BBCS153 Report

Risk Management

Priority	Condition	Consequence	Probaility	Impact	Exposure
1	Work not saved properly	Will have to go back to last time it was saved properly & redo whatever was done before.	25%	5	**1.25**
2	VM crashes	Will probably have to redo whatever work again on that VM that was not saved before the crash.	20%	3	**0.6**
3	PC Crashes	Will have to redo whatever work again that was not saved before the crash.	10%	5	**0.5**
4	Not completing the project in time	Will lose some marks	10%	2	**0.2**
5	PC Hardware Failure	PC will no longer run & will have to move to a new PC & restart work.	1%	9	**0.09**
6	VM copies are corrupt	Won't be able to do the project so won't get the marks	1%	7	**0.07**
7	Computer being used when I need to use it	Will just have to wait until the person leaves to continue doing my work.	1%	3	**0.03**
8	Sick/Unable to attend	Will miss class & have to work a lot harder to get the rest of the tasks done in a shorter time frame.	10%	2	**0.2**

VM Location & Path

███

Networks

Task One

- PC1 > IP: 192.168.1.112, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7
- PC2 > IP: 192.168.1.113, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7
- PC3 > IP: 192.168.1.114, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7

Task Two

- PC1 > IP: 192.168.1.112, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7, DNS: 192.168.1.10
- PC2 > IP: 192.168.1.113, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7, DNS: 192.168.1.10
- PC3 > IP: 192.168.1.114, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7, DNS: 192.168.1.10
- DC01 > IP: 192.168.1.10, Subnet: 255.255.255.0, Default Gateway – 192.168.1.1, vmNet :7

Problems & Solutions

I had a few problems while working on the project, the first one was when first booting up all the PC VM machines they would all have an error & go into a boot loop which I didn't know why so to fix the problem I just removed them & copied over new VM's & that solved the issue.

One was where I created the local accounts on task one using command line & they didn't show uo in the switch accounts area because I didn't realize you had to log into them for them to show up.

Next one was the workstation I was using crashed due to a memory error as soon as I opened all the VMs, so I had to wait a little bit longer to get started.

One was trying to figure out how to connect the DNS from a VM workstation to the domain controller that was just made, the solution was to add in the IP address of the domain controller to the DNS option in the IP GUI.

Windows 11 Machine had Eddie's Azure AD account linked which had to be removed first before using **add-computer** command to connect the machine to the avis.dodgy.nz domain.


Reflections

Overall, I think the project went well, I found task one a lot easier to do & got through it quickly but task two took some time & had some complications where I had to go through the labs a lot more than I thought to get commands & find out how to set up the domain controller. In the end the project did get completed & all the checkboxes that were outlined in the tasks were completed. 🗔

TASK 1

I cloned three Windows VM's to my own drive, two of them are Windows 10 machines & one is a Windows 11 machine.

Windows 10 - PC1	9/09/2024 3:26 PM	File folder
Windows 10 - PC2	9/09/2024 3:26 PM	File folder
Windows 11 - PC3	9/09/2024 3:27 PM	File folder

I powered on the Windows machines & configured them with an internal virtual switch & static IP address.

Network Adapter	Custom (VMnet7)
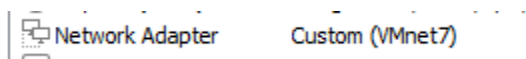
The computers were then renamed

```
PS C:\Users\Administrator> Rename-Computer -NewName "PC3"
WARNING: The changes will take effect after you restart the computer DESKTOP-CLP091K.
PS C:\Users\Administrator> _
```

Configuring the network was achieved opening network connects with **ncpa.cpl** command & going into network properties.

The IP addresses for the machines are as follows:

- PC1 – 192.168.1.112/24
- PC2 – 192.168.1.113/24
- PC3 – 192.168.1.114/24

They will all have the default gateway of **192.168.1.1** & a subnet mask of **255.255.255.0**, the PCs were given this particular default gateway because this is the LAN IP address of the PfSense Firewall.

Use the following IP address:

IP address:	192 . 168 . 1 . 112
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 1 . 1

This will give the PC internet connectivity; this is proved by pinging Google's DNS server **8.8.8.8**

```
PS C:\Users\Administrator> ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=39ms TTL=115
Reply from 8.8.8.8: bytes=32 time=40ms TTL=115
Reply from 8.8.8.8: bytes=32 time=40ms TTL=115
Reply from 8.8.8.8: bytes=32 time=40ms TTL=115

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 39ms, Maximum = 40ms, Average = 39ms
PS C:\Users\Administrator>
```

On each of the machines, going to windows menu > Settings > Accounts > Other Users > Add someone else to this PC, which will bring up the Local Users & Groups GUI. Going into **Users** folder > RMB > New User…
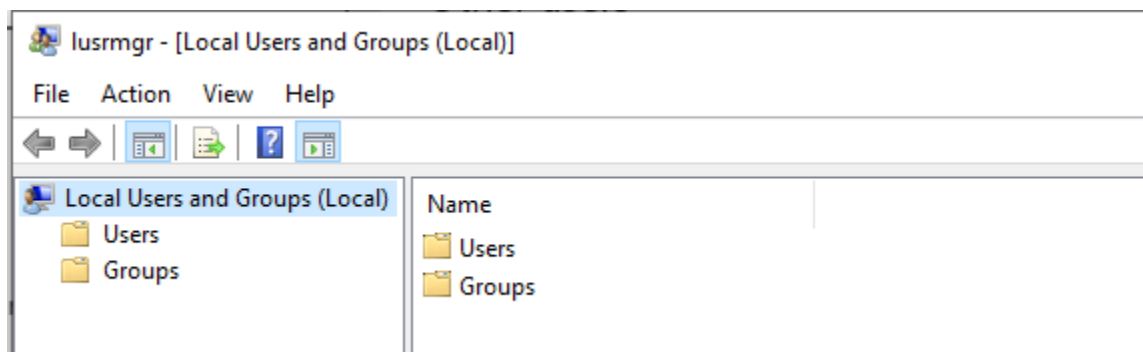

I entered the name of the user, entered a password & unticked "user must change password at next login". This was repeated 5 times in total to get 5 local user accounts **Leo**, **Leon**, **Lily**, **Lucy**, **Luke**.
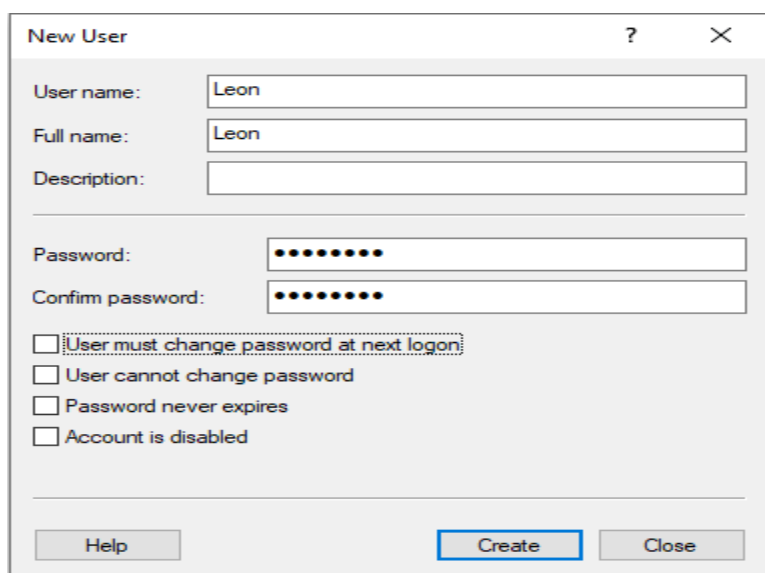
Name	Full Name	Description
Administrator		Built-in account for administering...
DefaultAcco...		A user account managed by the s...
Guest		Built-in account for guest access t...
Leo	Leo	
Leon	Leon	
Lily	Lily	
Lucy	Lucy	
Luke	Luke	
Student		
WDAGUtility...		A user account managed and use...

Now we can login to the accounts.
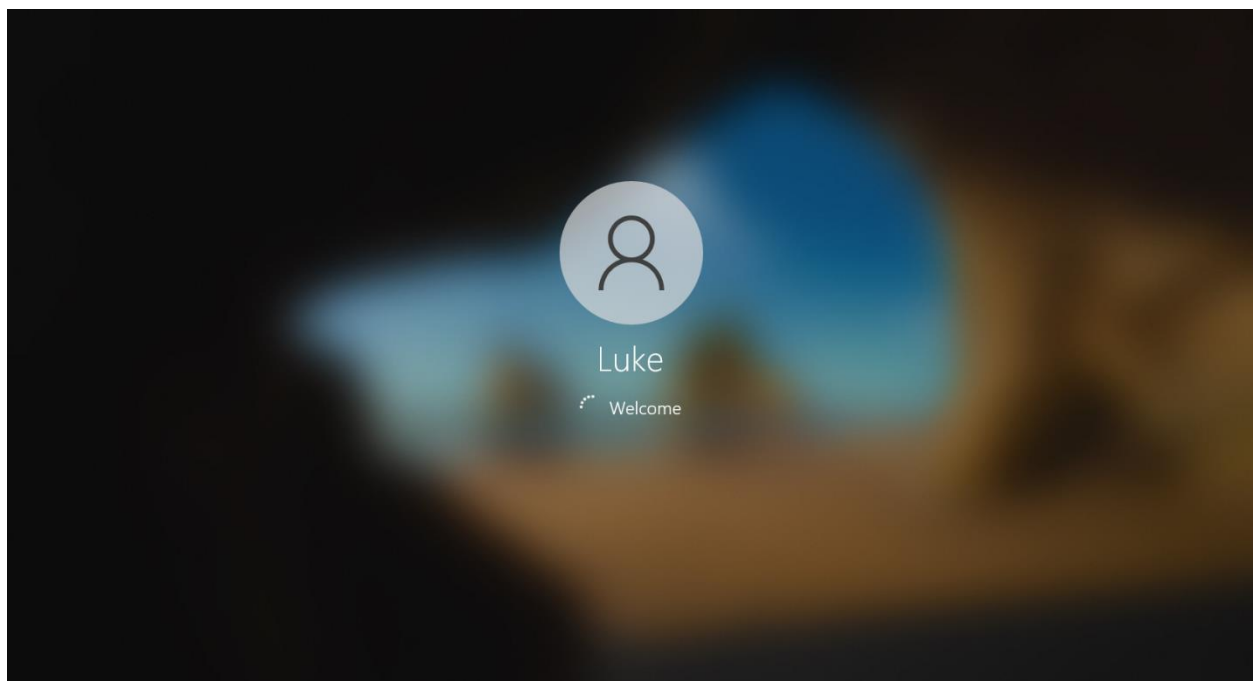
Pinging the other computers to prove that they are on the same network.

```
PS C:\Users\Administrator> ping 192.168.1.113

Pinging 192.168.1.113 with 32 bytes of data:
Reply from 192.168.1.113: bytes=32 time<1ms TTL=128
Reply from 192.168.1.113: bytes=32 time<1ms TTL=128
Reply from 192.168.1.113: bytes=32 time<1ms TTL=128
Reply from 192.168.1.113: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.113:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator>
```

Next a folder named **Shared File** was created in the C: Drive of the PC1 machine, with a new text file created in it called **Secret Message**.

| This PC > Local Disk (C:) >		
Name	Date modified	Type
PerfLogs	7/12/2019 10:14 pm	File folder
Program Files	16/09/2024 3:19 pm	File folder
Program Files (x86)	7/10/2021 2:57 am	File folder
Users	9/09/2024 3:51 pm	File folder
Windows	9/09/2024 3:39 pm	File folder
Shared File	16/09/2024 3:30 pm	File folder

This PC > Local Disk (C:) > Shared File

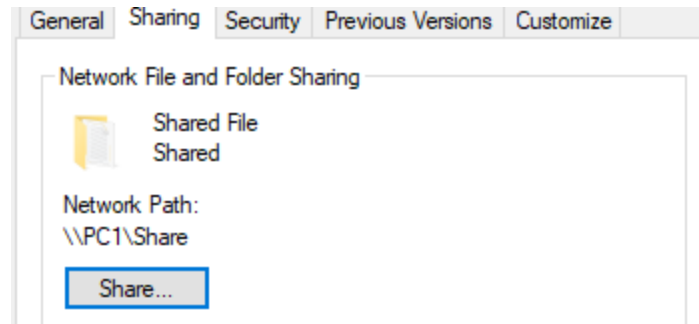| Name	Date modified	Type	Size
Secret Message	16/09/2024 3:31 pm	Text Document	1 KB

Next on the **Shared File** folder, it was right clicked & gone into properties, then into the **Sharing** tab along the top, then **Advanced Sharing...** was pressed which brings up a new menu.
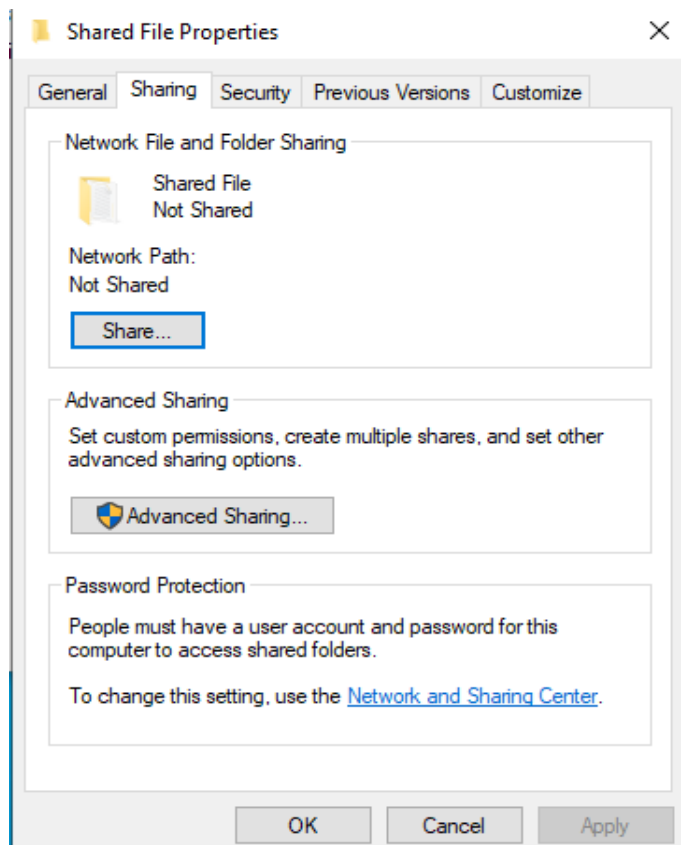
Share this folder was ticked.
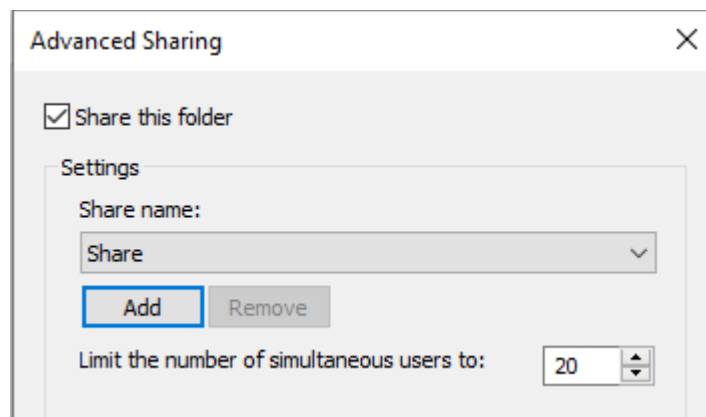
This now allowed the **Shared File** folder to be shared to other machines on the same network, so following the network path **\\PC1\Shared File** would allow other PCs to see the text file as shown below on **PC2**.

TASK 2

A **Windows Server 2022** VM was cloned into the same folder along with the other VM's.

PfSense Firewall	16/09/2024 3:29 PM	File folder	
Windows 10 - PC1	16/09/2024 3:20 PM	File folder	
Windows 10 - PC2	16/09/2024 3:33 PM	File folder	
Windows 11 - PC3	16/09/2024 3:45 PM	File folder	
Windows Server 2022	16/09/2024 3:49 PM	File folder	

After powering on the server machine, I started to configure them using powershell. I first changed the name of the server machine to **DC01**.

```
PS C:\Users\Administrator> Rename-Computer -NewName "DC01"
WARNING: The changes will take effect after you restart the computer WIN-NMGT93EDRBC.
PS C:\Users\Administrator> _
```

```
PS C:\Users\Administrator> hostname
DC01
```

Next step was to configure the IP address, subnet mask & default gateway.

I gave the machine an IP address of **192.168.1.10**, it has a subnet mask of **255.255.55.0** & its default gateway is **192.168.1.1** which points to the PfSense firewall.

```
PS C:\Users\Administrator> New-NetIPAddress -InterfaceAlias ethernet0 -IPAddress 192.168.1.10 -DefaultGateway "192.168.1.1" -PrefixLength 24


IPAddress         : 192.168.1.10
InterfaceIndex    : 5
InterfaceAlias    : Ethernet0
AddressFamily     : IPv4
Type              : Unicast
PrefixLength      : 24
PrefixOrigin      : Manual
SuffixOrigin      : Manual
AddressState      : Tentative
ValidLifetime     : Infinite ([TimeSpan]::MaxValue)
PreferredLifetime : Infinite ([TimeSpan]::MaxValue)
SkipAsSource      : False
PolicyStore       : ActiveStore

IPAddress         : 192.168.1.10
InterfaceIndex    : 5
InterfaceAlias    : Ethernet0
AddressFamily     : IPv4
Type              : Unicast
PrefixLength      : 24
PrefixOrigin      : Manual
SuffixOrigin      : Manual
AddressState      : Invalid
ValidLifetime     : Infinite ([TimeSpan]::MaxValue)
PreferredLifetime : Infinite ([TimeSpan]::MaxValue)
SkipAsSource      : False
PolicyStore       : PersistentStore
```

Installing a couple Active Directory modules so that the windows server can be promoted to an domain controller.

```
PS C:\Users\Administrator> Install-WindowsFeature AD-Domain-Services

Success Restart Needed Exit Code     Feature Result
------- -------------- ---------     --------------
True    No             Success       {Active Directory Domain Services, Remote ...

PS C:\Users\Administrator> Install-WindowsFeature RSAT-AD-Tools

Success Restart Needed Exit Code     Feature Result
------- -------------- ---------     --------------
True    No             Success       {Active Directory Administrative Center, A...

PS C:\Users\Administrator>
```

```
Install-ADDSForest

   Validating environment and user input
      All tests completed successfully
      [ooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooo
   Installing new forest
      Securing machine\system

True    No             Success       {Active Directory Administrative Center, A...

PS C:\Users\Administrator> Install-ADDSForest -DomainName avis.dodgy.nz -InstallDns -Force
SafeModeAdministratorPassword: ********
Confirm SafeModeAdministratorPassword: ********
WARNING: Windows Server 2022 domain controllers have a default for the security setting named "A
 algorithms when establishing security channel sessions.

For more information about this setting, see Knowledge Base article 942564 (http://go.microsoft.
```
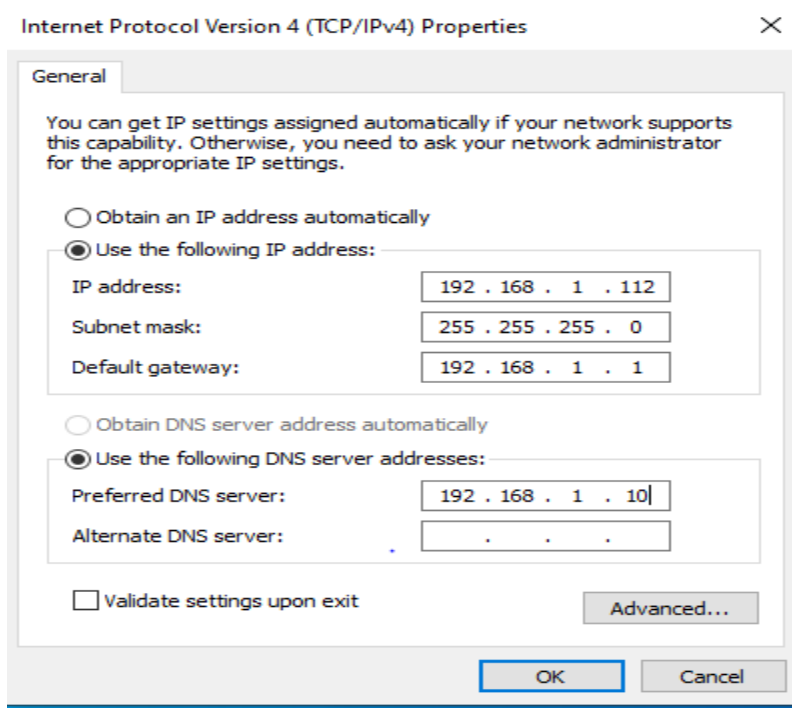
Running the command **Install-ADDSForest** will now promote the VM a Domin Controller with the domain name **avis.dodgy.nz**. It will make you enter a recovery password too.

On **PC1**, I entered the IP address of **192.168.1.10** in the **Preferred DNS Server** as this is the entry point IP for the domain controller machine.

Next changing the network of the computer to the domain of the active directory.
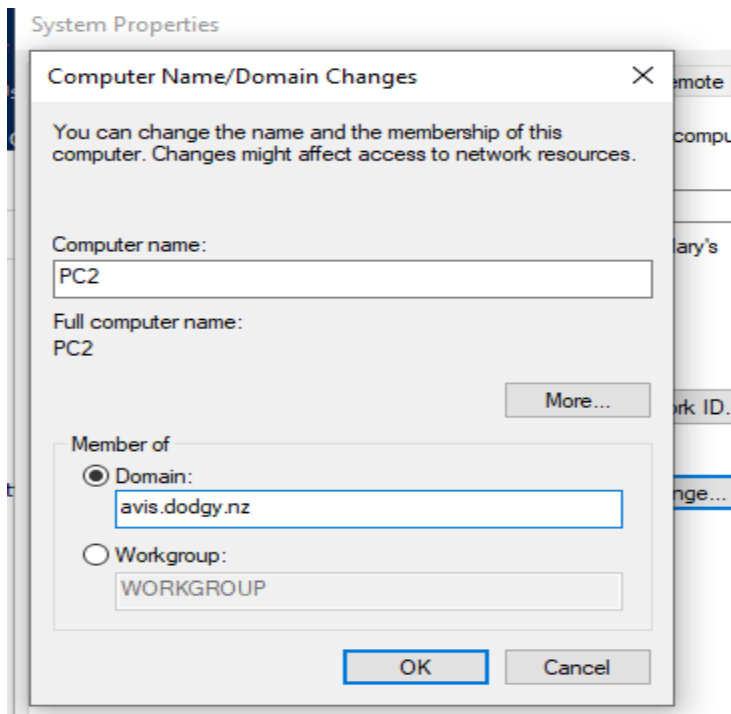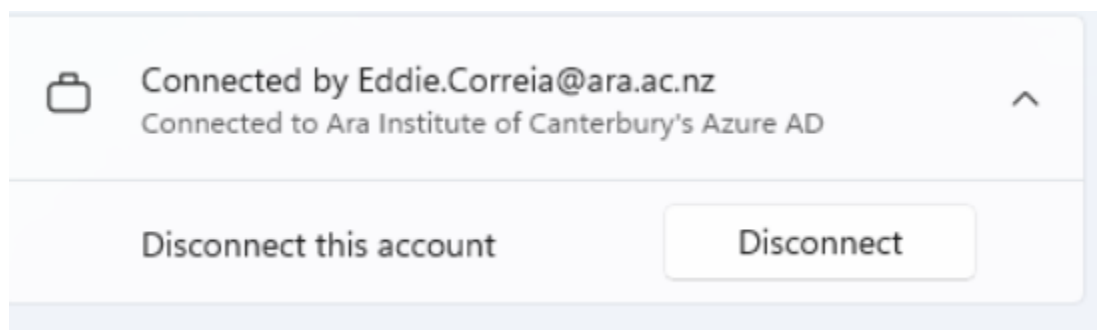
```
PS C:\Users\Administrator> $cred = Get-Credential

cmdlet Get-Credential at command pipeline position 1
Supply values for the following parameters:
Credential
PS C:\Users\Administrator> Add-Computer -DomainName avis.dodgy.nz -Credential $cred
WARNING: The changes will take effect after you restart the computer PC3.
PS C:\Users\Administrator>
```

Also done by command on windows 11, which was used after finding an issue & having to resolve it. This error was that Eddie's Azure AD account was still connected & had to be removed to allow the machine to connect to the domain controller.

Connected by Eddie.Correia@ara.ac.nz
Connected to Ara Institute of Canterbury's Azure AD

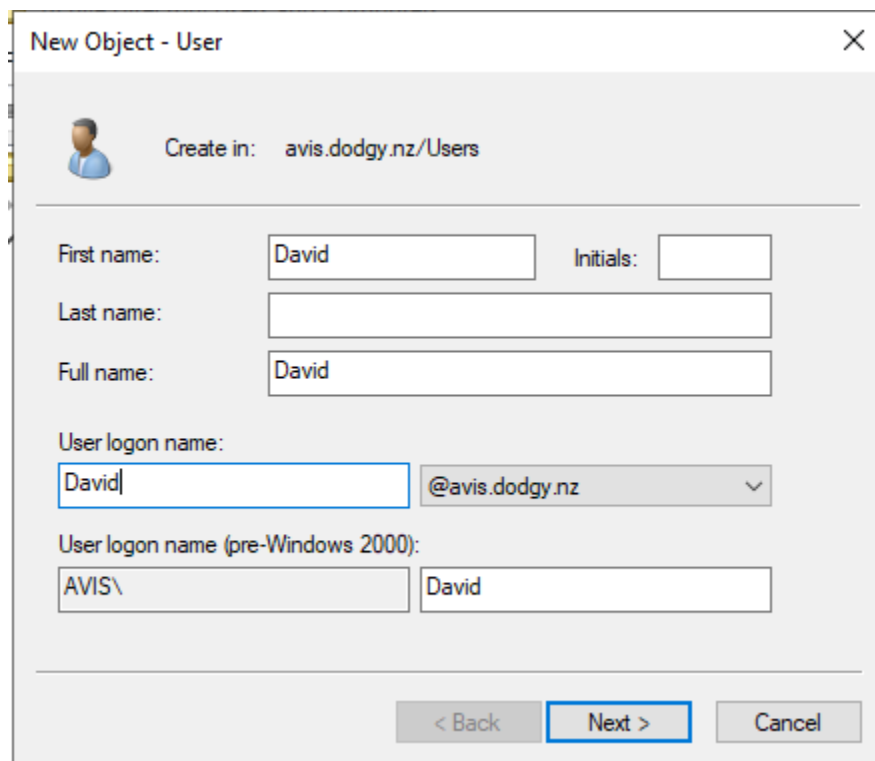Disconnect this account   Disconnect

Next 12 commands were run on the Active Directory machine to allow the Windows workstations to be able to join the domain controller.

```
PS C:\Users\Administrator> [string]$DomainName = (get-addomain).DistinguishedName
>>
>> New-ADOrganizationalUnit -Name CompanyName -Path "$DomainName"
>> New-ADOrganizationalUnit -Name UserAccounts -Path "OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name Sales -Path "OU=UserAccounts,OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name TechSupport -Path "OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name Admin -Path "OU=UserAccounts,OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name Computers -Path "OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name WorkStations -Path "OU=Computers,OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name Test -Path "OU=WorkStations,OU=Computers,OU=CompanyName,$Domai
>> New-ADOrganizationalUnit -Name Servers -Path "OU=Computers,OU=CompanyName,$DomainName"
>> New-ADOrganizationalUnit -Name Test -Path "OU=Servers,OU=Computers,OU=CompanyName,$DomainName
>> get-adcomputer -filter { name -notlike "*BESR*"} | Move-ADObject -TargetPath "OU=WorkStations
Name,$DomainName"
PS C:\Users\Administrator>
```

Going intoActive Directory Users and Groups . avis.dodgynz > users > RMB > new > Users

New Object - User   ✕

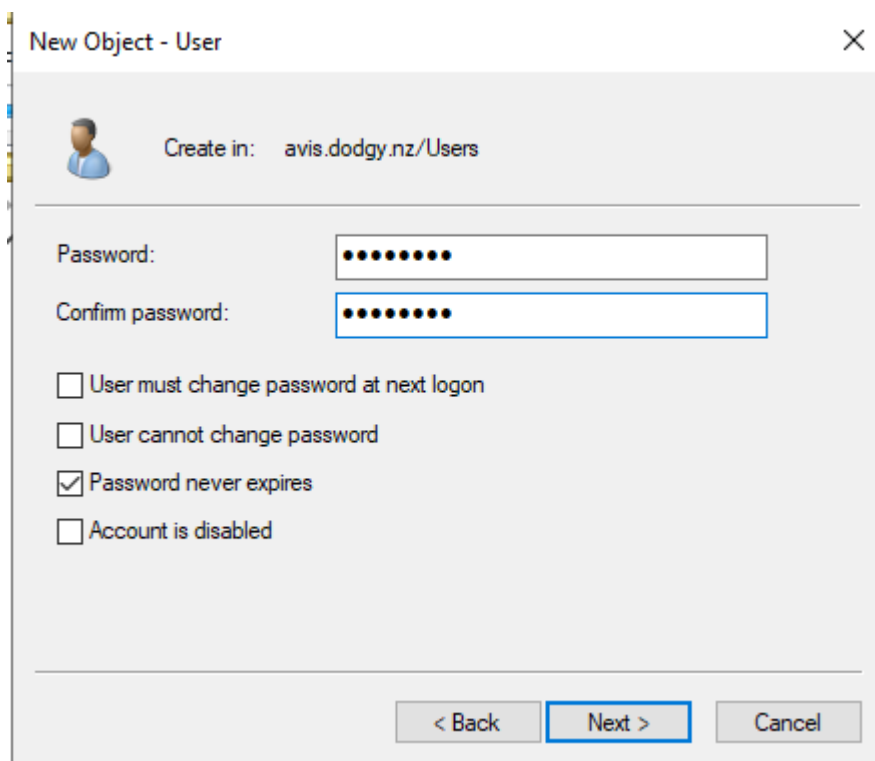👤   Create in: avis.dodgy.nz/Users

First name: David   Initials: [   ]

Last name: [   ]

Full name: David

User logon name:

[David]   @avis.dodgy.nz   ⌄

User logon name (pre-Windows 2000):

AVIS\   David

                              < Back   Next >   Cancel

New Object - User   ✕

👤   Create in: avis.dodgy.nz/Users

Password: ••••••••

Confirm password: ••••••••

☐ User must change password at next logon
☐ User cannot change password
☑ Password never expires
☐ Account is disabled

                              < Back   Next >   Cancel

Next 5 domain accounts were created o the domain controller machne; **David**, **Debbie**, **Dominic**, **Diana** & **Dean**.

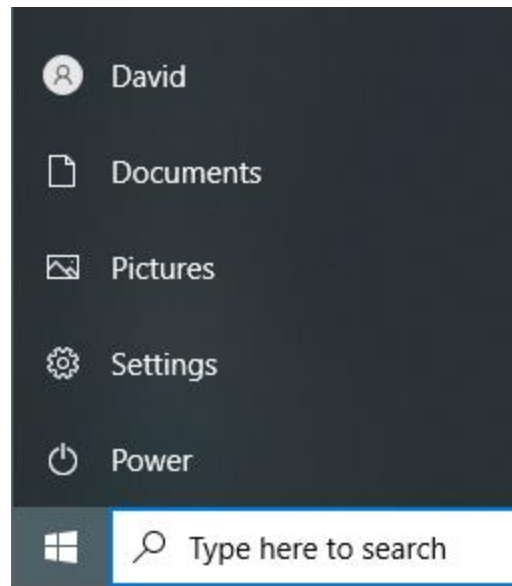|		
Administrator	User	Built-in account for ad...
David	User	
Dean	User	
Debbie	User	
Diana	User	
Dominic	User	
Guest	User	Built-in account for gue...

Signing into the domain accounts
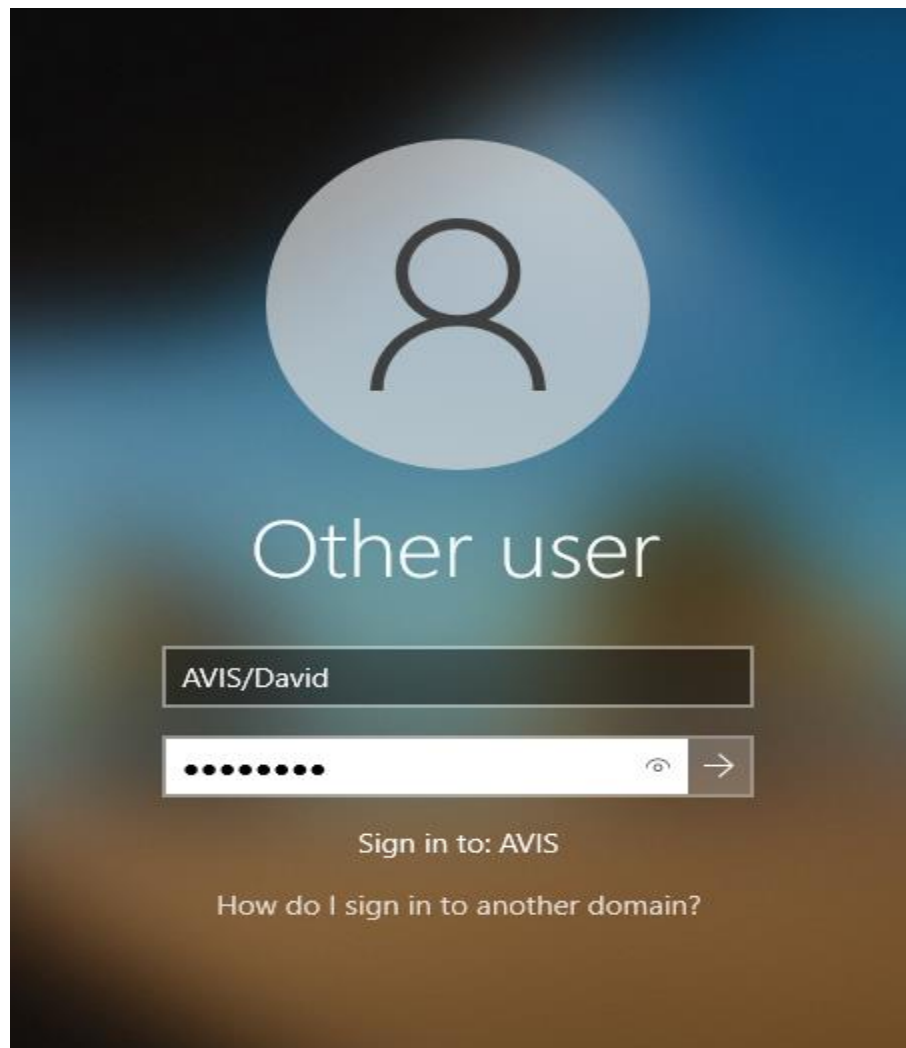
David

Welcome

To sign into the local account you must add .\[Local User Name] & password to log in.

Next creating a folder on the C: drive of the domain controller & adding a text file inside then going into properties > sharing
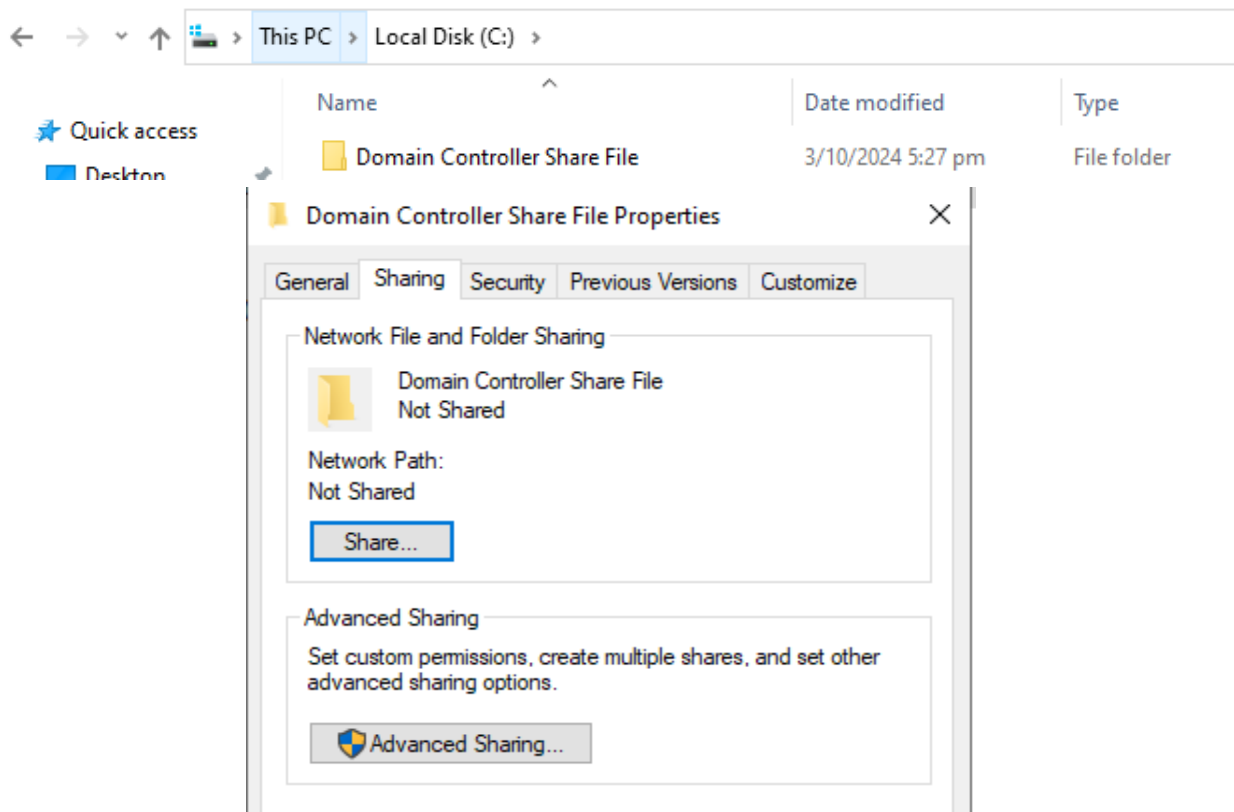
Advanced Sharing

☑ Share this folder

Settings

Share name:

Domain Controller Shar|

Add   Remove

Limit the number of simultaneous users to: 16777.�

Comments:

Permissions   Caching

OK   Cancel   Apply

General | **Sharing** | Security | Previous Versions | Customize

Network File and Folder Sharing

Domain Controller Share File
Shared

Network Path:
\\DC01\Domain Controller Share

Share...

Following the link the network path that was given, on any of the machines you are able to go into the share & see the text file.

← → ⌄ ↑ 🖳 > Network > DC01 > Domain Controller Share   ⌄

Name	Date modified	Type	Size
Quick access			
🖥 Desktop 📌			
📄 Secret Message	4/10/2024 1:28 pm	Text Document	

Pinging the firewall on all PC's worked

```
PS C:\Users\Debbie> ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Debbie>
```

That is all tasks complete!