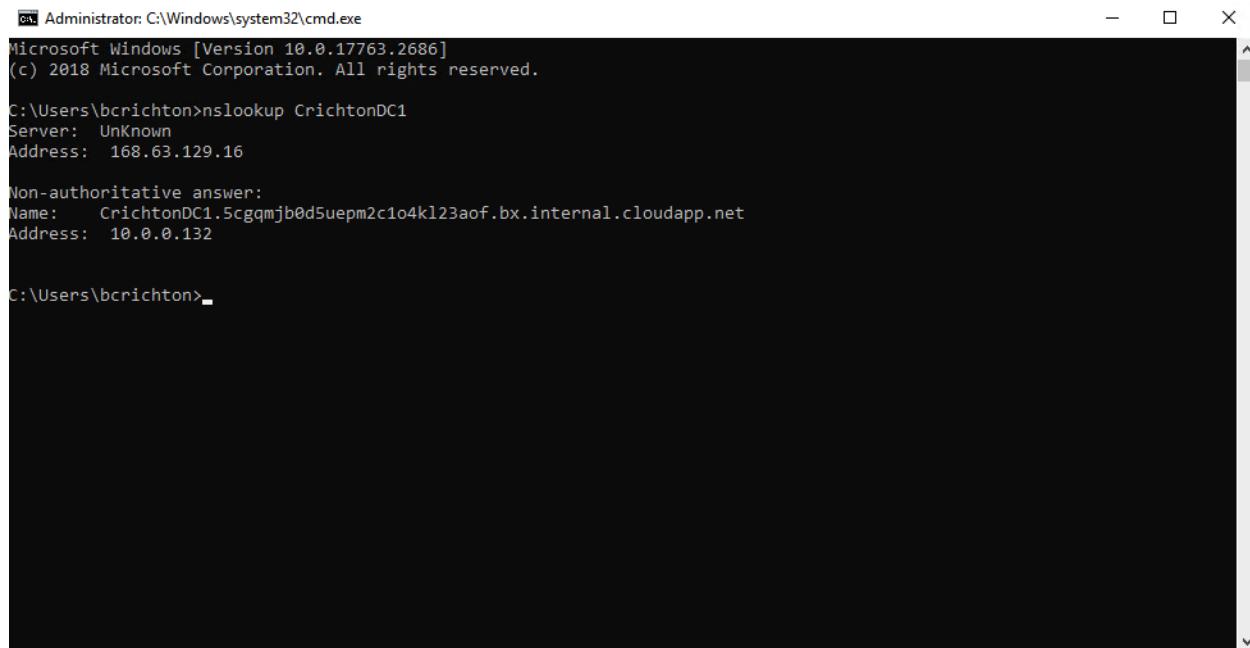


DNS Enhancements & Creating Windows File Server

The purpose of this assignment / project is to learn the following:

- Creating a DNS suffix search list for a server not joined to the domain
- Adding a Reverse Lookup Zone to a DNS server, as well as creating PTR records
- Add a new virtual disk (VHD) to a VM
- Create a Windows network file shares on a Windows 2019 server
- Provision a Windows 10 workstation (VM)

1. (10 points) RDP to your bastion host and if necessary change its DNS server to the IP address of the DNS server used for your domain. Perform a nslookup to your domain controller (LastnameDC1) via hostname (ie. ~~DC1~~DC1). Provide a screenshot showing the results.



```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.17763.2686]
(c) 2018 Microsoft Corporation. All rights reserved.

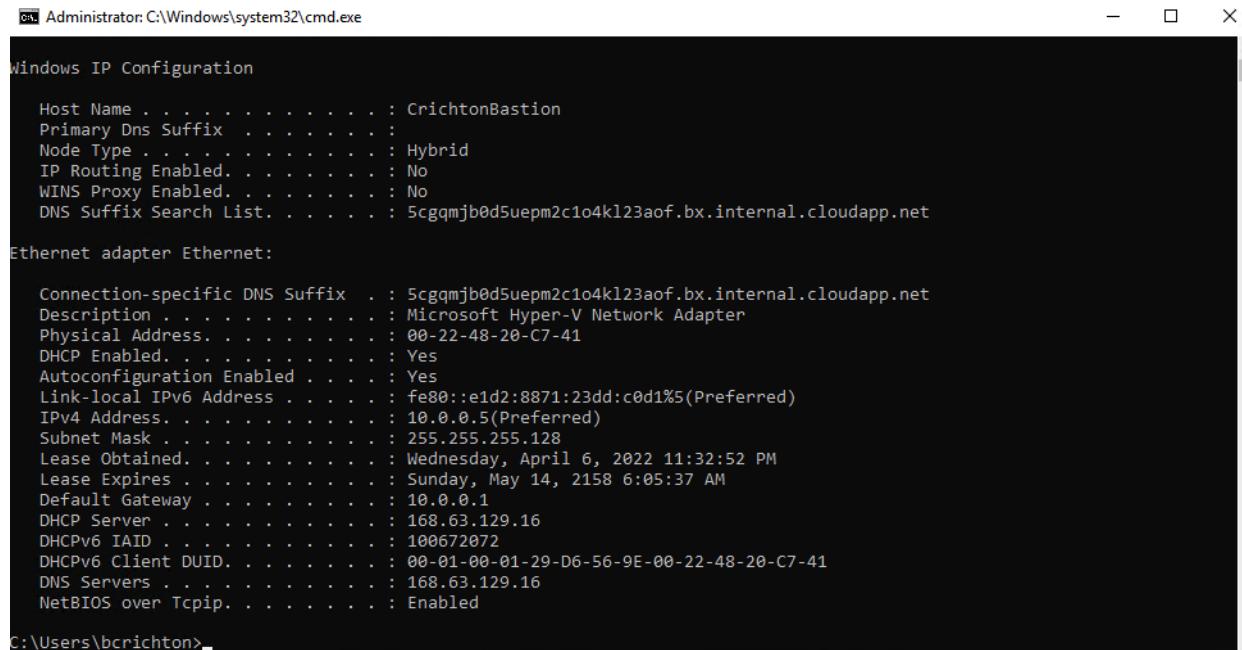
C:\Users\bcrichton>nslookup CrichtonDC1
Server: UnKnown
Address: 168.63.129.16

Non-authoritative answer:
Name: CrichtonDC1.5cgqmjb0d5uepm2c1o4kl23aof.bx.internal.cloudapp.net
Address: 10.0.0.132

C:\Users\bcrichton>
```

DNS Enhancements & Creating Windows File Server

BEFORE:



```
Administrator: C:\Windows\system32\cmd.exe
Windows IP Configuration

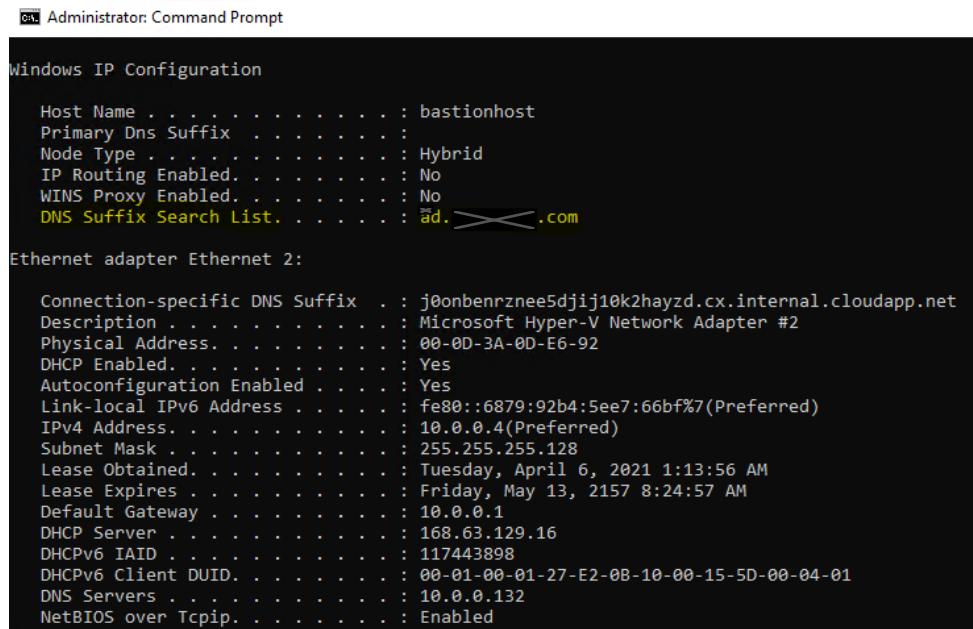
Host Name . . . . . : CrichtonBastion
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : 5cgqmjb0d5uepm2c1o4kl23aof.bx.internal.cloudapp.net

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . . . . . : 5cgqmjb0d5uepm2c1o4kl23aof.bx.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 00-22-48-20-C7-41
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::e1d2:8871:23dd:c0d1%5(PREFERRED)
IPv4 Address. . . . . : 10.0.0.5(Preferred)
Subnet Mask . . . . . : 255.255.255.128
Lease Obtained. . . . . : Wednesday, April 6, 2022 11:32:52 PM
Lease Expires . . . . . : Sunday, May 14, 2158 6:05:37 AM
Default Gateway . . . . . : 10.0.0.1
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 100672072
DHCPv6 Client DUID. . . . . : 00-01-00-01-29-D6-56-9E-00-22-48-20-C7-41
DNS Servers . . . . . : 168.63.129.16
NetBIOS over Tcpip. . . . . : Enabled

C:\Users\bcrichton>
```

Since your bastion host is not joined to the domain it is unaware of the DNS Suffix Search List used by your domain (████████████). Therefore, the nslookup record returned above did not return a result for the FQDN within your domain.



```
Administrator: Command Prompt
Windows IP Configuration

Host Name . . . . . : bastionhost
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : ad.████████.com

Ethernet adapter Ethernet 2:

Connection-specific DNS Suffix . . . . . : j0onbenrznee5djij10k2hayzd.cx.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter #2
Physical Address. . . . . : 00-0D-3A-0D-E6-92
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::6879:92b4:5ee7:66bf%7(PREFERRED)
IPv4 Address. . . . . : 10.0.0.4(Preferred)
Subnet Mask . . . . . : 255.255.255.128
Lease Obtained. . . . . : Tuesday, April 6, 2021 1:13:56 AM
Lease Expires . . . . . : Friday, May 13, 2157 8:24:57 AM
Default Gateway . . . . . : 10.0.0.1
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 117443898
DHCPv6 Client DUID. . . . . : 00-01-00-01-27-E2-0B-10-00-15-5D-00-04-01
DNS Servers . . . . . : 10.0.0.132
NetBIOS over Tcpip. . . . . : Enabled
```

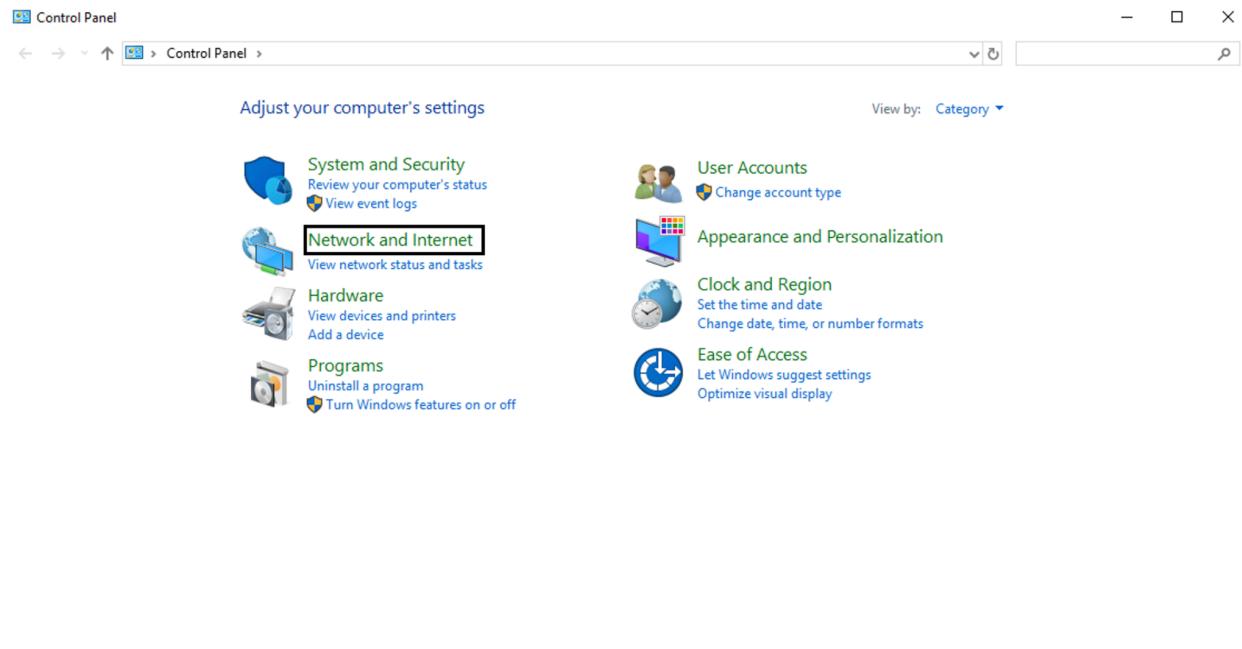
DNS Enhancements & Creating Windows File Server

As a result you will have to manually add the FQDN to the DNS Suffix Search List. Use the following URL as a guide to updating the DNS Suffix Search List for Bastionhost.

<https://www.itprotoday.com/windows-server/q-how-can-i-set-dns-suffix-search-list-windows-server-core-installation>

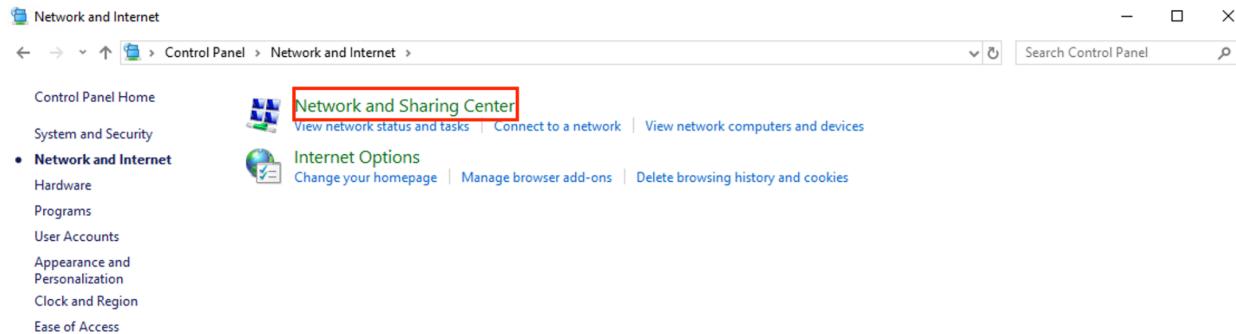
ADD FQDN TO DNS SUFFIX SEARCH LIST:

Open Control Panel >> Network and Internet

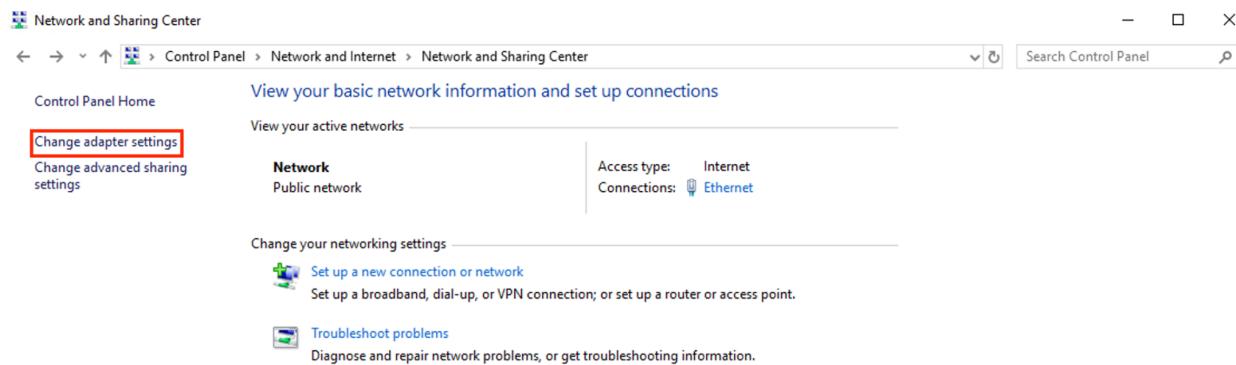


DNS Enhancements & Creating Windows File Server

Click Network and Sharing Center



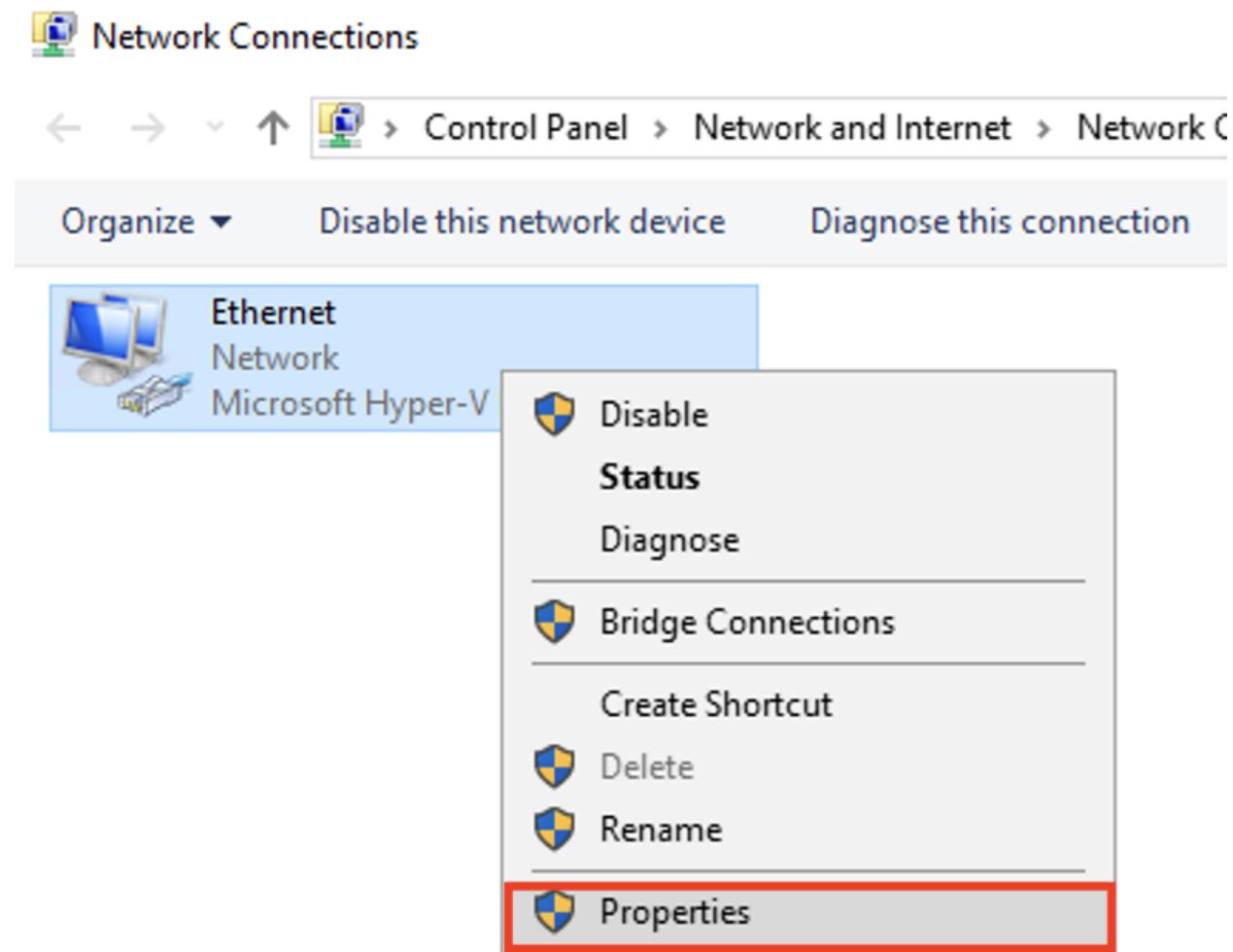
Click Change Adapter Settings



See also
Internet Options
Windows Defender Firewall

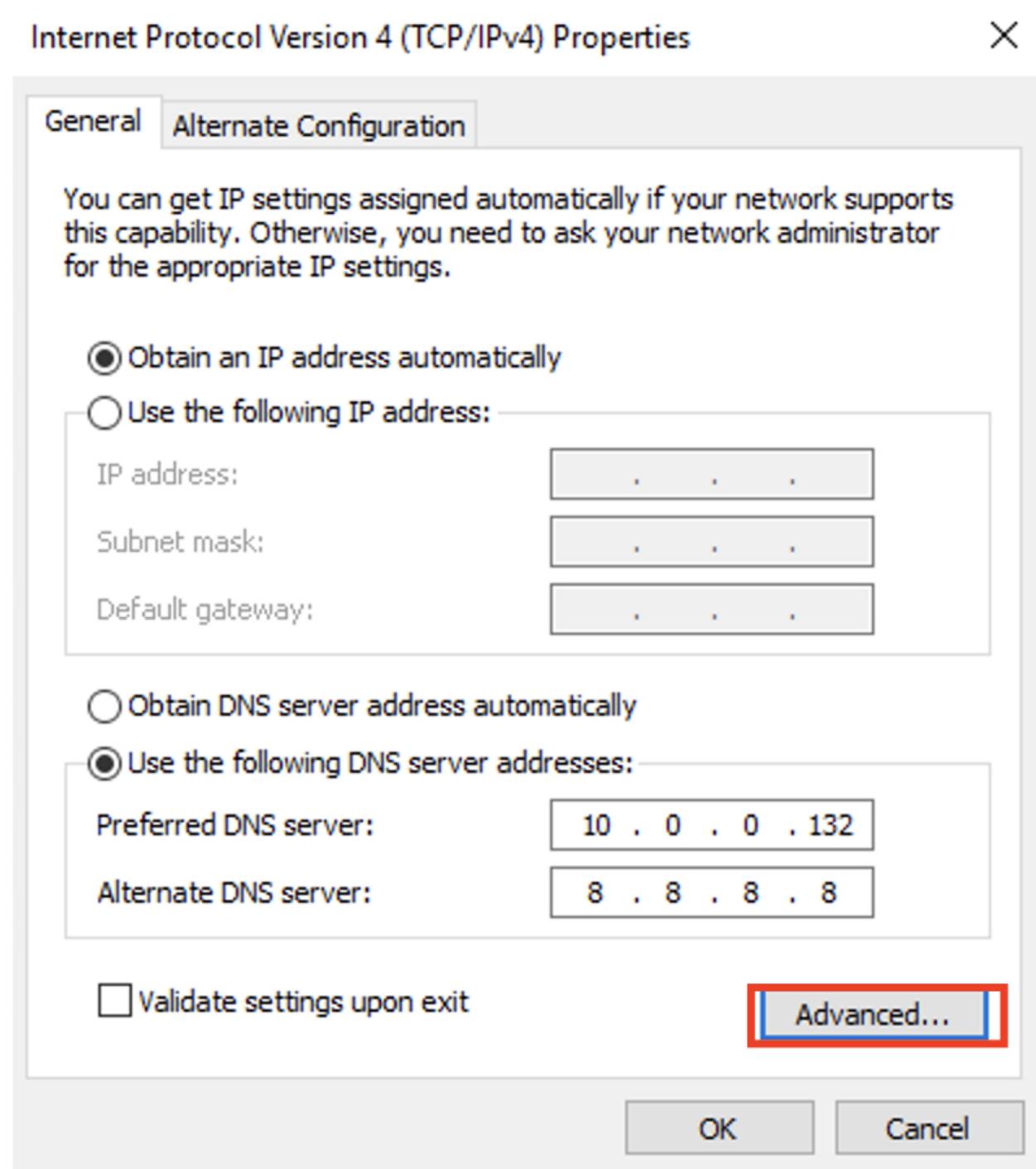
DNS Enhancements & Creating Windows File Server

Right click on the Ethernet Network Adapter, then click **Properties**.



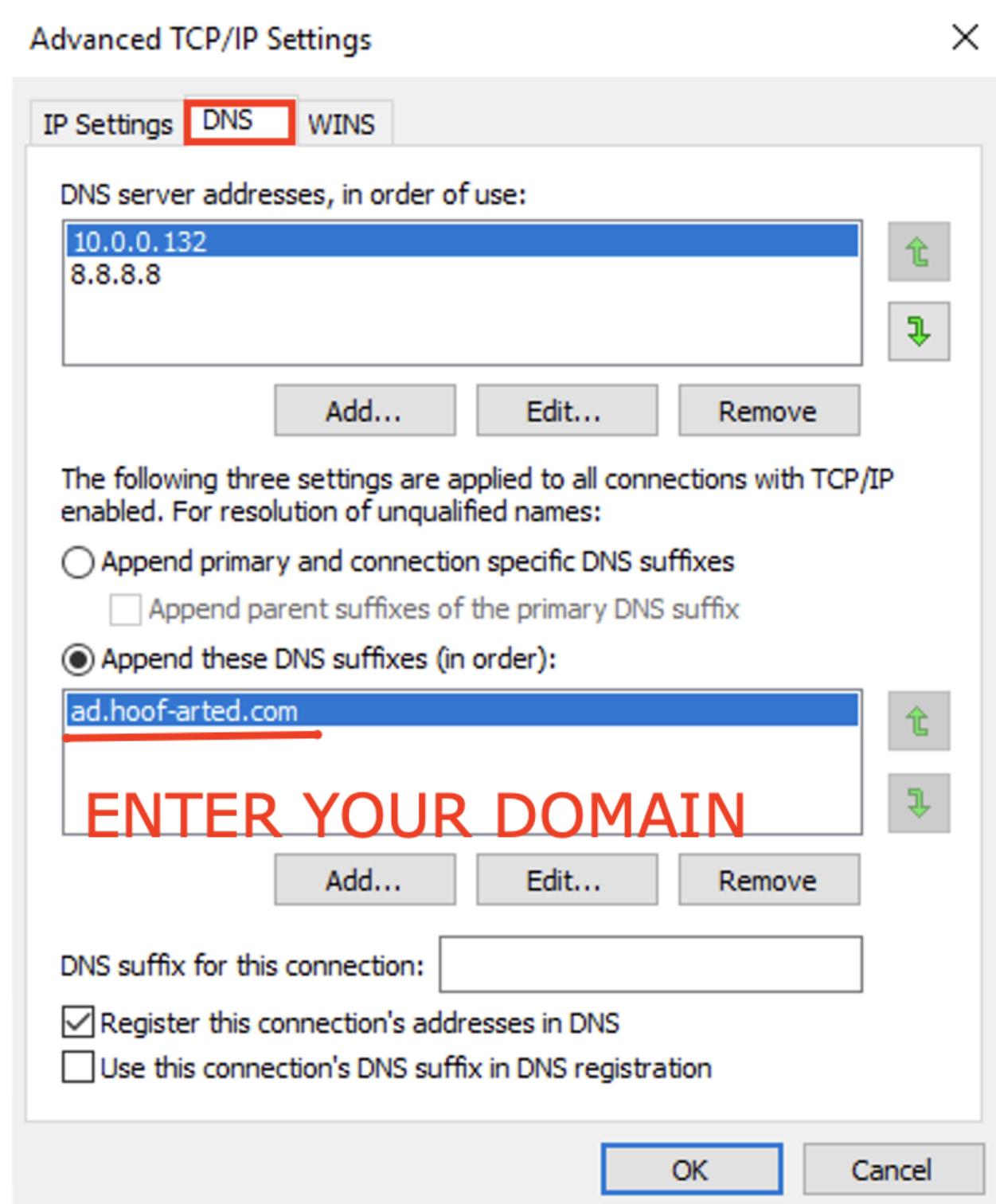
DNS Enhancements & Creating Windows File Server

Double click on the IPv4 option in the list, then click **Advanced**.



DNS Enhancements & Creating Windows File Server

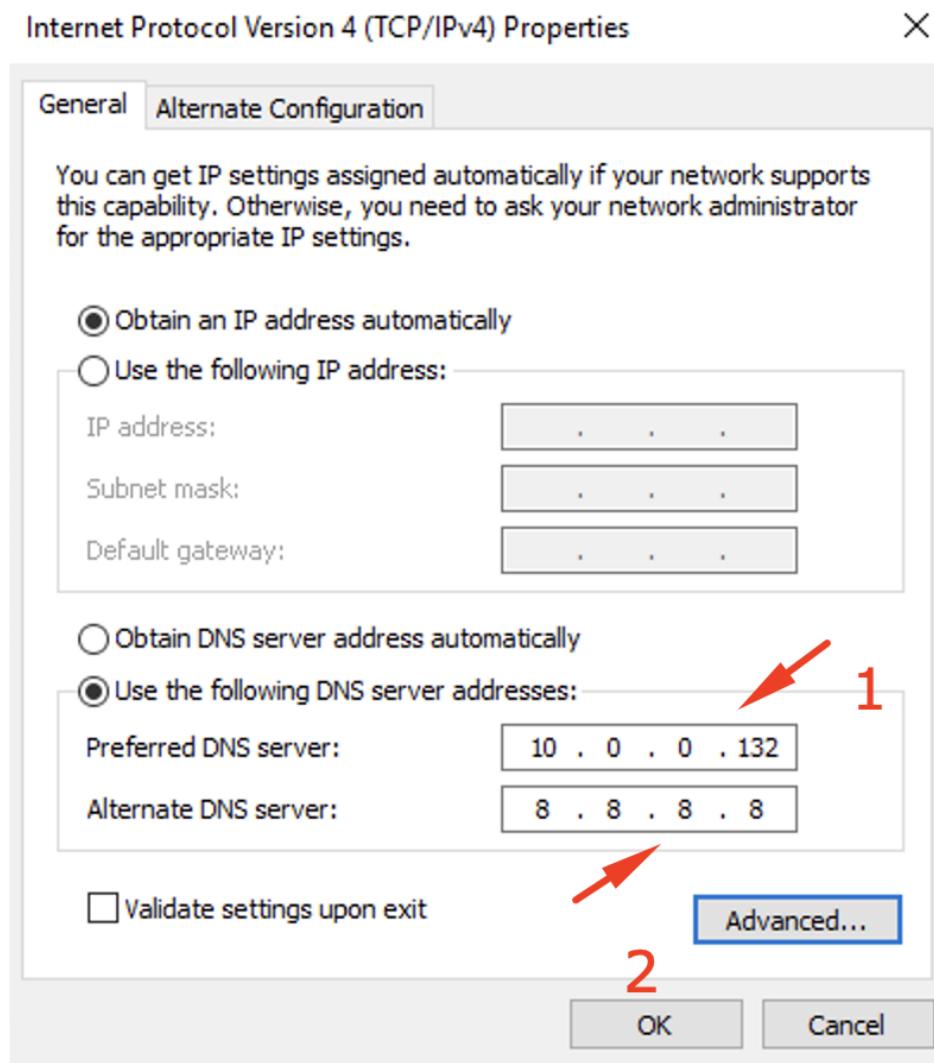
Click the **DNS** tab. Fill in the bubble **Append these DNS suffixes (in order)**: and then click the **Add...** button below that, and enter your domain name into the box. Then click **OK**.



DNS Enhancements & Creating Windows File Server

When you click **OK**, this page will come back up. You want to fill in the bubble that says **Use the following DNS server addresses**. When you do that you want to set the private IP address of your domain controller as your **Preferred DNS server**. For the alternate server, I have it just set to the public Google DNS. Then click **OK**.

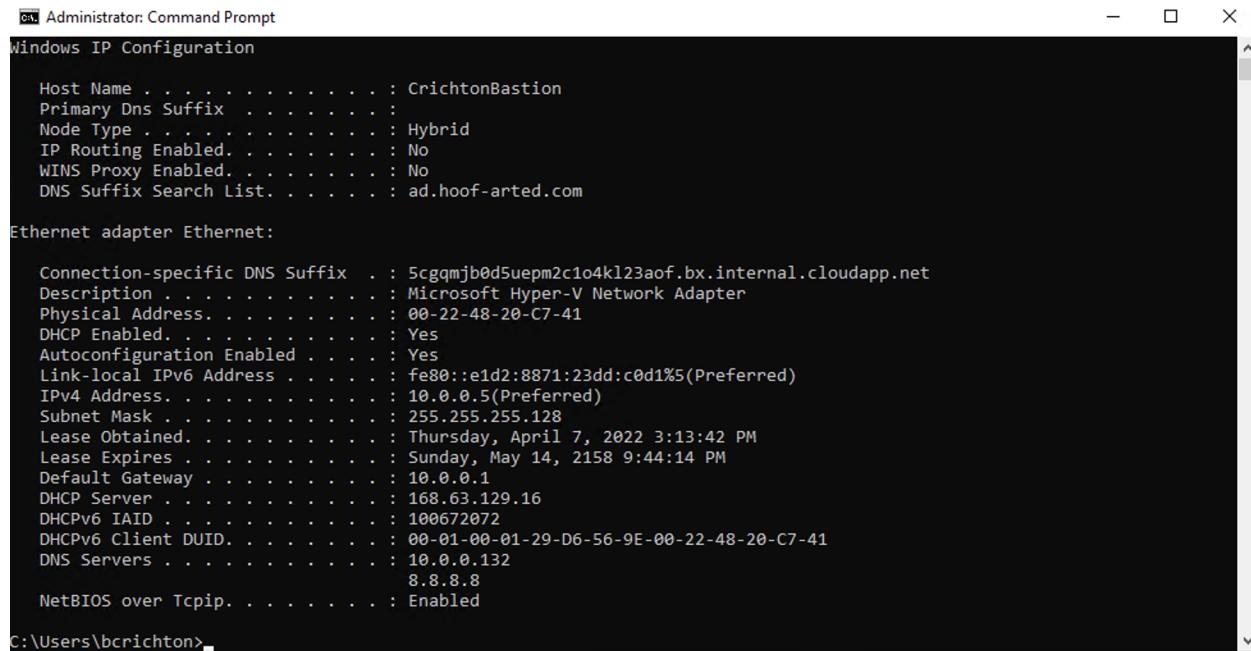
****NOTE YOUR VM WILL DISCONNECT AND YOU MAY HAVE TO RESTART THE VM IN AZURE****



DNS Enhancements & Creating Windows File Server

Now, perform an nslookup again to your domain controller (LastnameDC1) via hostname (ie. BeckDC1). Provide a screenshot showing your results. How does it differ from above? Perform an ipconfig /all showing your DNS Suffix Search List. Provide a screenshot.

AFTER:



```
Administrator: Command Prompt
Windows IP Configuration

Host Name . . . . . : CrichtonBastion
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : ad.hoof-arted.com

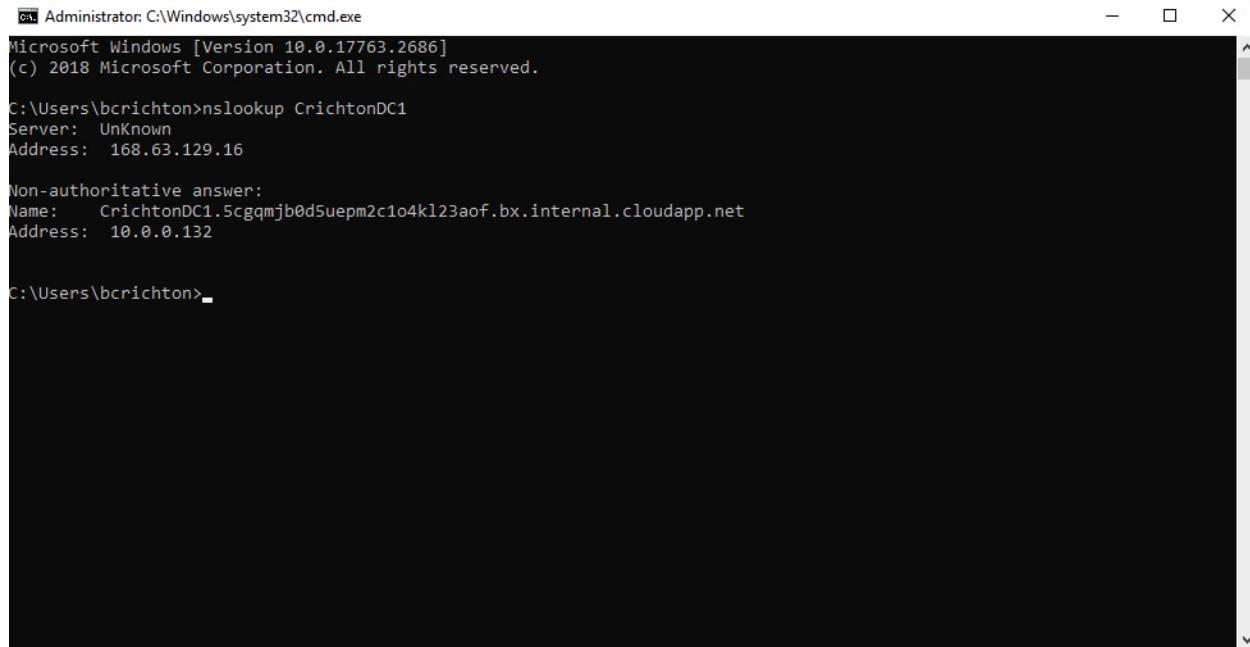
Ethernet adapter Ethernet:

Connection-specific DNS Suffix . . . . . : 5cgqmjb0d5uepm2c1o4kl23aof.bx.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 00-22-48-20-C7-41
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::e1d2:8871:23dd:c0d1%5(PREFERRED)
IPv4 Address. . . . . : 10.0.0.5(Preferred)
Subnet Mask . . . . . : 255.255.255.128
Lease Obtained. . . . . : Thursday, April 7, 2022 3:13:42 PM
Lease Expires . . . . . : Sunday, May 14, 2158 9:44:14 PM
Default Gateway . . . . . : 10.0.0.1
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 100672072
DHCPv6 Client DUID. . . . . : 00-01-00-01-29-D6-56-9E-00-22-48-20-C7-41
DNS Servers . . . . . : 10.0.0.132
                           8.8.8.8
NetBIOS over Tcpip. . . . . : Enabled

C:\Users\bcrichton>
```

DNS Enhancements & Creating Windows File Server

BEFORE:



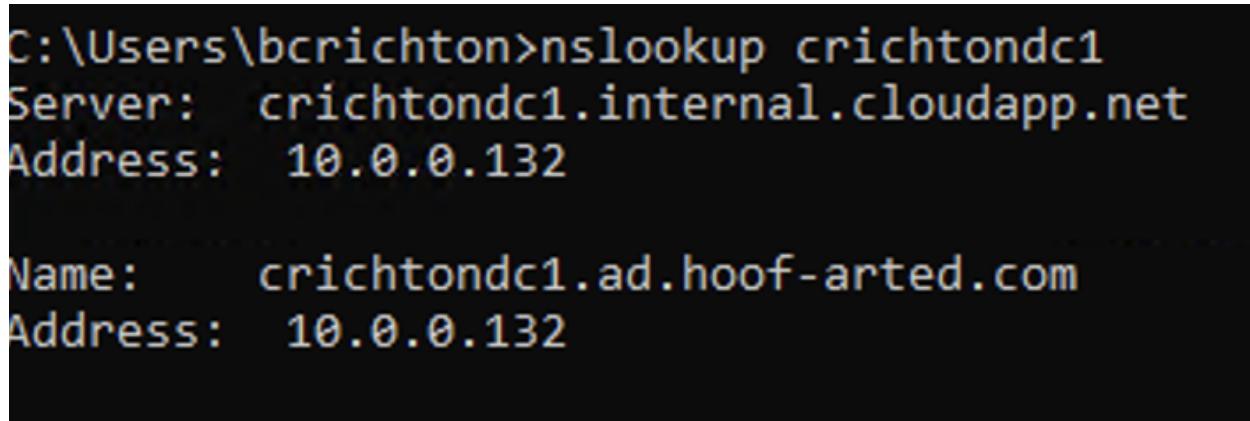
```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.17763.2686]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\bcrichton>nslookup CrichtonDC1
Server: UnKnown
Address: 168.63.129.16

Non-authoritative answer:
Name: CrichtonDC1.5cgqmjb0d5uepm2c1o4kl23aof.bx.internal.cloudapp.net
Address: 10.0.0.132

C:\Users\bcrichton>
```

After:



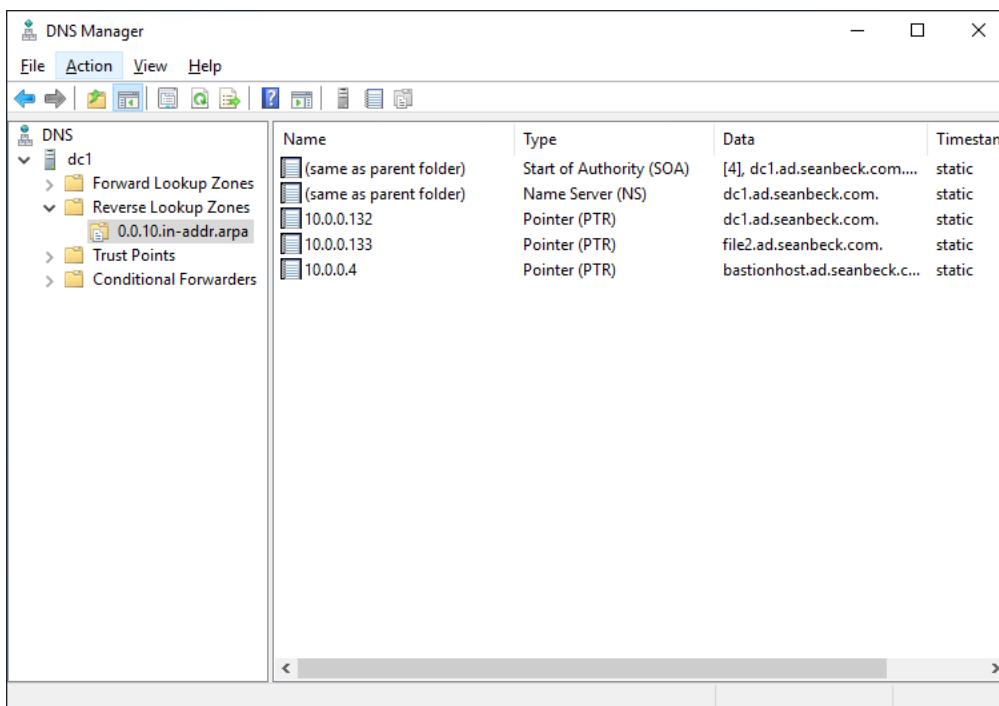
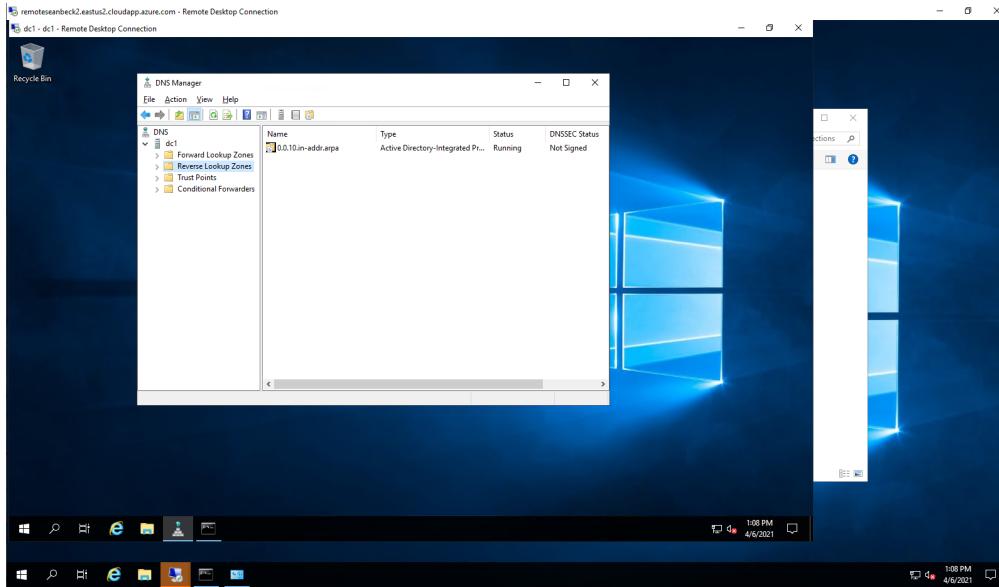
```
C:\Users\bcrichton>nslookup crichtondc1
Server: crichtondc1.internal.cloudapp.net
Address: 10.0.0.132

Name: crichtondc1.ad.hoof-arted.com
Address: 10.0.0.132
```

The **nslookup** command to the domain controller has changed. The server has populated at the top and the IP address is now returning the private IP for the domain controller for the DNS server. The name and address have also been populated correctly to what they should be.

DNS Enhancements & Creating Windows File Server

2. (10 points) RDP to your DC / DNS server and open DNS Manager. Create a Reverse Lookup Zone for the subnet 10.0.0.0 and create PTR records for all your servers. See the images below as an example.



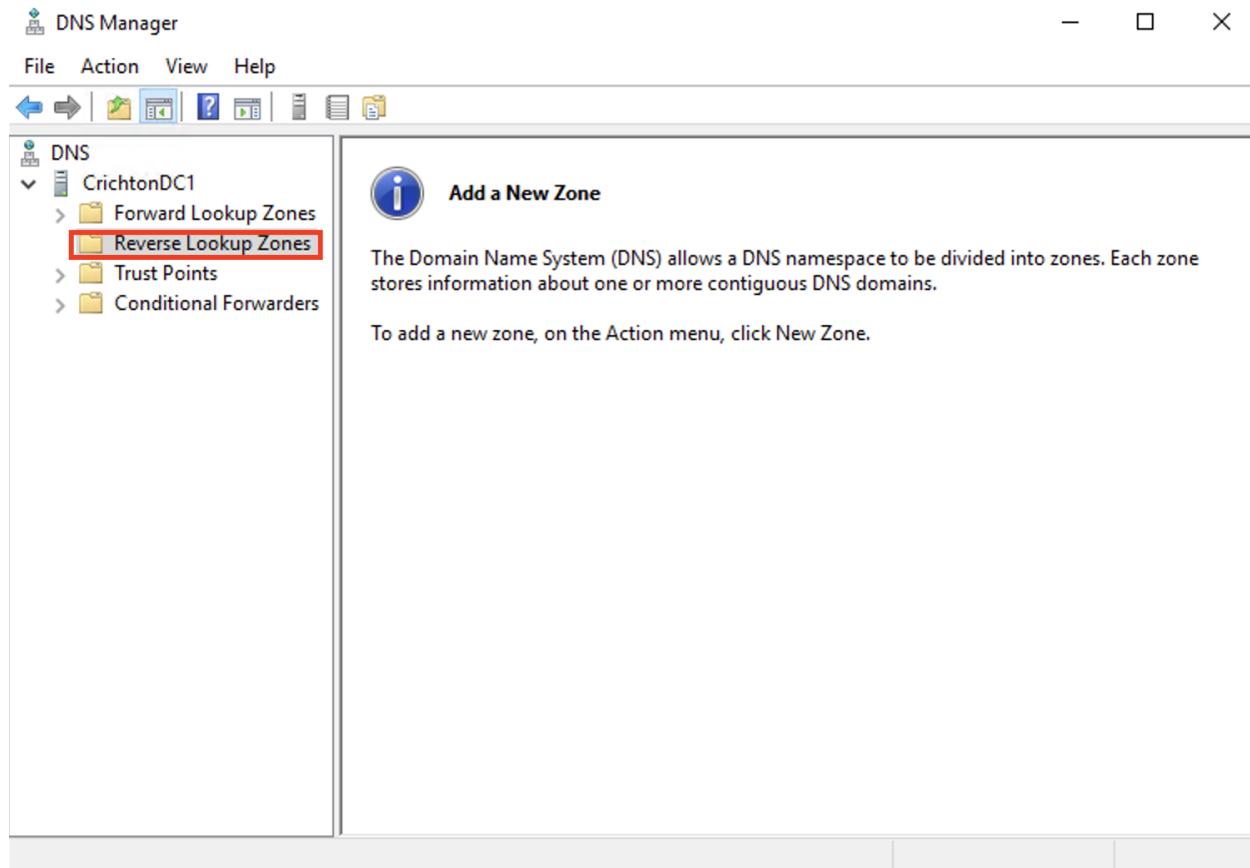
Provide screenshot(s) showing the newly created zone and PTR records, as well as of a screenshot showing the results of nslookup to the PTR record created for your DC. What is the purpose of a PTR record?

DNS Enhancements & Creating Windows File Server

CREATE A REVERSE LOOKUP ZONE

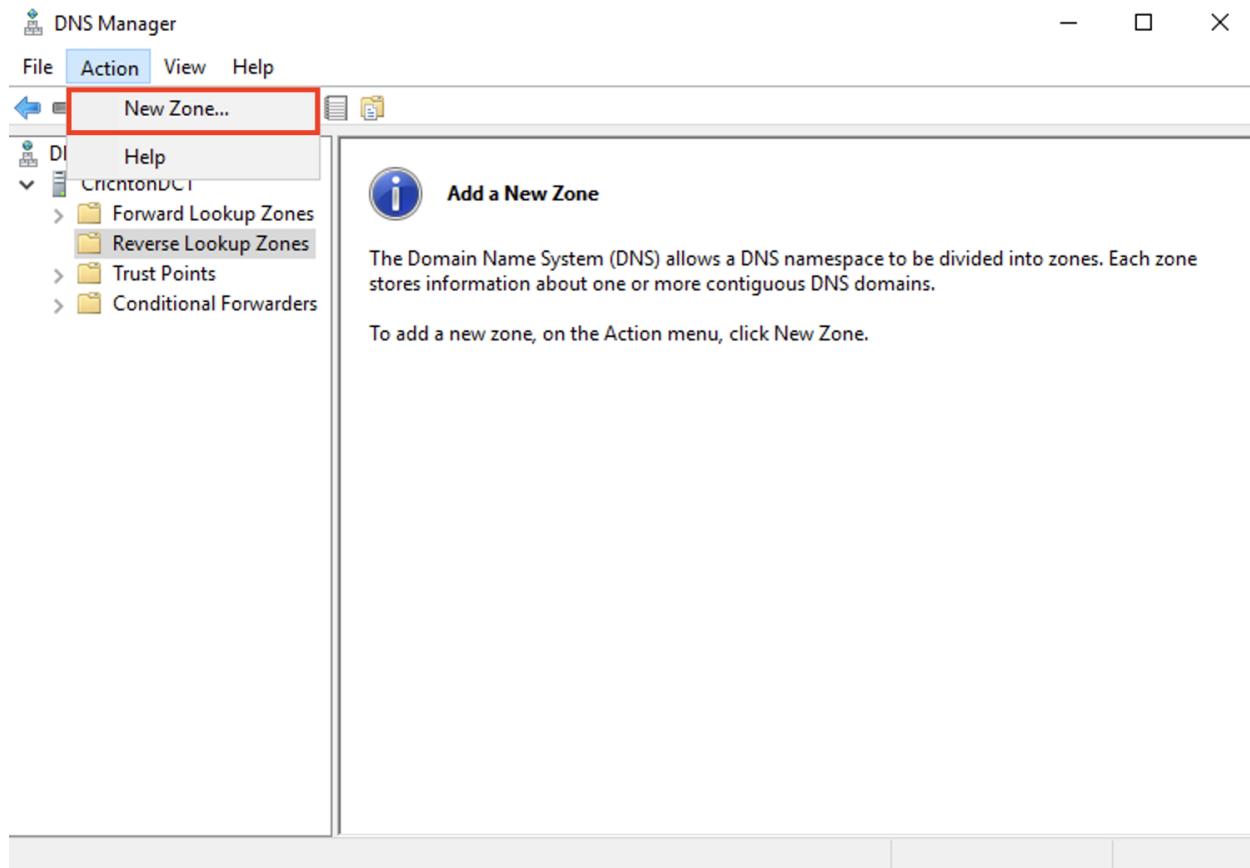
After you RDP to your DC, open the DNS application by going to the start menu, type in **DNS** and click the application that comes up. This will open up the **DNS manager**.

Navigate to the **Reverse Lookup Zones** folder.



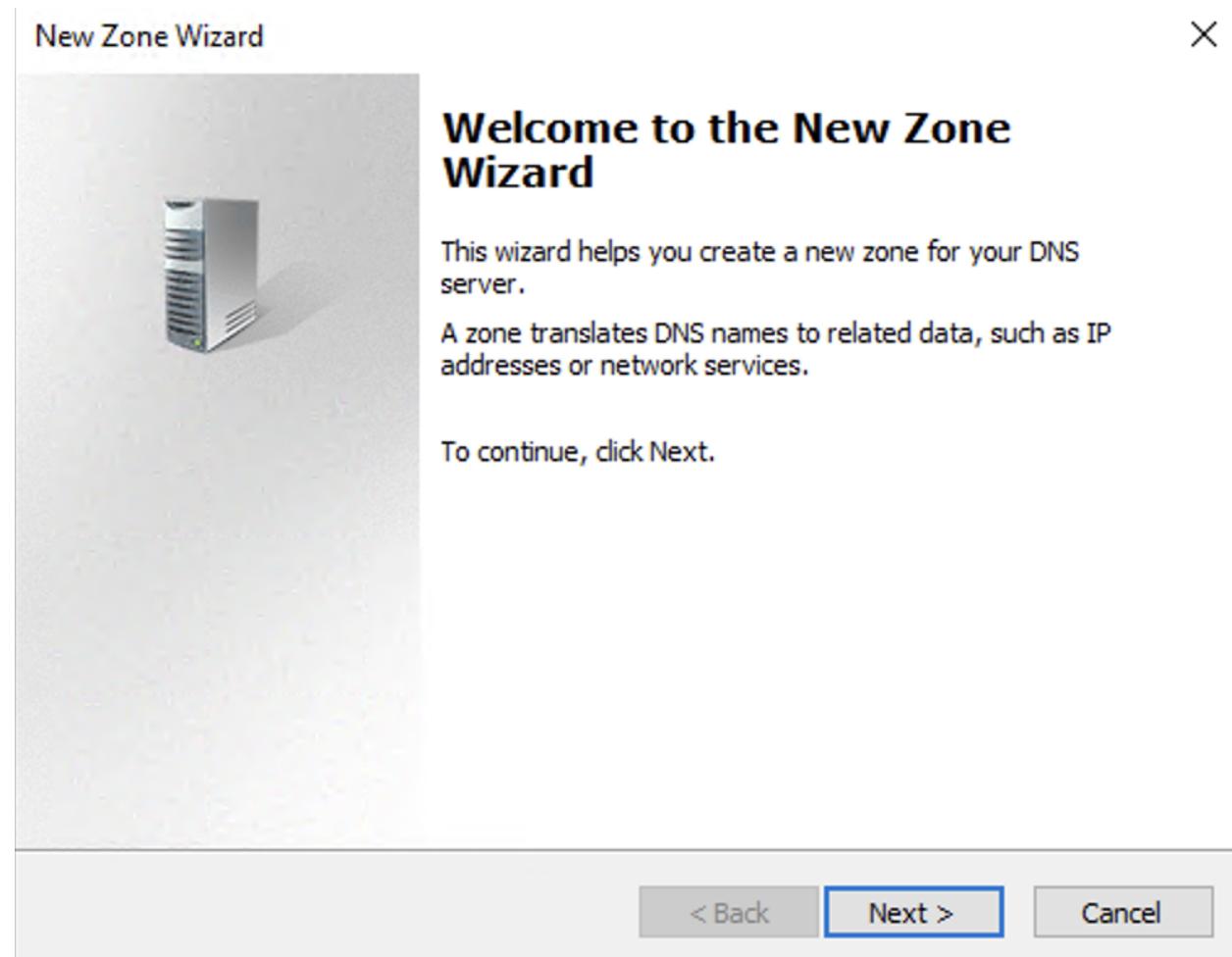
DNS Enhancements & Creating Windows File Server

In the menu bar at the top of the screen, click **Action >> New Zone**.



DNS Enhancements & Creating Windows File Server

Follow the steps through the **New Zone Wizard**. Click **Next**.



DNS Enhancements & Creating Windows File Server

Click **Next**

New Zone Wizard X

Zone Type

The DNS server supports various types of zones and storage.

Select the type of zone you want to create:

Primary zone
Creates a copy of a zone that can be updated directly on this server.

Secondary zone
Creates a copy of a zone that exists on another server. This option helps balance the processing load of primary servers and provides fault tolerance.

Stub zone
Creates a copy of a zone containing only Name Server (NS), Start of Authority (SOA), and possibly glue Host (A) records. A server containing a stub zone is not authoritative for that zone.

Store the zone in Active Directory (available only if DNS server is a writeable domain controller)

< Back Next > Cancel

DNS Enhancements & Creating Windows File Server

Click **Next**.

New Zone Wizard X

Active Directory Zone Replication Scope
You can select how you want DNS data replicated throughout your network.



Select how you want zone data replicated:

To all DNS servers running on domain controllers in this forest: ad.hoof-arted.com

To all DNS servers running on domain controllers in this domain: ad.hoof-arted.com

To all domain controllers in this domain (for Windows 2000 compatibility):
ad.hoof-arted.com

To all domain controllers specified in the scope of this directory partition:

< Back Next > Cancel

DNS Enhancements & Creating Windows File Server

Click **Next**.

New Zone Wizard X

Reverse Lookup Zone Name
A reverse lookup zone translates IP addresses into DNS names.



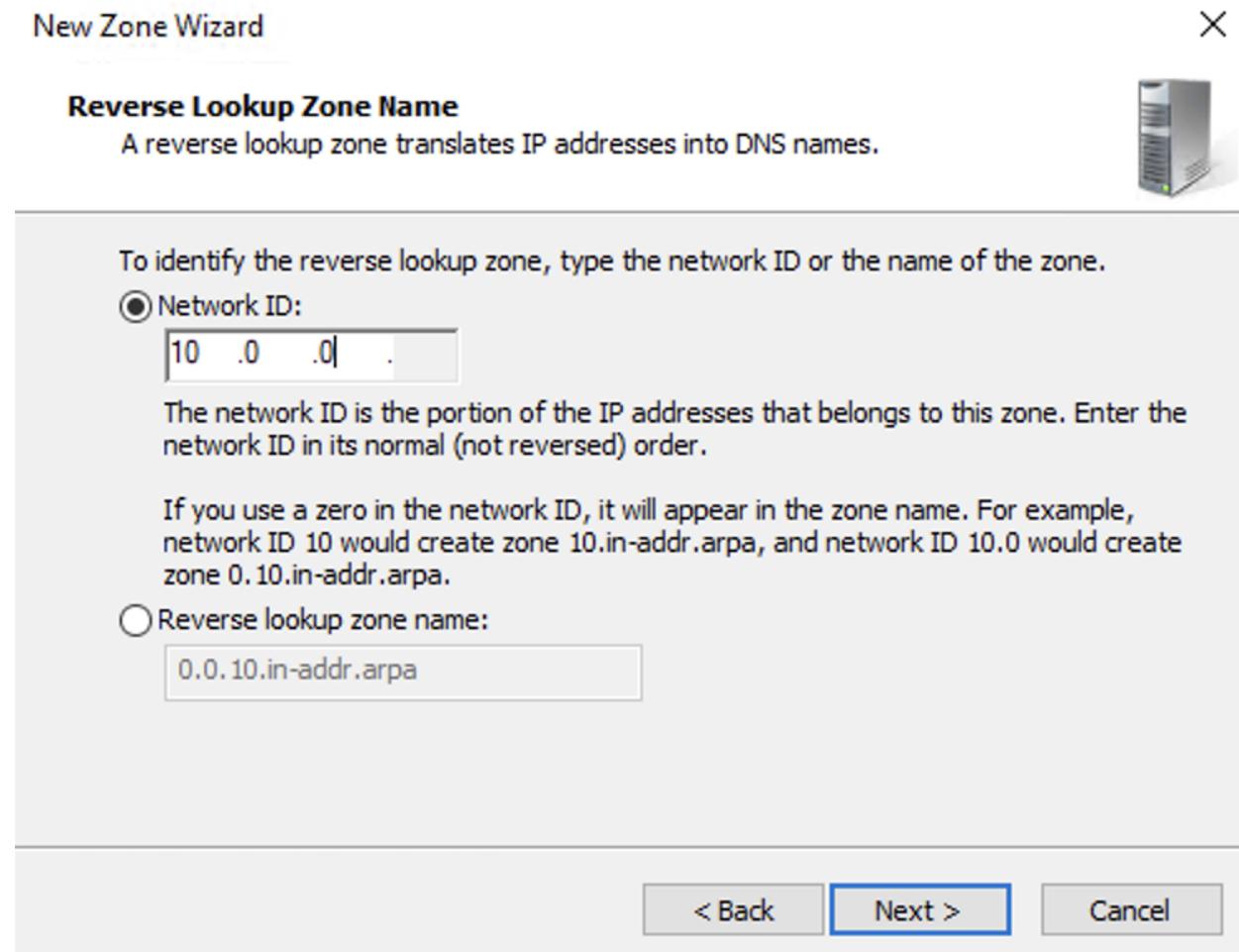
Choose whether you want to create a reverse lookup zone for IPv4 addresses or IPv6 addresses.

IPv4 Reverse Lookup Zone
 IPv6 Reverse Lookup Zone

< Back Next > Cancel

DNS Enhancements & Creating Windows File Server

Enter 10.0.0.0 into the **Network ID** text box, you will see that the **Reverse Lookup Zone Name** will automatically update at the bottom. Your input should look something like what is shown below in the screenshot. Then click **Next**.



DNS Enhancements & Creating Windows File Server

Click **Next**.

New Zone Wizard X

Dynamic Update

You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates.

Dynamic updates enable DNS client computers to register and dynamically update their resource records with a DNS server whenever changes occur.

Select the type of dynamic updates you want to allow:

Allow only secure dynamic updates (recommended for Active Directory)
This option is available only for Active Directory-integrated zones.

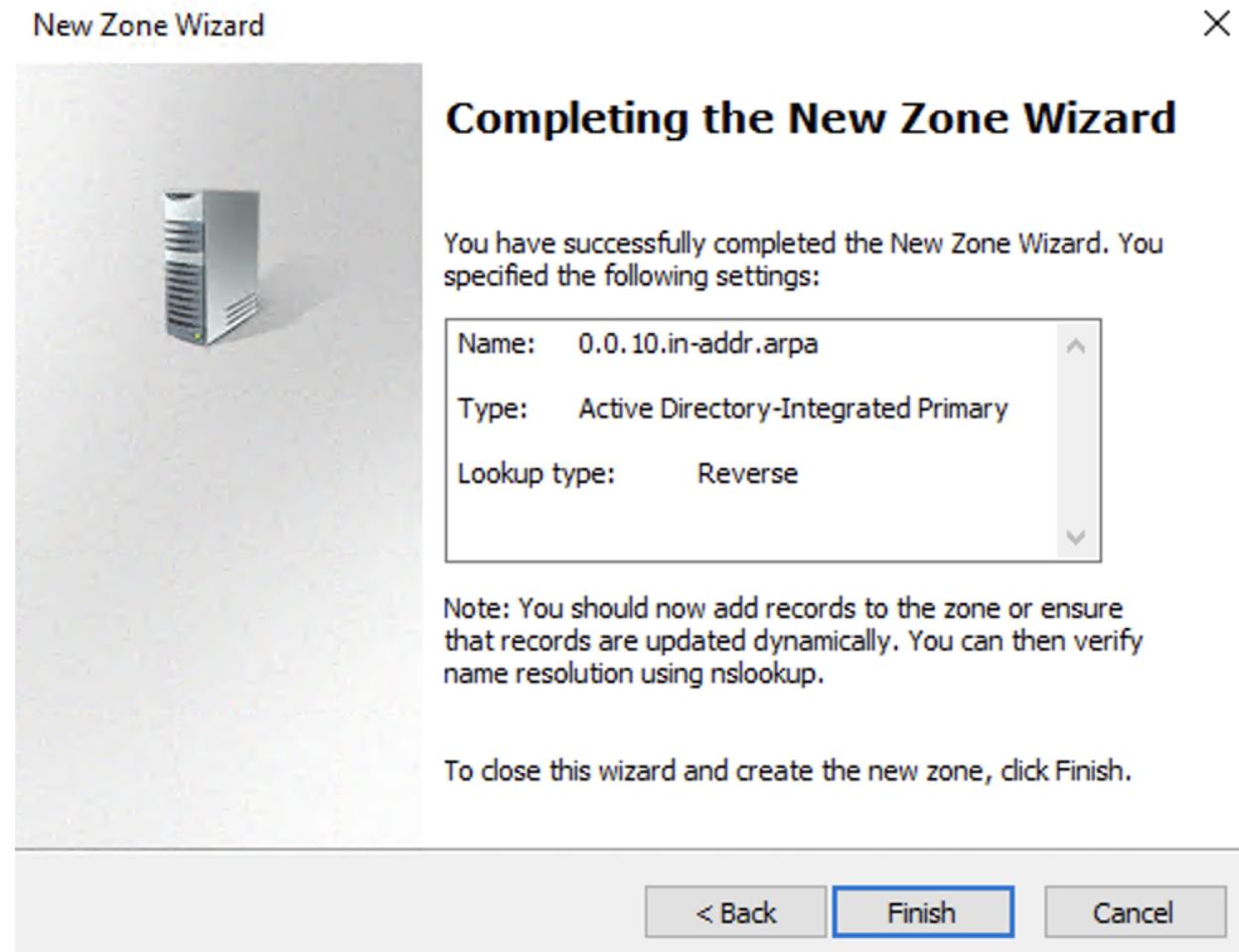
Allow both nonsecure and secure dynamic updates
Dynamic updates of resource records are accepted from any client.
 This option is a significant security vulnerability because updates can be accepted from untrusted sources.

Do not allow dynamic updates
Dynamic updates of resource records are not accepted by this zone. You must update these records manually.

< Back Next > Cancel

DNS Enhancements & Creating Windows File Server

Click **Finish**.



DNS Enhancements & Creating Windows File Server

Your **Reverse Lookup Zones** should now look something like this in DNS Manager.

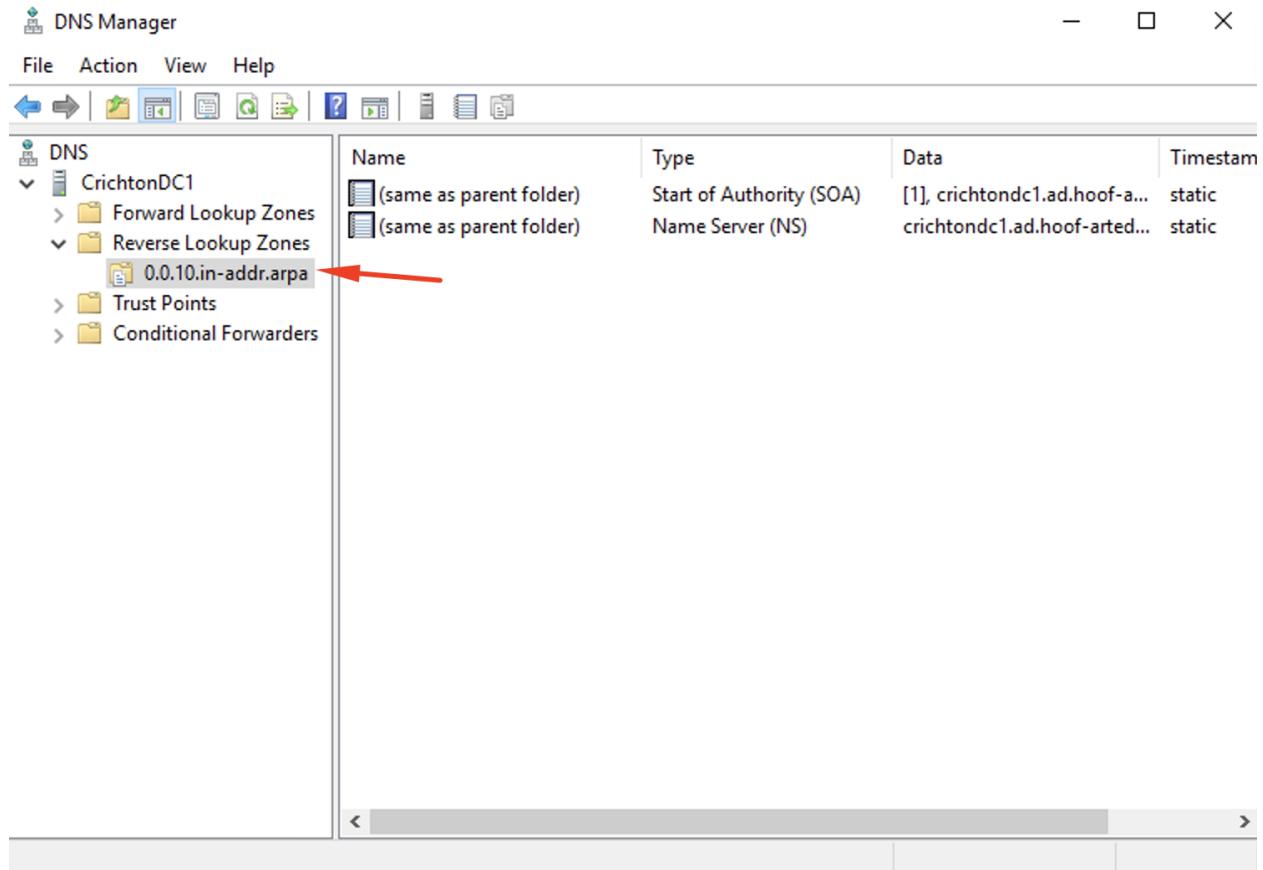
The screenshot shows the Windows DNS Manager interface. On the left, the navigation pane displays a tree structure under the 'DNS' node, with 'CrichtonDC1' expanded to show 'Forward Lookup Zones', 'Reverse Lookup Zones' (which is selected), 'Trust Points', and 'Conditional Forwarders'. The main pane on the right lists reverse lookup zones in a table. The table has columns for Name, Type, Status, and DNSSEC Status. One entry is visible: '200.0.10.in-addr.arpa' (Type: Active Directory-Integrated Pr..., Status: Running, DNSSEC Status: Not Signed).

Name	Type	Status	DNSSEC Status
200.0.10.in-addr.arpa	Active Directory-Integrated Pr...	Running	Not Signed

DNS Enhancements & Creating Windows File Server

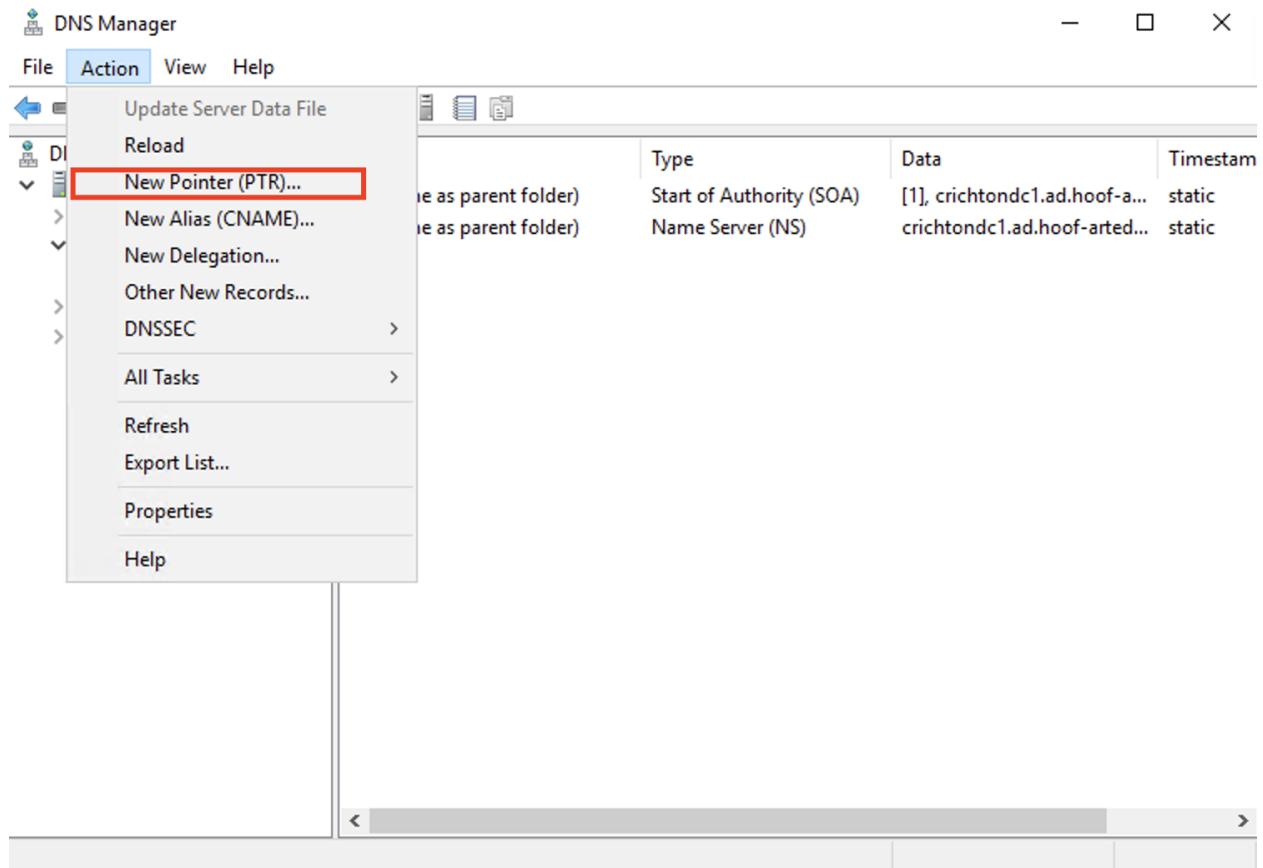
CREATE PTR Records

In DNS Manager, navigate to the reverse lookup zone that you had just created, then click on the folder.



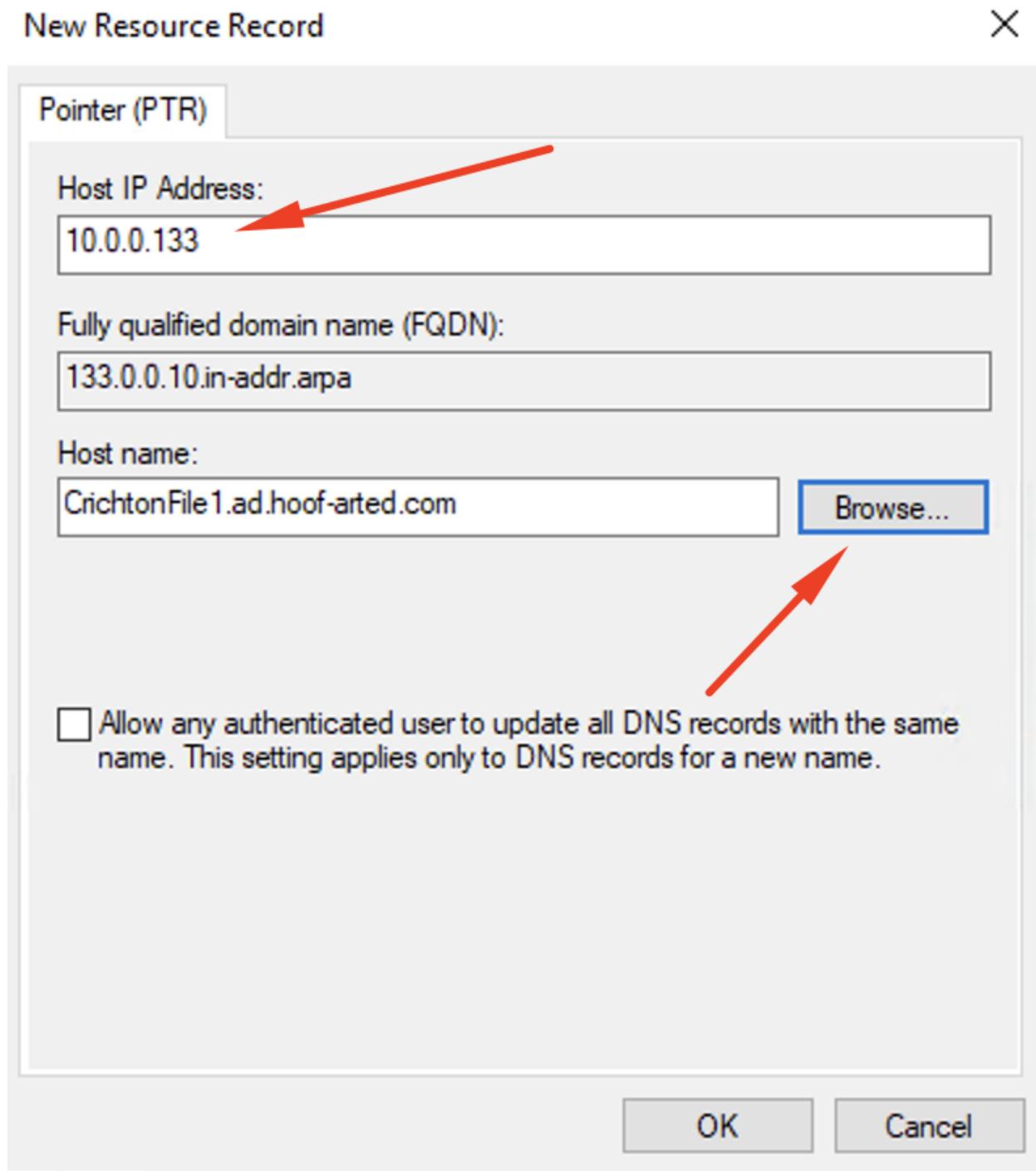
DNS Enhancements & Creating Windows File Server

Next go to the **Action** drop down menu in the menu bar, then click **New Pointer (PTR)...**



DNS Enhancements & Creating Windows File Server

Input the IP address for the PTR record that you want to create, and then navigate in the Host Name to the server that you are adding in the Forward Lookup Zones. For this case, we are going to add our DC, File server, and our Bastion host as pointer records. Or if you know the name of the host record, you can just type it in. Then click OK when finished.



DNS Enhancements & Creating Windows File Server

Your reverse lookup zones should look something like this.

The screenshot shows the Windows DNS Manager interface. On the left, the navigation pane displays the following structure:

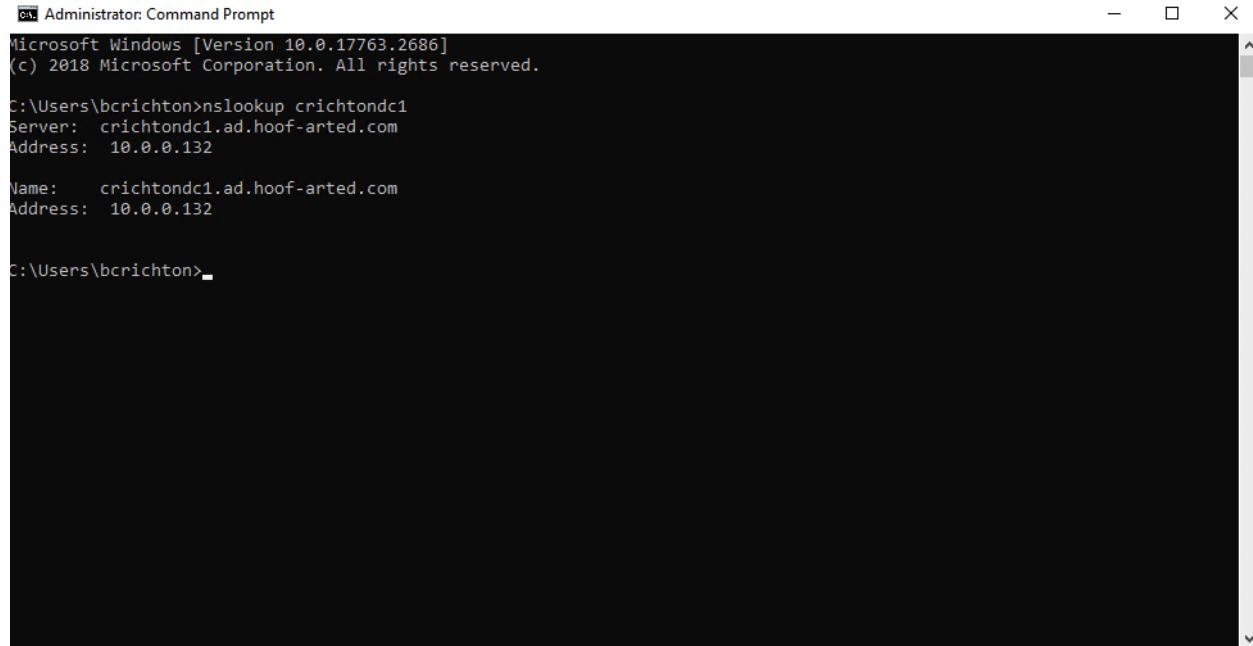
- DNS
- CrichtonDC1
 - Forward Lookup Zones
 - Reverse Lookup Zones
 - 0.0.10.in-addr.arpa
 - Trust Points
 - Conditional Forwarders

The "0.0.10.in-addr.arpa" node under Reverse Lookup Zones is selected and highlighted in blue. The main pane on the right shows a table of records for this zone:

Name	Type	Data
(same as parent folder)	Start of Authority (SOA)	[5], crichtondc1.ad.hoof-arted.com., host
(same as parent folder)	Name Server (NS)	crichtondc1.ad.hoof-arted.com.
10.0.0.132	Pointer (PTR)	crichtondc1.ad.hoof-arted.com.
10.0.0.133	Pointer (PTR)	CrichtonFile1.ad.hoof-arted.com.
10.0.0.5	Pointer (PTR)	crichtonbastionhost.ad.hoof-arted.com.

DNS Enhancements & Creating Windows File Server

NSLookup Command:



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.17763.2686]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\bcrichton>nslookup crichtondc1
Server:  crichtondc1.ad.hoof-arted.com
Address: 10.0.0.132

Name:    crichtondc1.ad.hoof-arted.com
Address: 10.0.0.132

C:\Users\bcrichton>
```

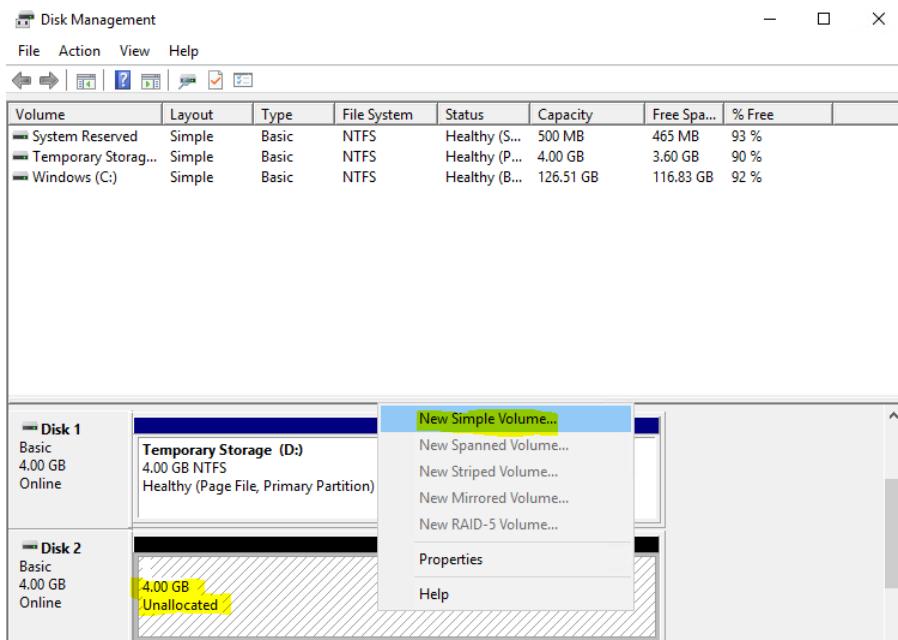
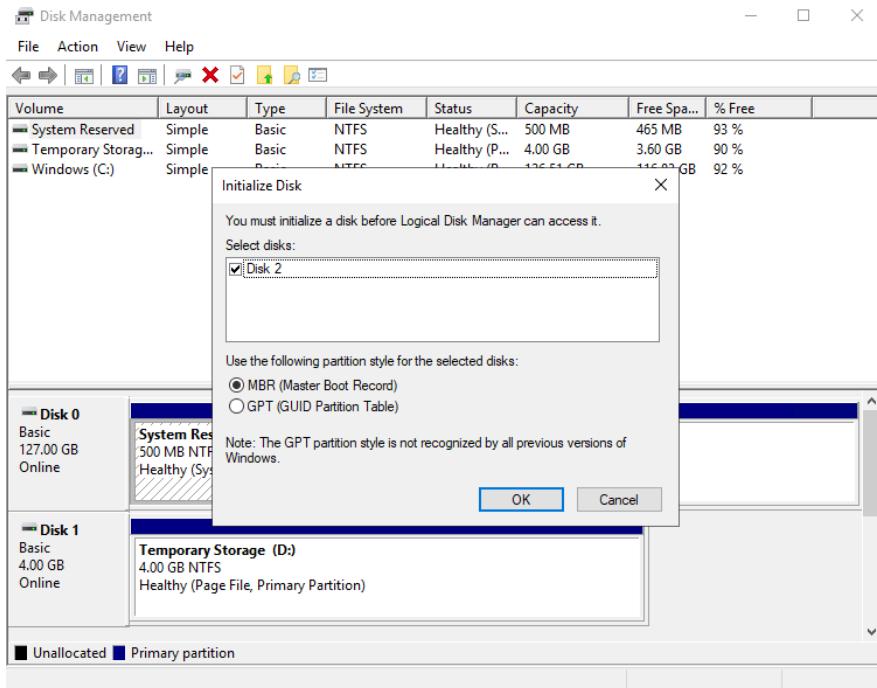
DNS Enhancements & Creating Windows File Server

3. (10 points) Next you are going to add a new data disk to your file server, which will be used for file shares later. From the Azure portal go to your file server VM and add a 4 GB data disk, then within the OS initialize the disk, create a simple volume and format the disk like shown in the images below:

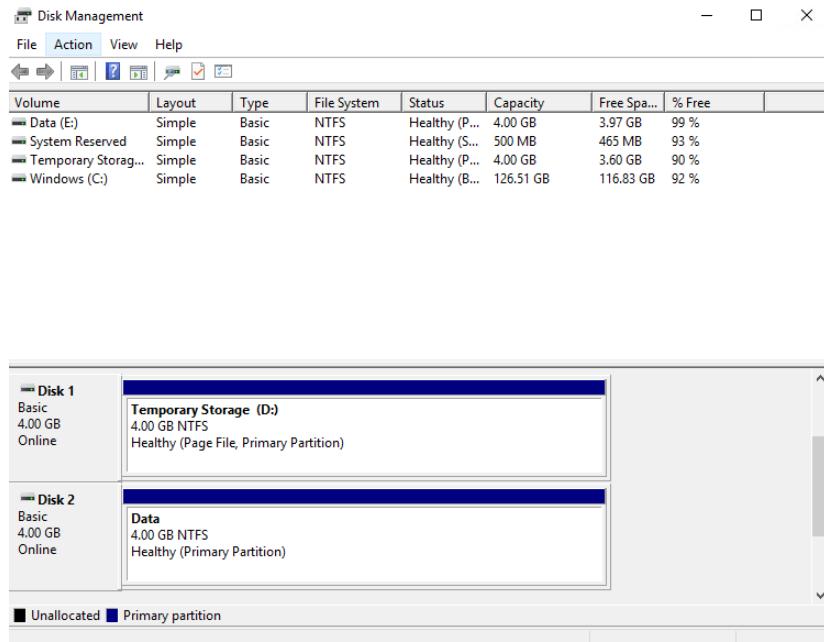
The screenshot shows the 'Disks' blade for a virtual machine named 'file2'. The 'Data disks' section is highlighted. A new disk is being created with the following settings:

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput	Encryption	Host caching
0	filedata	Premium SSD	4	120	25	Platform-managed key	None

DNS Enhancements & Creating Windows File Server



DNS Enhancements & Creating Windows File Server



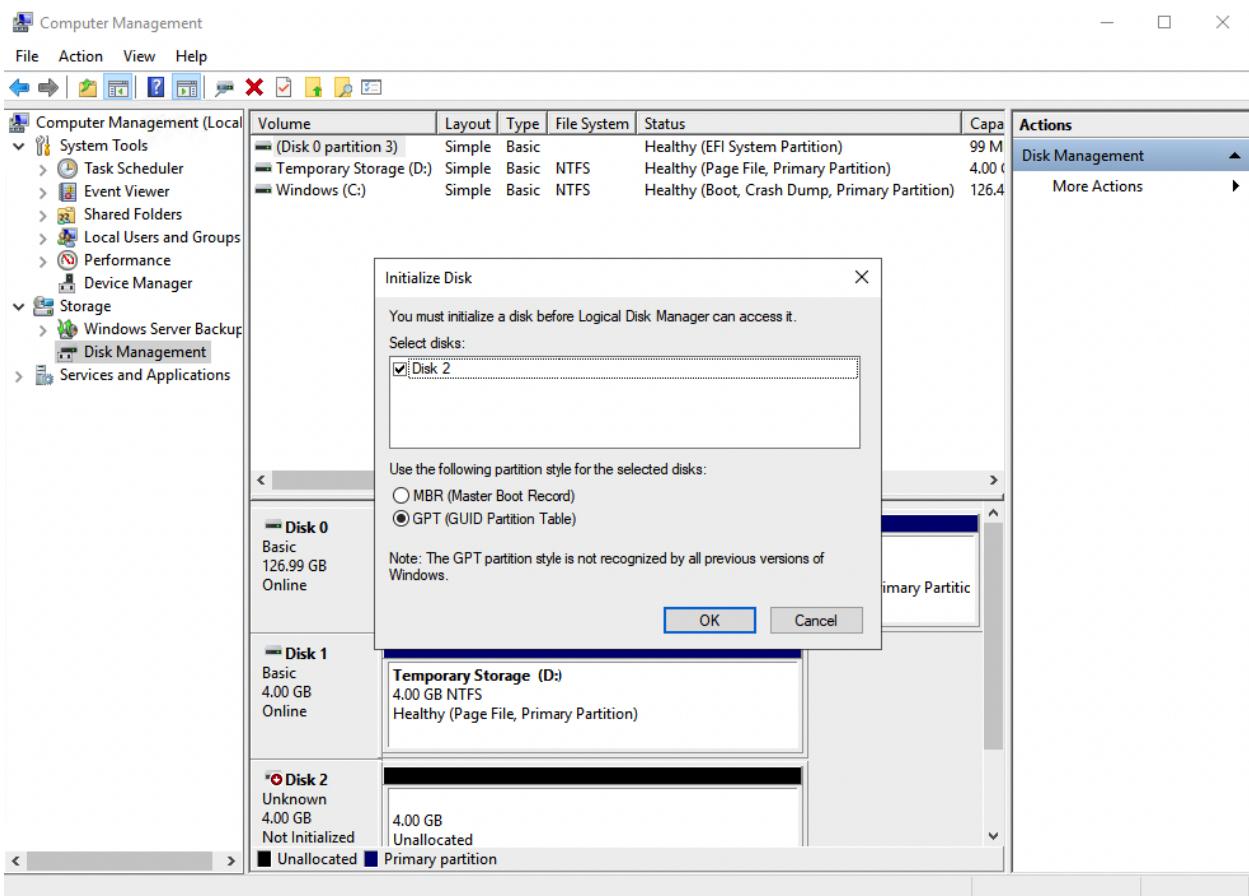
Provide screenshot(s) showing your work.

DNS Enhancements & Creating Windows File Server

Creating & configuring the disk on Azure:

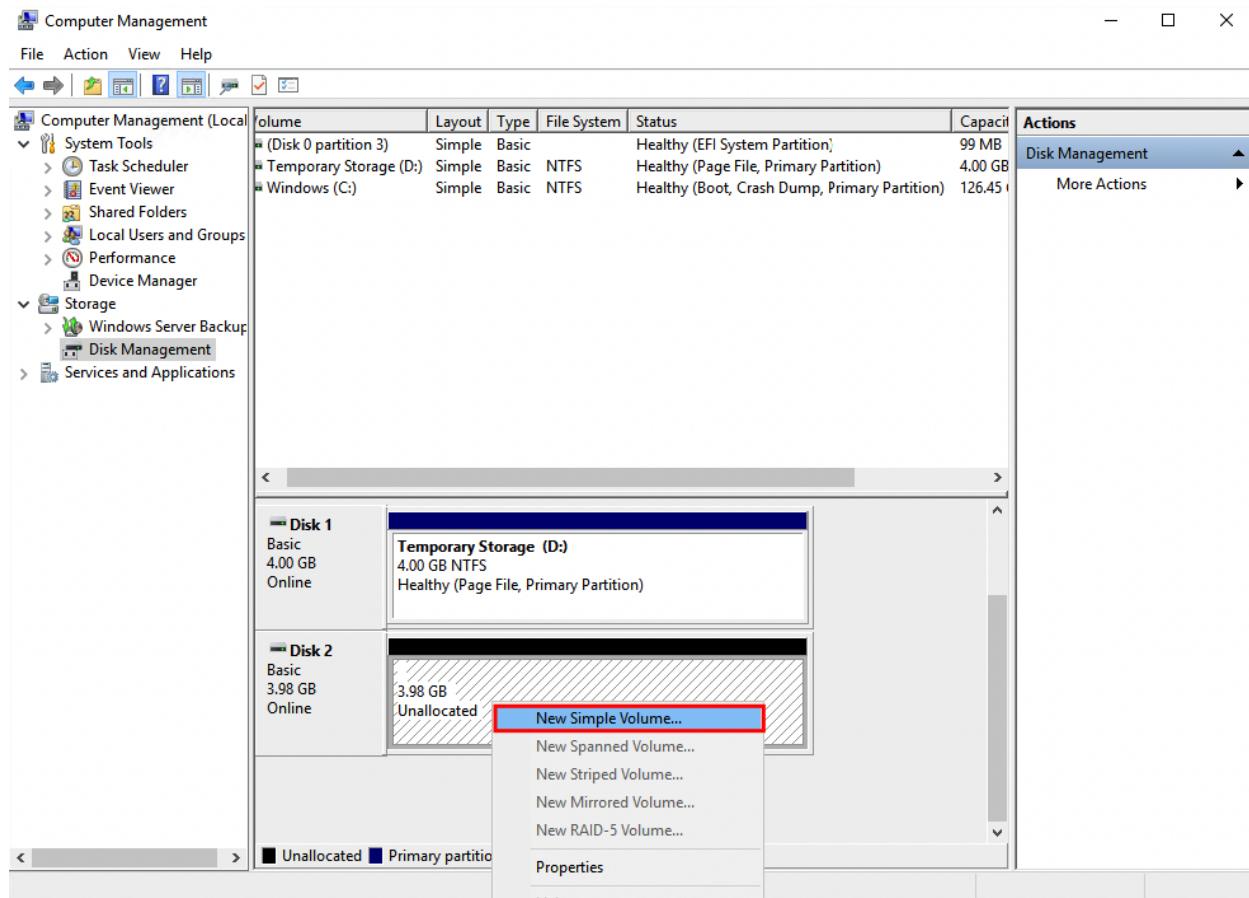
LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MB/s)	Encryption	Host caching
0	fileData	Premium SSD (locally-redundant)	4	120	25	SSE with PMK	None

RDP to your DC using your AD admin credentials, then open up **Computer Management**. Then navigate to **Storage >> Disk Management**. You will be prompted with this screen. Just click **OK**.



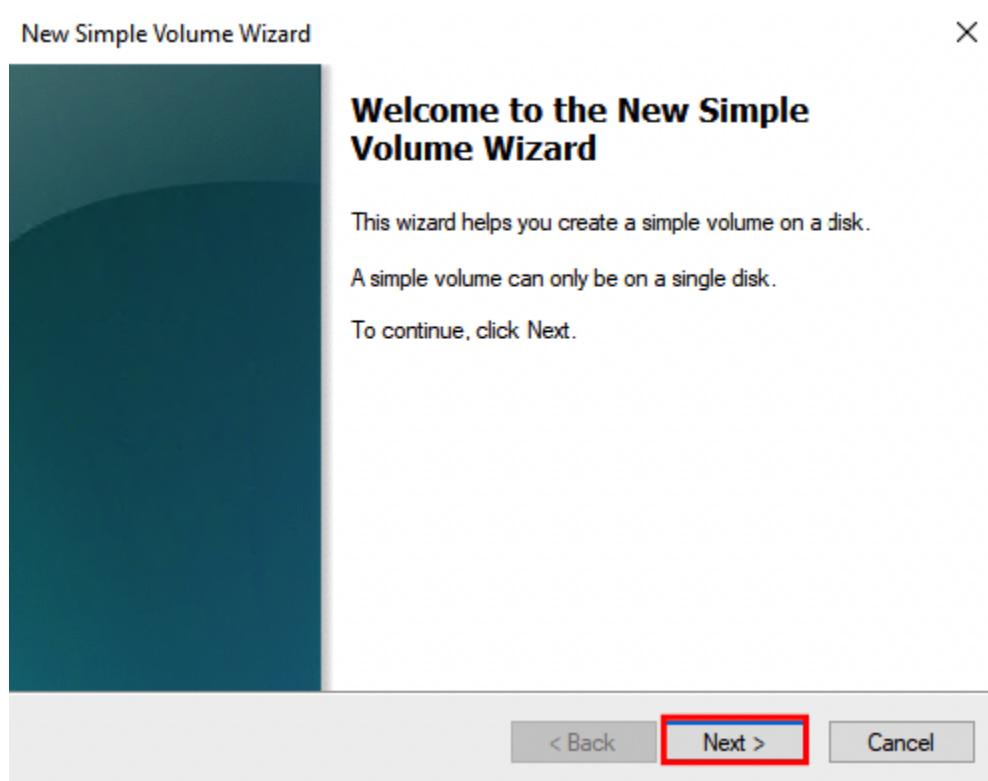
DNS Enhancements & Creating Windows File Server

Navigate to the **Disk 2**, to where there are 3.98 GB unallocated. Right click on this and select **New Simple Volume**.



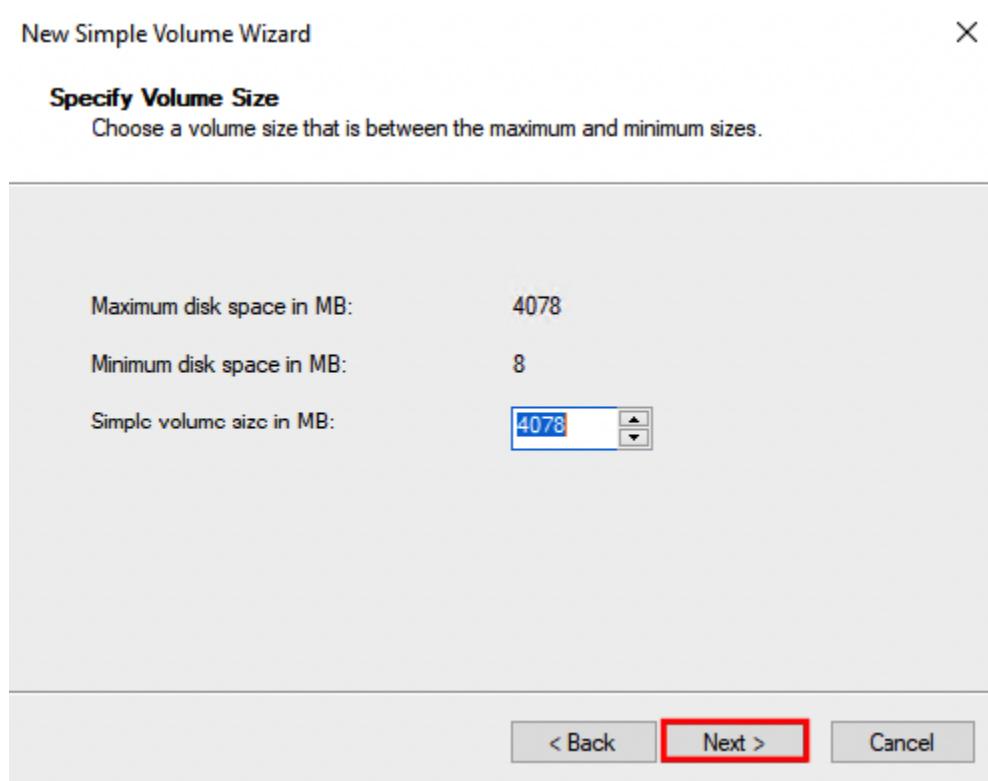
DNS Enhancements & Creating Windows File Server

Click **Next**



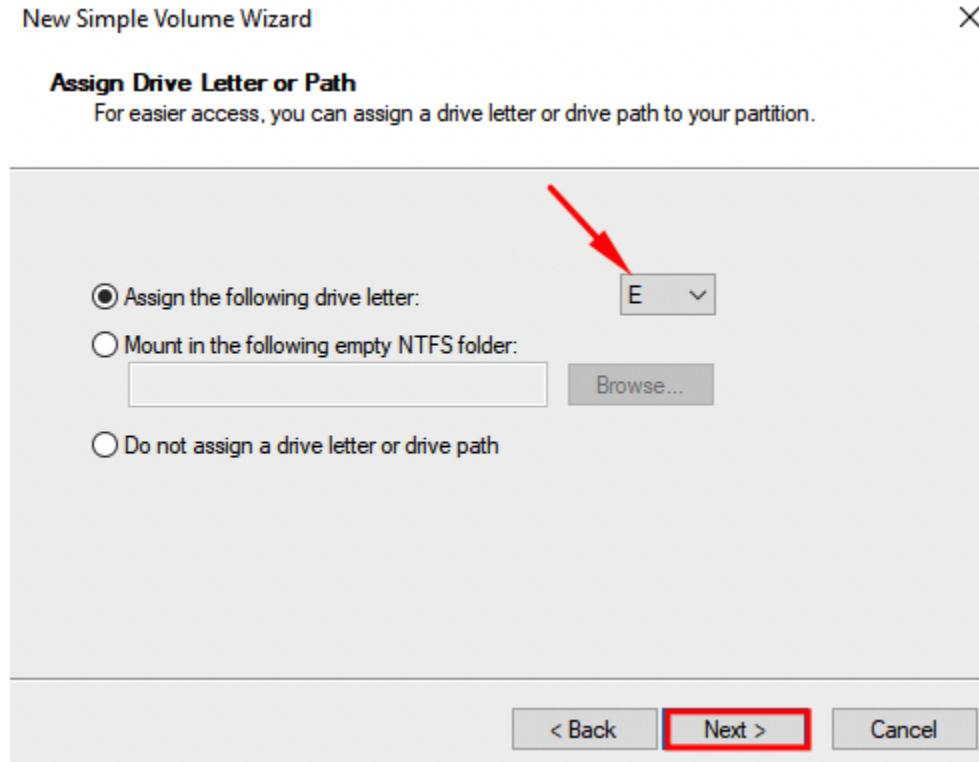
DNS Enhancements & Creating Windows File Server

Click **Next**



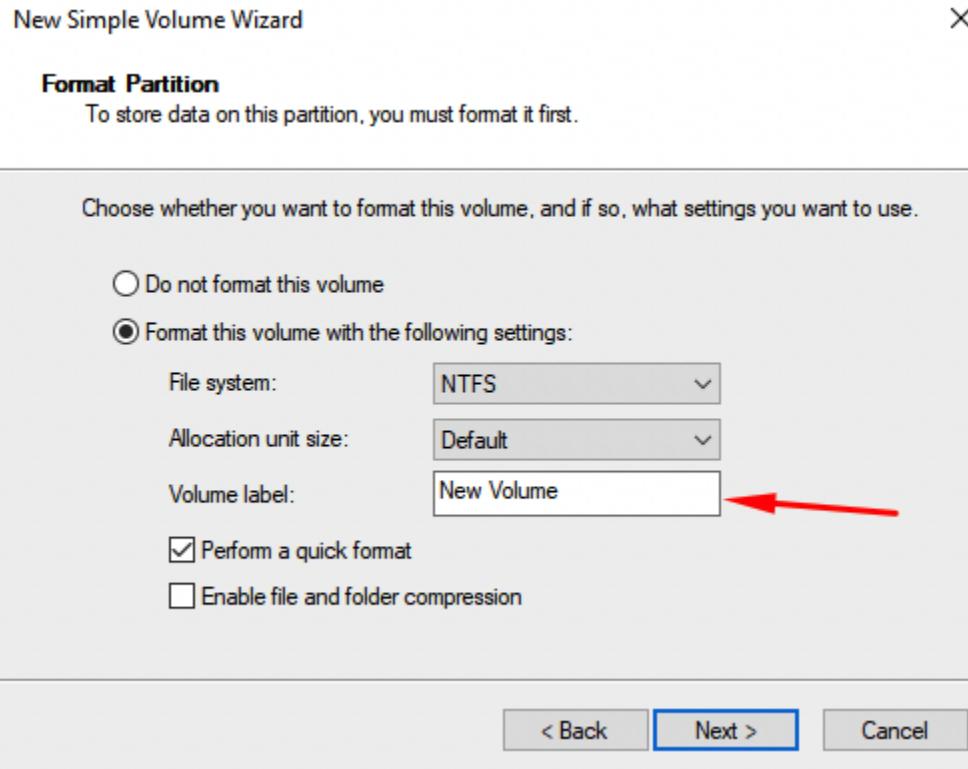
DNS Enhancements & Creating Windows File Server

Choose what Drive letter you would like this drive to have. I am going to leave it at E, but you can choose whatever you want. Then click **Next**.



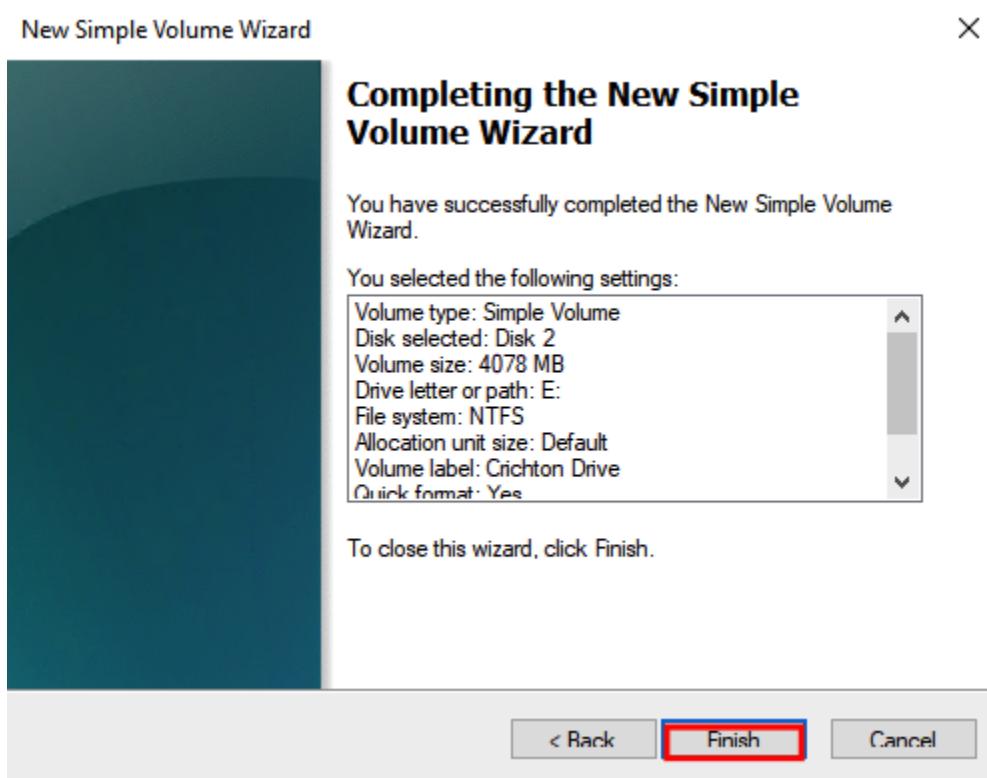
DNS Enhancements & Creating Windows File Server

You are going to now format the volume. Choose what file system you would like to use. In this case we are going to use NTFS, but you may feel the need to change it to something else. Give it a name, and click **Next**.

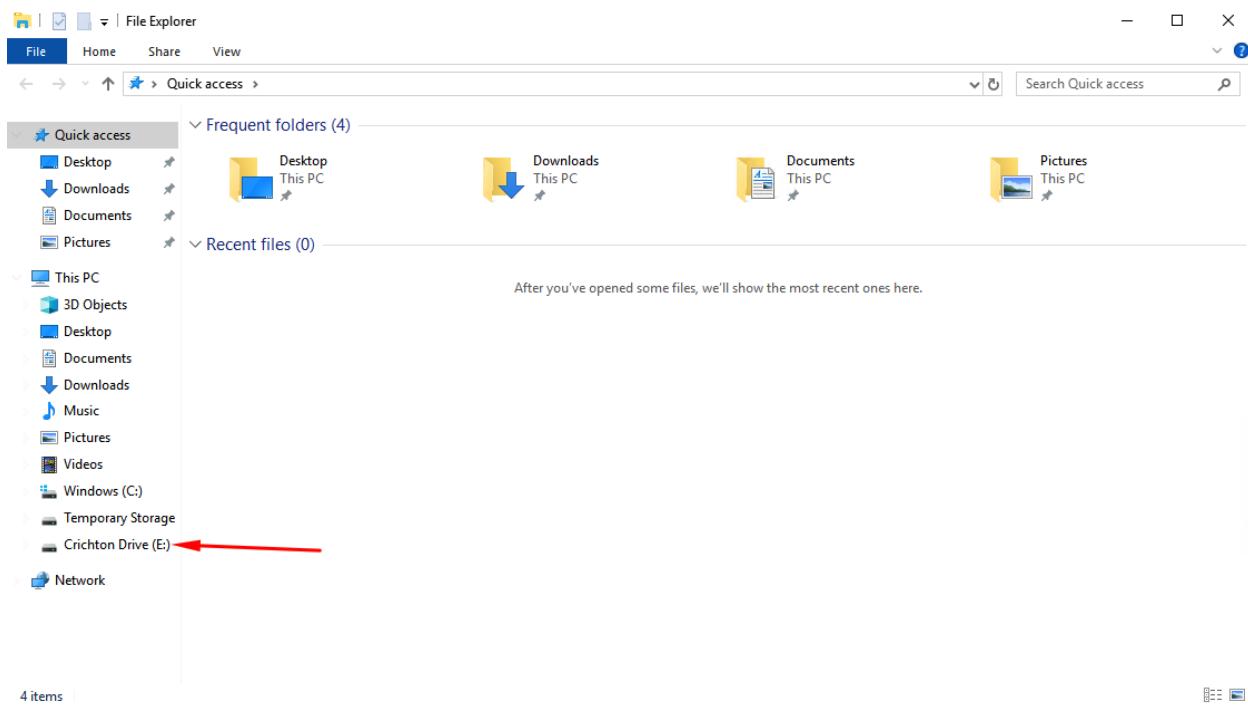


DNS Enhancements & Creating Windows File Server

View the summary and make sure that everything is configured to how you want it to be, then click **Finish**.



Open File Explorer and ensure that your drive has been added.

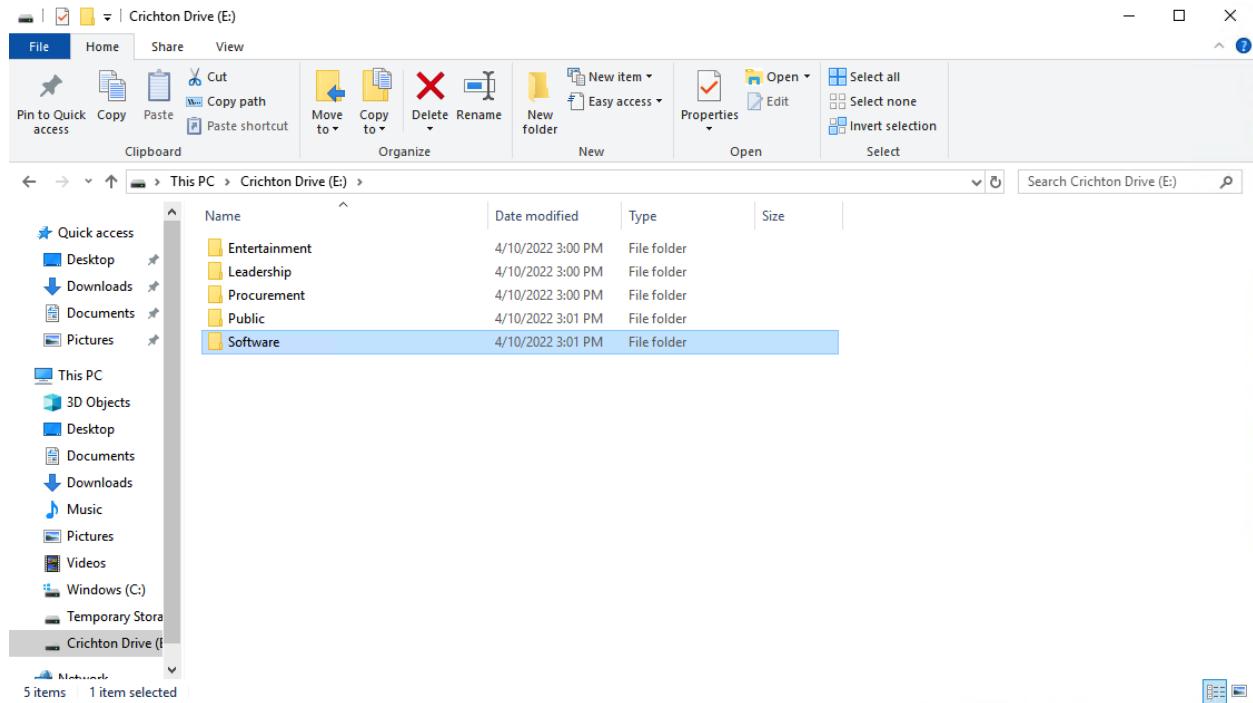


DNS Enhancements & Creating Windows File Server

4. (5 points) Create the following directories on the newly created data drive (ie. E:\) and add some sample / dummy files(ie. txt files, bmp, jpgs, docs, etc...) to each directory.

- Entertainment
- Leadership
- Procurement
- Public
- Software

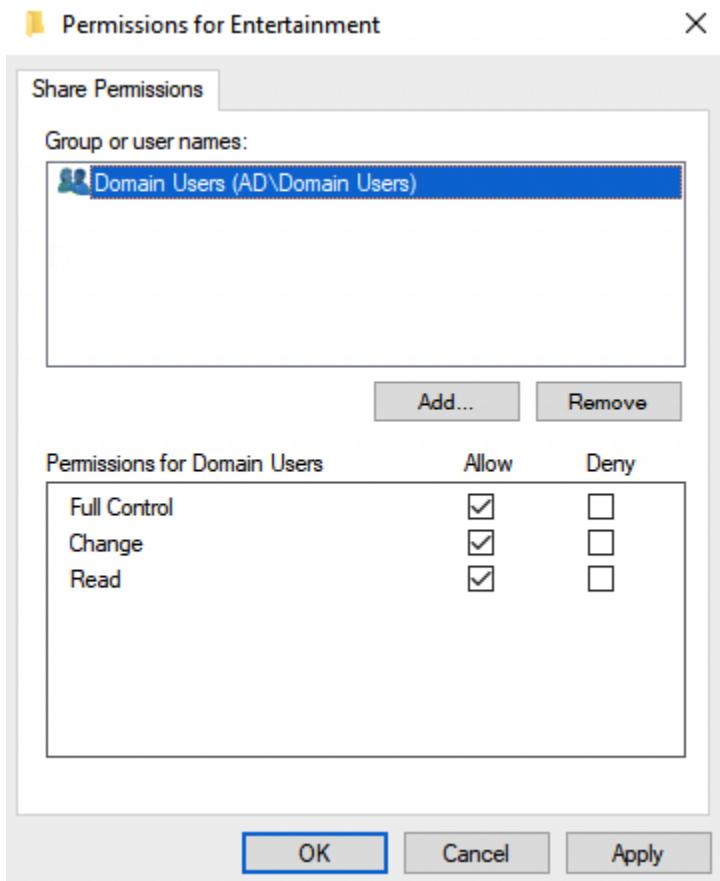
Provide screenshot(s) showing your work (Note: I do not need to see the contents for each directory).



DNS Enhancements & Creating Windows File Server

5. (15 points) Next use the previously created directories to create the following file shares with permissions (provide screenshot(s) showing your work):

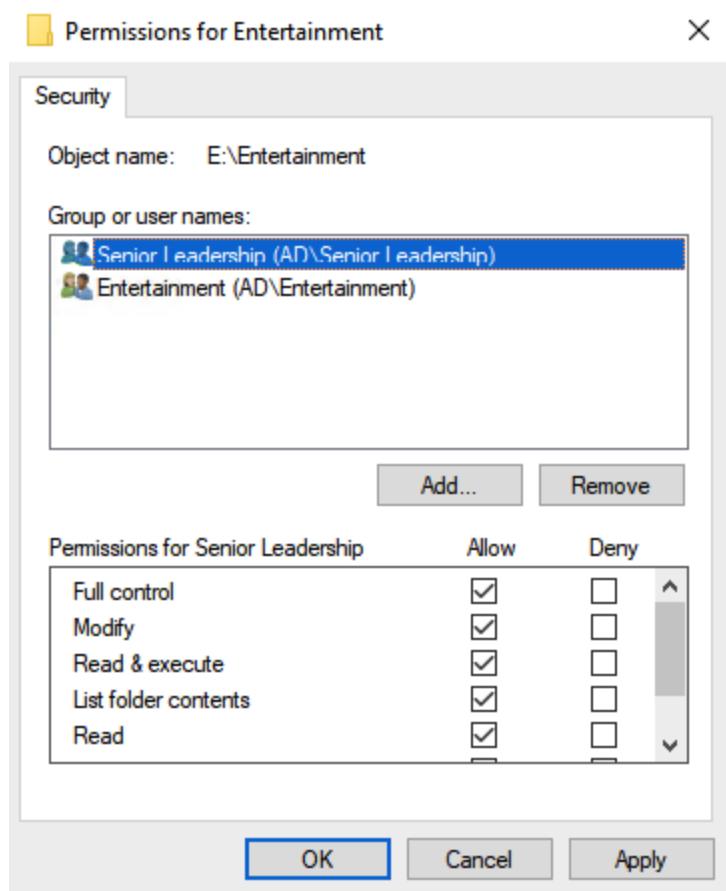
- Entertainment
 - Share Permissions: Domain Users /w Full Control



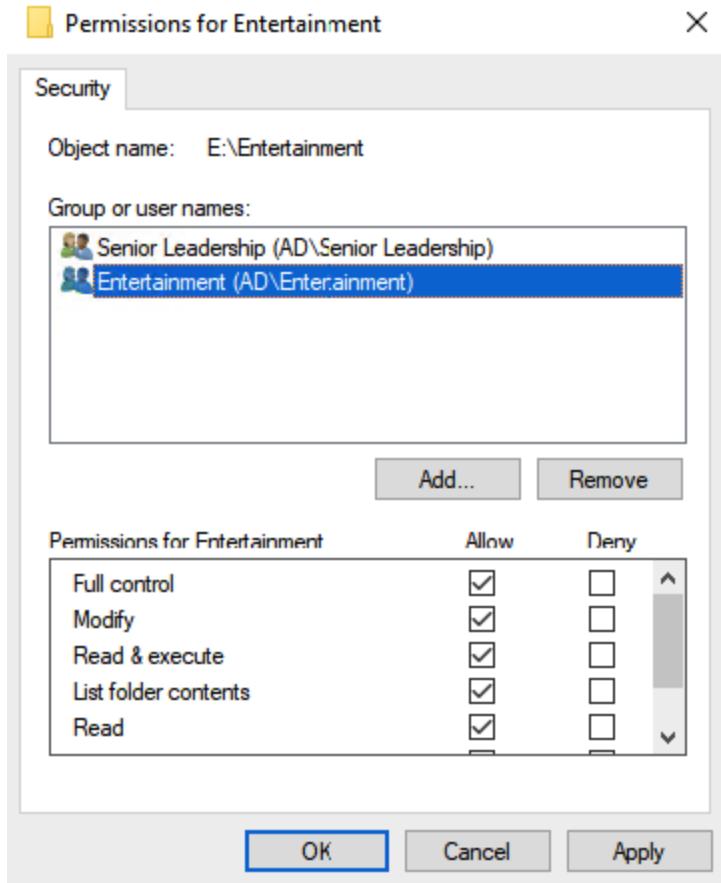
DNS Enhancements & Creating Windows File Server

- File Permissions: Add Entertainment & Senior Leadership /w Full Control

DNS Enhancements & Creating Windows File Server

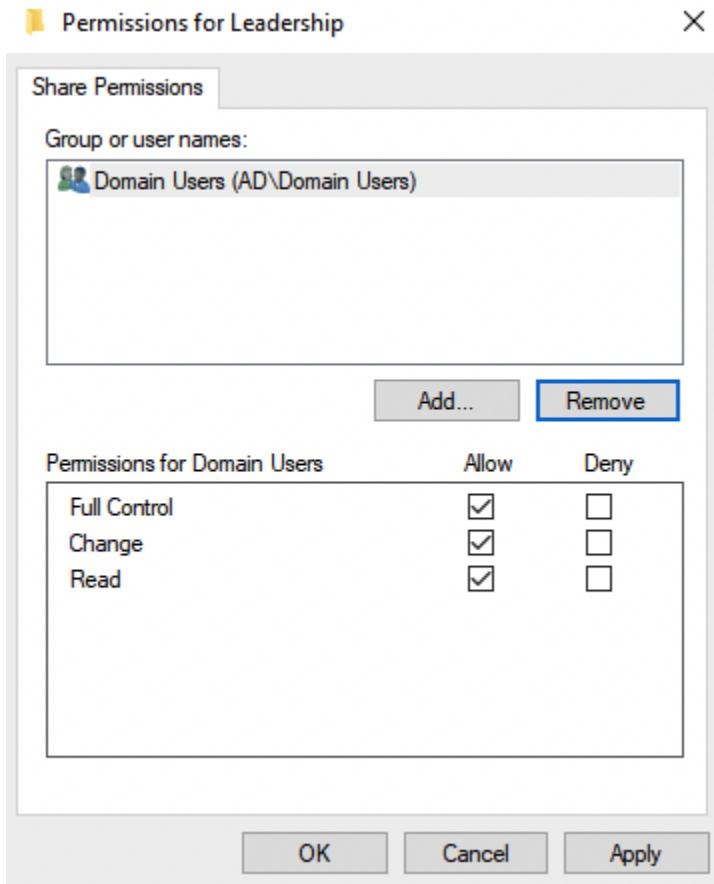


DNS Enhancements & Creating Windows File Server



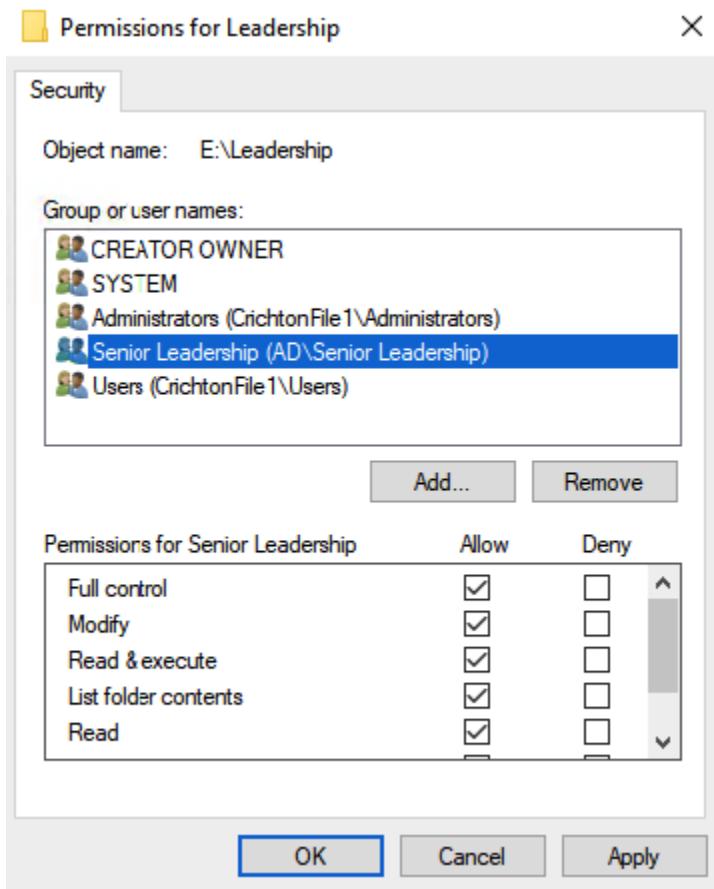
DNS Enhancements & Creating Windows File Server

- Leadership
 - Share Permissions: Domain Users /w Full Control



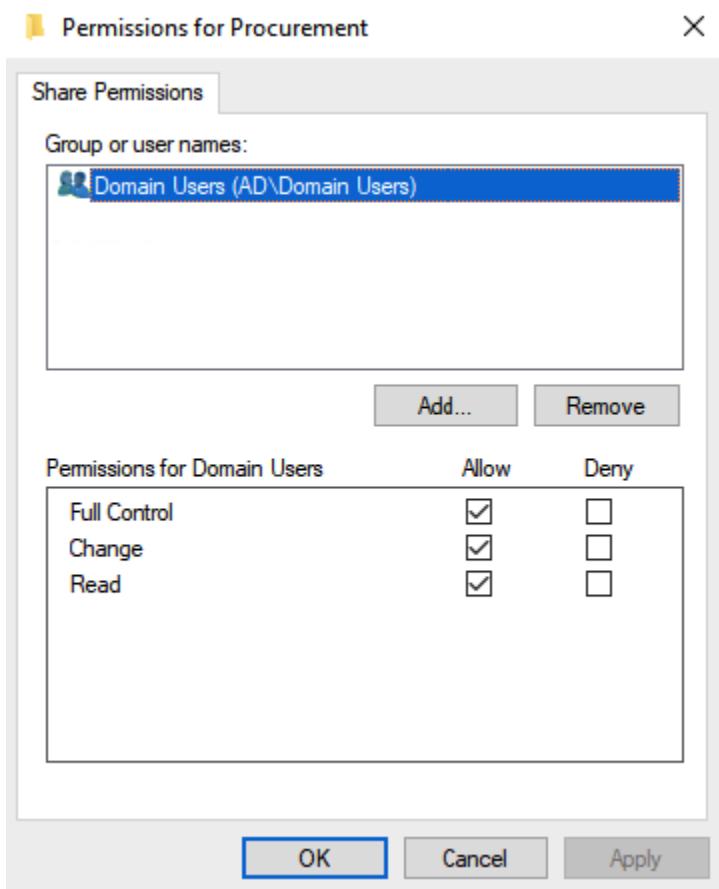
DNS Enhancements & Creating Windows File Server

- File Permissions: Senior Leadership /w Full Control



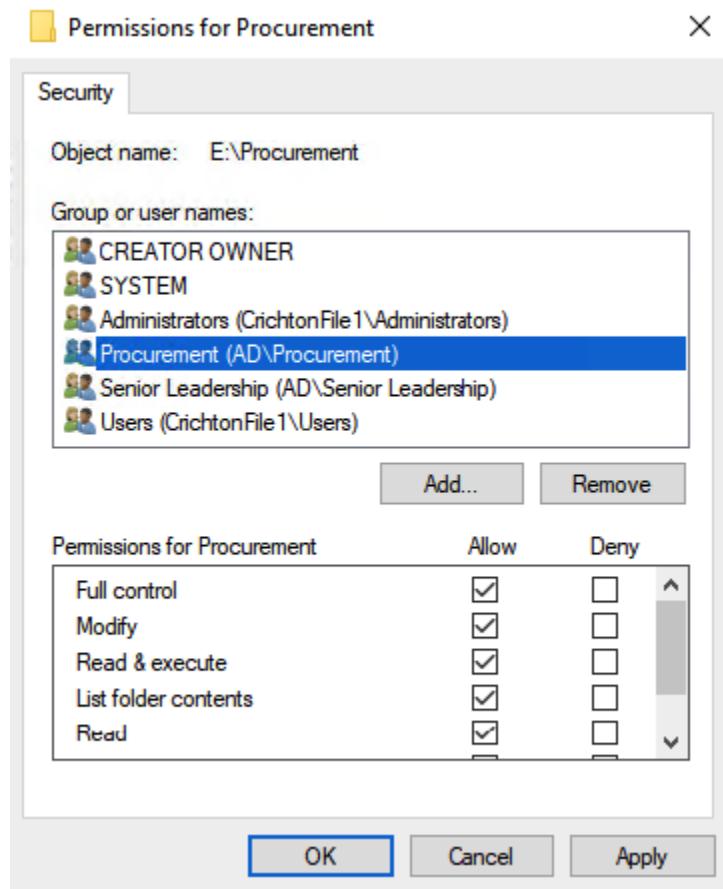
DNS Enhancements & Creating Windows File Server

- Procurement
 - Share Permissions: Domain Users /w Full Control

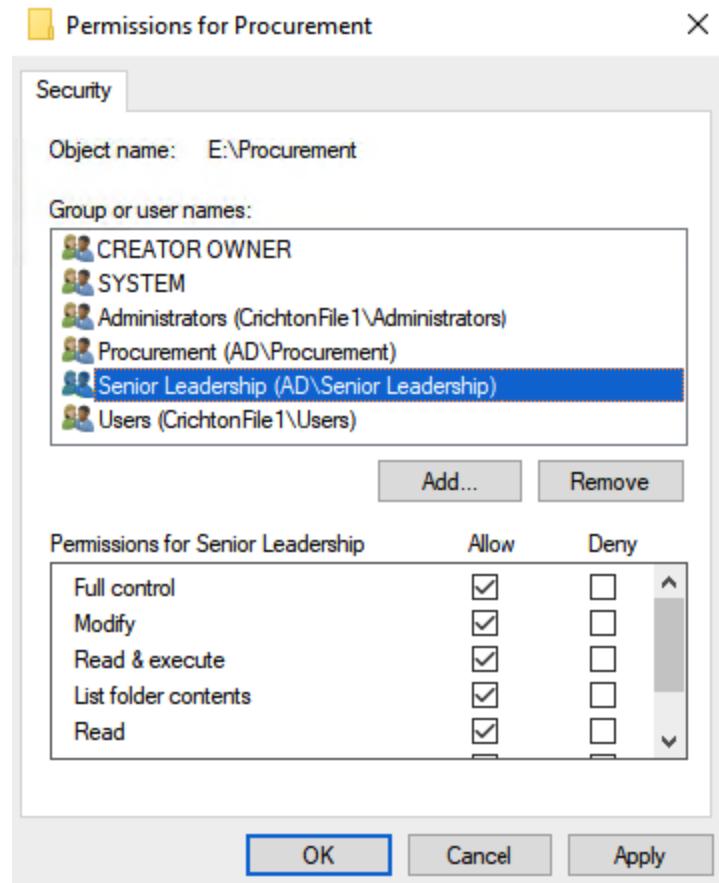


DNS Enhancements & Creating Windows File Server

- File Permissions: Procurement & Senior Leadership /w Full Control

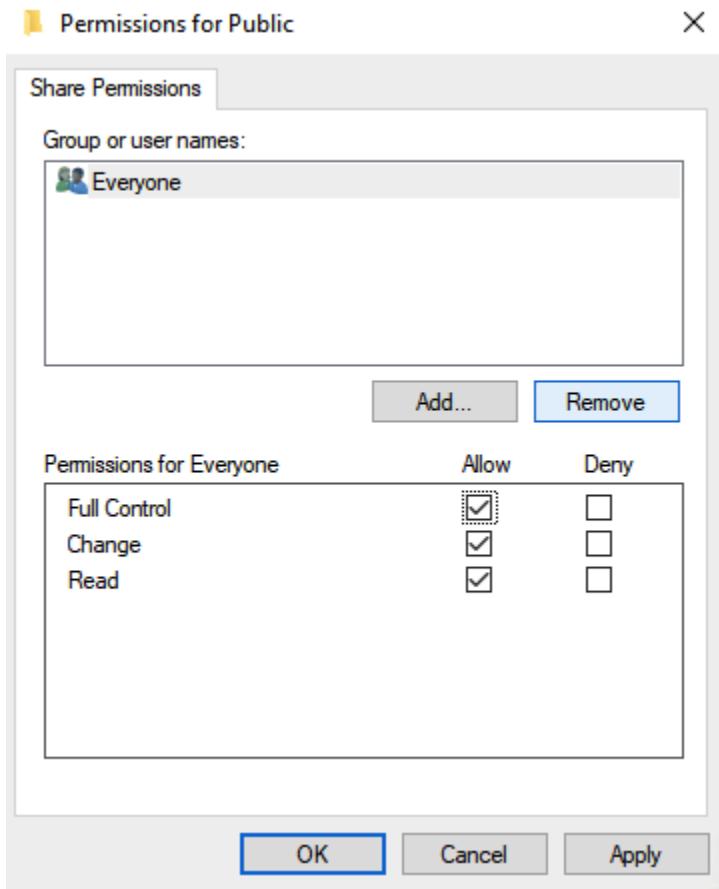


DNS Enhancements & Creating Windows File Server



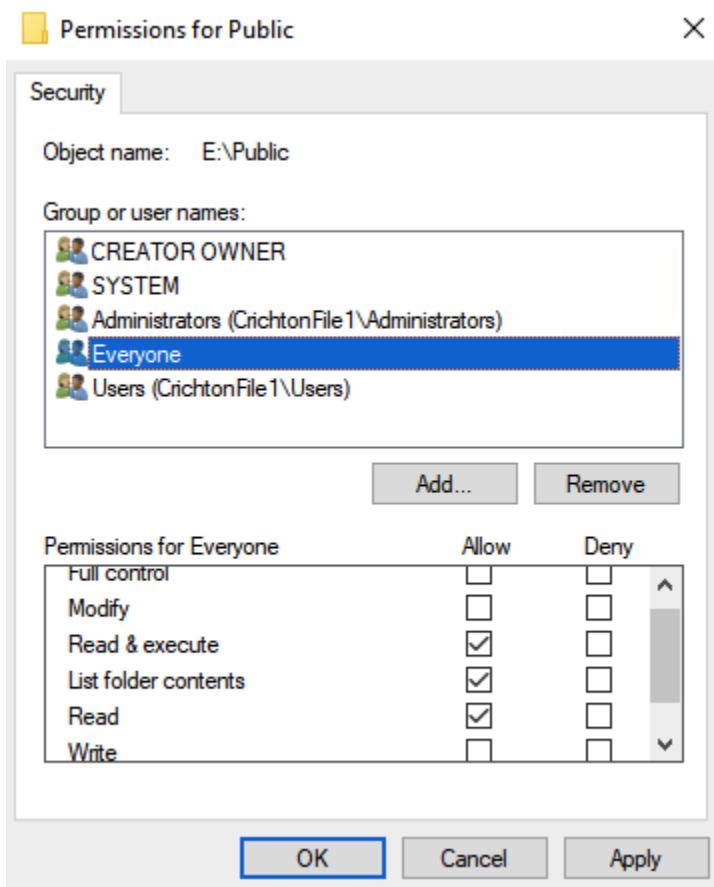
DNS Enhancements & Creating Windows File Server

- Public
 - Share Permissions: Everyone /w Full Control



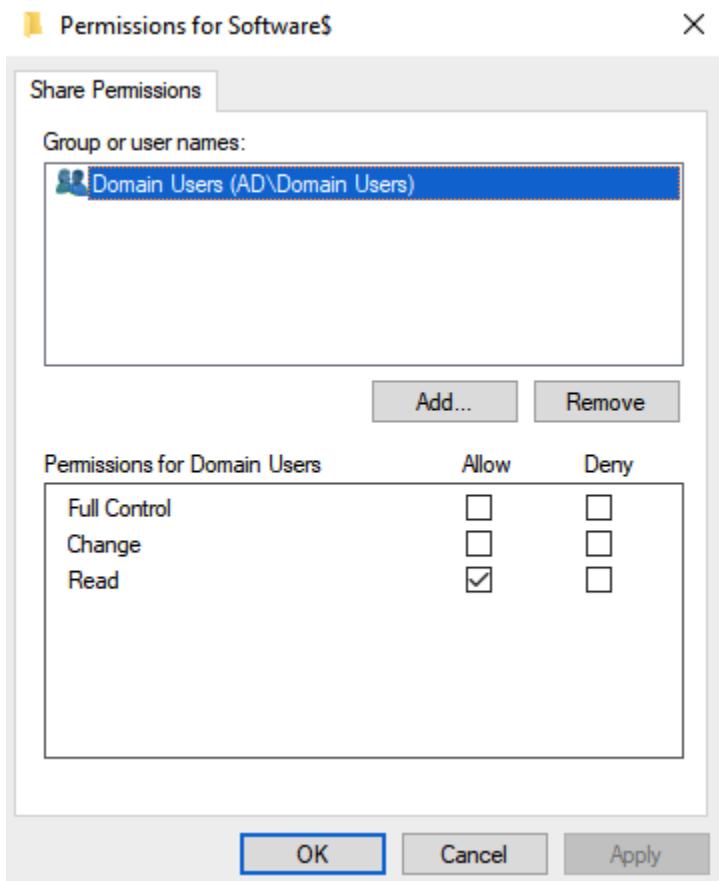
DNS Enhancements & Creating Windows File Server

- File Permissions: Everyone /w Read & Execute, List folder contents, Read



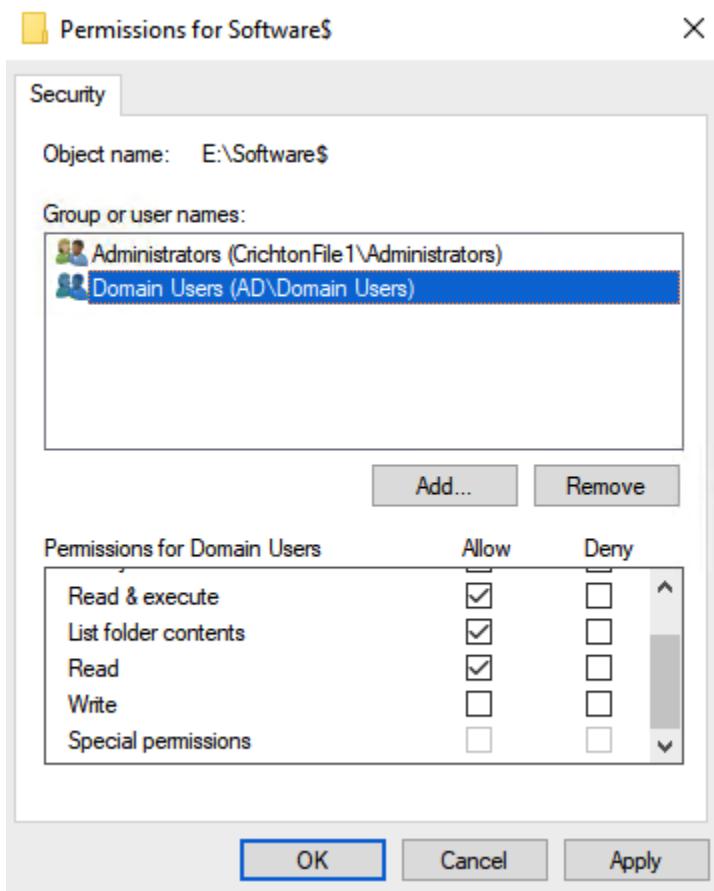
DNS Enhancements & Creating Windows File Server

- Software\$
 - Share Permissions: Domain Users /w Read



DNS Enhancements & Creating Windows File Server

- File Permissions: Domain Users /w Read & Execute, List folder contents, Read

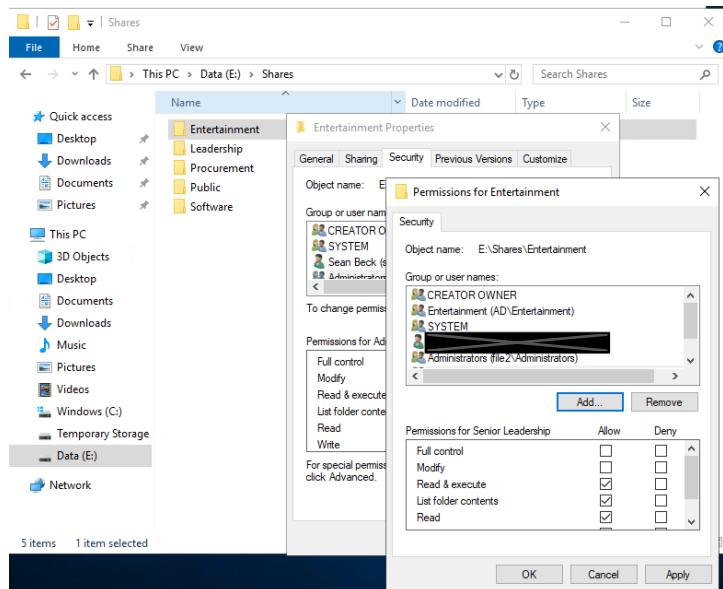
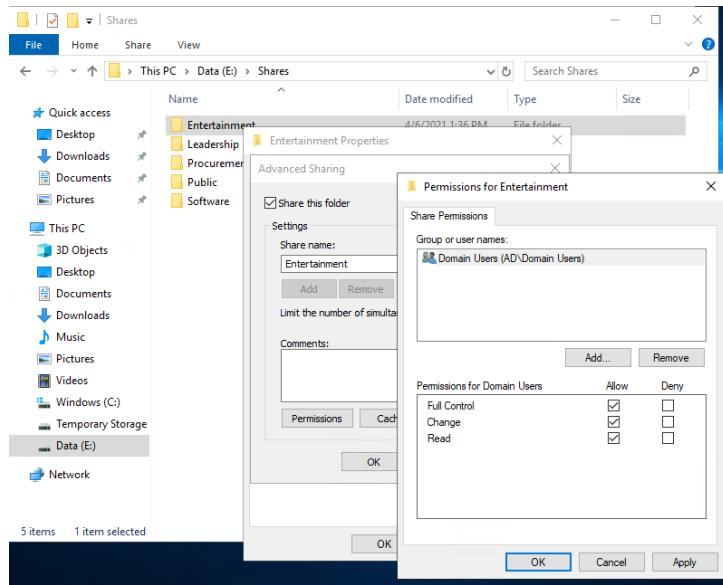


- Note: This share is a hidden share because of the \$

Using the following URL and screenshots to aide you in the creation of the file shares with the permissions specified:

<https://www.varonis.com/blog/ntfs-permissions-vs-share/>

DNS Enhancements & Creating Windows File Server



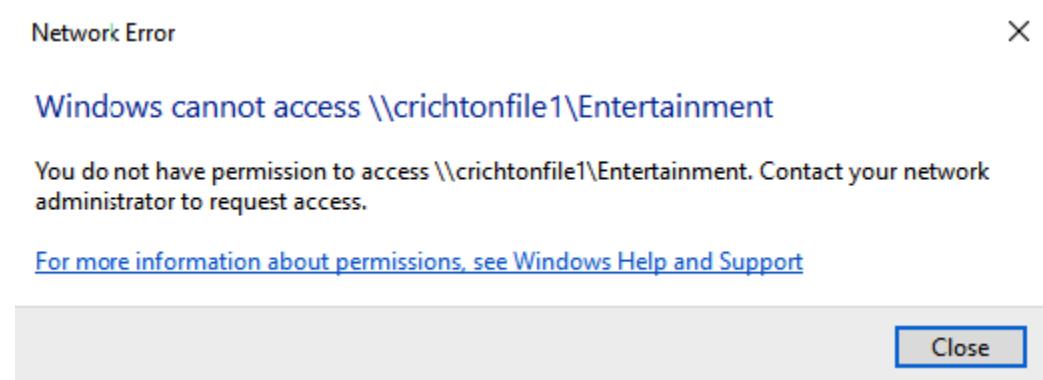
DNS Enhancements & Creating Windows File Server

6. (10 points) Using the bastionhost attempt to access the following file shares previously created on the fileserver (Hint: Use <\\servername\\fileshare>) to access the fileshares).

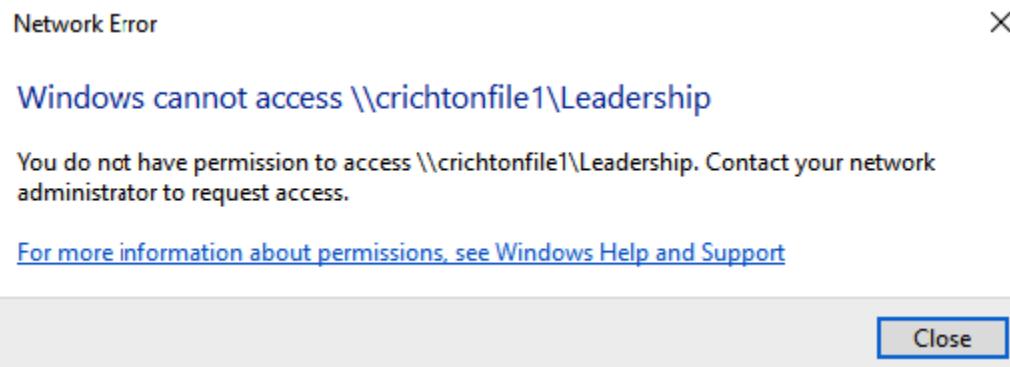
Which file shares could you access and which ones could you not? Explain your results and provide screenshot(s).

COULD NOT ACCESS:

- Entertainment

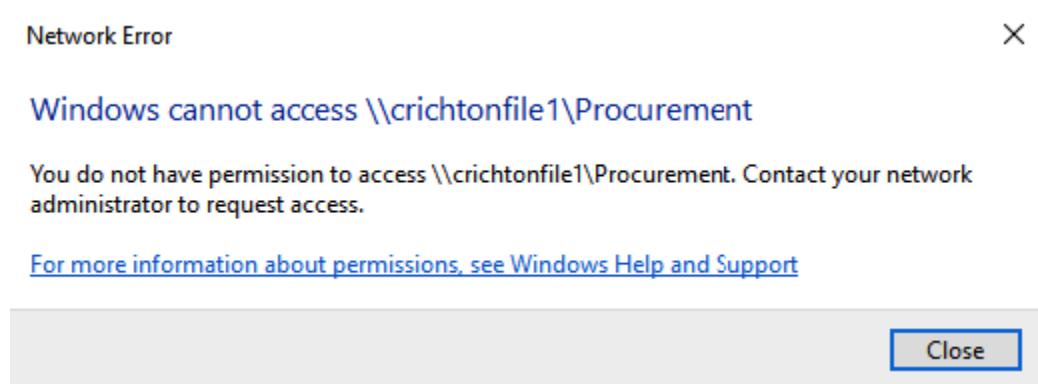


- Leadership



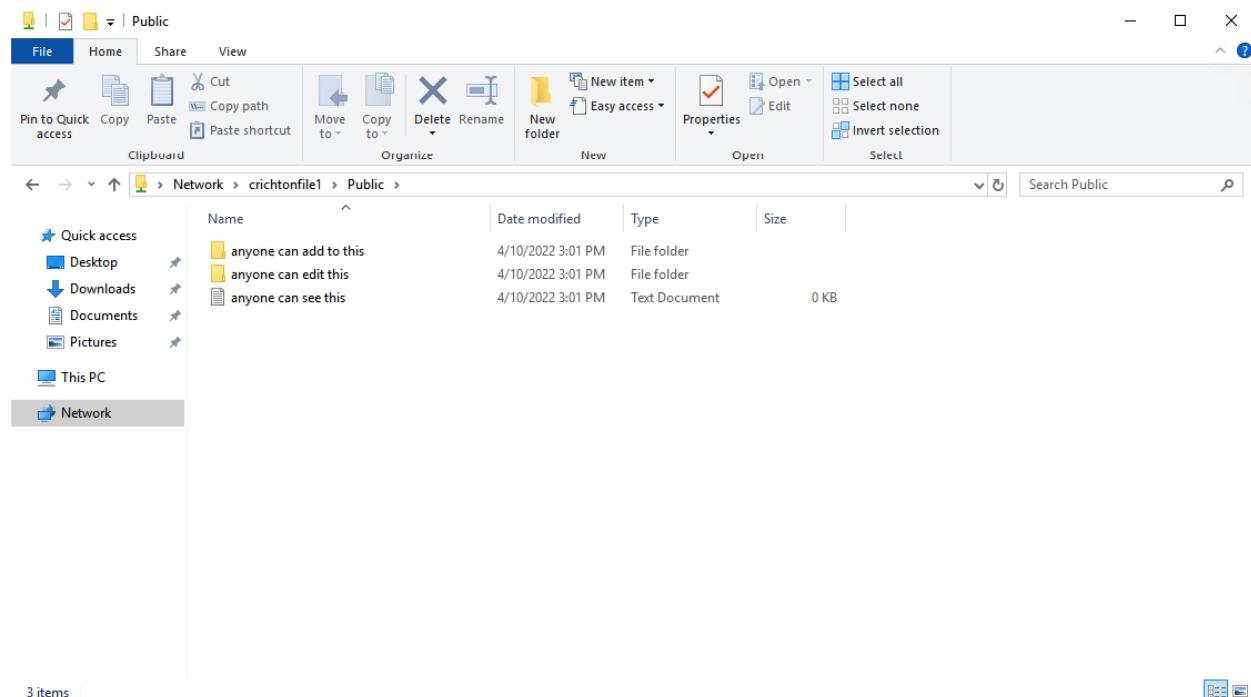
DNS Enhancements & Creating Windows File Server

- Procurement



CAN ACCESS:

- Public

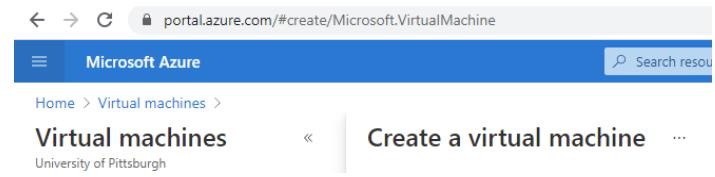


I could not access the above file shares, because the bastion host is not connected to the domain, therefore the only group that it is going to be tied to is the **Everyone** group, meaning anyone on the network, regardless if they are connected to the domain or not, will be able to access that folder.

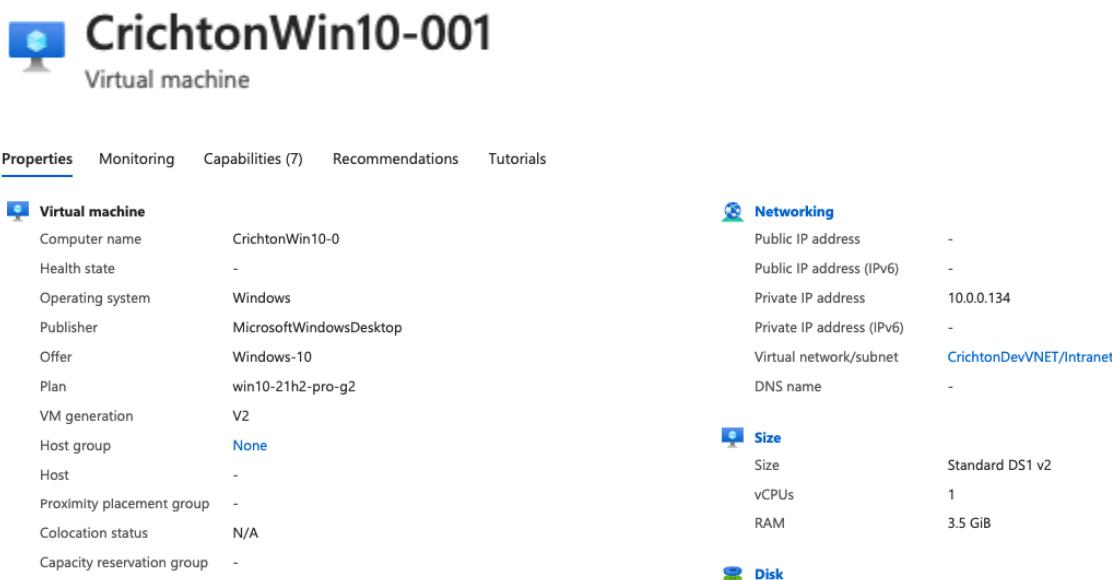
DNS Enhancements & Creating Windows File Server

7. (5 points) Create the following Windows 10 VM:

- Resource group: LastnameDevVMs
- Name: LastnameWin10-001
- Image: Windows 10 Pro
- Size: Standard DS1 v2 or any other
- Create a username and password.
- Use default disks
- For Networking select the VNET you created earlier and select the Intranet subnet
- The rest of the settings can be left to defaults
- Create the VM



Virtual machine		Networking	
Computer name	win10-001	Public IP address	-
Operating system	Windows (Windows 10 Pro)	Public IP address (IPv6)	-
Publisher	MicrosoftWindowsDesktop	Private IP address	10.0.0.134
Offer	Windows-10	Private IP address (IPv6)	-
Plan	20h2-pro	Virtual network/subnet	BeckDevVNET/Intranet
VM generation	V1	DNS name	-
Agent status	Ready		
Agent version	2.7.41491.1009		

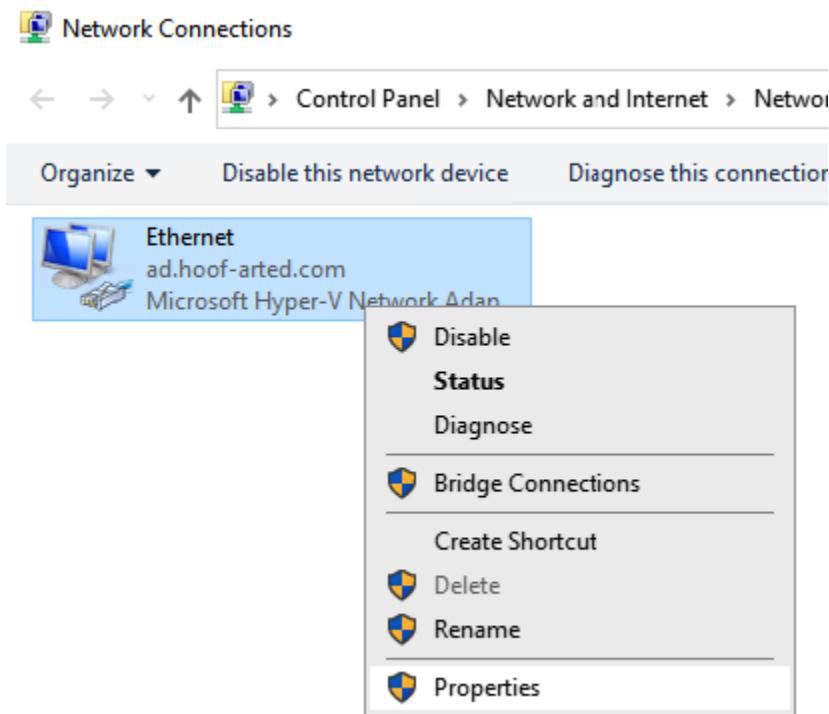


Virtual machine		Networking	
Computer name	CrichtonWin10-0	Public IP address	-
Health state	-	Public IP address (IPv6)	-
Operating system	Windows	Private IP address	10.0.0.134
Publisher	MicrosoftWindowsDesktop	Private IP address (IPv6)	-
Offer	Windows-10	Virtual network/subnet	CrichtonDevVNET/Intranet
Plan	win10-21h2-pro-g2	DNS name	-
VM generation	V2		
Host group	None		
Host	-		
Proximity placement group	-		
Colocation status	N/A		
Capacity reservation group	-		

DNS Enhancements & Creating Windows File Server

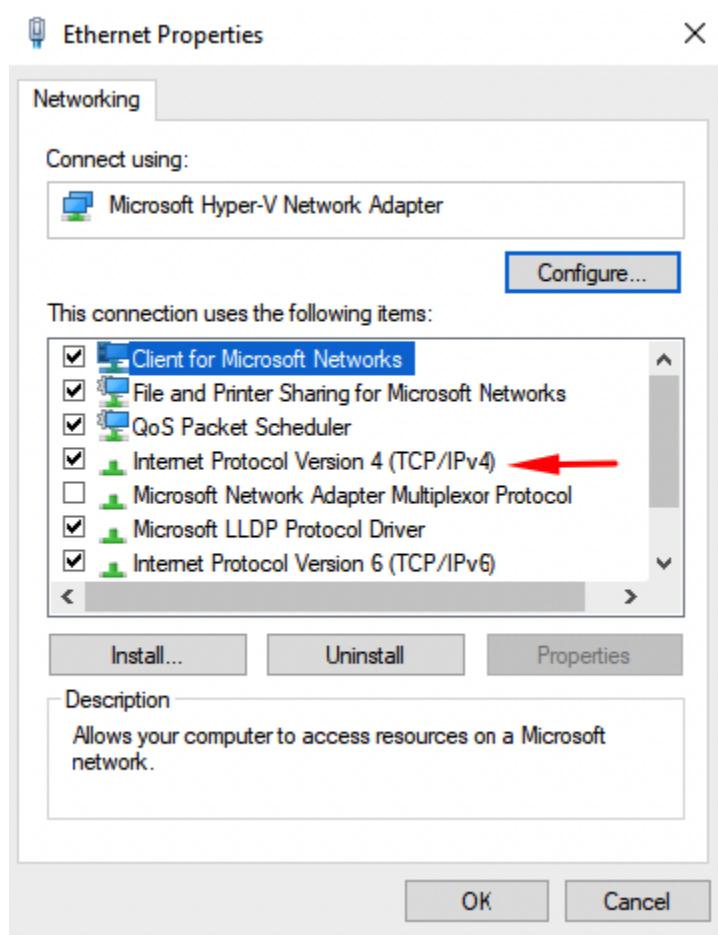
8. (5 points) Join your Windows 10 workstation (LastnameWin10-001 VM) to your Windows domain. Provide screenshot(s) showing the workstation is joined to the domain.

Go to **Control Panel >> Network and Internet >> Network and Sharing Center >> Change Adapter Settings**, right click on the **Ethernet** adapter, and then click **Properties**.



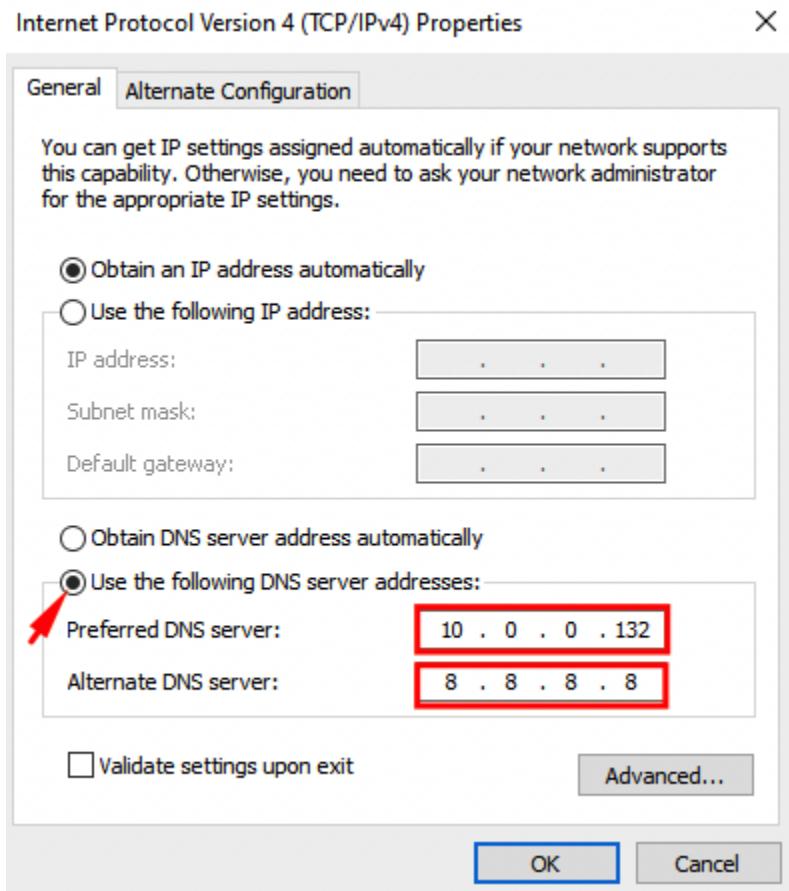
DNS Enhancements & Creating Windows File Server

Double click on the **Internet Protocol Version 4 (TCP/IPv4)**.



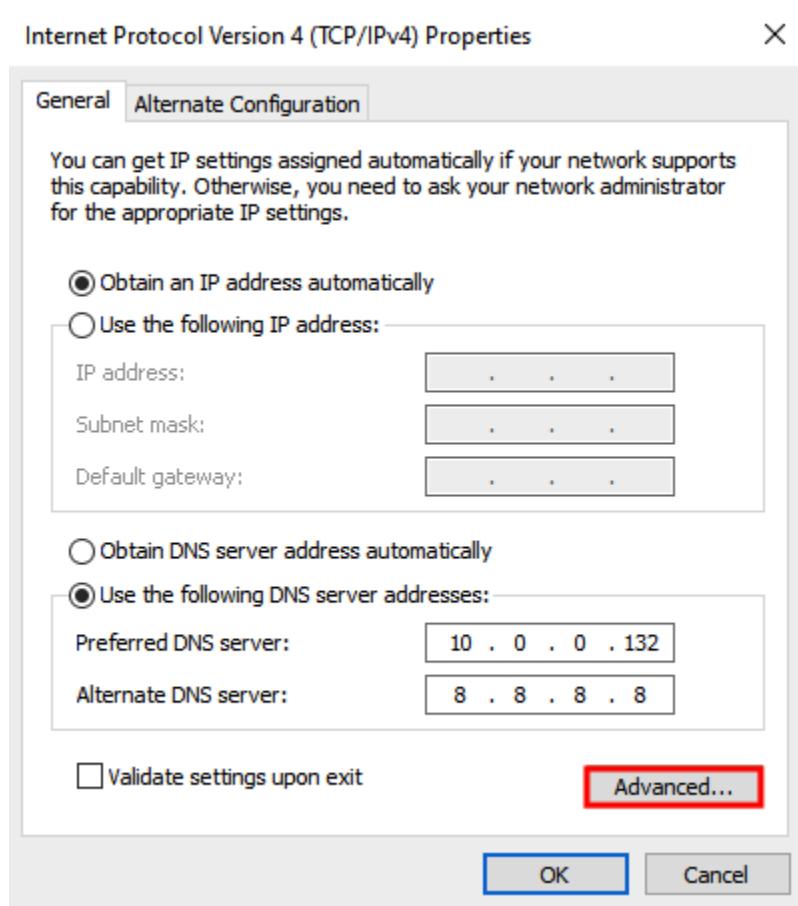
DNS Enhancements & Creating Windows File Server

Enter the **Private IP** of your **Domain Controller** into the preferred DNS server, and the alternate server can be Google's default, 8.8.8.8.



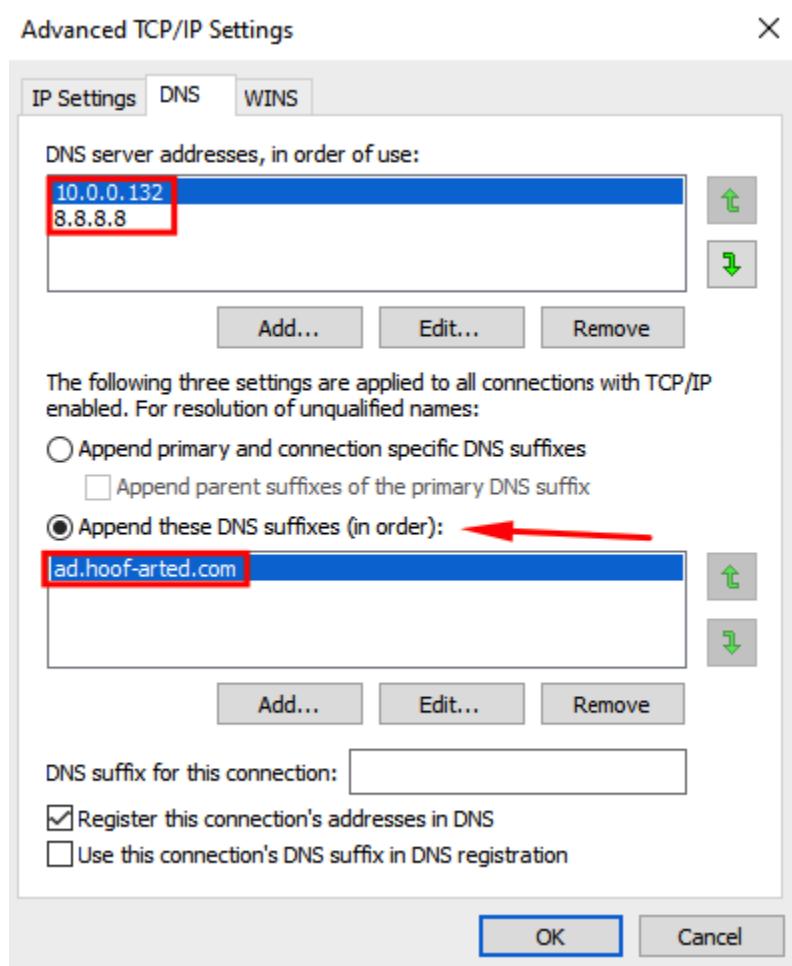
DNS Enhancements & Creating Windows File Server

Click **Advanced**



DNS Enhancements & Creating Windows File Server

Ensure that the **DNS server addresses in order of use** are properly added, and then fill in the bubble next to **Append these DNS suffixes (in order)**, and then enter your **active directory domain name**.



Press OK until you exit out of the adapter settings, then you will likely lose connection to your VM. Restart the VM in the Azure Portal, and whenever it is ready, reconnect to it.

Now navigate to the **Start Menu >> Settings >> Accounts >> Access Work or School** then click the **Connect** button, then click **Join this device to Active Directory Local Domain**, then type in your domain name.

After that you will have to reboot your VM, no need to restart it in the Azure Portal, just wait a minute and connect to the VM through RDP again.

DNS Enhancements & Creating Windows File Server

Whenever you navigate back to **Start Menu >> Settings >> Accounts >> Access Work or School**, you will now notice that your VM is **Connected to AD AD domain** and you will see your FQDN connected to the domain.



Connected to AD AD domain
ad.hoof-arted.com

DNS Enhancements & Creating Windows File Server

9. (20 points) Now that your Windows 10 workstation is joined to the domain RDP to the workstation using at least one user from the following AD groups:

- Senior Leadership
- Procurement
- Entertainment
- Domain Admins

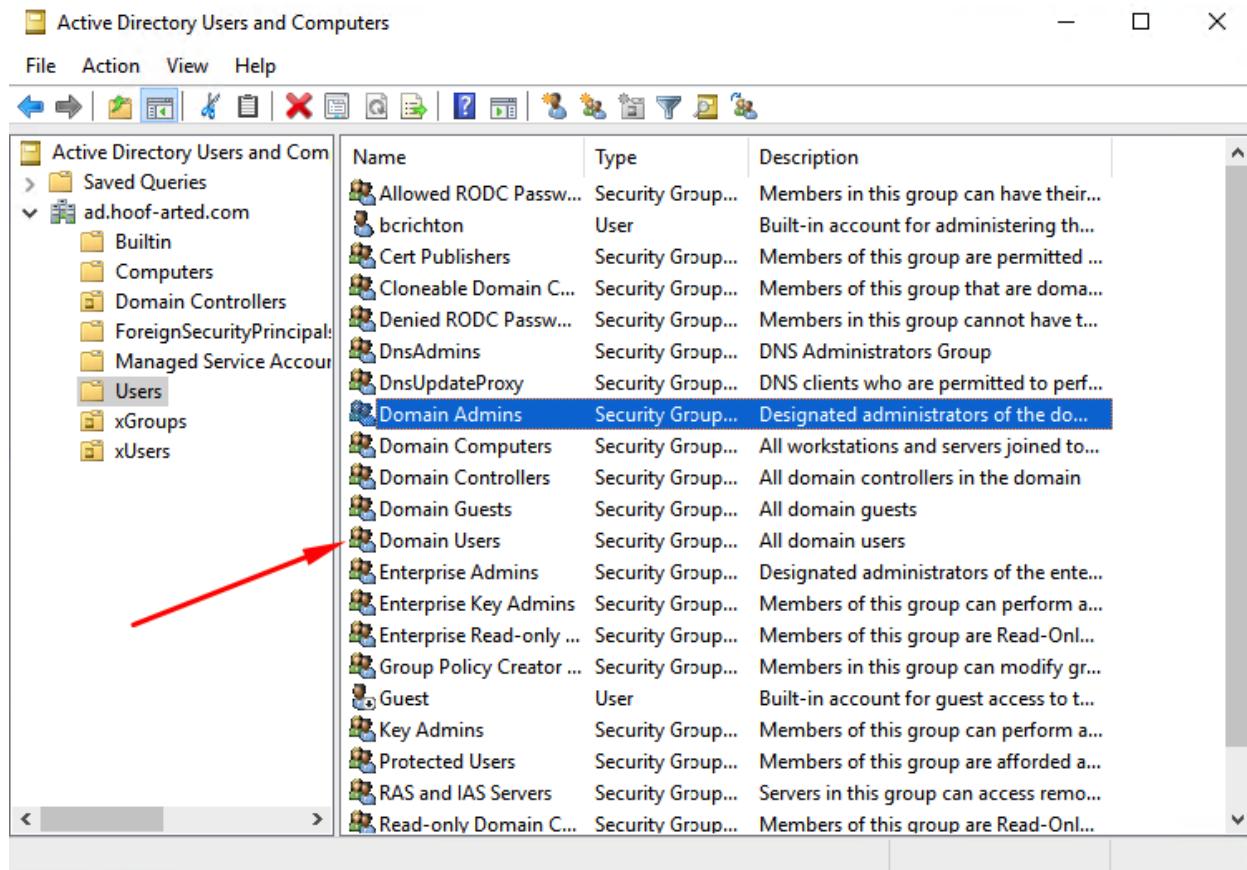
Hint: You may need to add Domain Users to the Remote Desktop Users group.

Document and provide screenshot(s) showing which shares can be accessed by which user and explain why or why not the user has access.

DNS Enhancements & Creating Windows File Server

ADD DOMAIN USERS TO THE REMOTE DESKTOP USERS GROUP

Go to your Domain Controller, and open **Active Directory Users and Computers >> Users** then locate the **Domain Users** Security Group

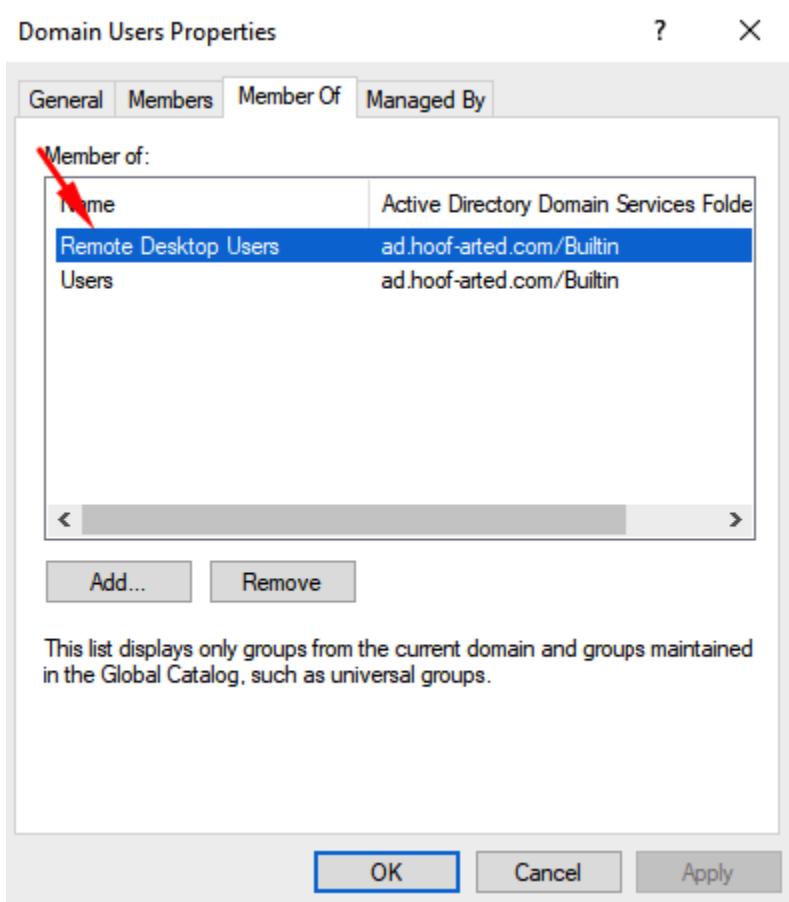


A screenshot of the Active Directory Users and Computers management console. The left pane shows a tree view of the domain structure under 'ad.hoof-arted.com'. A red arrow points from the text above to the 'Domain Users' entry in the list on the right. The right pane displays a table of security groups with columns for Name, Type, and Description. The 'Domain Admins' group is currently selected, highlighted with a blue border.

Name	Type	Description
Allowed RODC Passw...	Security Group...	Members in this group can have their...
bcrichton	User	Built-in account for administering th...
Cert Publishers	Security Group...	Members of this group are permitted ...
Cloneable Domain C...	Security Group...	Members of this group that are doma...
Denied RODC Passw...	Security Group...	Members in this group cannot have t...
DnsAdmins	Security Group...	DNS Administrators Group
DnsUpdateProxy	Security Group...	DNS clients who are permitted to perf...
Domain Admins	Security Group...	Designated administrators of the do...
Domain Computers	Security Group...	All workstations and servers joined to...
Domain Controllers	Security Group...	All domain controllers in the domain
Domain Guests	Security Group...	All domain guests
Domain Users	Security Group...	All domain users
Enterprise Admins	Security Group...	Designated administrators of the ente...
Enterprise Key Admins	Security Group...	Members of this group can perform a...
Enterprise Read-only ...	Security Group...	Members of this group are Read-Onl...
Group Policy Creator ...	Security Group...	Members in this group can modify gr...
Guest	User	Built-in account for guest access to t...
Key Admins	Security Group...	Members of this group can perform a...
Protected Users	Security Group...	Members of this group are afforded a...
RAS and IAS Servers	Security Group...	Servers in this group can access remo...
Read-only Domain C...	Security Group...	Members of this group are Read-Onl...

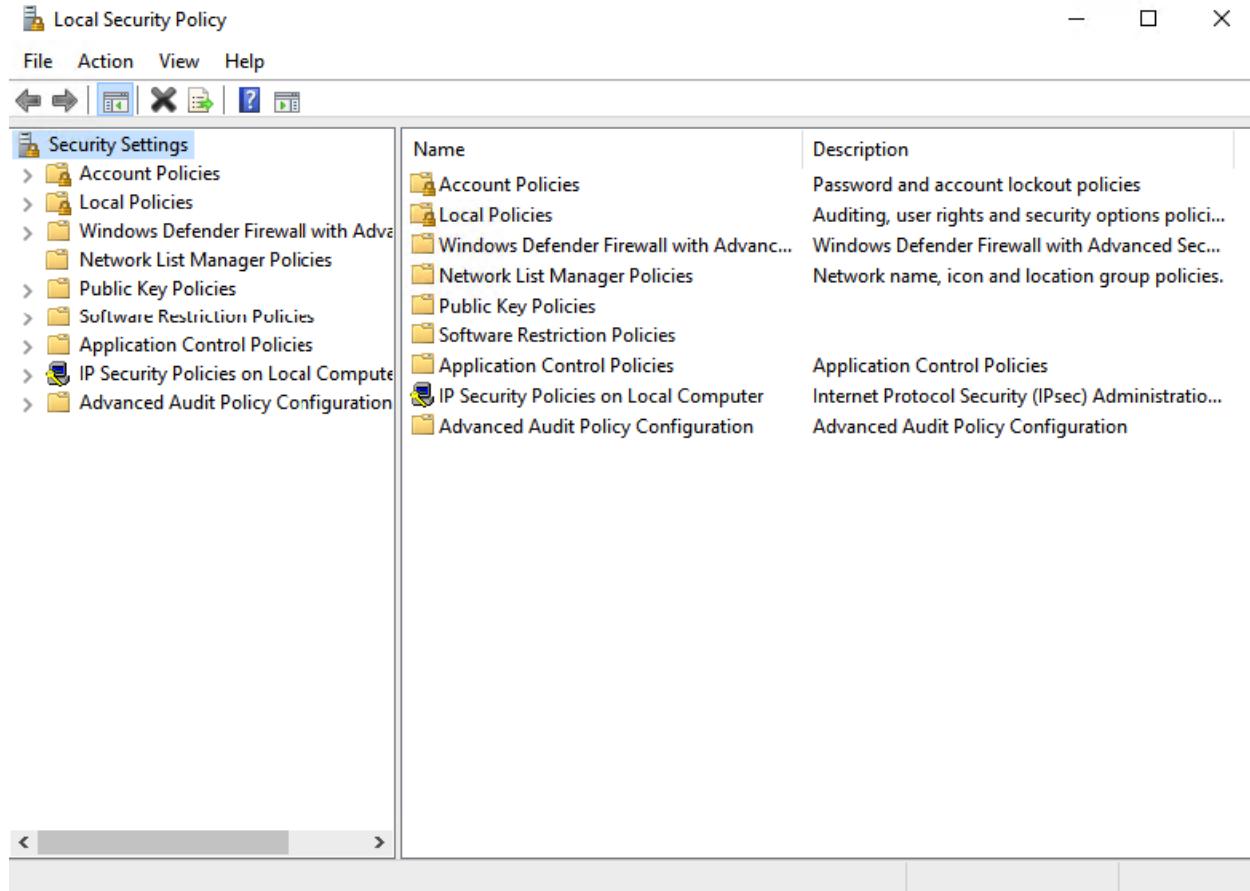
DNS Enhancements & Creating Windows File Server

Go to the **Member Of** tab and then add **Remote Desktop Users** to the groups that **Domain Users** are a member of.



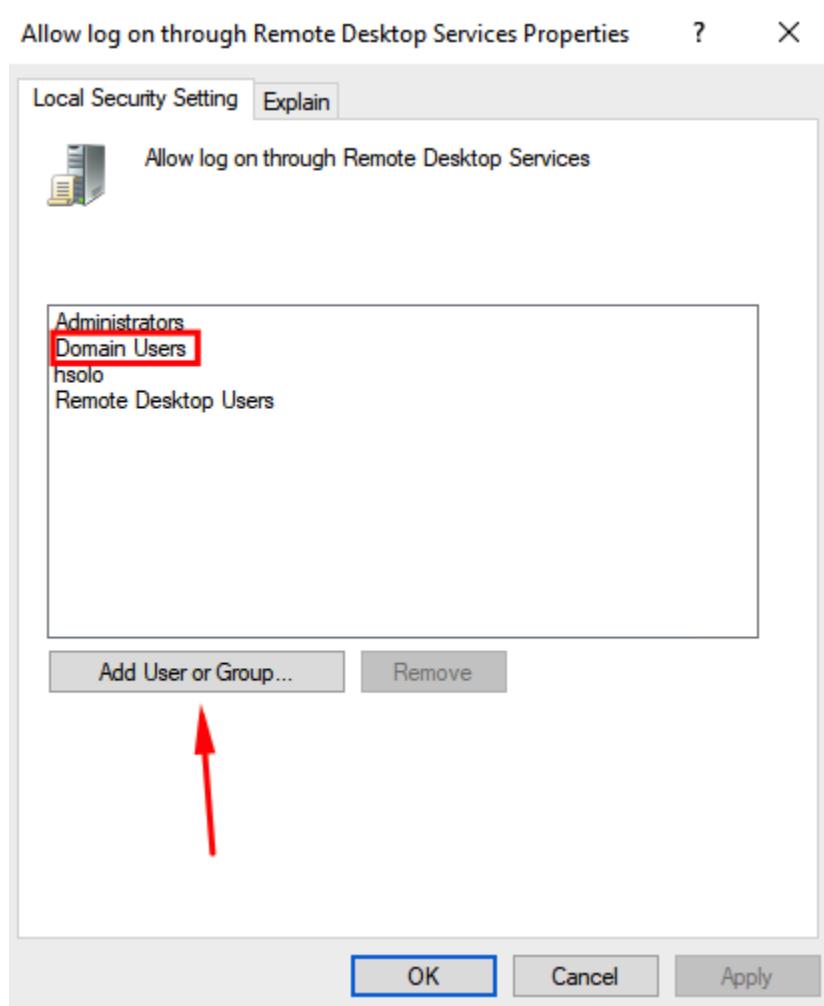
DNS Enhancements & Creating Windows File Server

Go to Start Menu >> Type in “Local Security Policy” then press enter to open the Local Security Policy Program.



DNS Enhancements & Creating Windows File Server

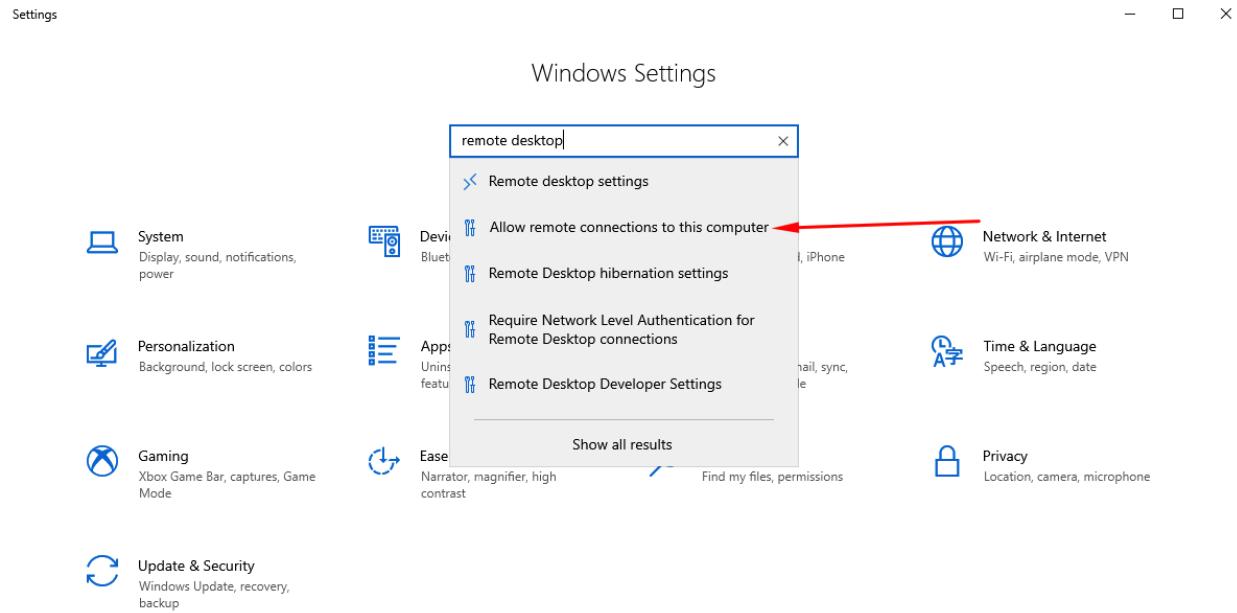
Navigate to Security Settings >> Local Policies >> User Rights Assignment >> Allow log on through Remote Desktop Services and add the Group **Domain Users**.



DNS Enhancements & Creating Windows File Server

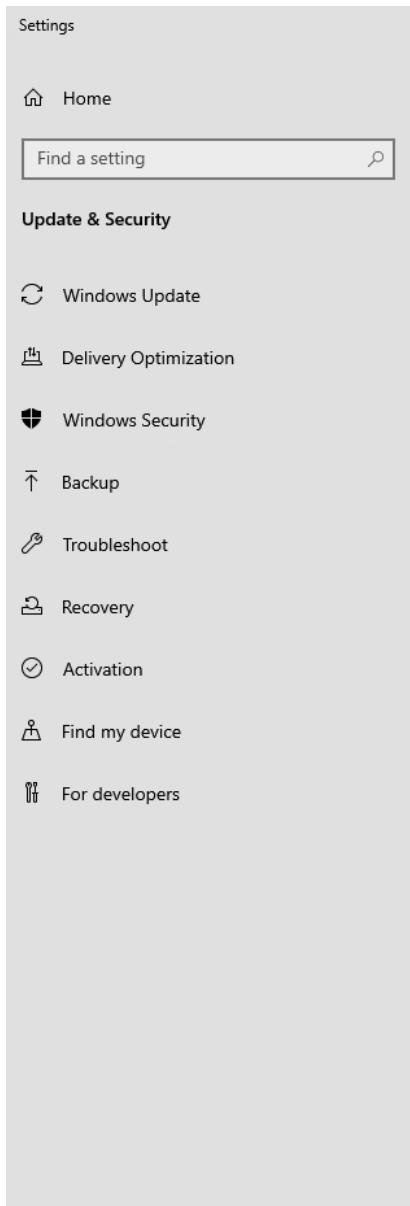
RDP to your Windows 10 Machine using the **Administrator account**, because this is going to be the only account that is going to have the permissions to RDP.

Navigate to the **Windows Settings**, then type in **Remote Desktop** in the search bar, then select **Allow remote connections to this computer**.



DNS Enhancements & Creating Windows File Server

Scroll down to the **Remote Desktop** section, then next to the **Change settings to allow remote connection**, there is a button that says **Show Settings**, click that.



For developers

- Change policy to show Run as different user in Start [Show settings](#)

- Change settings to show empty drives [Show settings](#)

Apply

Remote Desktop

Apply the following settings to enable Remote Desktop and ensure machine availability.

- Change settings to allow remote connections to this computer [Show settings](#)

- Change settings to allow connections only from computers running Remote Desktop with Network Level Authentication [Show settings](#)

Apply

PowerShell

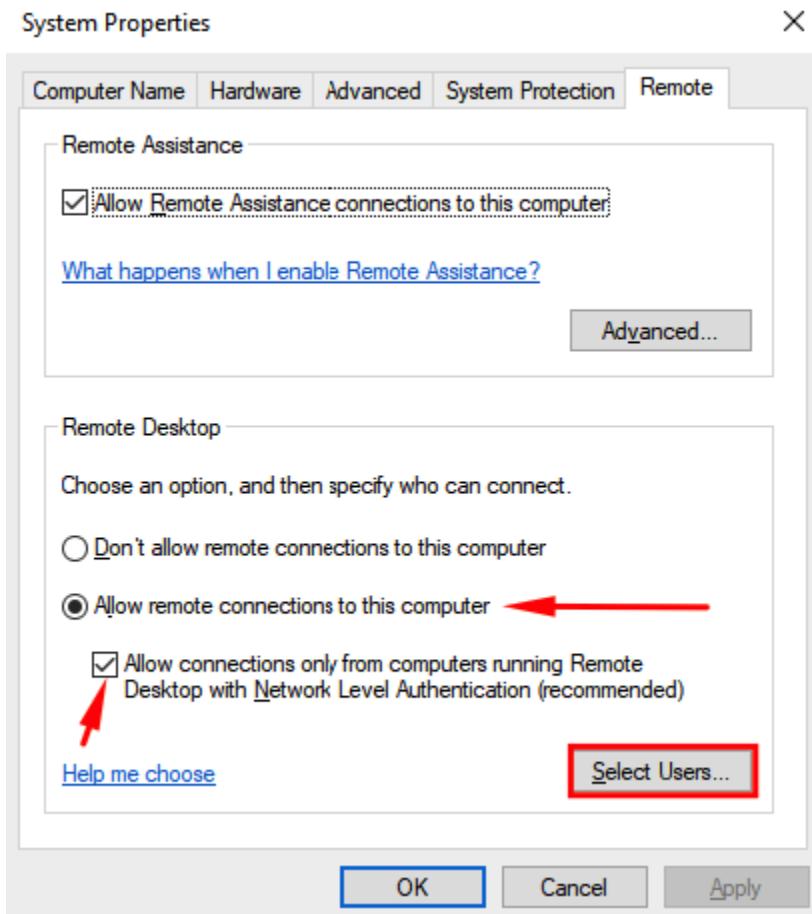
Apply the following settings to execute PowerShell scripts.

- Change execution policy to allow local PowerShell scripts to run without signing. Require signing for remote scripts. [Show settings](#)

Apply

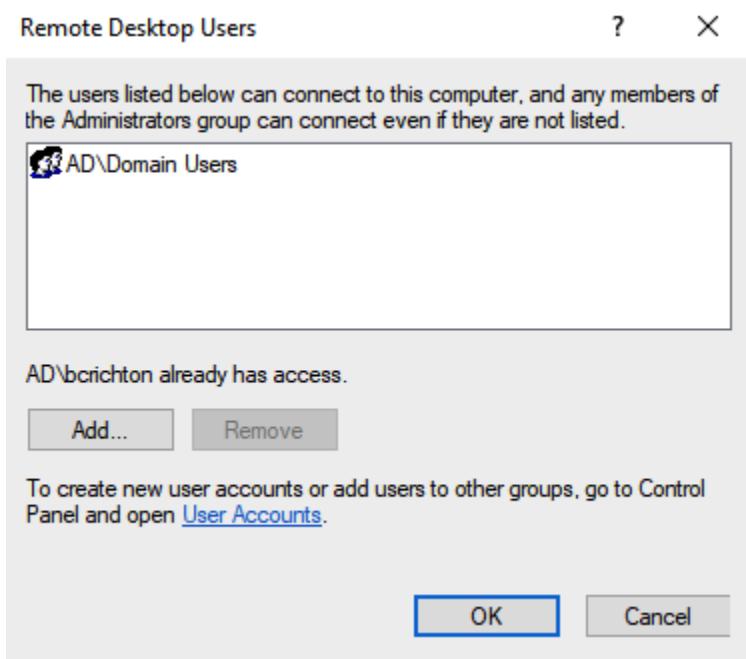
DNS Enhancements & Creating Windows File Server

Make sure the **Allow Remote Connections to this computer** bubble is filled in, as well as the check box is checked below that. Then click **Select Users**.



DNS Enhancements & Creating Windows File Server

This is where you are going to want to add which users or groups that you want to be able to remote desktop to the Windows 10 VM. In our case, we are going to just add Domain Users, which will give access to RDP to this W10 VM to all users in our domain.



If configured properly, you should now be able to RDP to the W10 VM with any of the users on the domain.

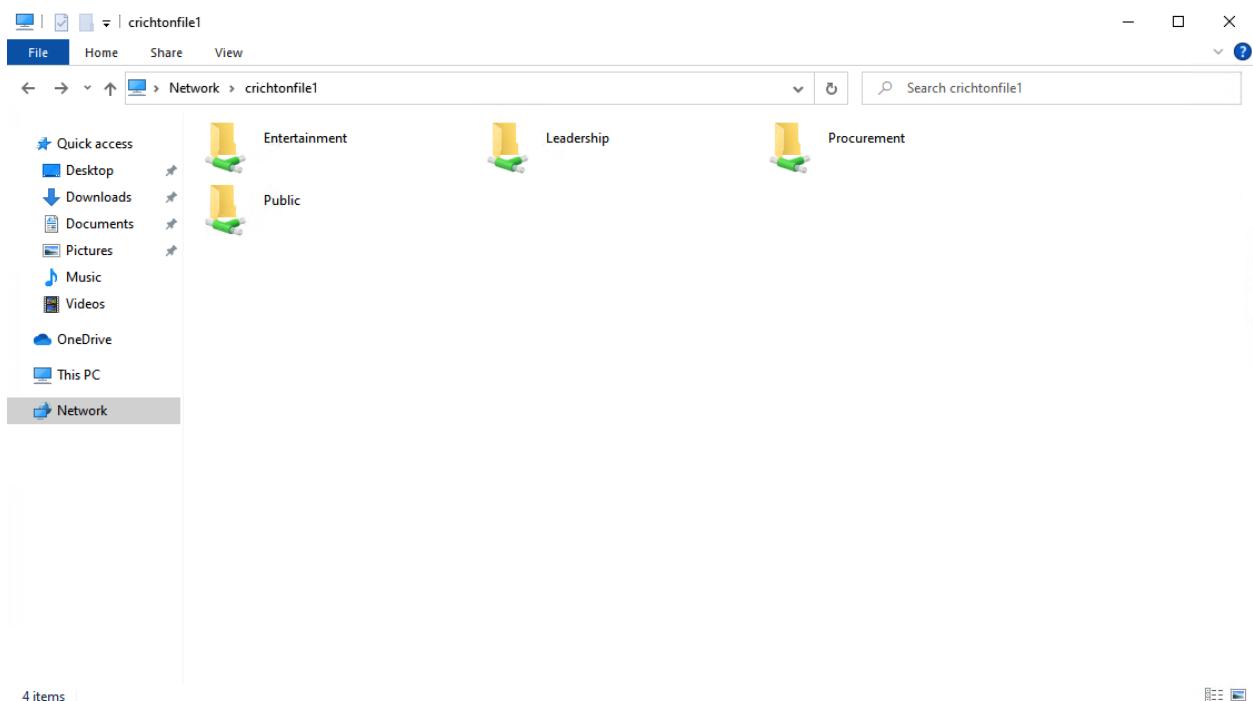
DNS Enhancements & Creating Windows File Server

CHECKING FILE AND SHARE PERMISSIONS

I chose Han Solo for the user that I RDP'd into the Windows 10 VM

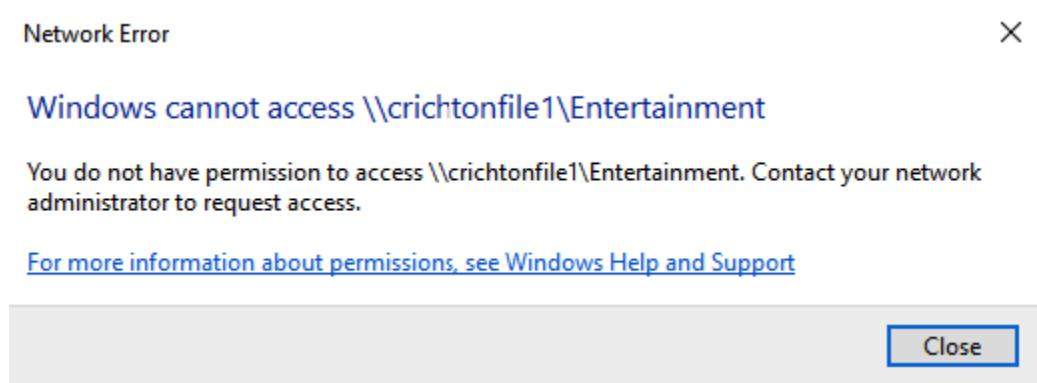
```
C:\Users\hsolo>_
```

- With this user, I was able to view that the following folders even existed, all but the Software folder since it was hidden.

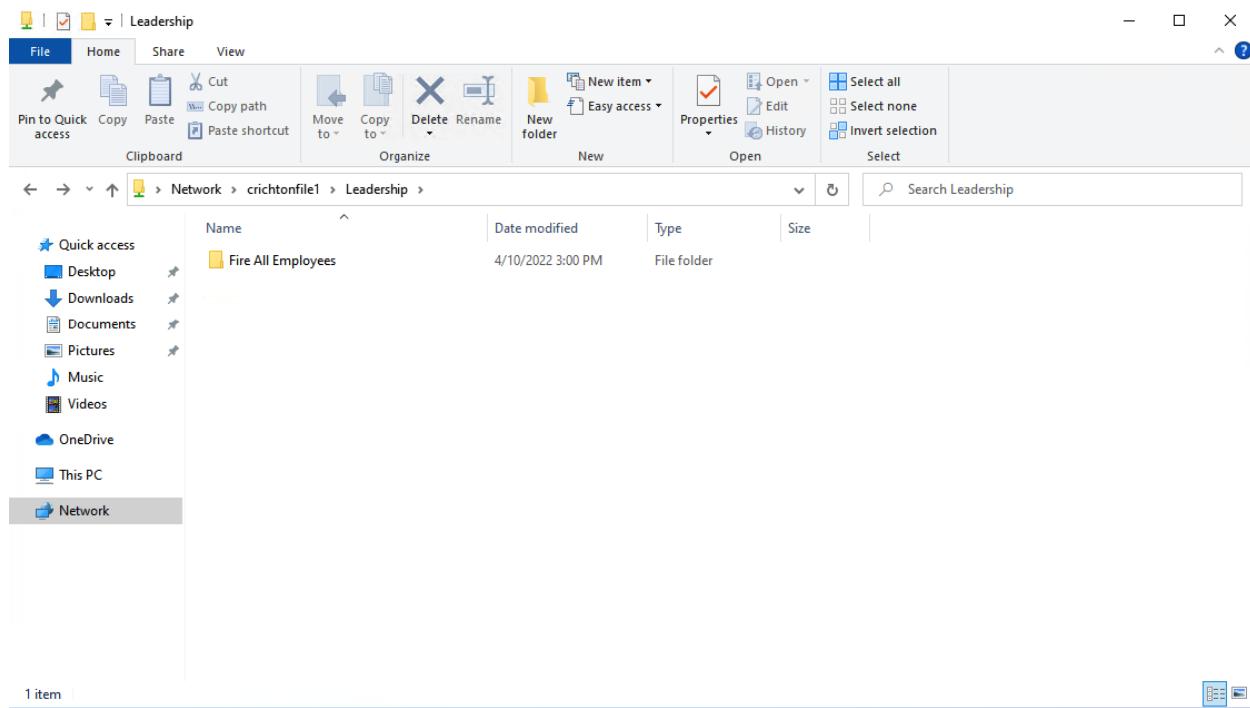


DNS Enhancements & Creating Windows File Server

I could not access the Entertainment folder. This is because there are no file or share permissions assigned to this folder pertaining to the Han Solo user in AD.

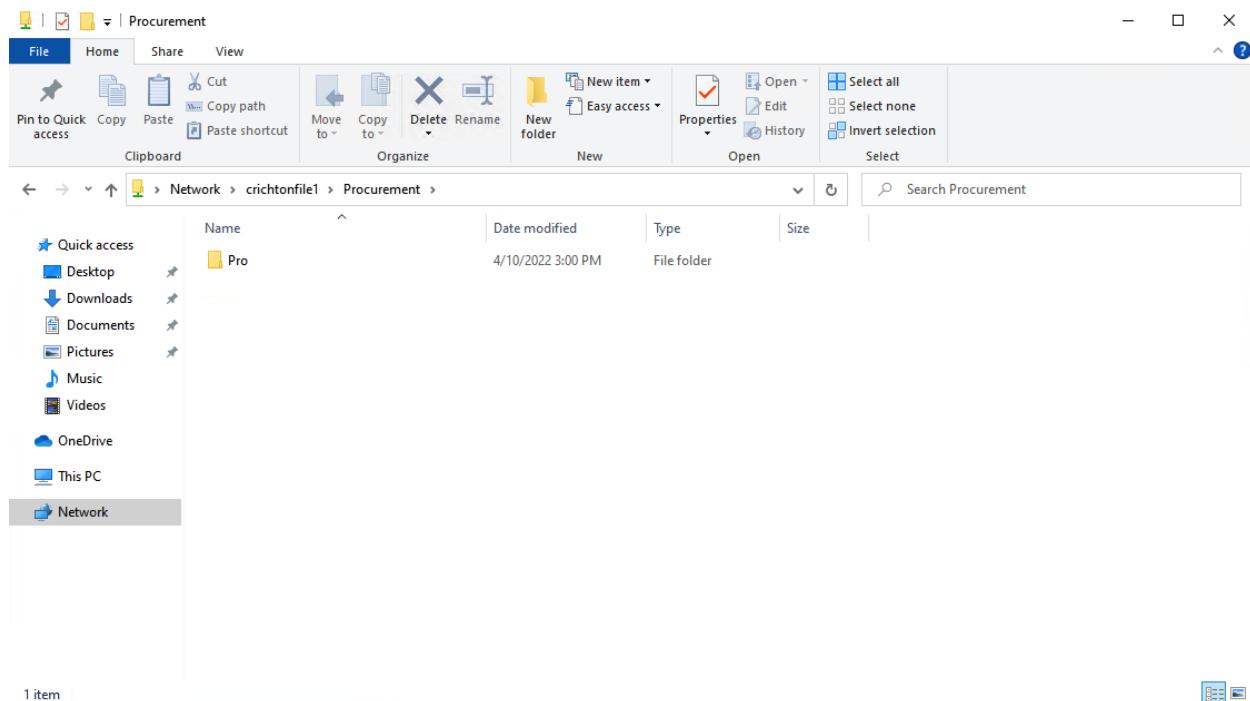


I was able to Read and Write to the Leadership folder.

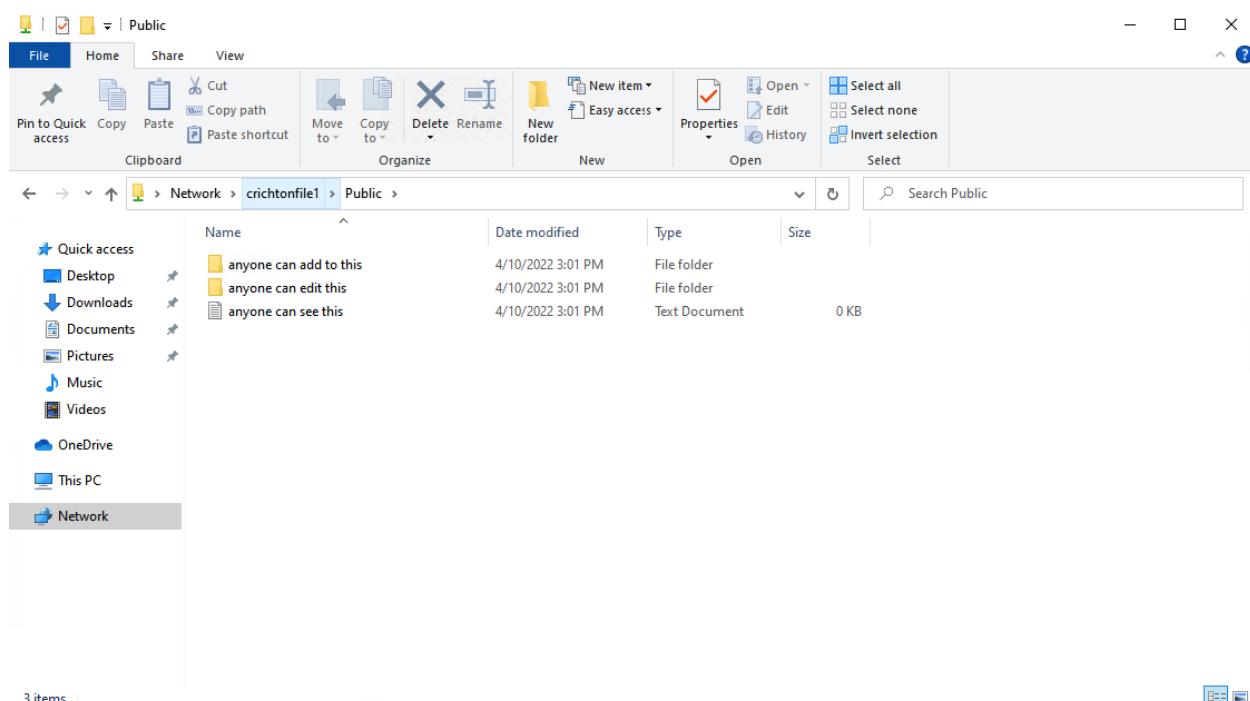


DNS Enhancements & Creating Windows File Server

I was able to Read and Write to the Procurement folder.



I was able to Read and Write to the Public folder.



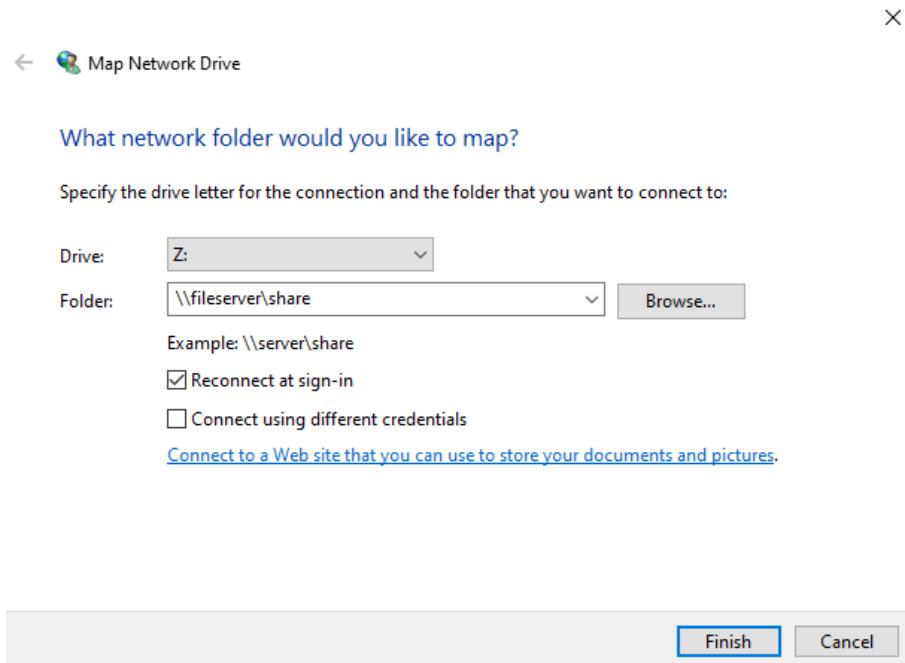
DNS Enhancements & Creating Windows File Server

All users will differ between which shared folders that they are allowed to access based on the Share Level Permissions and the File Level permissions. **It is important to note that Share Permissions will always trump file permissions.**

In the case that Han Solo was not able to access the entertainment folder, another user will be able to based on the permissions that were granted to their account. It is important to only give access and assign privileges to people the minimum of what they need to perform their duties.

DNS Enhancements & Creating Windows File Server

10. (10 points) Using the user of your choice and the share of your choice create a map network drive on the Windows 10 workstation to ensure the drive letter is Z:. drive.

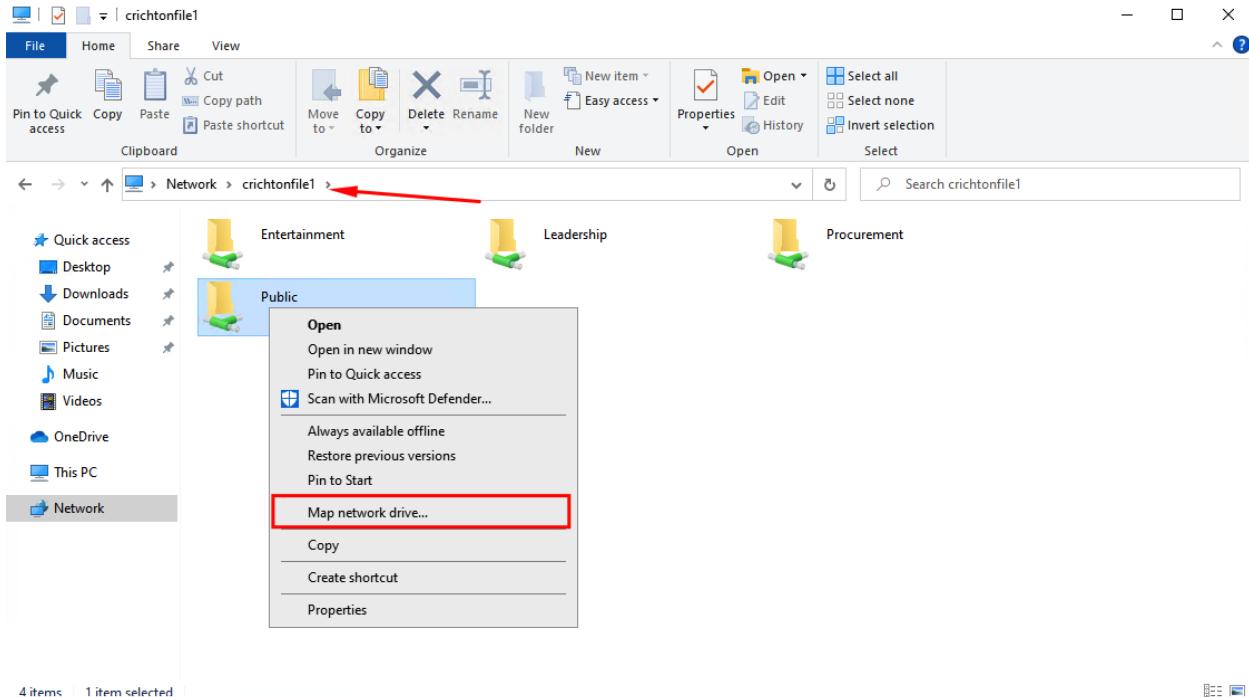


Provide a screenshot(s) of your map network drive.

DNS Enhancements & Creating Windows File Server

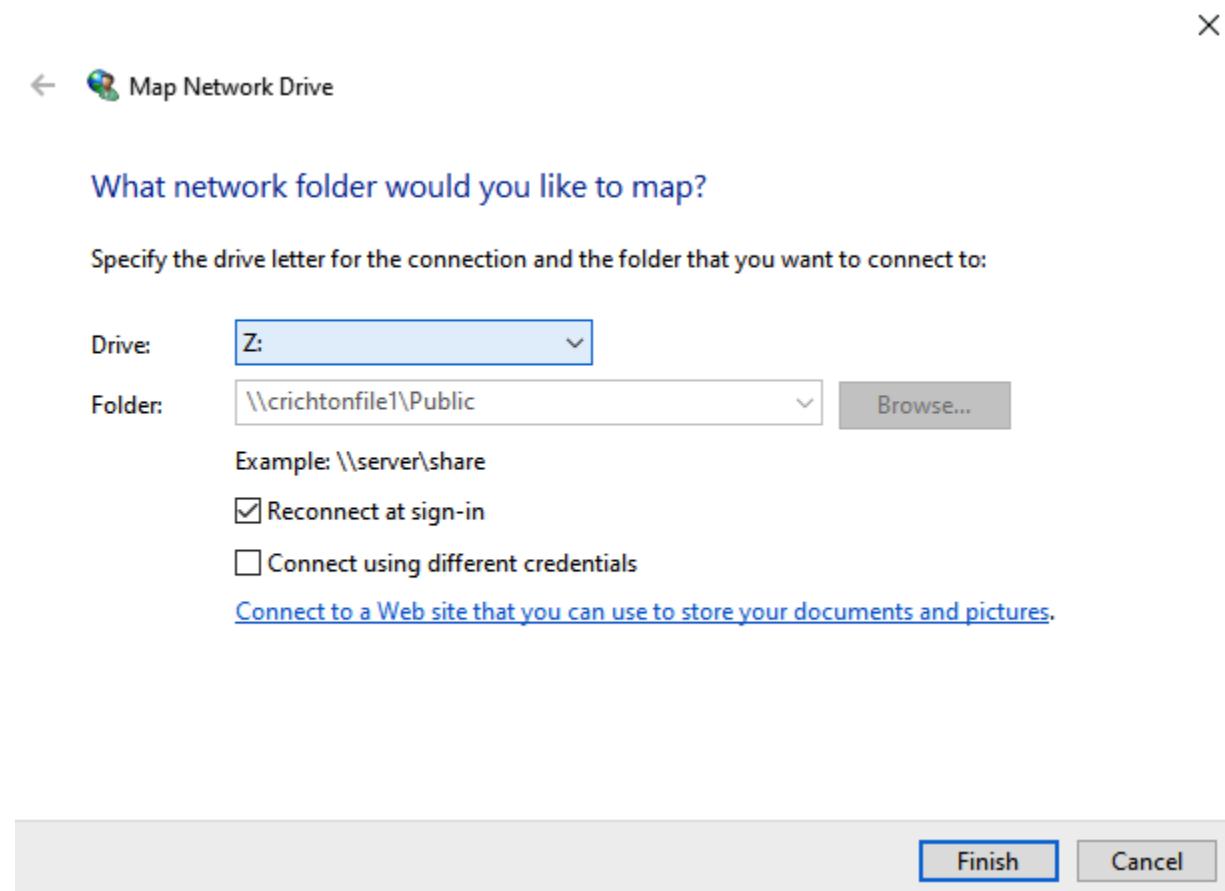
MAPPING NETWORK DRIVE

Ensure that you are on your network file server, find the shared folder that you want to map, and right click on that folder. After right clicking on that folder, click **Map Network Drive**.



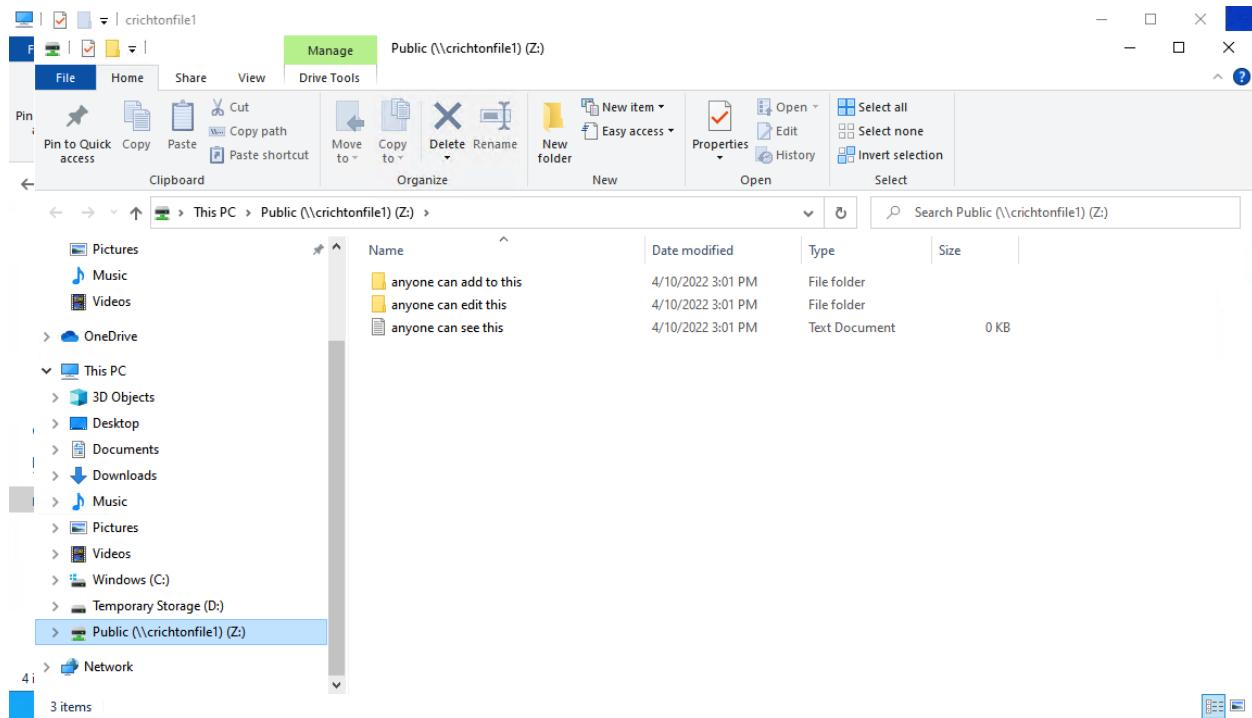
DNS Enhancements & Creating Windows File Server

Ensure that everything is set correctly according to your drive name and letters, then click finish.



DNS Enhancements & Creating Windows File Server

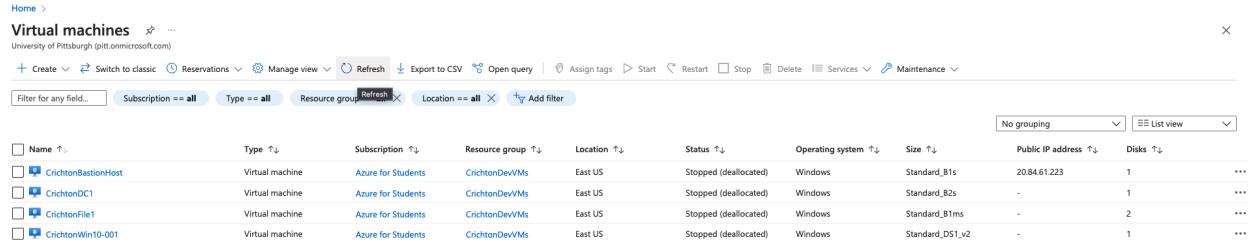
File explorer will now always show that network drive for that user.



DNS Enhancements & Creating Windows File Server

When completed with this assignment power-off all the VMs. Provide a screenshot showing this is completed.

**We will use these VMs for future assignments, so you do not need to delete / destroy them.
However, if you do not power-off the VMs you will use all your cloud credits.**



The screenshot shows the Azure portal interface for managing virtual machines. The top navigation bar includes 'Home', 'Virtual machines', and other options like 'Create', 'Reservations', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', 'Start', 'Restart', 'Stop', 'Delete', 'Services', and 'Maintenance'. Below the navigation is a search bar with filters: 'Subscription == all', 'Type == all', 'Resource group == CrichtonDevVMs', and 'Location == all'. There is also an 'Add filter' button. To the right of the search bar are buttons for 'No grouping' and 'List view'. The main area displays a table of virtual machines:

Name	Type	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disks
CrichtonBastionHost	Virtual machine	Azure for Students	CrichtonDevVMs	East US	Stopped (deallocated)	Windows	Standard_B1s	20.84.61.223	1
CrichtonDC1	Virtual machine	Azure for Students	CrichtonDevVMs	East US	Stopped (deallocated)	Windows	Standard_B2s	-	1
CrichtonFile1	Virtual machine	Azure for Students	CrichtonDevVMs	East US	Stopped (deallocated)	Windows	Standard_B1ms	-	2
CrichtonWin10-001	Virtual machine	Azure for Students	CrichtonDevVMs	East US	Stopped (deallocated)	Windows	Standard_DS1_v2	-	1