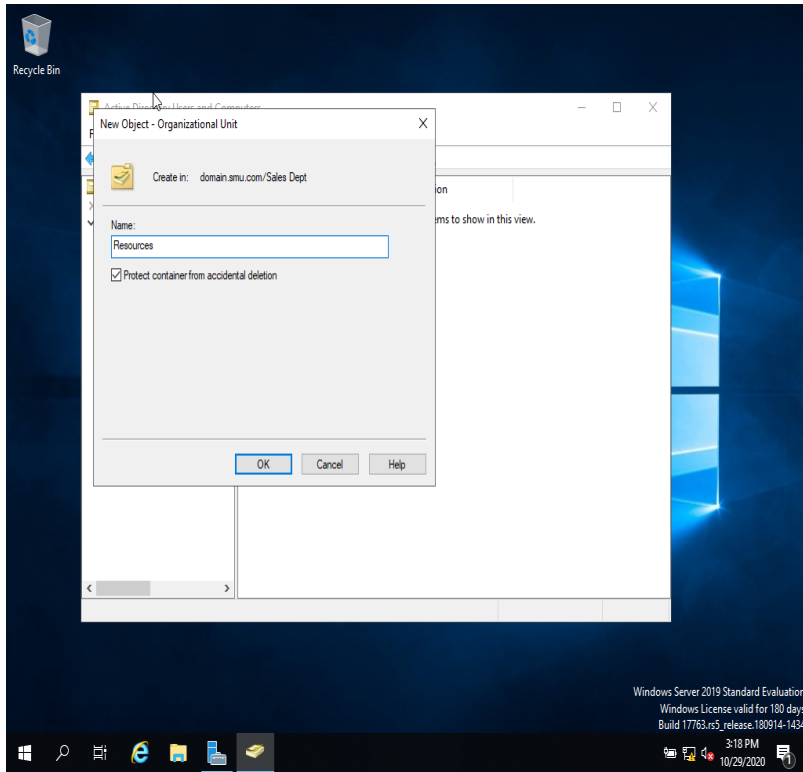


Figure 43: Create Resources in Sales Depart

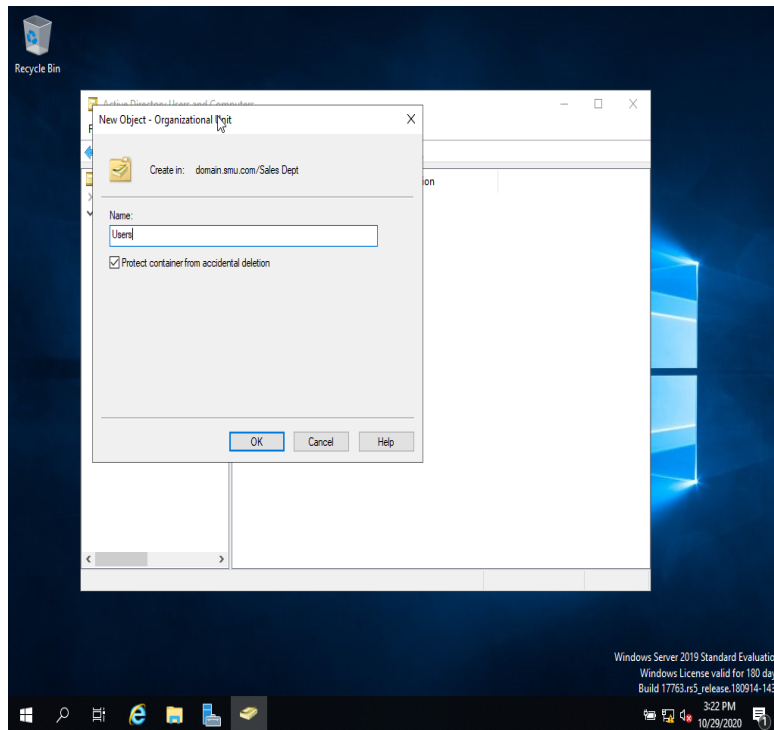


Figure 44: Create Users in Sales Depart

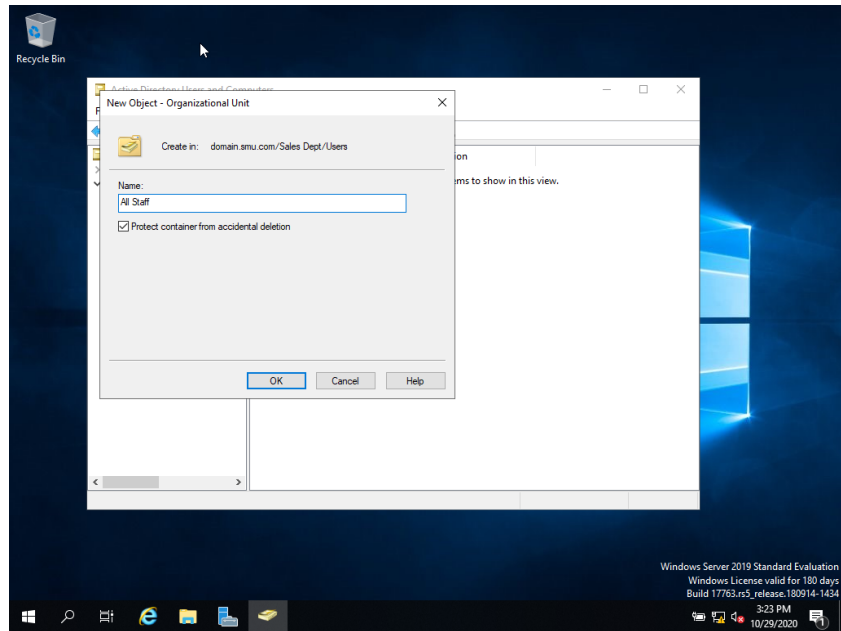


Figure 45: Create All Staff in Users

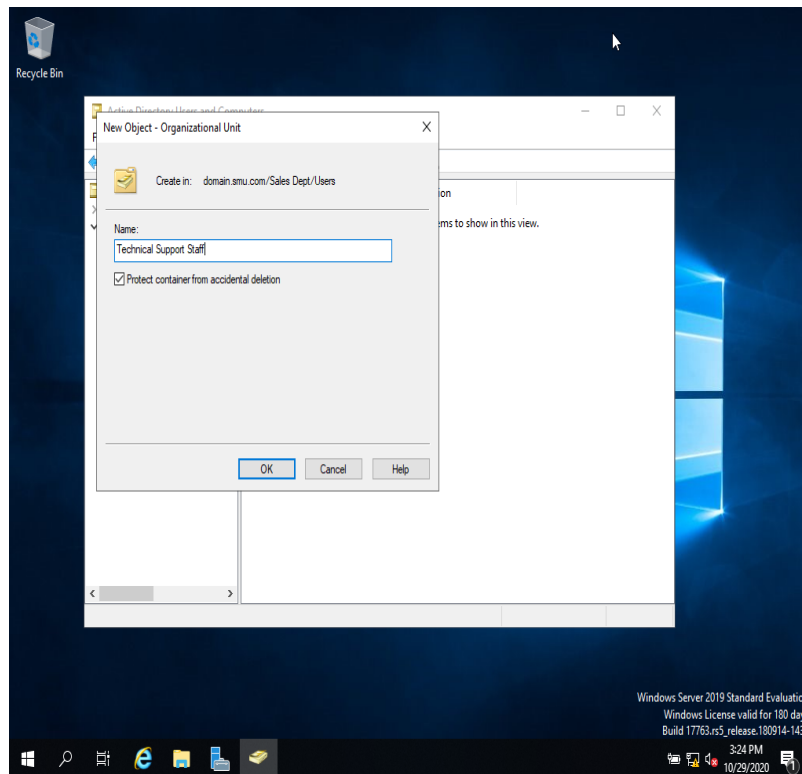


Figure 46: Create Technical Support Staff in Users

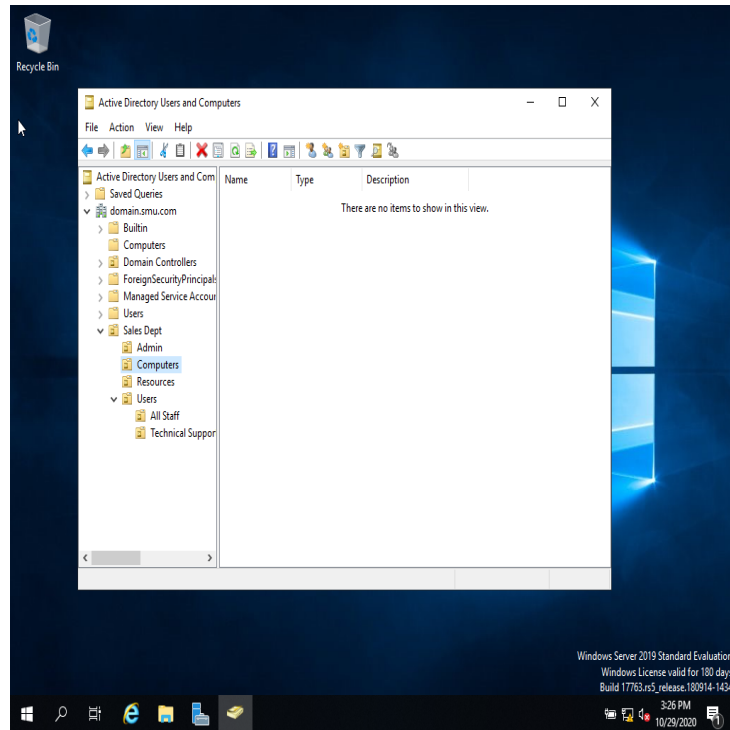


Figure 47: Parent OU 'container' and within this we have child OU's

➤ Task 2: Creating and Managing Active Directory User and Computer accounts

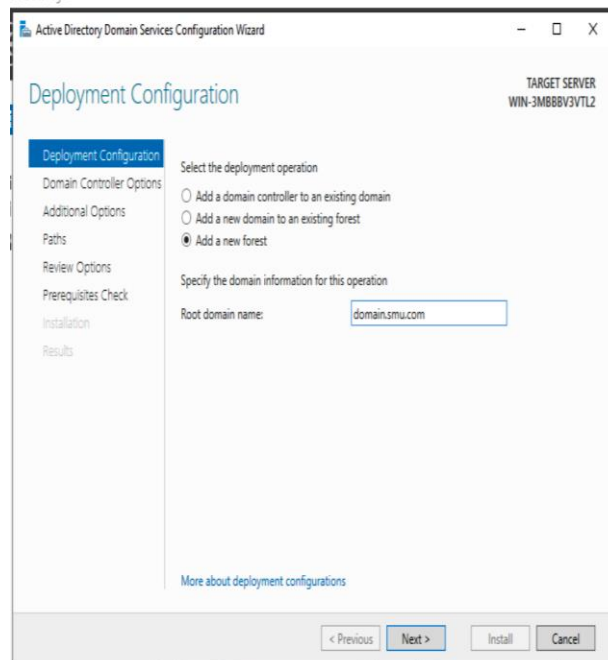


Figure 48: Group Policy Management

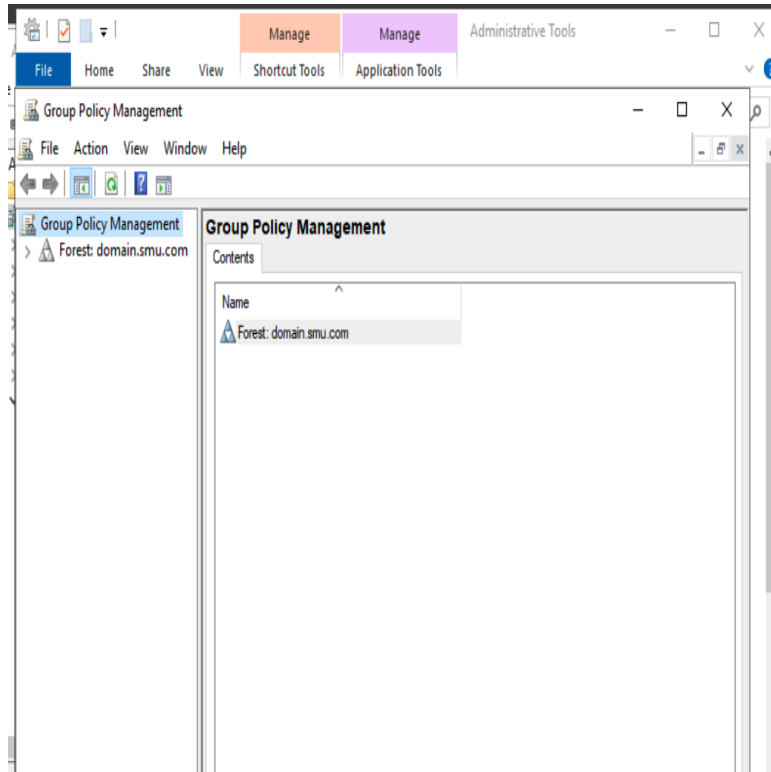


Figure 49: Group Policy Management

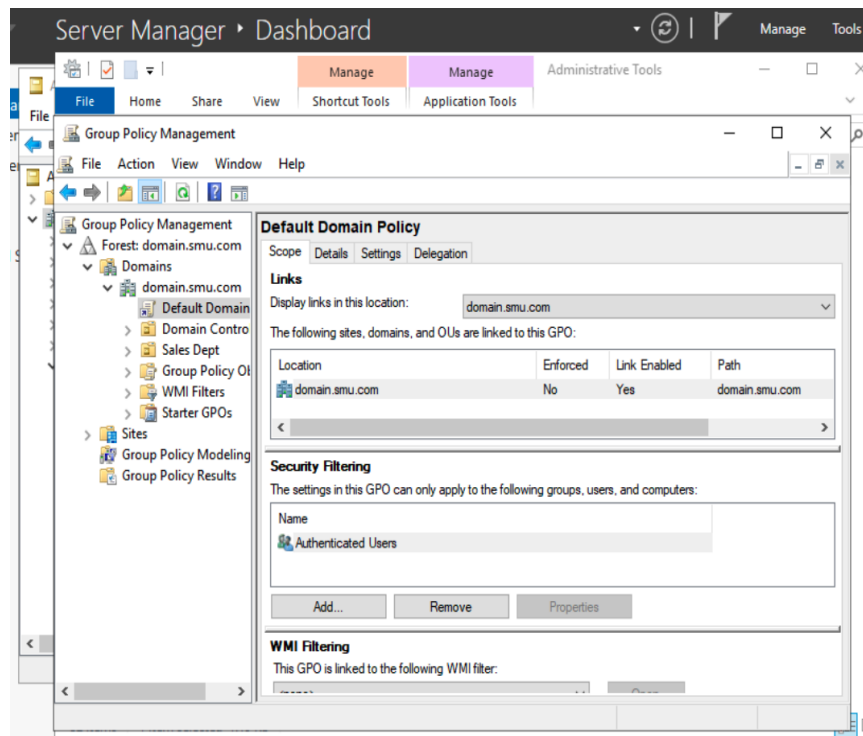


Figure 50: Group Policy Management

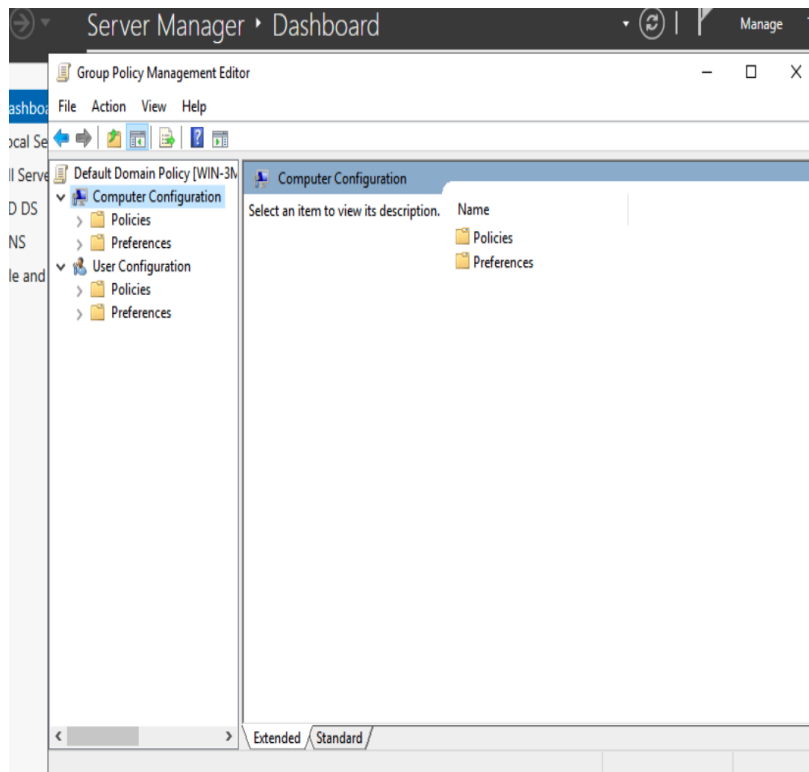


Figure 51: Group Policy Management

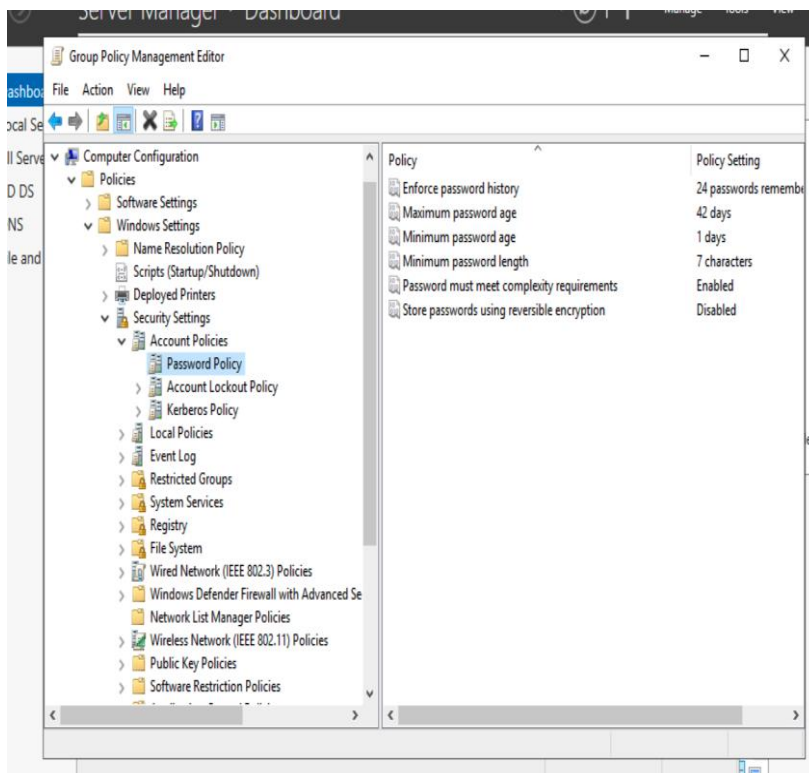


Figure 52: Password policy settings that apply to the domain

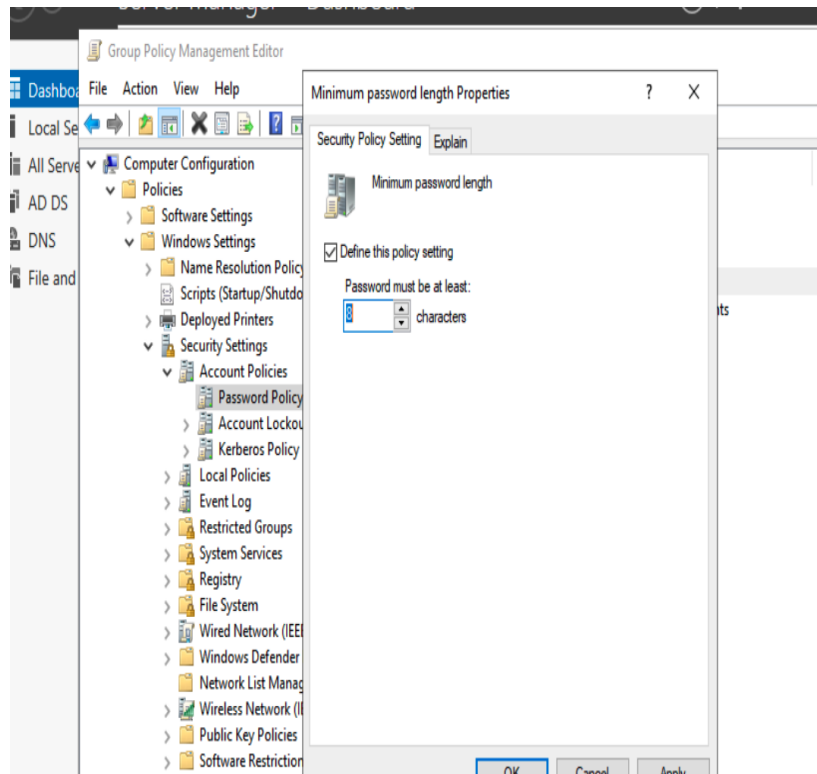


Figure 53: The password has value to 8 characters

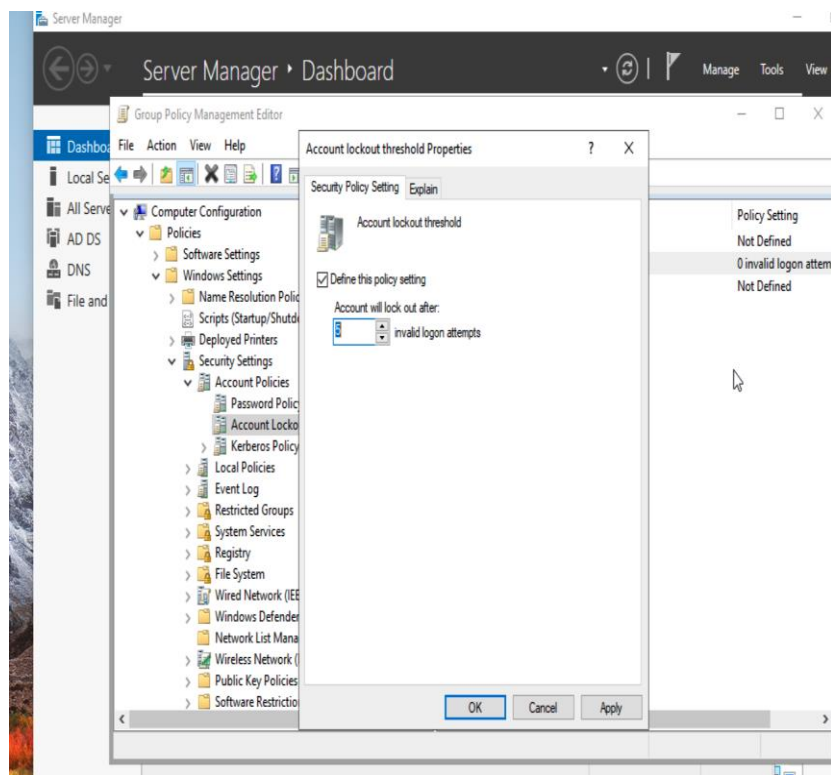


Figure 54: Account Lockout Policy

- Creating Users/Computer Accounts and Managing their properties

Active Directory Users and Computers

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ll Server

D DS

NS

le and S

Technical Support S...

New Object - User

Create in: domain.smu.com/Sales Dept/Users/All Staff

First name: Initials:

Last name:

Full name:

User logon name: @domain.smu.com

User logon name (pre-Windows 2000): DOMAIN\

< Back Next > Cancel

Figure 55: Populate the Active Directory database

Active Directory Users and Computers

New Object - User

Create in: domain.smu.com/Sales Dept/Users/All Staff

First name: John Initials:

Last name: Smith

Full name: John Smith

User logon name: john.smith @domain.smu.com

User logon name (pre-Windows 2000): DOMAIN\john.smith

< Back Next > Cancel

Figure 56: Create three additional users

Active Directory: Users and Computers

New Object - User

Create in: nu.com/Sales Dept/Users/Technical Support Staff

First name: Initials:

Last name:

Full name:

User logon name: @domain.smu.com

User logon name (pre-Windows 2000):

< Back **Next >** Cancel

Figure 57: Create three additional users

Server Manager ▸ Dashboard

Active Directory: Users and Computers

New Object - User

Create in: nu.com/Sales Dept/Users/Technical Support Staff

First name: Initials:

Last name:

Full name:

User logon name: @domain.smu.com

User logon name (pre-Windows 2000):

< Back **Next >** Cancel

Technical Support Staff

Figure 58: Create three additional users

- User account properties: Disabling Accounts, Resetting Passwords and Querying Active Directory

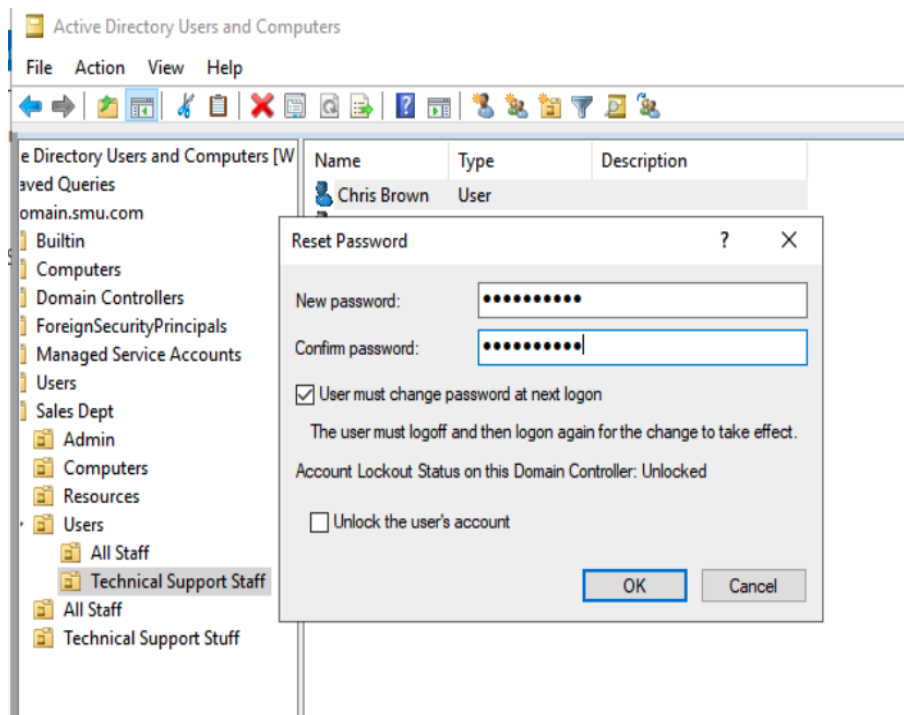


Figure 59: Reset Password

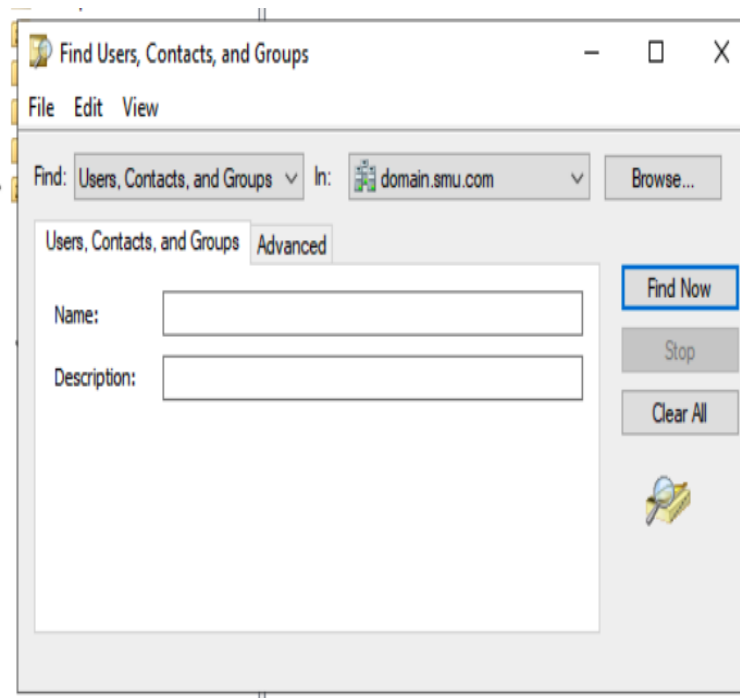


Figure 60: Start to added User account that will be locate in the active directory

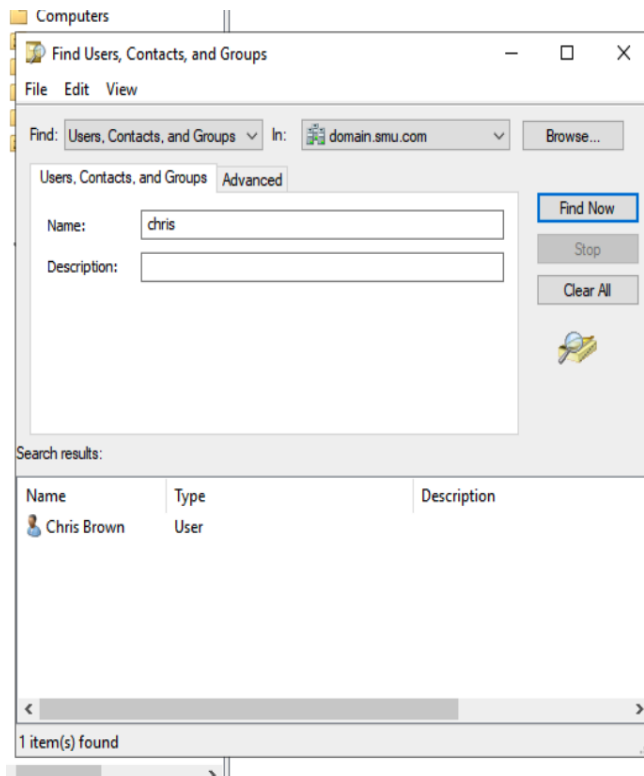


Figure 61: User account that will be locate in the active directory

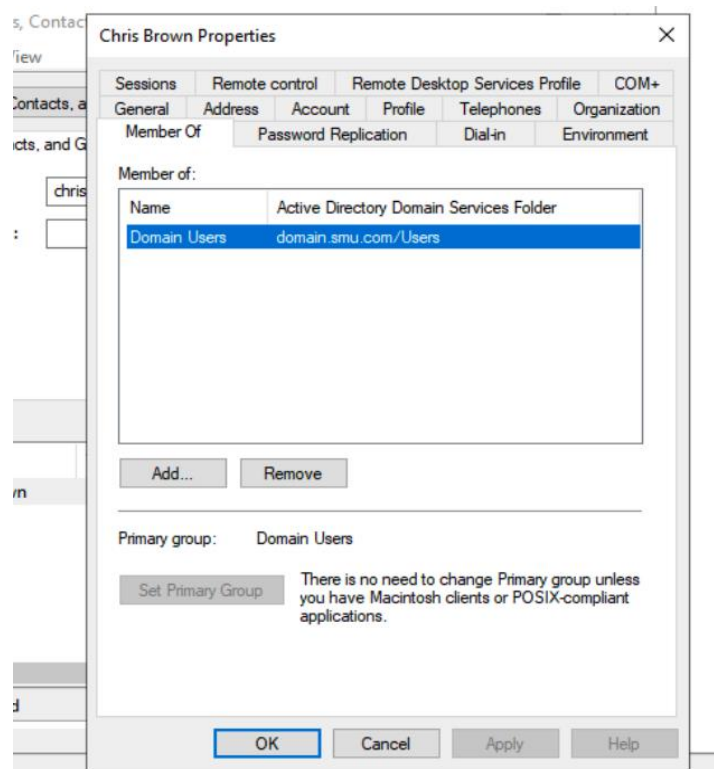


Figure 62: Select the Member of Tab

➤ Task 3: Investigating the use of Group Objects in Active Directory

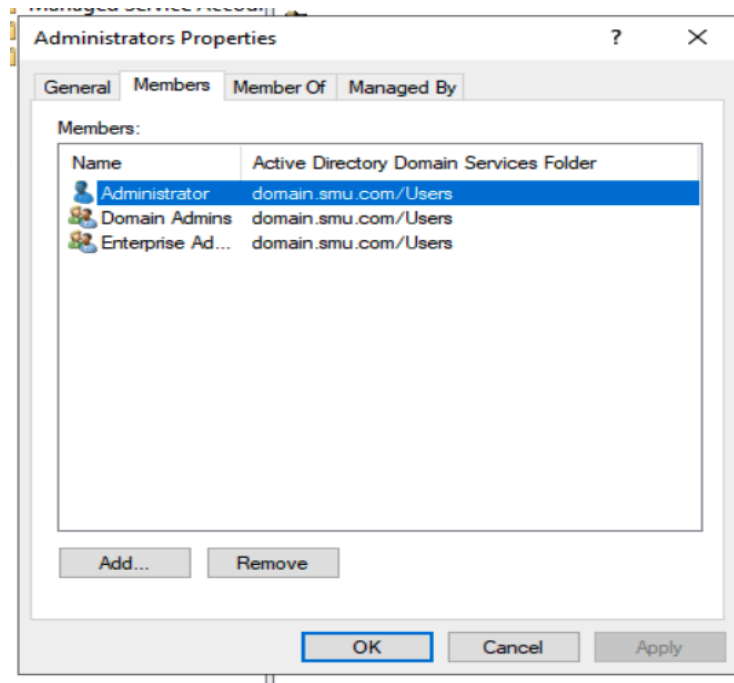


Figure 63: Select the Domain Admins group in Active Directory

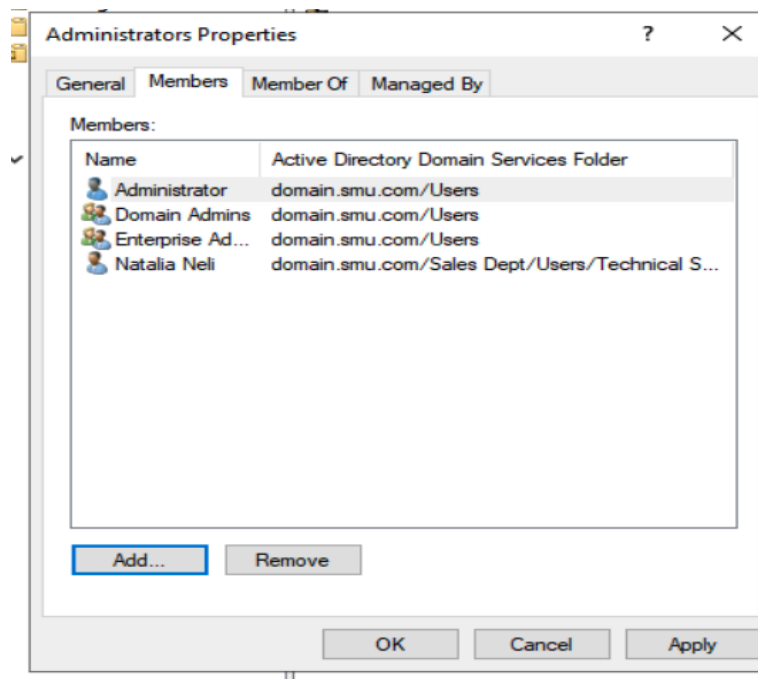
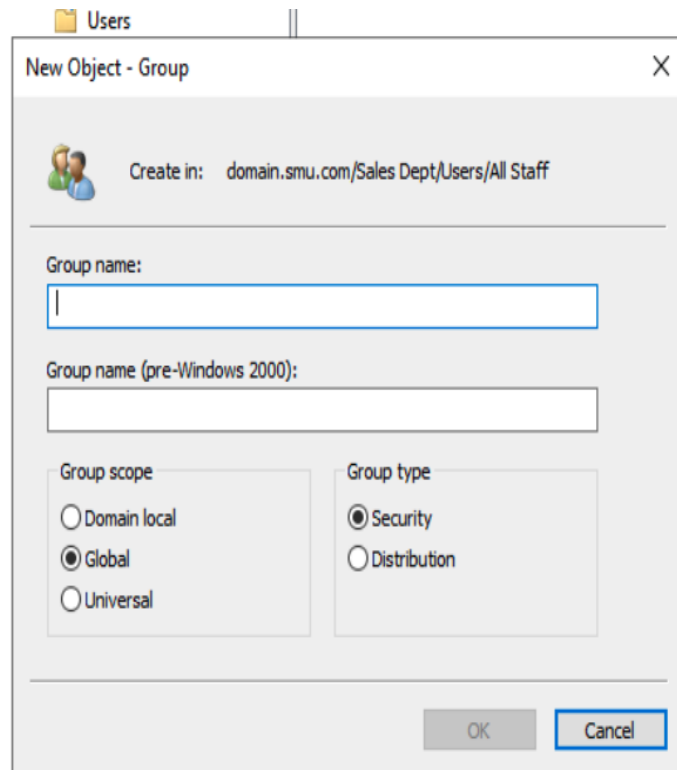
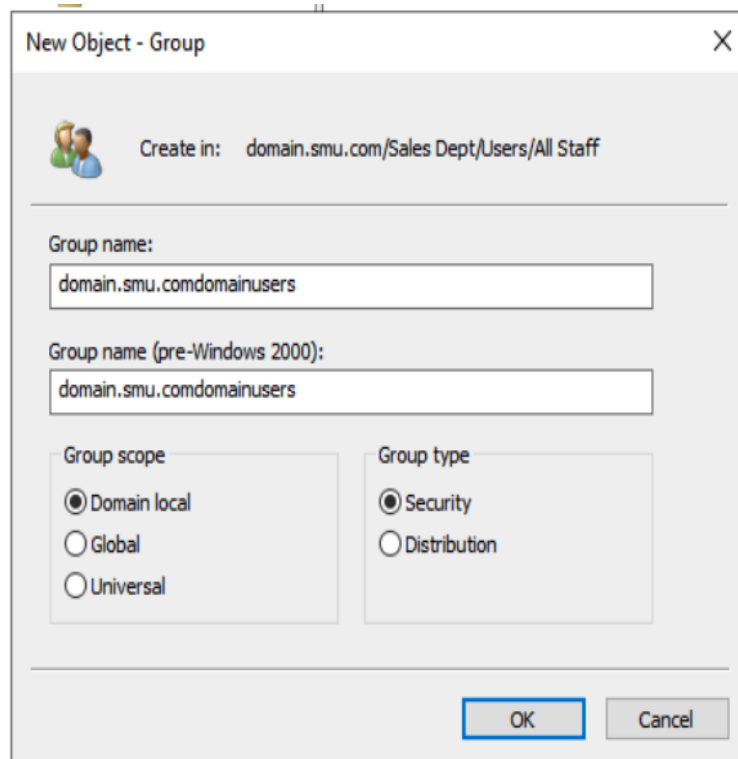


Figure 64: Added member



The image shows a Windows 'New Object - Group' dialog box. At the top, it says 'Create in: domain.smu.com/Sales Dept/Users/All Staff'. Below this, there are two text input fields: 'Group name:' and 'Group name (pre-Windows 2000):'. The 'Group name:' field is currently empty. To the right of these fields are two sections: 'Group scope' and 'Group type'. The 'Group scope' section has three radio buttons: 'Domain local', 'Global' (which is selected), and 'Universal'. The 'Group type' section has two radio buttons: 'Security' (which is selected) and 'Distribution'. At the bottom right, there are 'OK' and 'Cancel' buttons.

Figure 65: Added new Group



The image shows the same 'New Object - Group' dialog box as Figure 65, but now the 'Group name:' and 'Group name (pre-Windows 2000):' fields are both filled with the text 'domain.smu.comdomainusers'. The 'Group scope' section still has 'Global' selected, and the 'Group type' section still has 'Security' selected. The 'OK' button is now highlighted with a blue border, indicating it is the default action.

Figure 66: The new Group Name

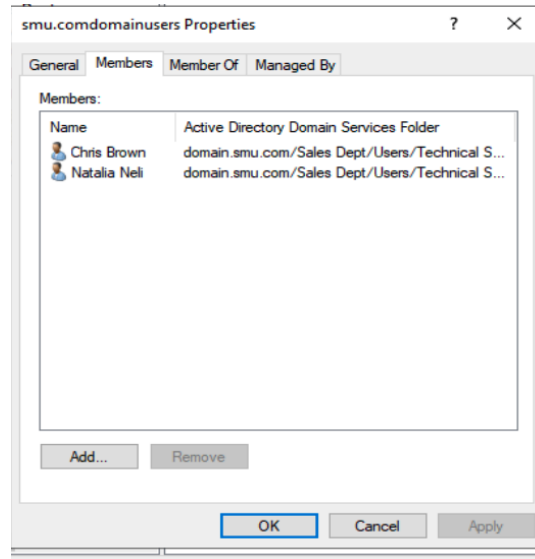


Figure 67: New Members of the group

Worksheet 3: Resource Management in Active Directory: Managing access to files /folders and controlling domain user environments

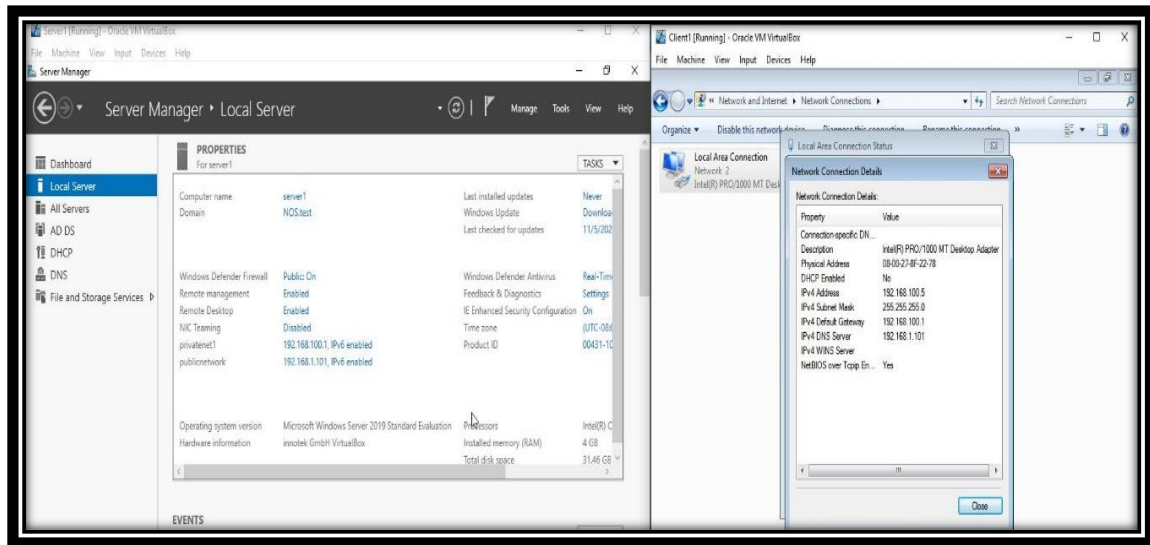


Figure 68: This screenshot show Client1 connected to Server1 true privatenet1.

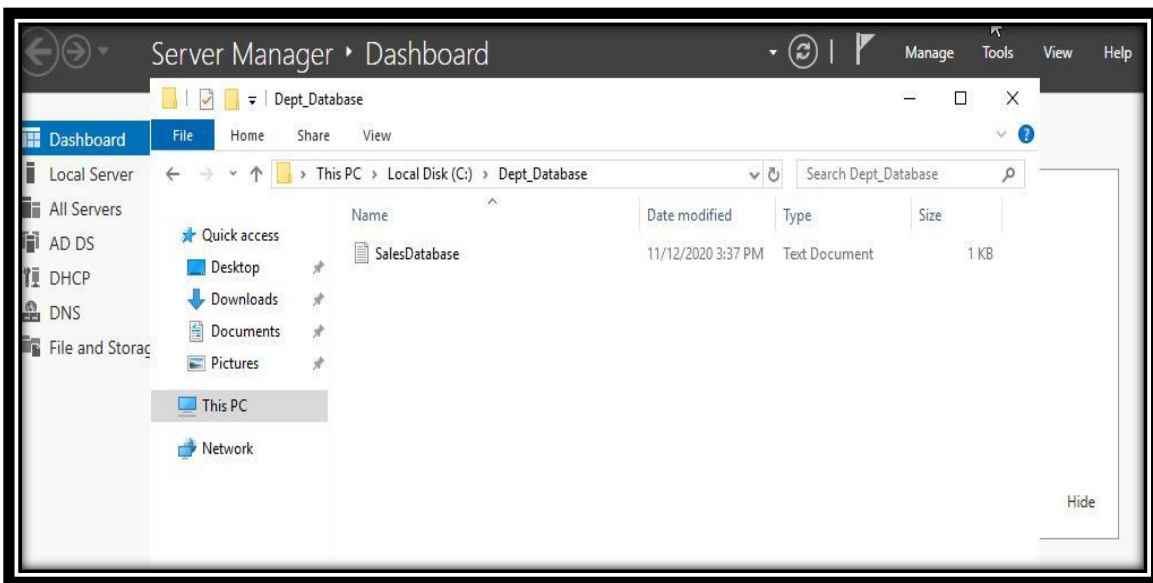


Figure 69: Folder "Dept_Database" is created in it file "SalesDatabase" have been created whit administrator account on server1.

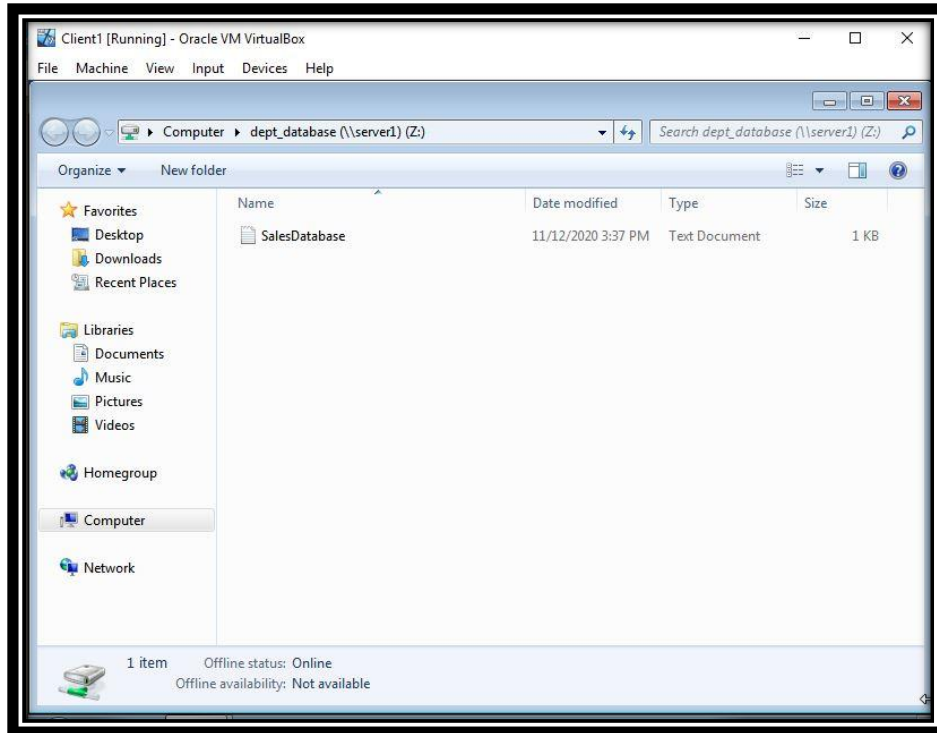


Figure 70: In this screenshot virtual machine called “Client1” is accessing shared folder on server1 called “dept_database” and can observe 1 file called “SalesDatabase”.

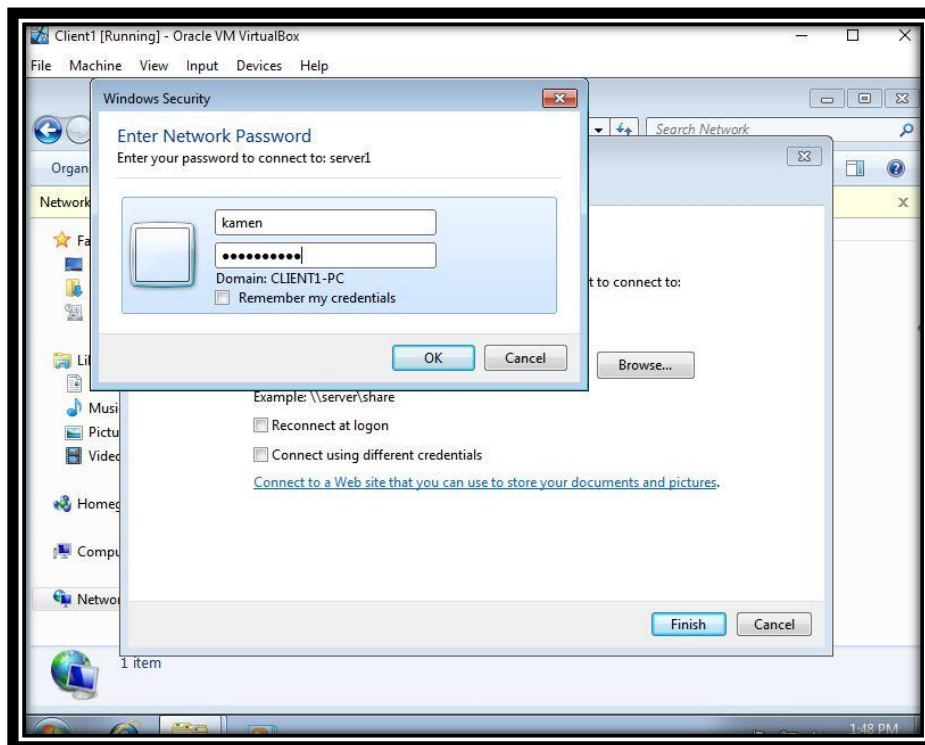


Figure 71: As requested in “Task2” the following groups have been created: “GeneralStaff” and “TechnicalStaff”. This screenshot show user “Kamen” member of GeneralStaff group using his user credentials to login to server1.

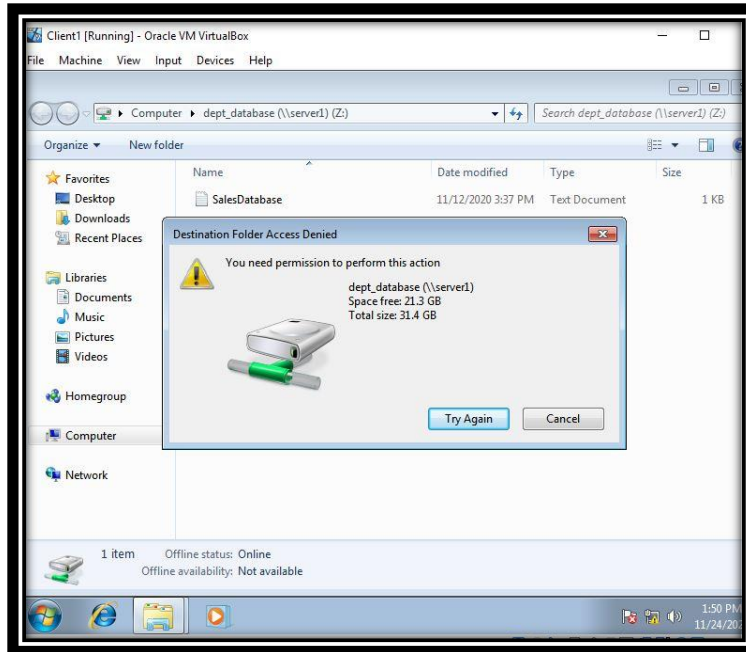


Figure 72: As requested in “Task2” GeneralStaff group have limited permissions, this users can only access the shared folders and execute files but can’t create, edit existed files and folders.

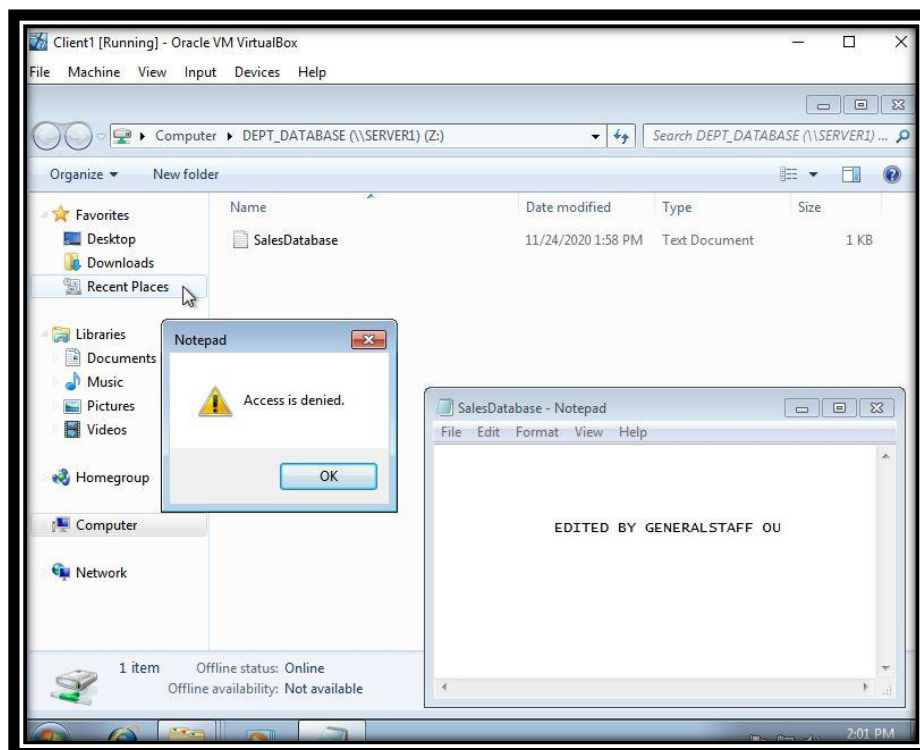


Figure 73: Again user “Kamen” member of Generalstaff group is denied permission to edit existing files.

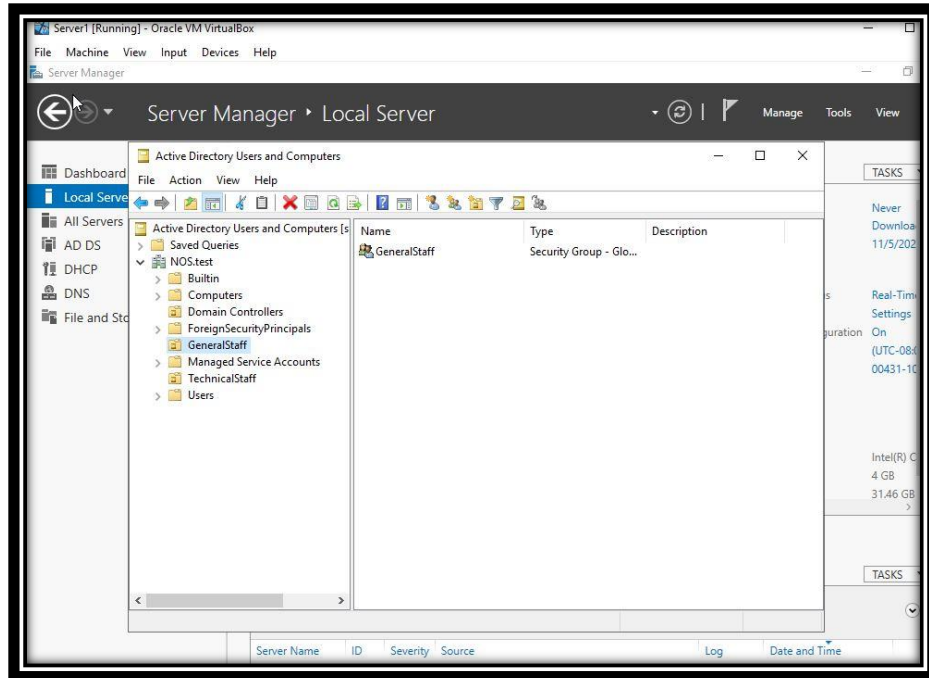


Figure 74: As requested in "Task2" organizational unit (OU) called "GeneralStaff" have been Created, and GeneralStaff is moved into this OU. Now the group is restricted by this OU permissions to server1.

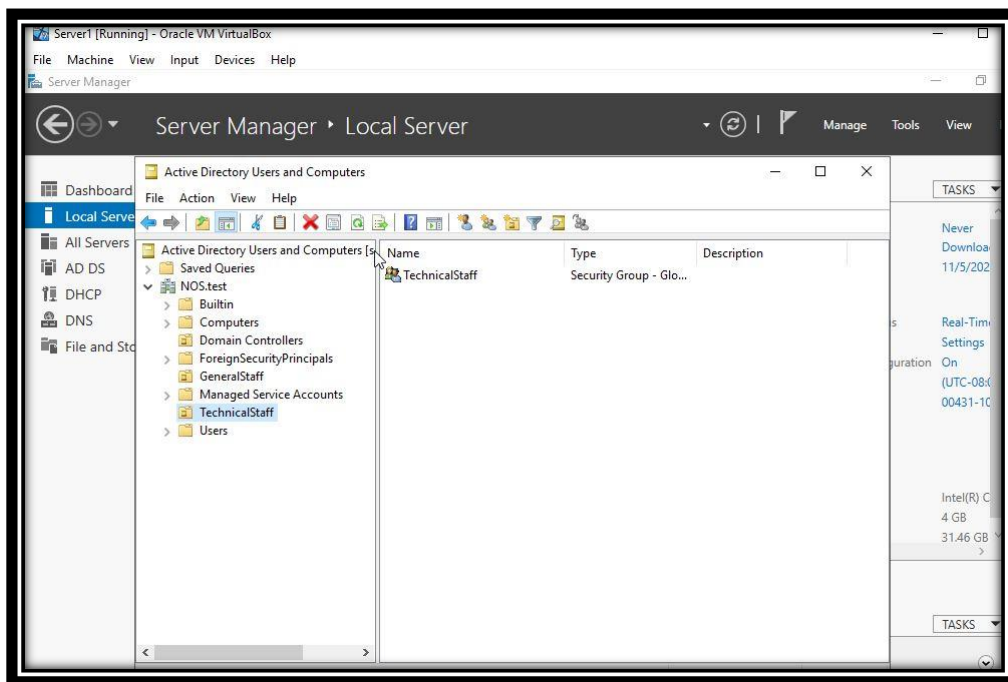


Figure 75: This screen shoot show the other OU created by the administrator of Server1 called "TechnicalStaff" and inside this OU is "TechnicalStaff" group. As requested in "Task2" members of "TechnicalStaff" OU have full access to the server1 shared folders and files.

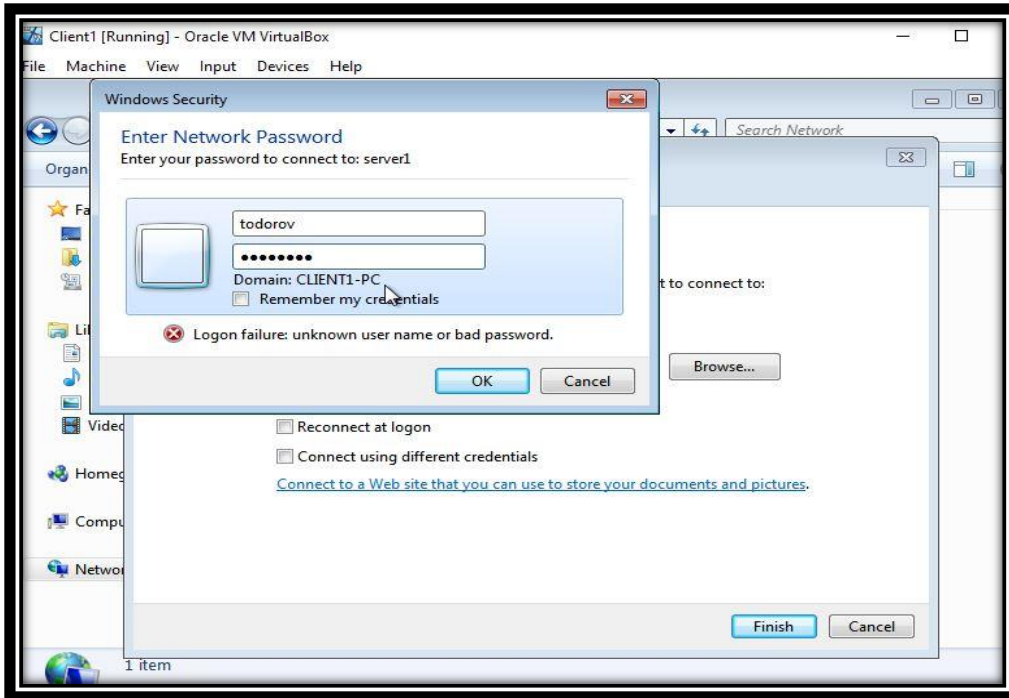


Figure 76: Logging in server1 as member of “TechnicalStaff” group.

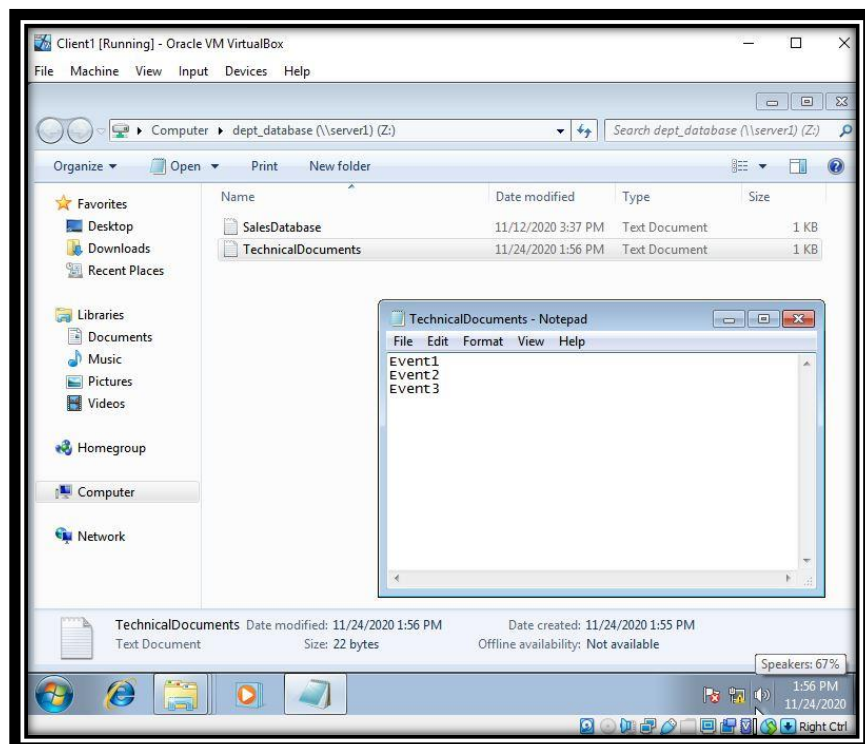


Figure 77: in this screenshot, we can see technical staff group can created files

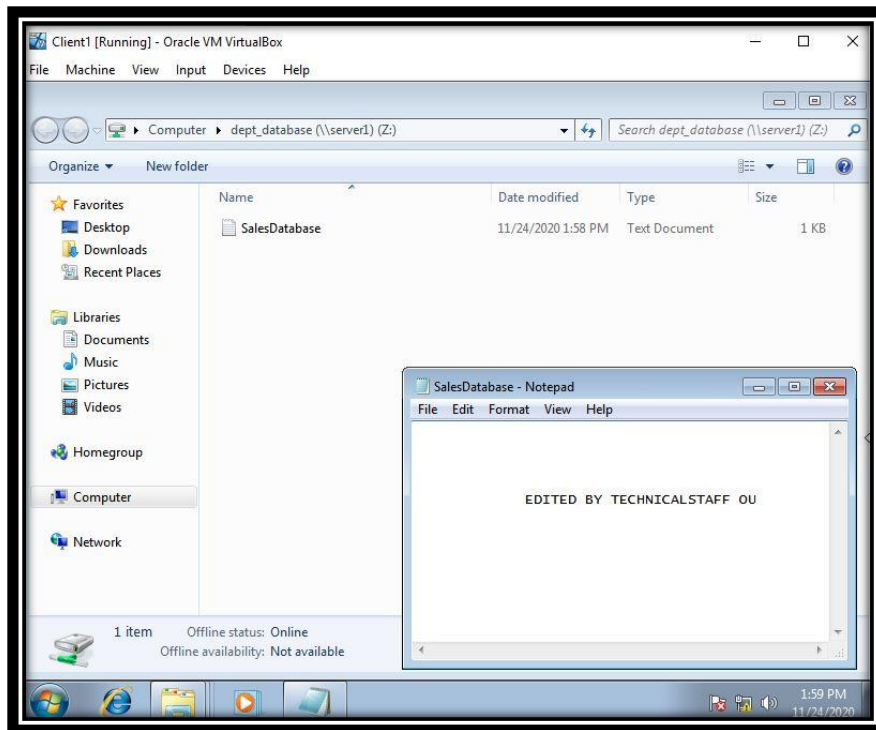


Figure 78: in this screenshot, we can see that technical staff can delete and edit files (notice file “TechnicalDocuments is missing”).

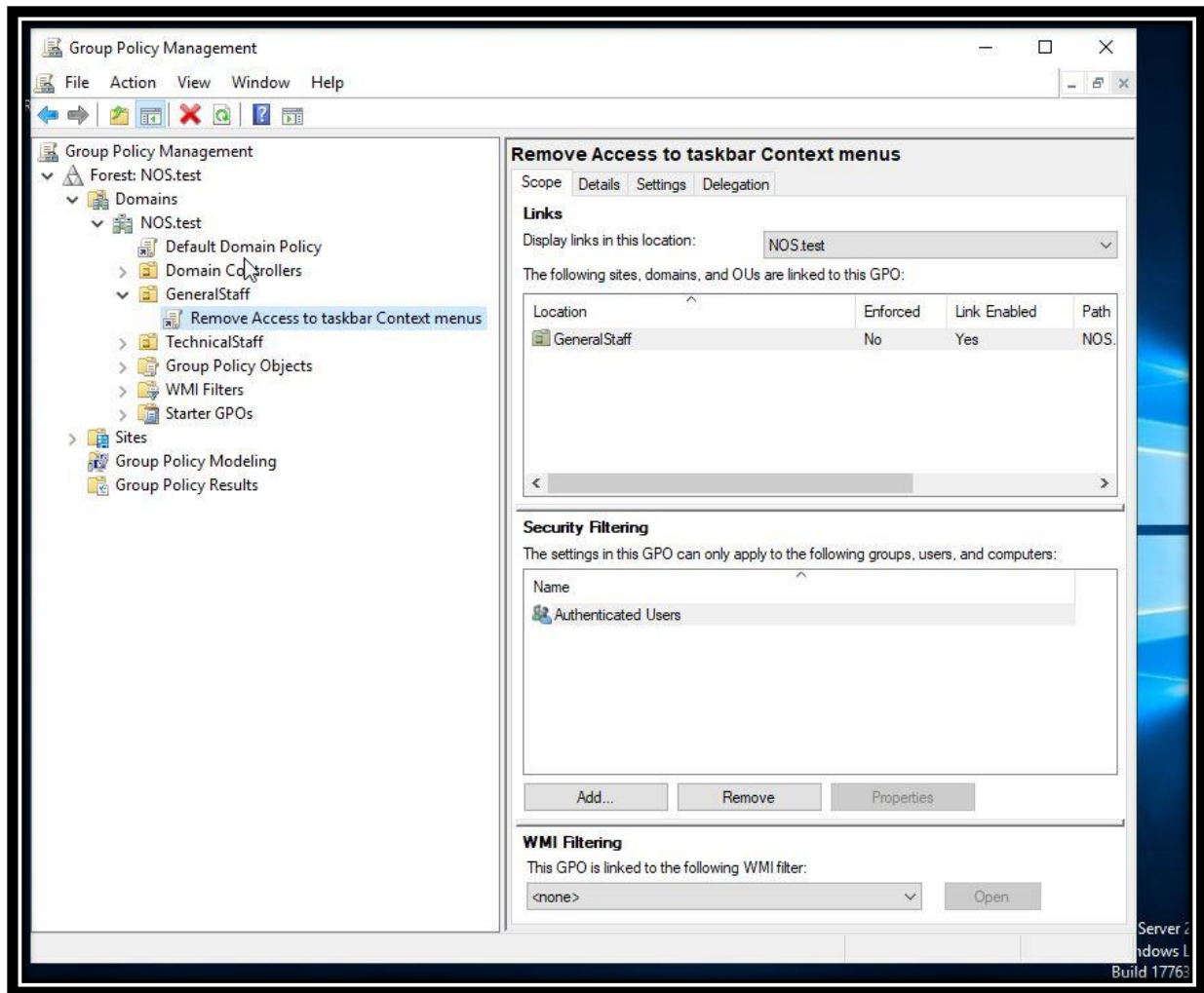


Figure 79: Shows group policy created to limit access of general staff OU to the taskbar menus of server1 graphical interface.

Worksheet 4: Planning and Deploying DNS in the network infrastructure

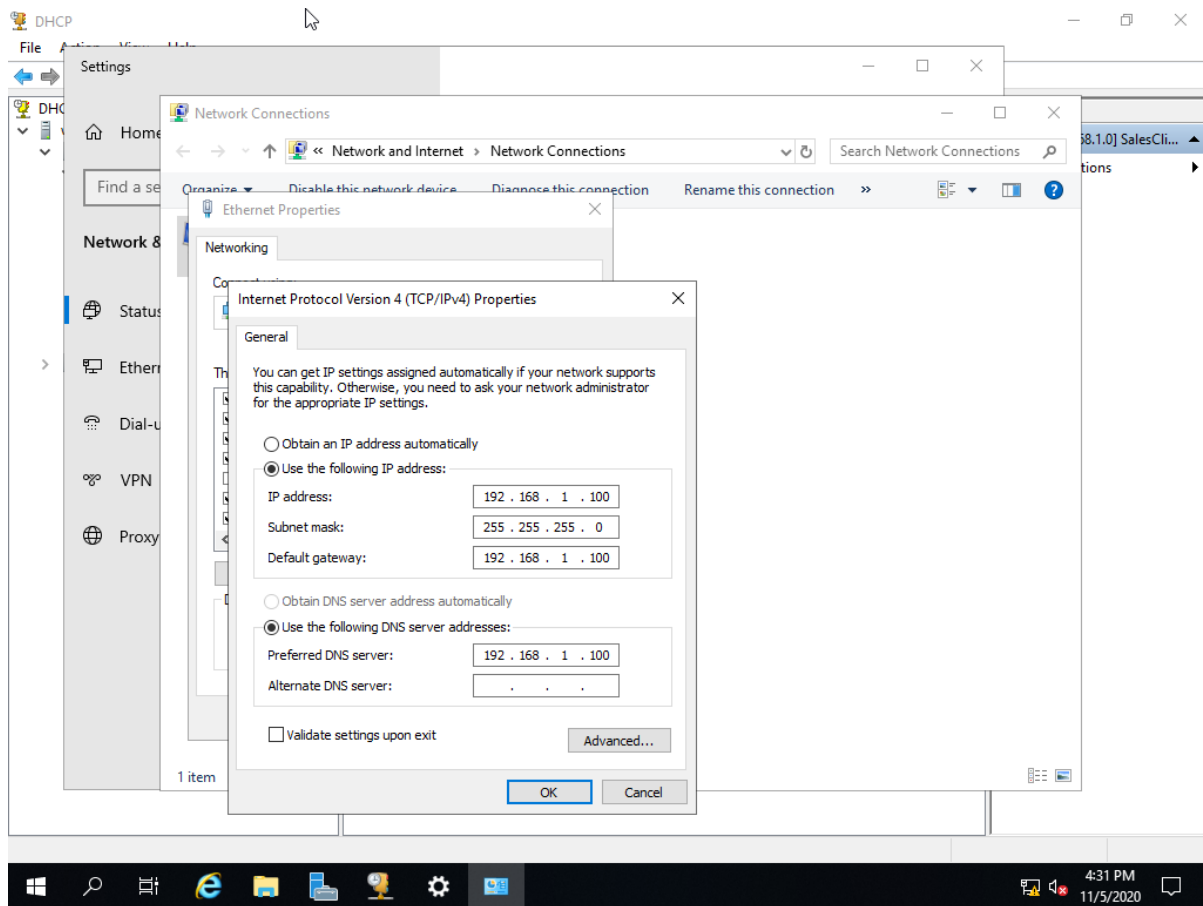


Figure 80: Set the static IP address on the server

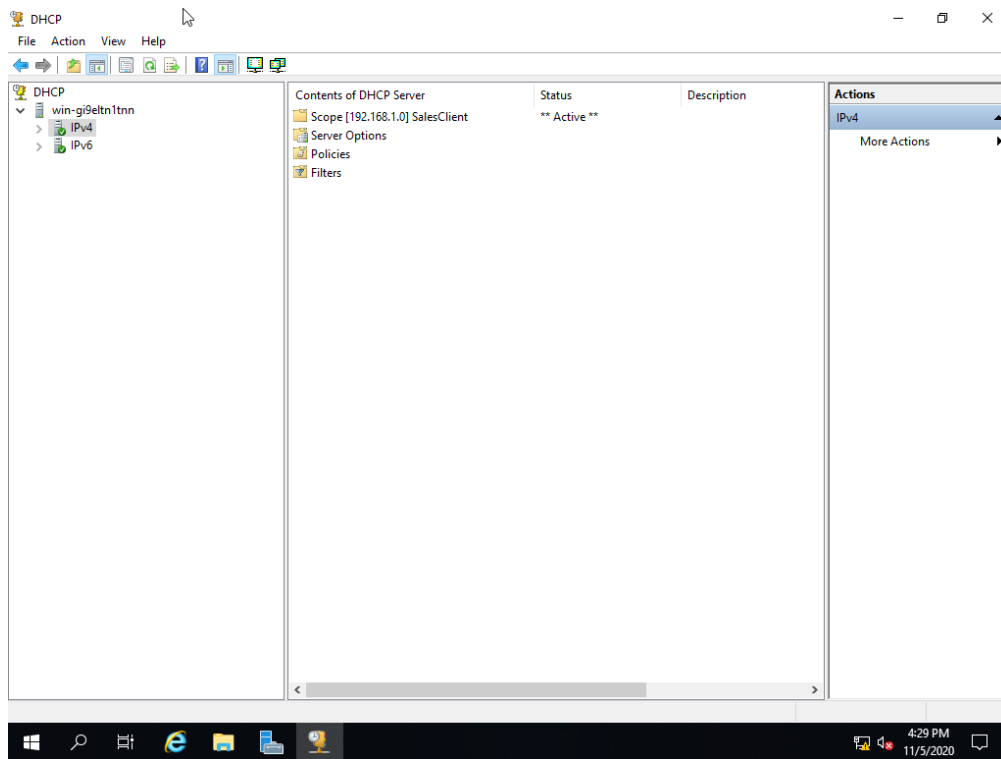


Figure 81: DHCP installed

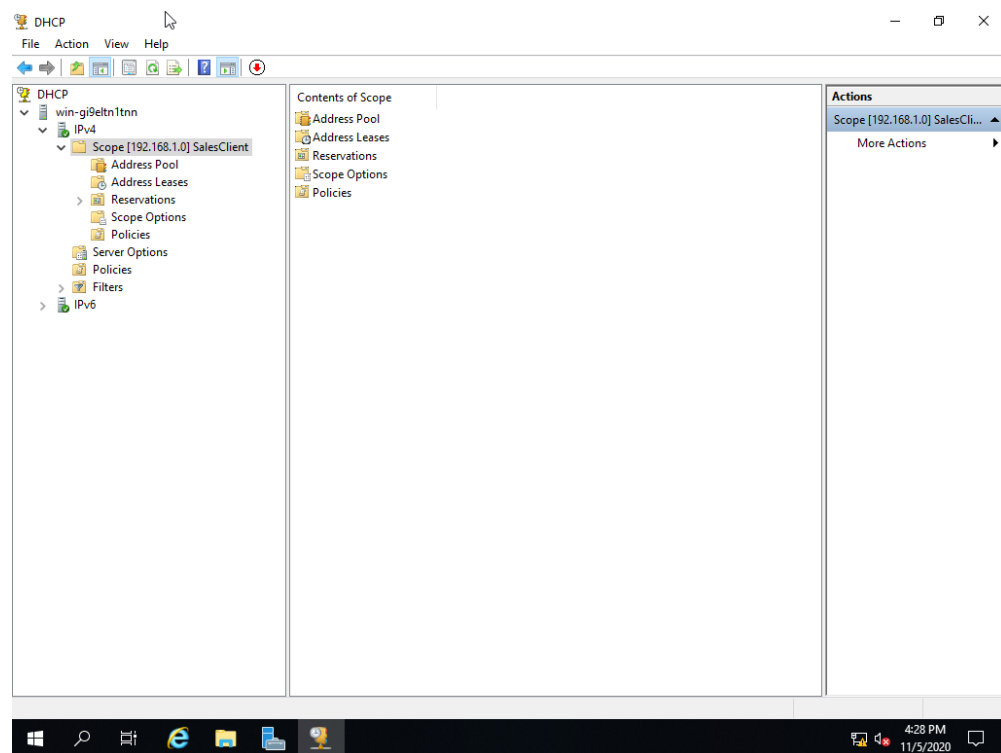


Figure 82: DHCP scope created

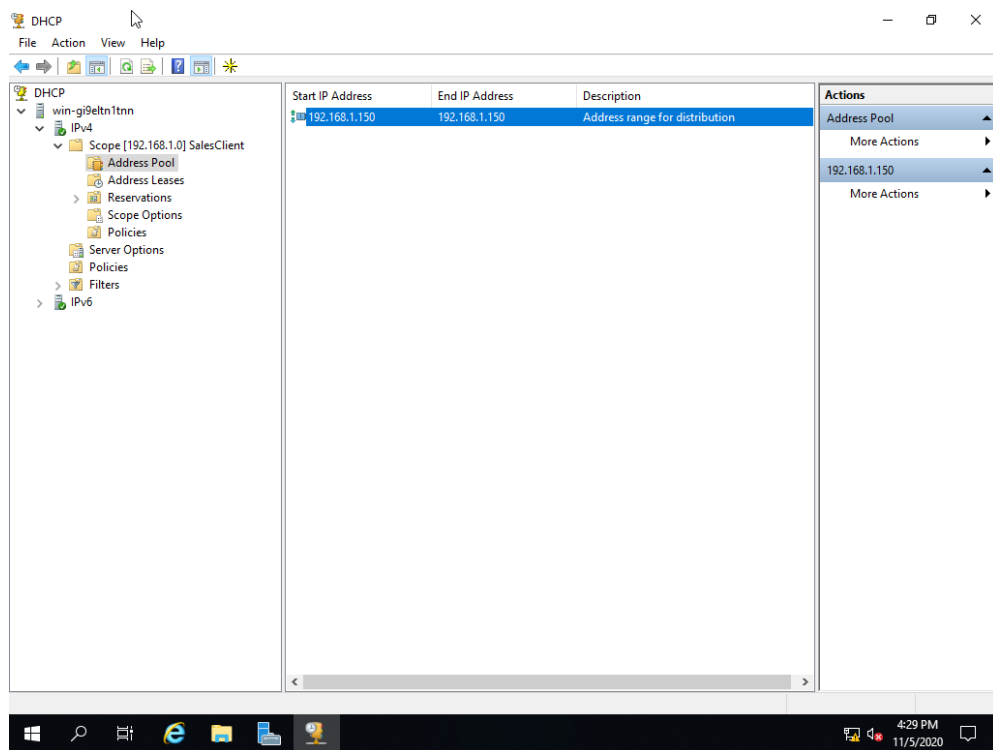


Figure 83: DHCP client IP range

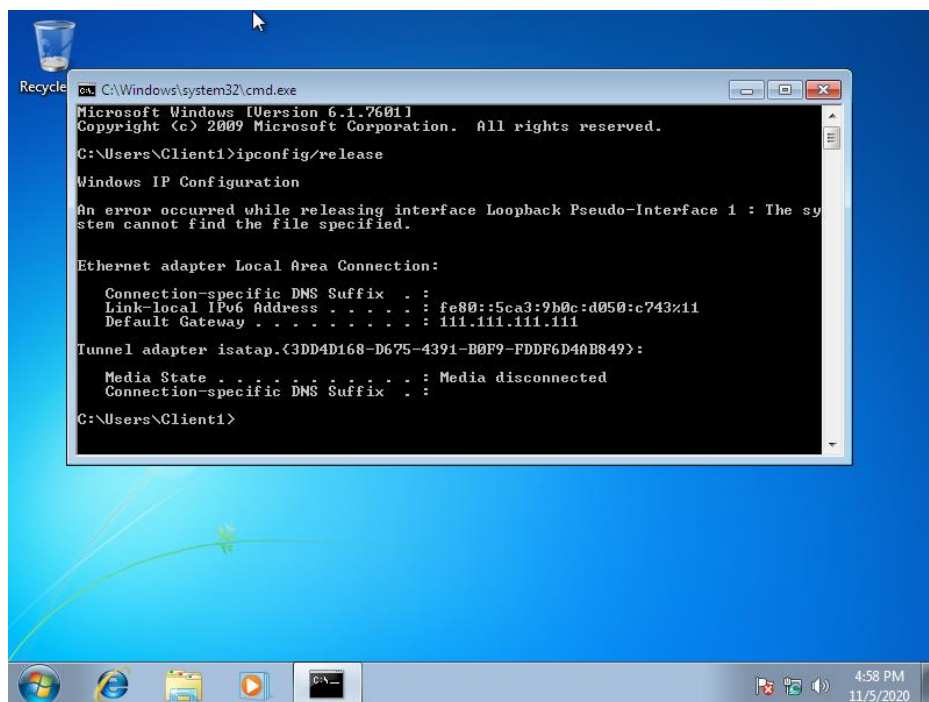


Figure 84: DHCP ipconfig/release from Client

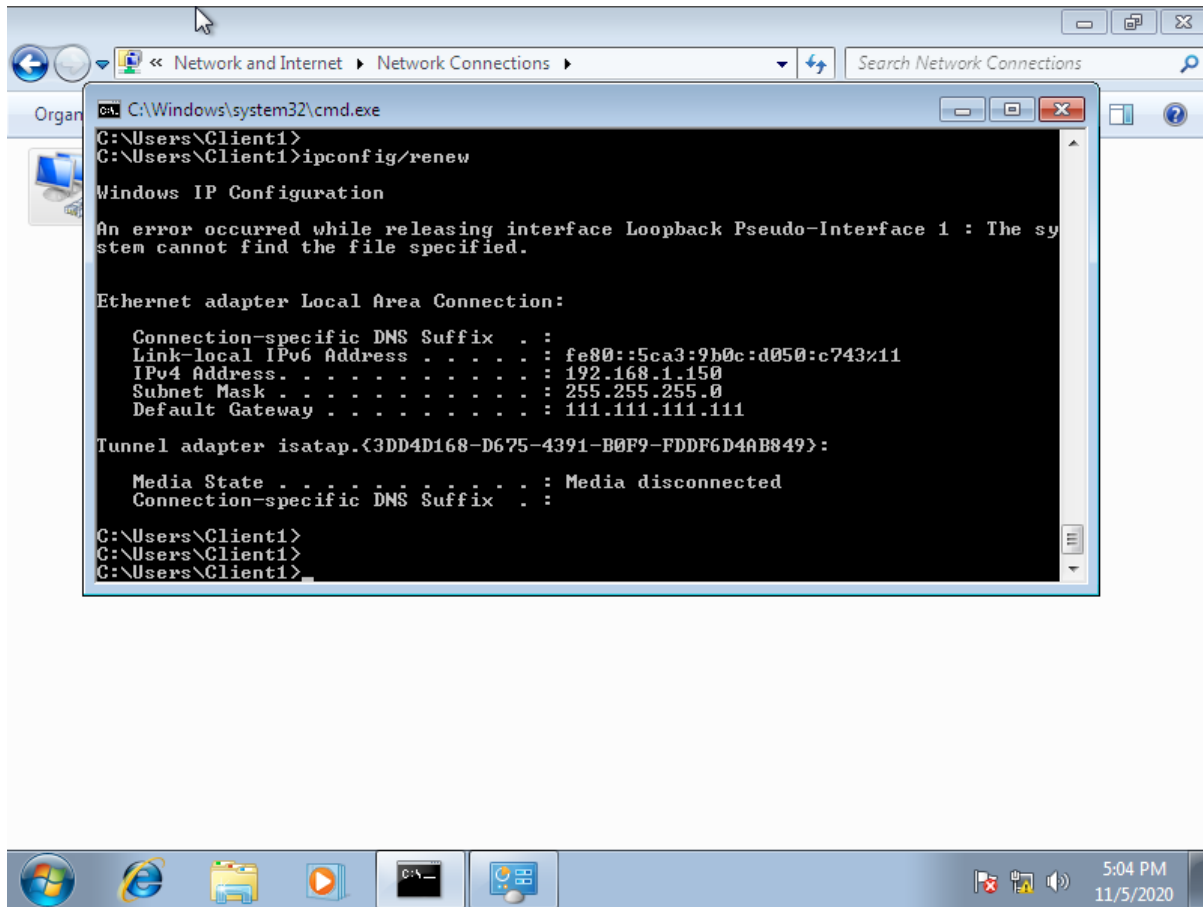


Figure 85: DHCP ipconfig/renew from Client

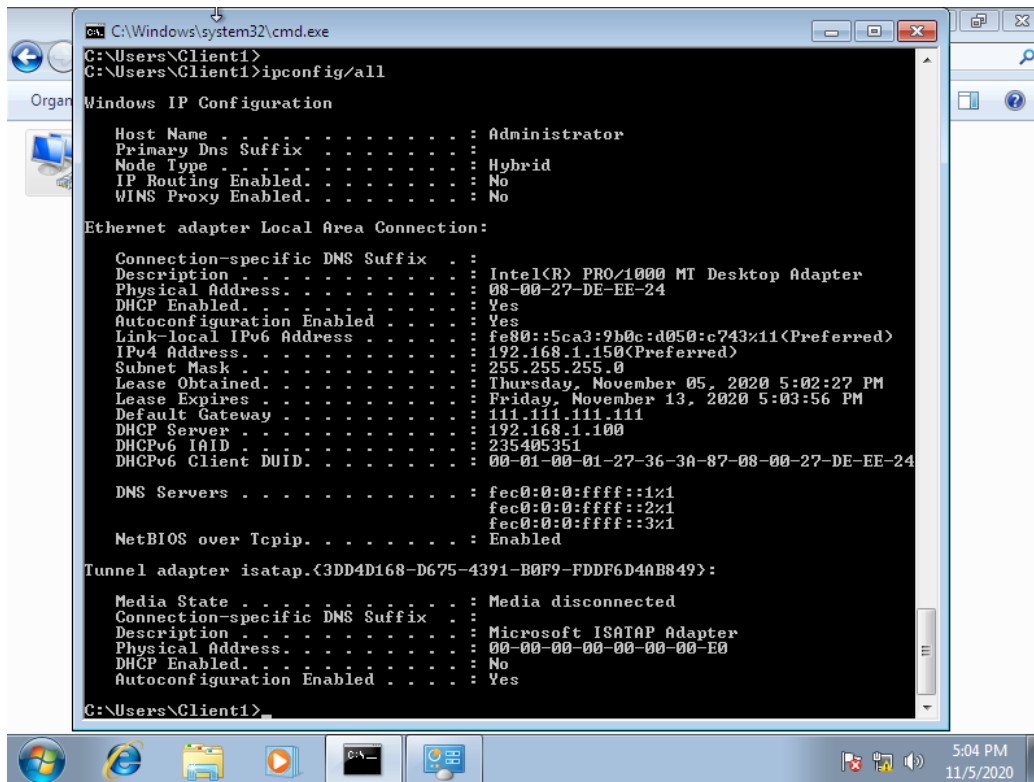


Figure 86: DHCP ipconfig/all from Client

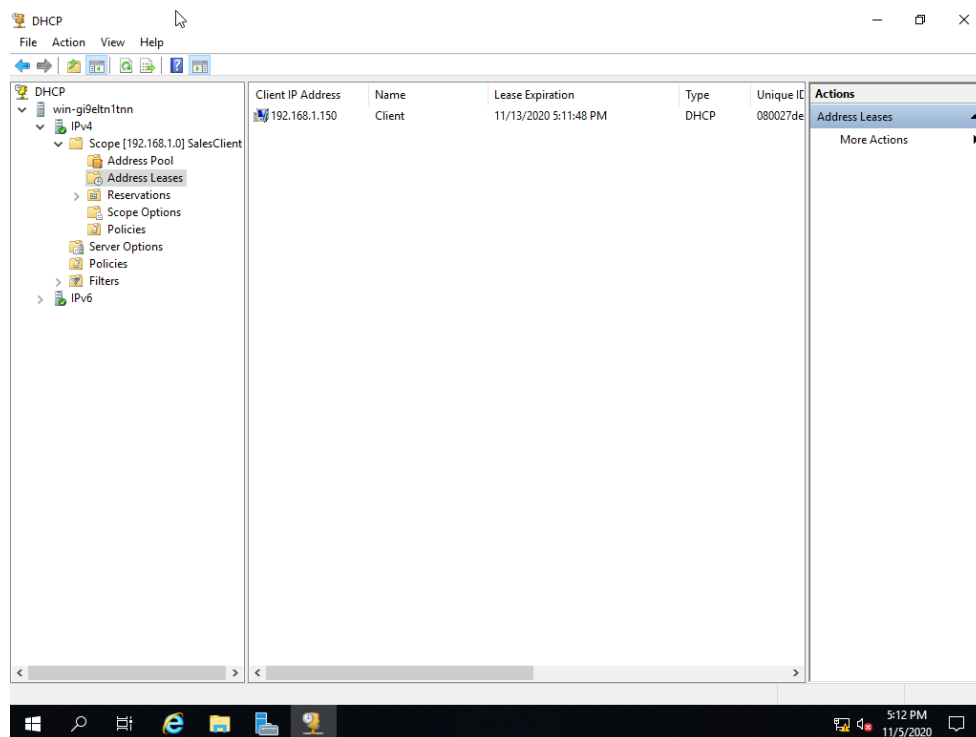


Figure 87: DHCP display the computer's name of the client

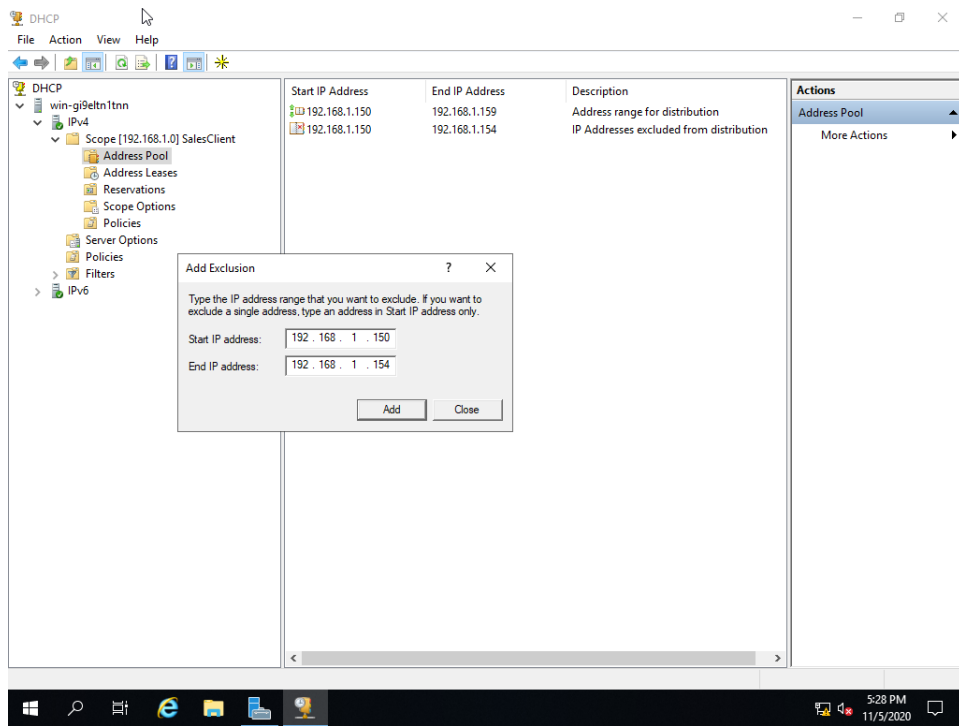


Figure 88: DHCP the IP range that the Client will never get it

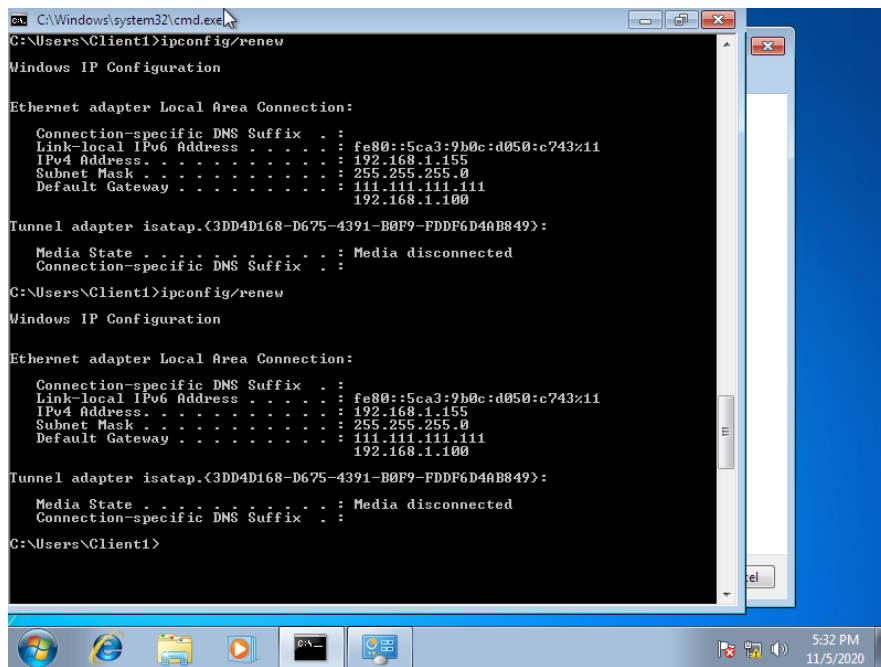


Figure 89: DHCP the new given IP address as we limited the address from 255 to259

```
C:\Windows\system32\cmd.exe
C:\Users\Client1>ipconfig/all

Windows IP Configuration

Host Name . . . . . : Client
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
Physical Address. . . . . : 08-00-27-DE-EE-24
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . : Yes
Link-local IPv6 Address . . . . : fe80::5ca3:9b0c:d050:c743%11(Preferred)
IPv4 Address. . . . . : 192.168.1.155(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Thursday, November 05, 2020 5:27:20 PM
Lease Expires . . . . . : Friday, November 13, 2020 5:32:49 PM
Default Gateway . . . . . : 111.111.111.111
                             192.168.1.100
DHCP Server . . . . . : 192.168.1.100
DHCPv6 IAID . . . . . : 235405351
DHCPv6 Client DUID. . . . . : 00-01-00-01-27-36-3A-87-08-00-27-DE-EE-24

DNS Servers . . . . . : fec0:0:0:ffff::1%1
                       fec0:0:0:ffff::2%1
                       fec0:0:0:ffff::3%1
NetBIOS over Tcpip. . . . . : Enabled

Tunnel adapter isatap.{3DD4D168-D675-4391-B0F9-FDDF6D4AB849}:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft ISATAP Adapter
Physical Address. . . . . : 00-00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . : Yes

C:\Users\Client1>
```

Figure 90: DHCP ipconfig/all to verify that the default gateway IP is the IP address of the server

Worksheet 5: Network Administration using DHCP

- Task 1: Understanding DNS operation; Planning and deploying DNS
 - Task (A). Check the Host Name and Fully Qualified Domain Name of your Server.

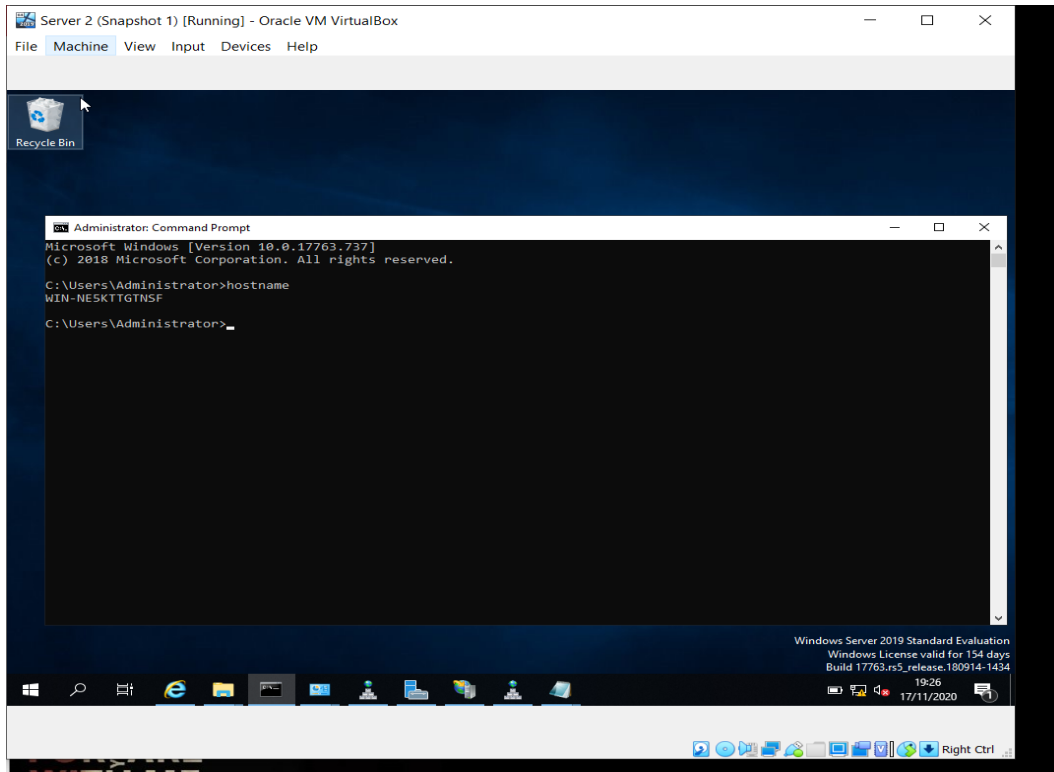


Figure 91: Hostname for server2

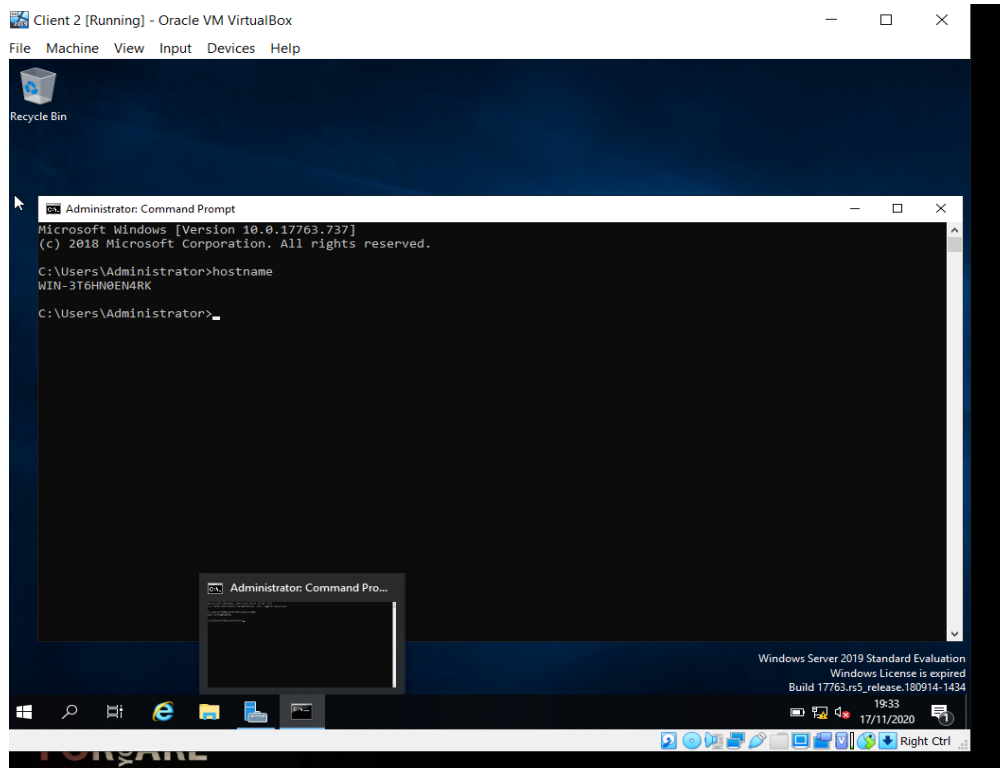


Figure 92: Hostname for client2

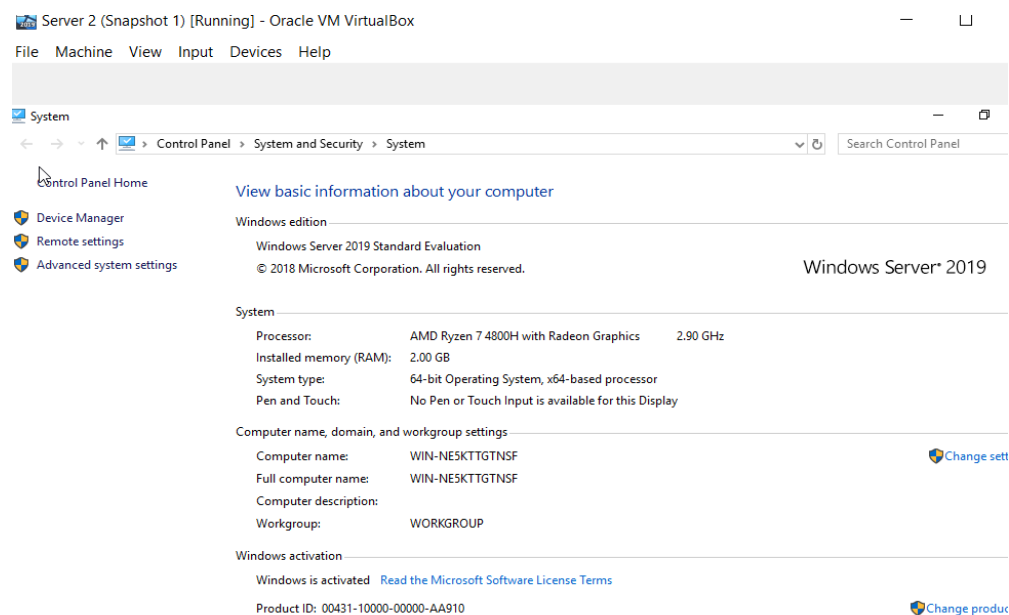


Figure 93: Fully Qualified Domain Name for server 2

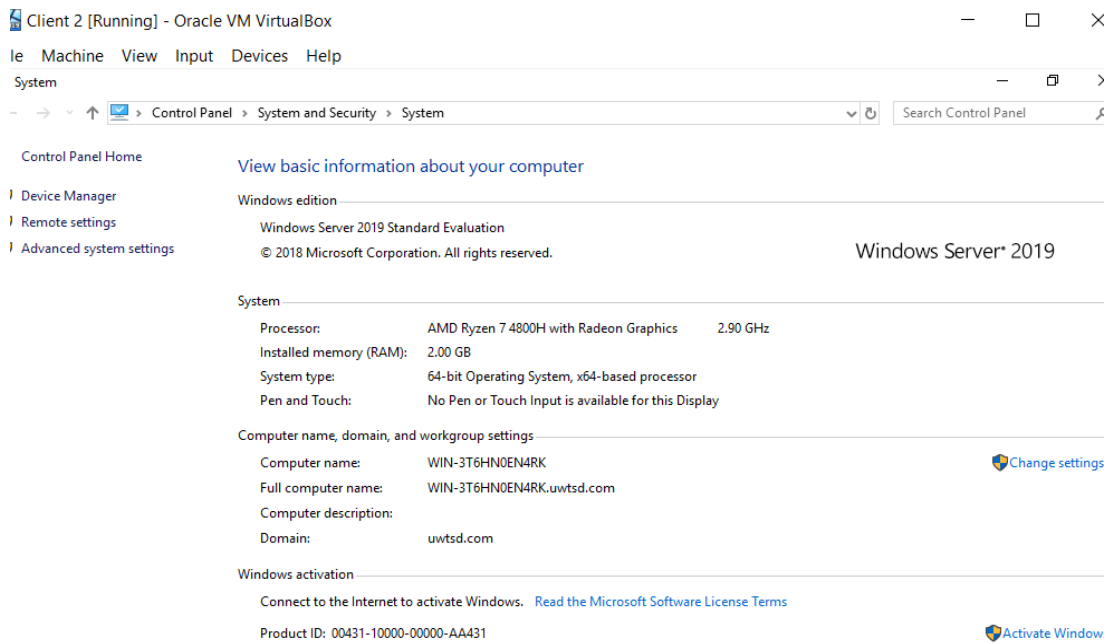


Figure 94: Fully Qualified Domain Name for client2

➤ Task (B). Installing the DNS Server Service of DNS Server installed

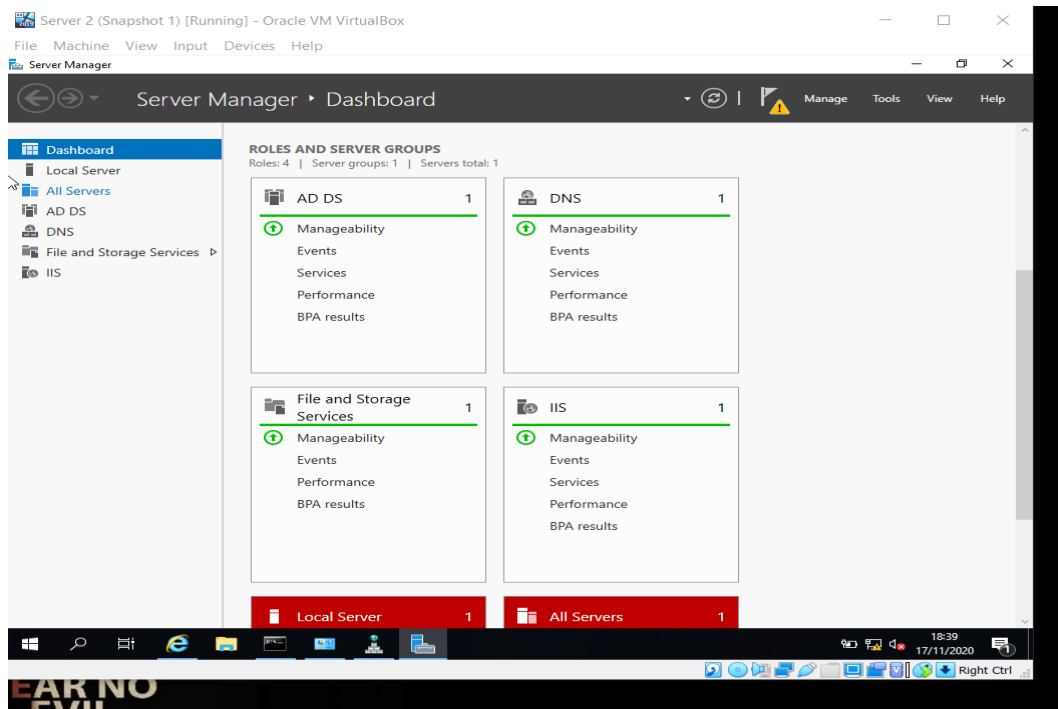


Figure 95: Installing the DNS Server Service of DNS Server installed

➤ Task 2: Storing and Maintaining DNS Data

- Task (A)

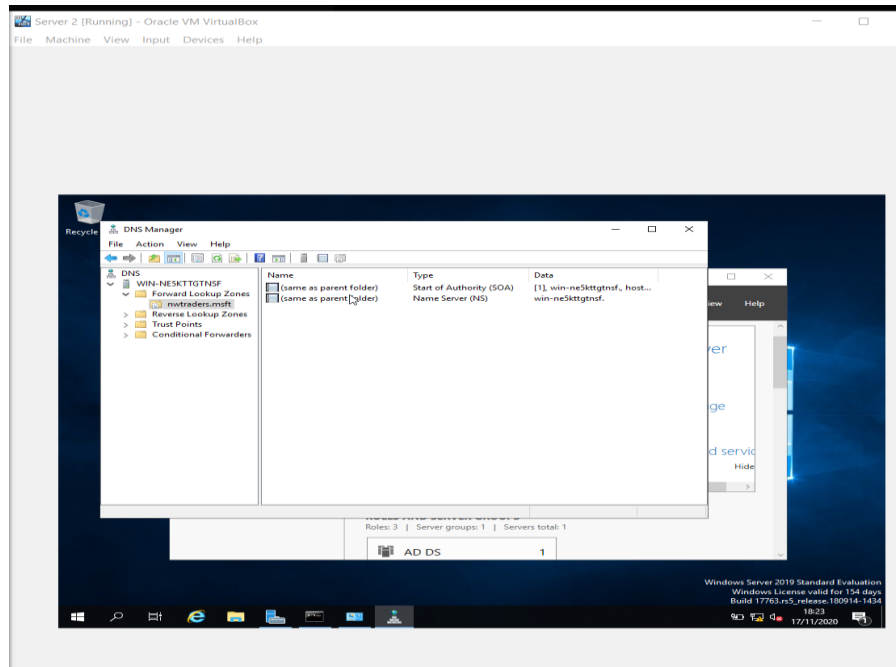


Figure 96: Storing and Maintaining DNS Data

➤ Task 3. DNS Application of Web Server (IIS) installed

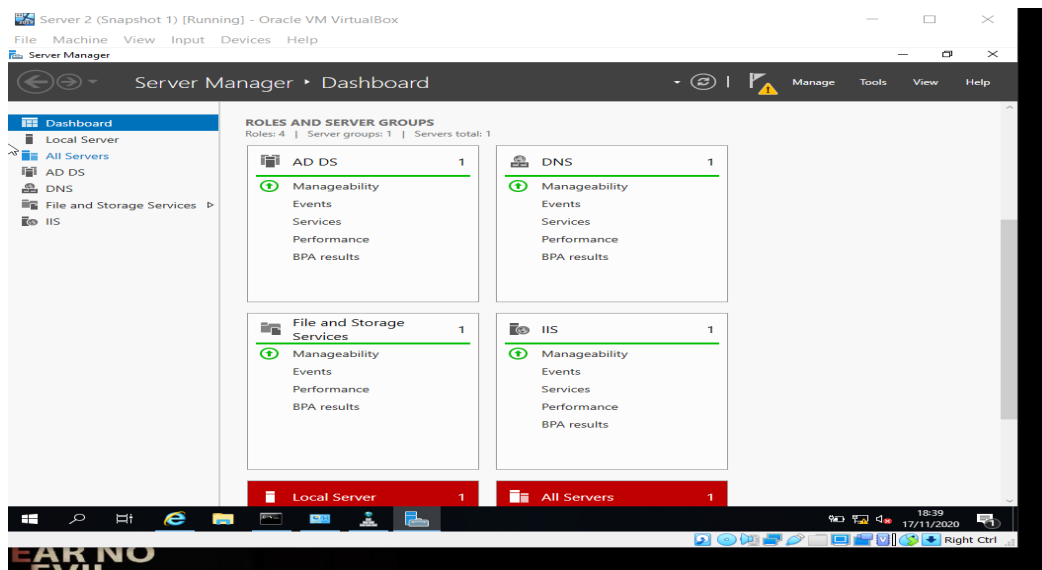


Figure 97: DNS Application of Web Server (IIS) installed

➤ Creating a Virtual Directory

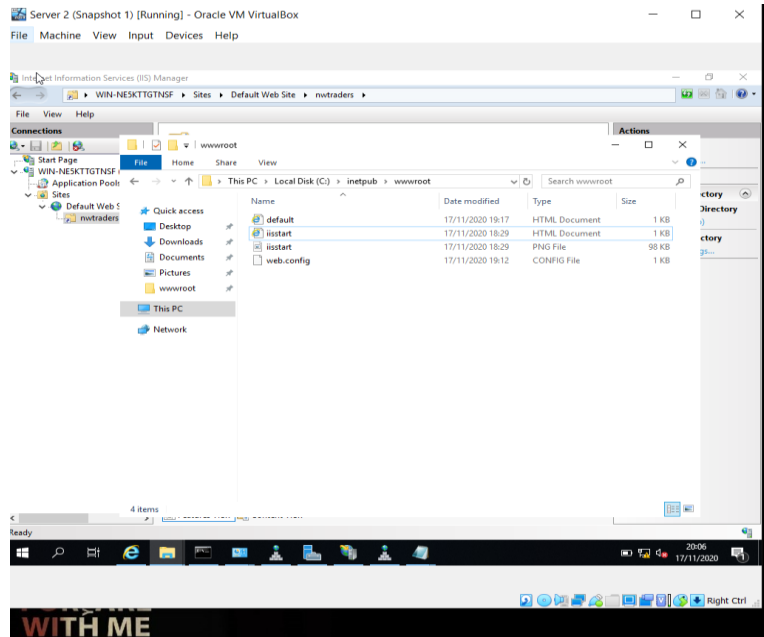


Figure 98: Creating a Virtual Directory

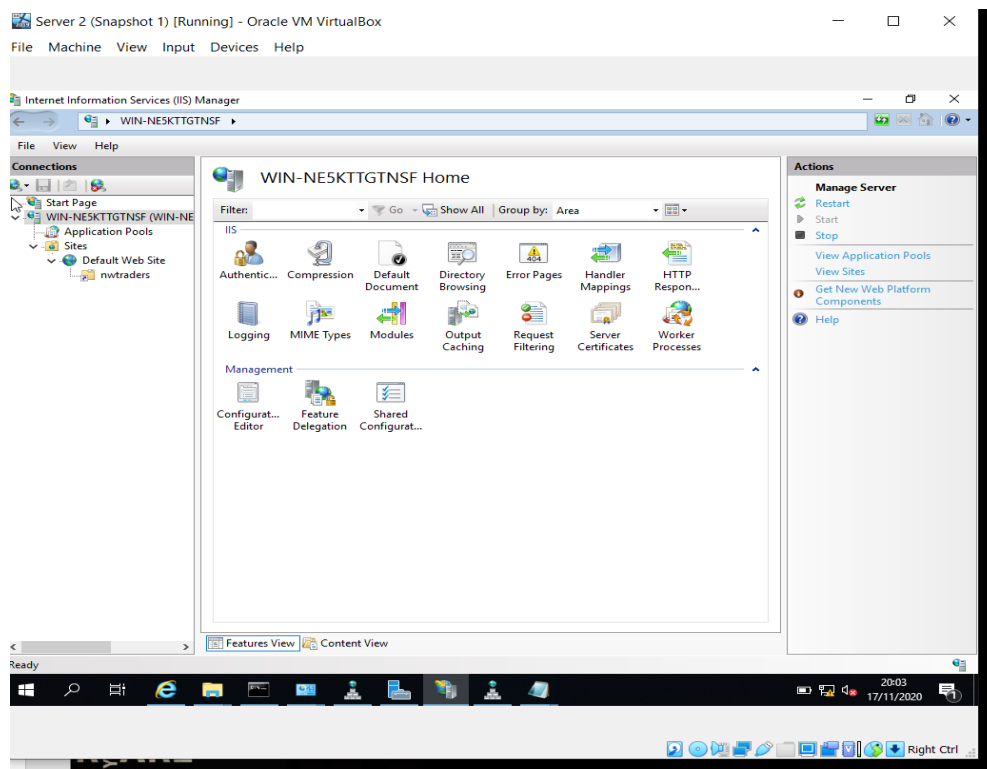


Figure 99: Creating a Virtual Directory

- Demonstrate the service is running

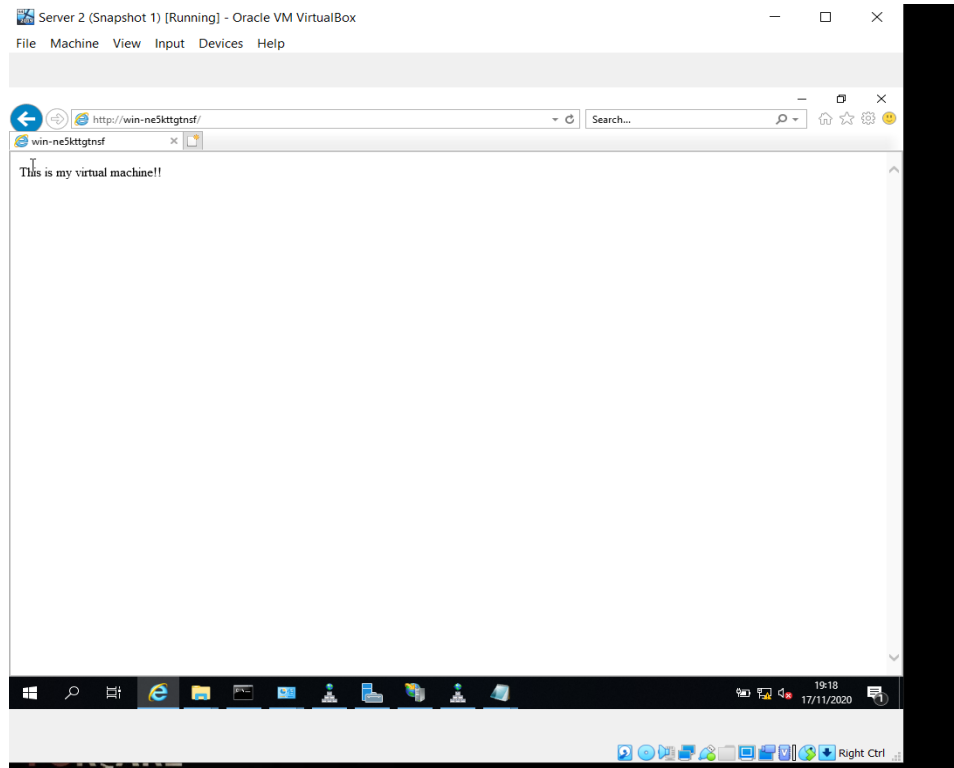


Figure 100: Demonstrate the service is running