Individual Assessment Coversheet

To be attached to the front of the assessment.

Campus: Pretoria

Faculty Information Technology

Module Code: ITDOAO-B33

Group: Group 1

Lecturer's Name: Ms. Ngwane. N.

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Student Number: [redacted]

Indicate	Yes	No
Plagiarism report attached	×	

Declaration:

I declare that this assessment is my own original work except for source material explicitly acknowledged. I also declare that this assessment or any other of my original work related to it has not been previously, or is not being simultaneously, submitted for this or any other course. I am aware of the AI policy and acknowledge that I have not used any AI technology to generate or manipulate data, other than as permitted by the assessment instructions. I also declare that I am aware of the Institution's policy and regulations on honesty in academic work as set out in the Conditions of Enrolment, and of the disciplinary guidelines applicable to breaches of such policy and regulations.

Signature: KNP.	**Date:25/08/2025**

Lecturer's Comments:

Marks Awarded:	**%**

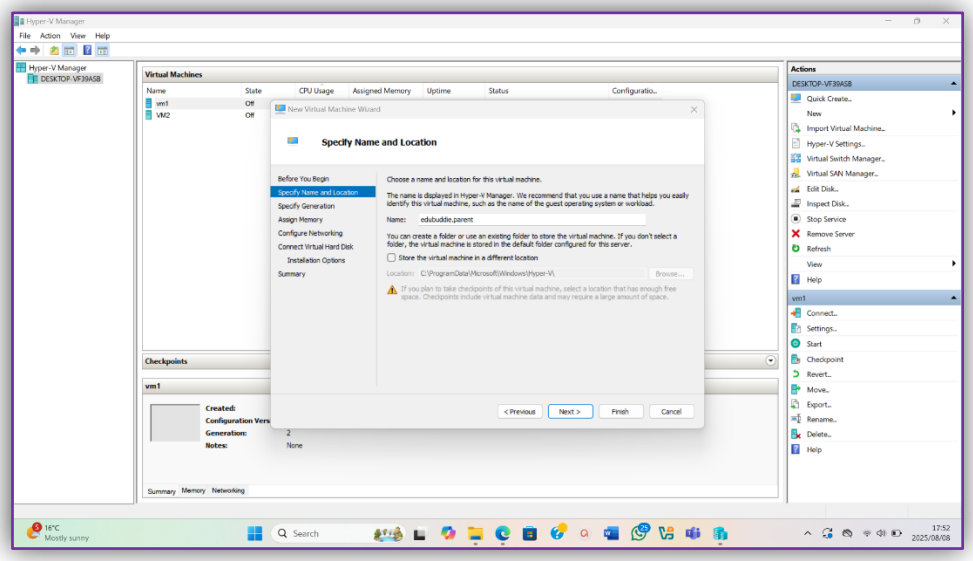
Signature:	**Date**

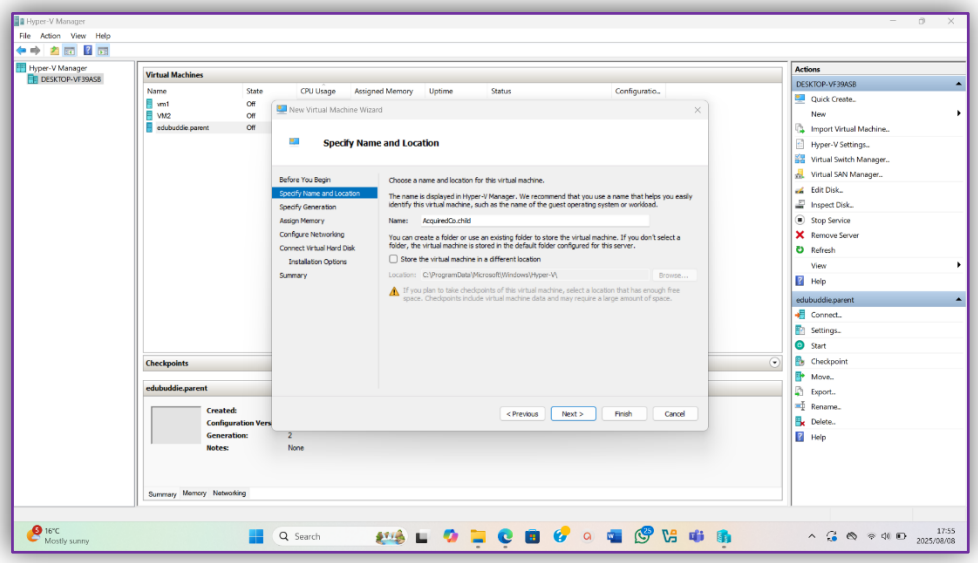
Table of Contents

NB: Zoom to see the images clearly!!

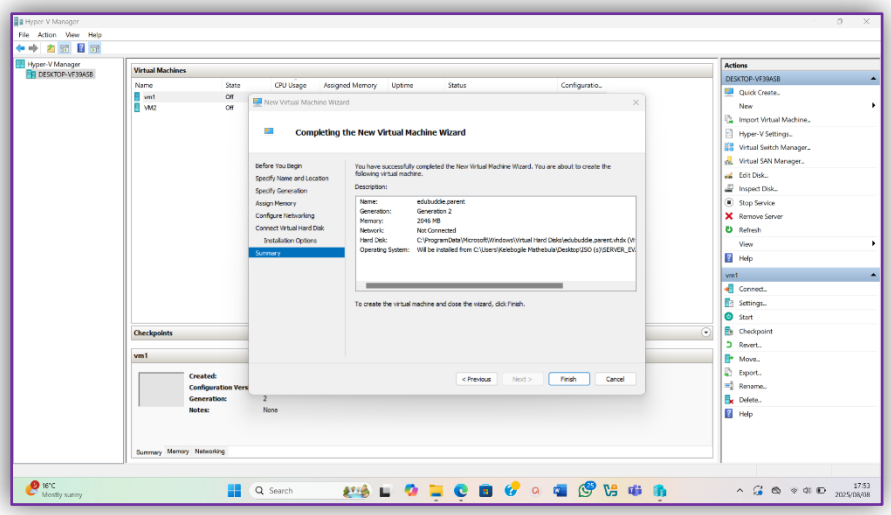
1.Install Windows Server 2022 on Hyper-V and add a new child domain named AcquiredCo.com on Windows Server 2022:

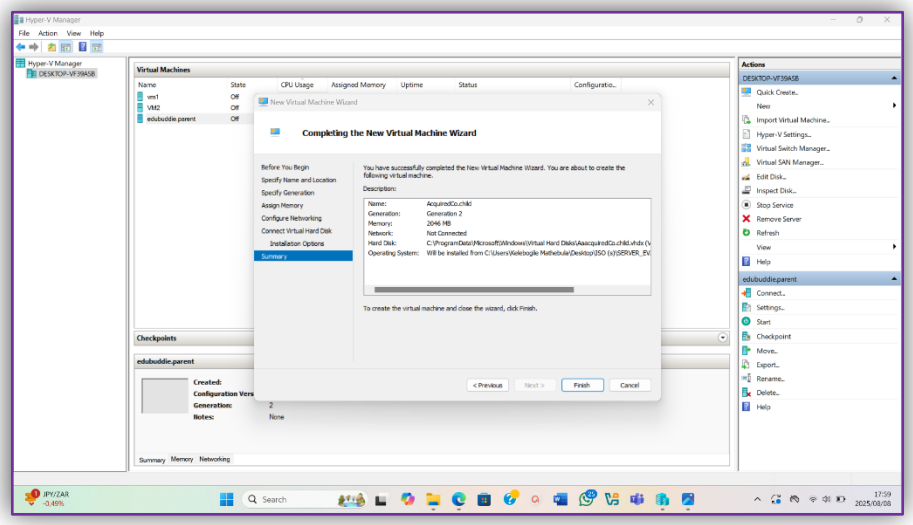
The first thing I did was open Hyper-V, I then made two virtual machines where one is the parent machine and the other one is a child machine. The following images show the creation of both VMs:



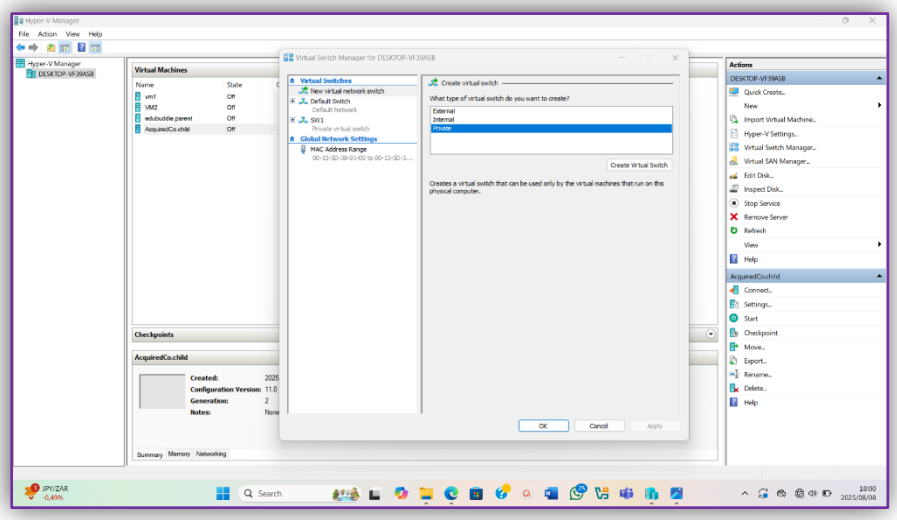


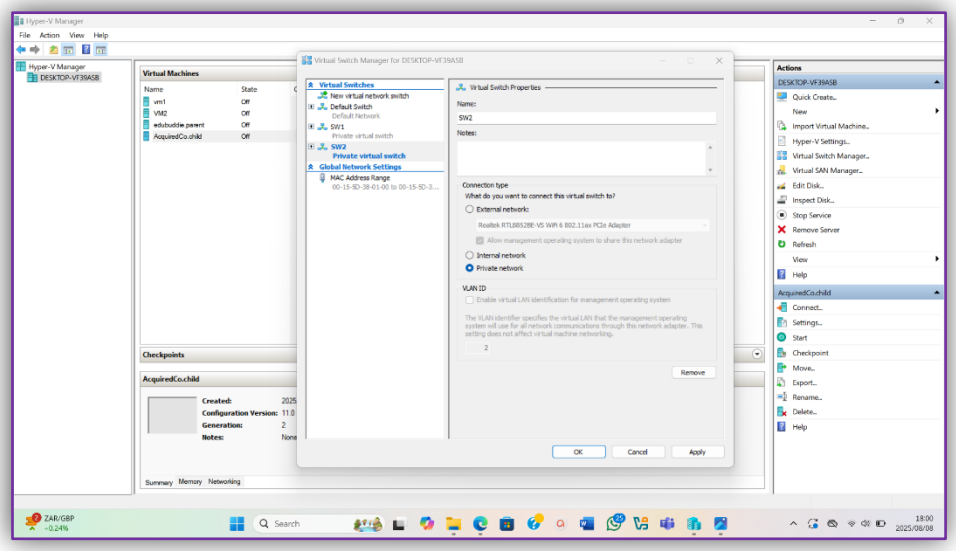
I allocated the same memory for both VMs which is 2046MB as well as the same Virtual Hard Disk space which is 60GB.I also used the same ISO image for both VMs which is the ISO image for Windows Server 2022.



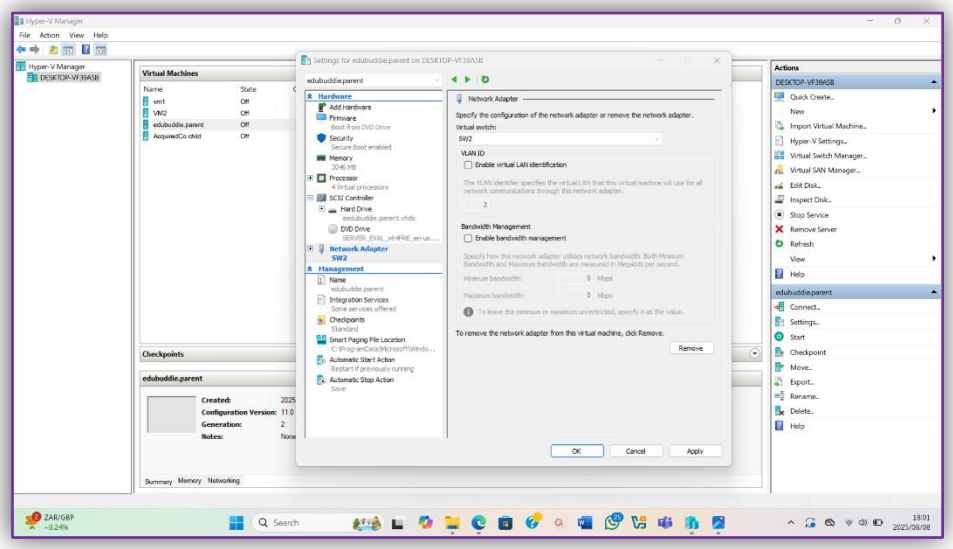


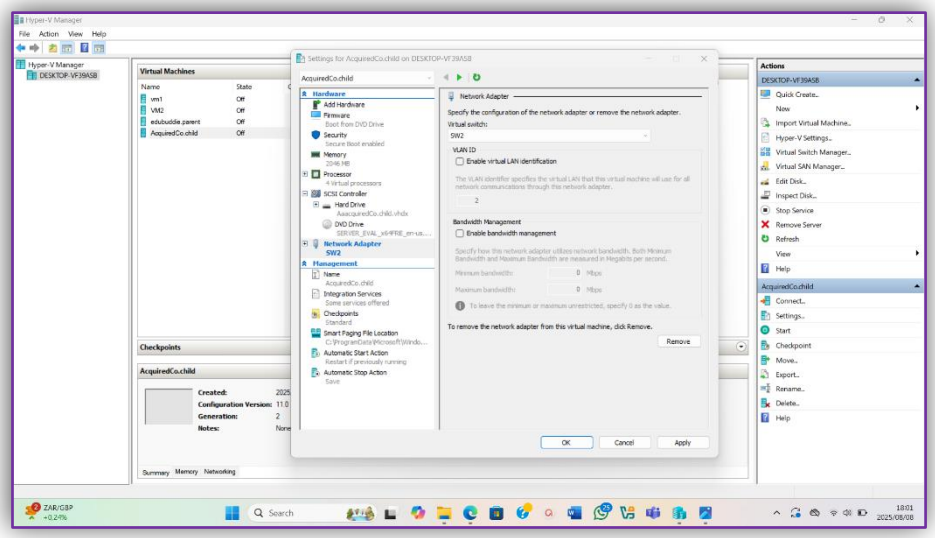
After I created the VMs, I went ahead and made a private virtual switch named SW2, so that only the VMs can communicate without interference from any third-party device or the host machine. I did that by going to virtual switch manager, the following images show the steps:



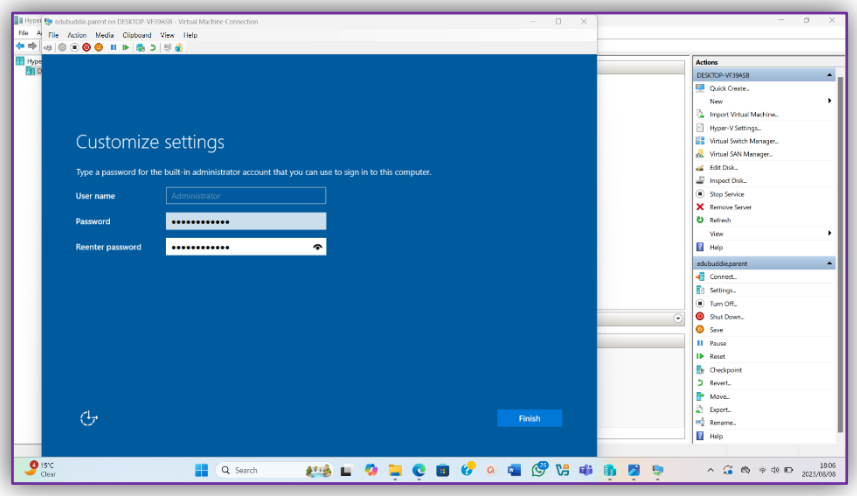


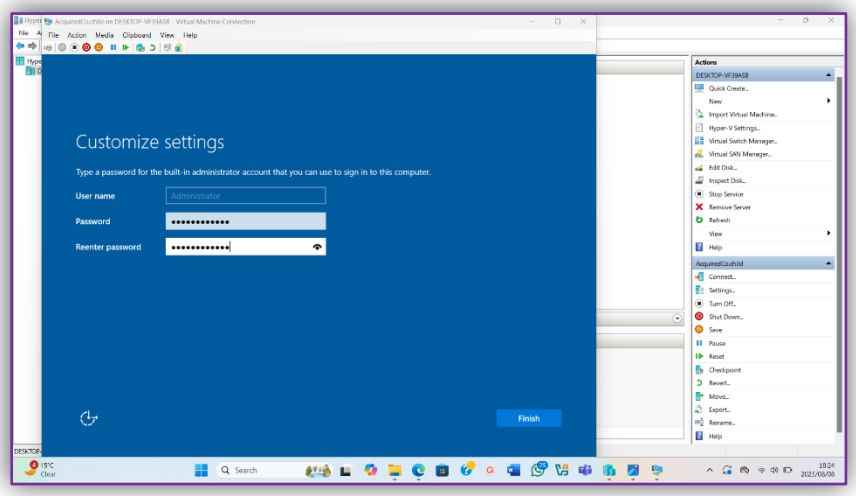
I then connected both the VMs to the switch.



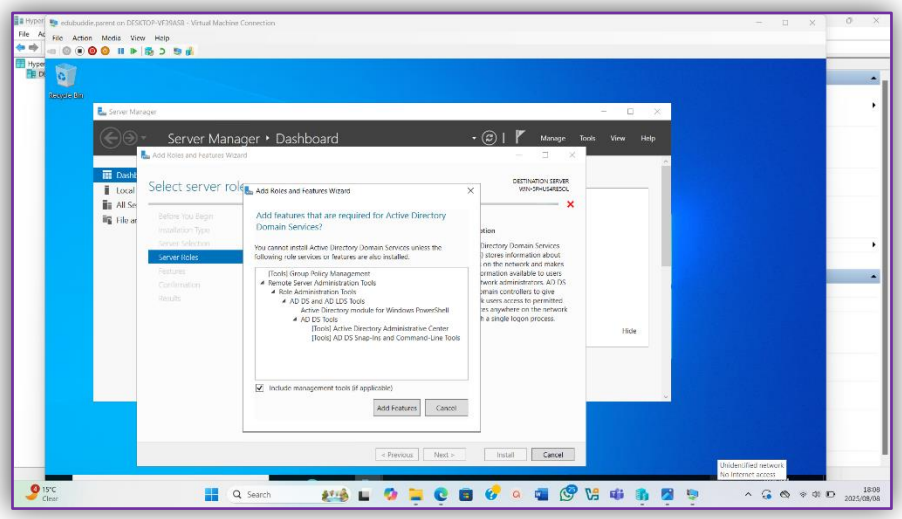


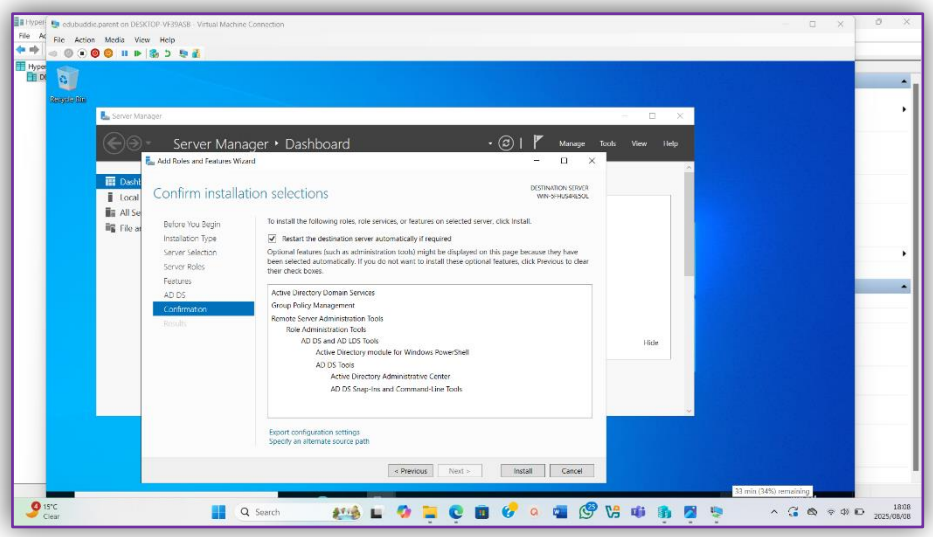
Once that was done the VMs went on to the Microsoft Server Operating System Setup whereby I choose “Desktop Experience” and agreed to licensing agreement, once that is done it lead me to the part where I set up my administrator password. The following images show the steps from the administrator password:



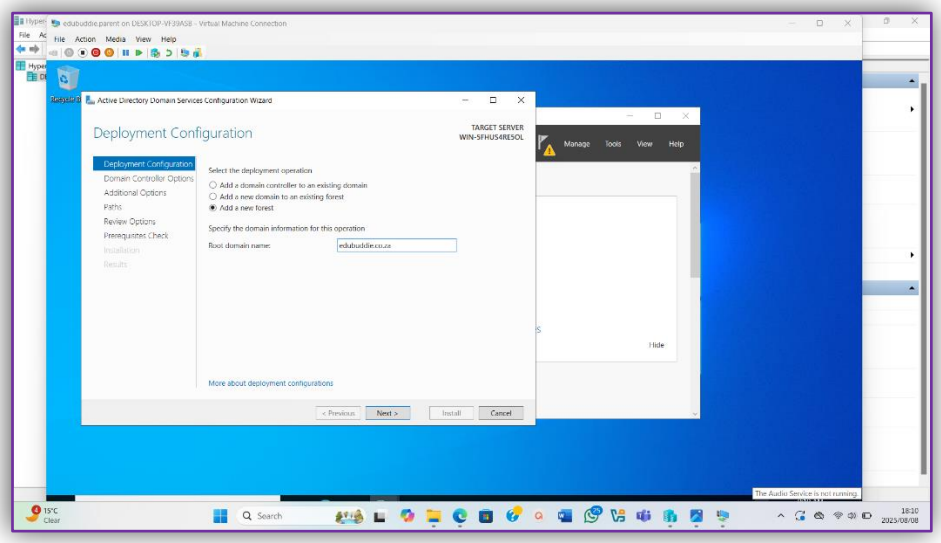


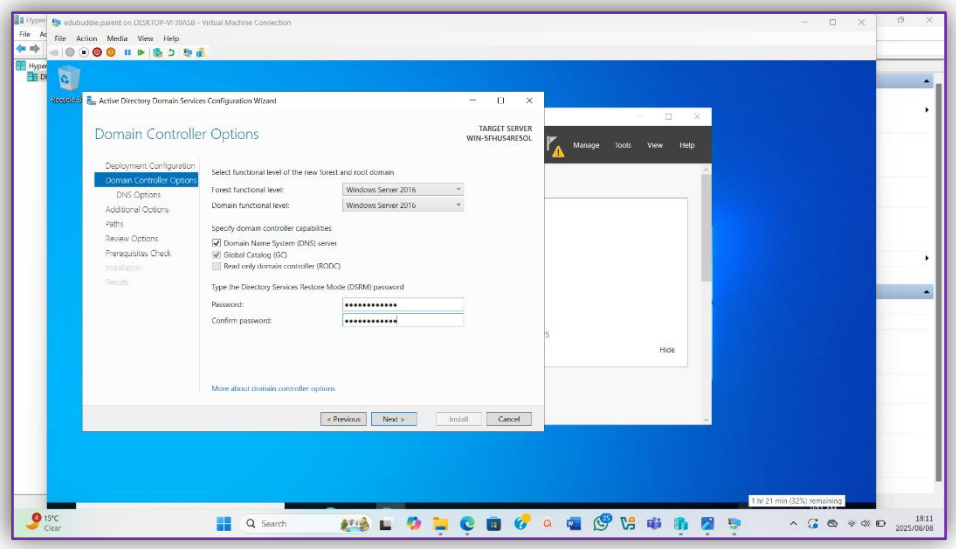
I then added the AD DS role to the parent machine which is “edubuddie.parent”.

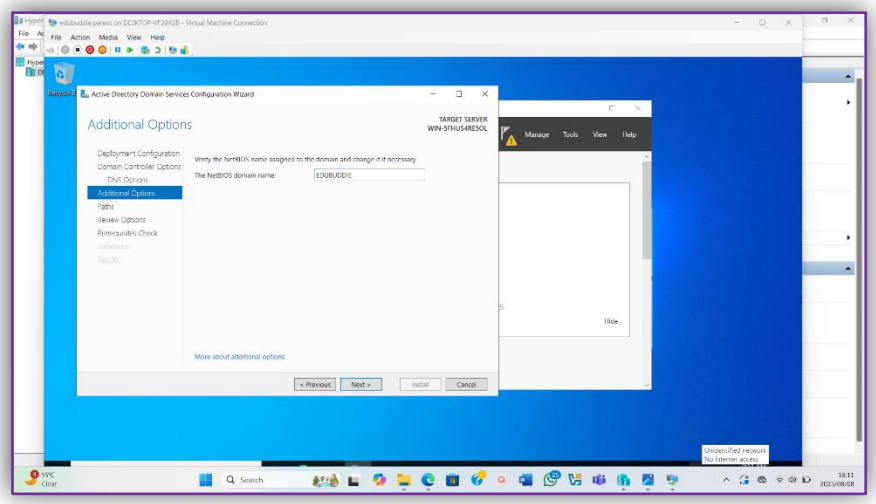


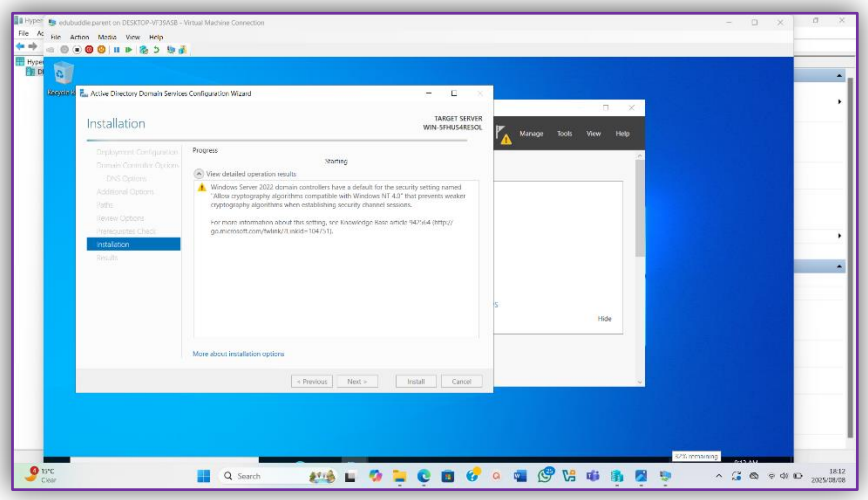


After I installed the feature, I then configured the feature and made a forest in this machine.



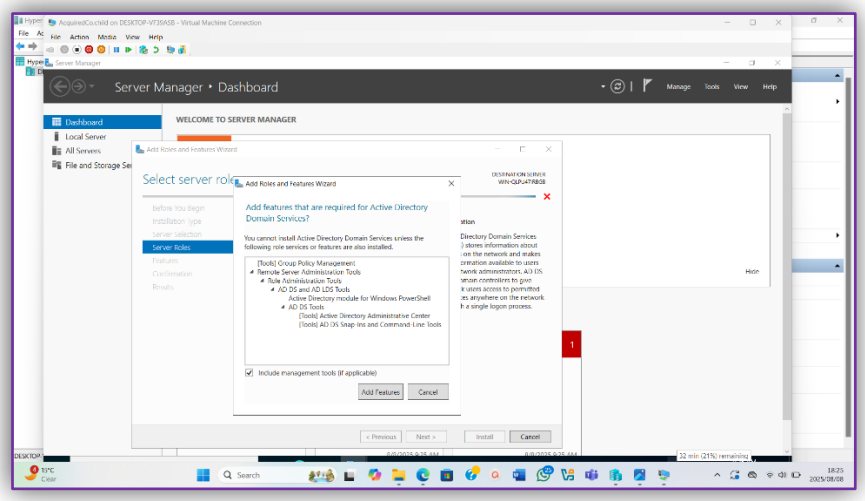


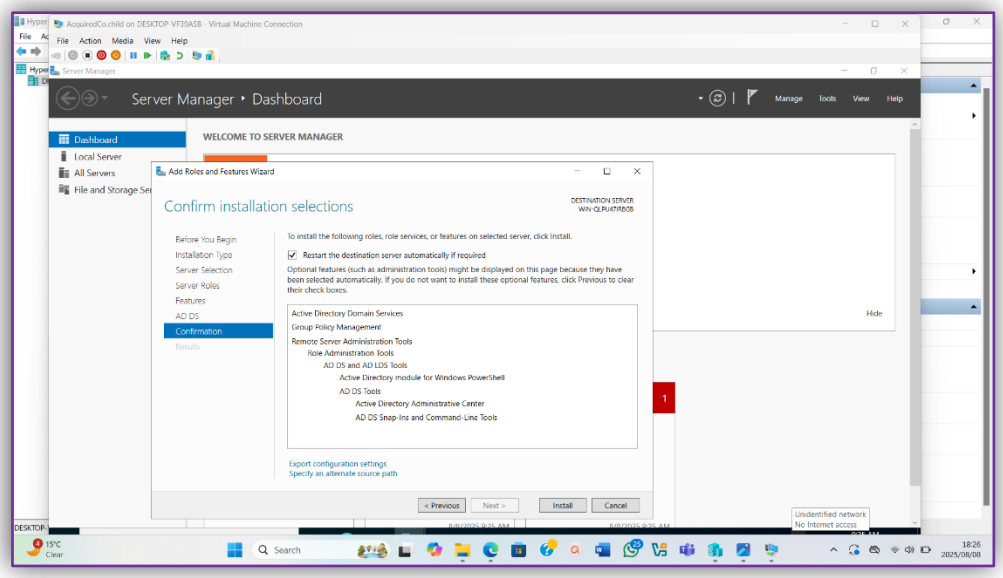




- Install AD DS on JHBBranch and configure it as the domain controller for AcquiredCo.com.

I first added the AD DS feature on the child machine which is “AcquiredCo.child” before naming the server JHBBranch. The following steps show the addition of the AD DS feature:



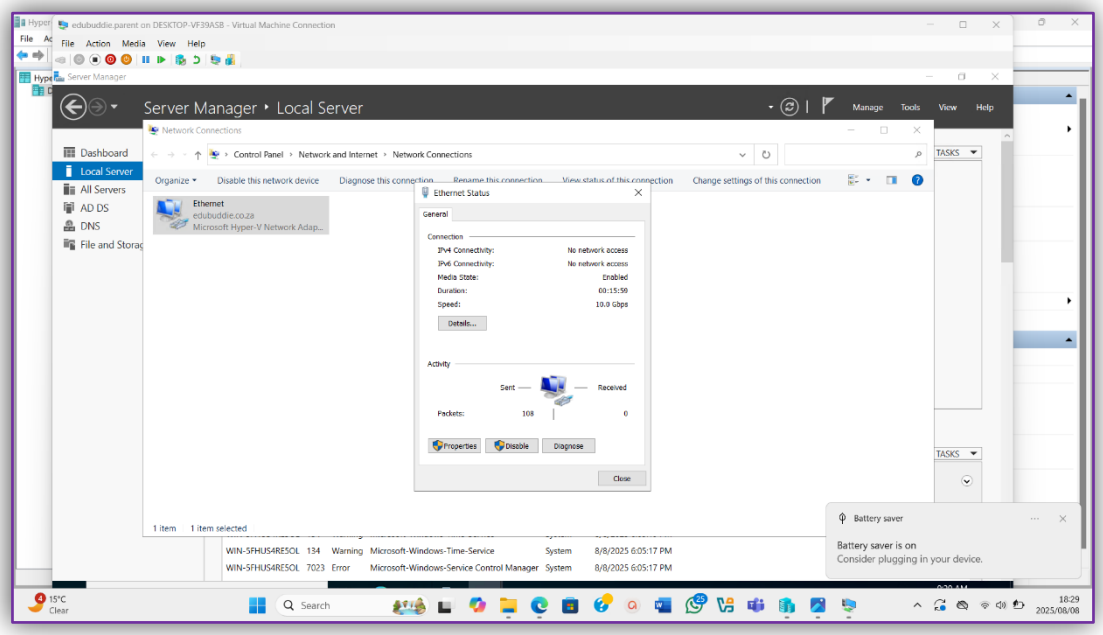


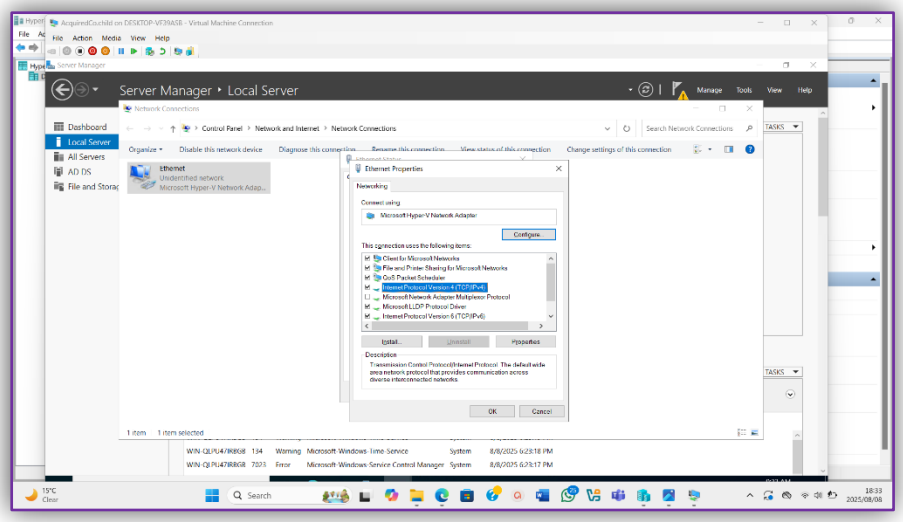
Before I Configured the AD DS feature, I set the IP addresses of both VMs manually:

So that they are in the same network and so that the communication between them has no issues. I first started with the parent machine then the child.

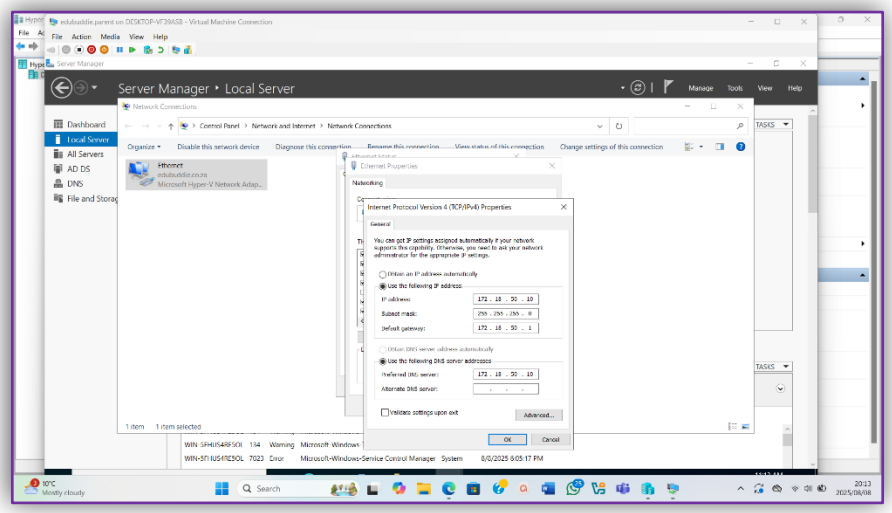
In order to do that I went to the local server details where I then clicked “Internet Protocol Version 4, IPv6 enabled”, I then double clicked on “Ethernet”. The following images show the steps I took for both VMs from there:

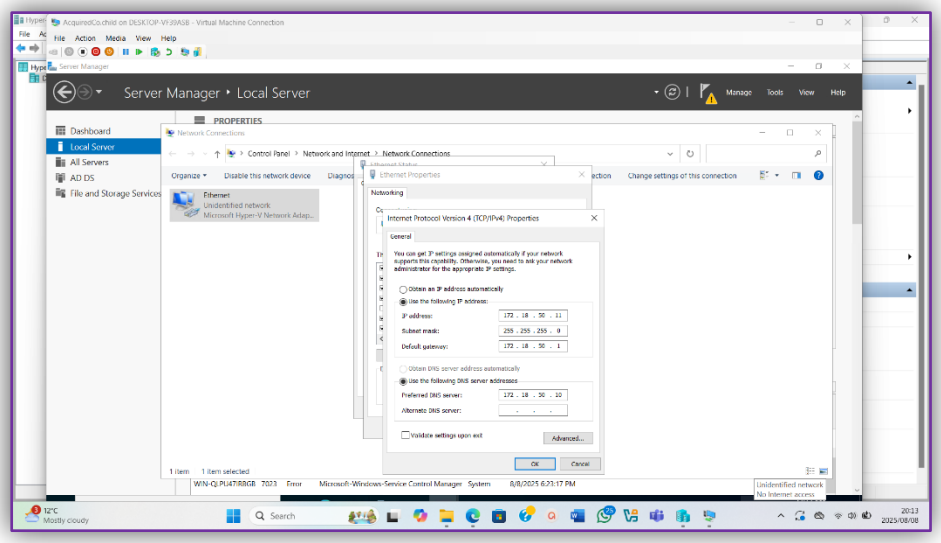
NB: THE STEPS ARE THE SAME HENCE I MIXED THE IMAGES.



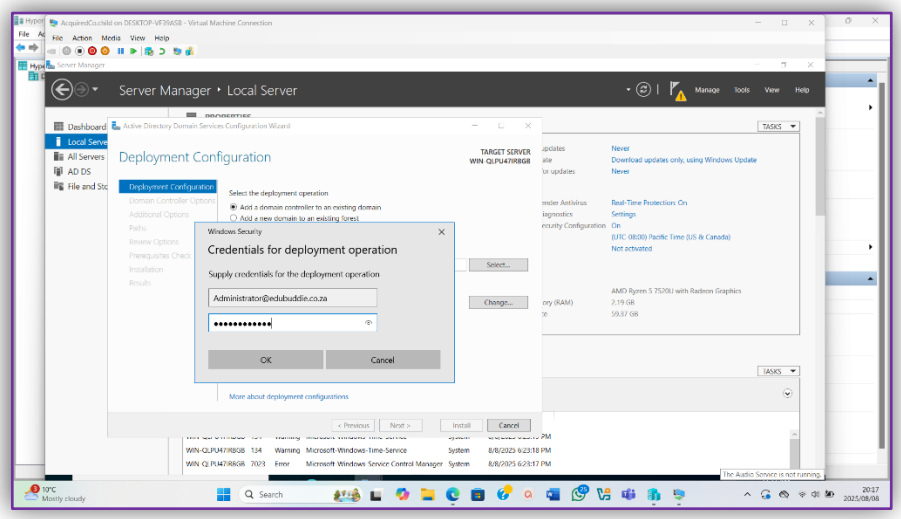


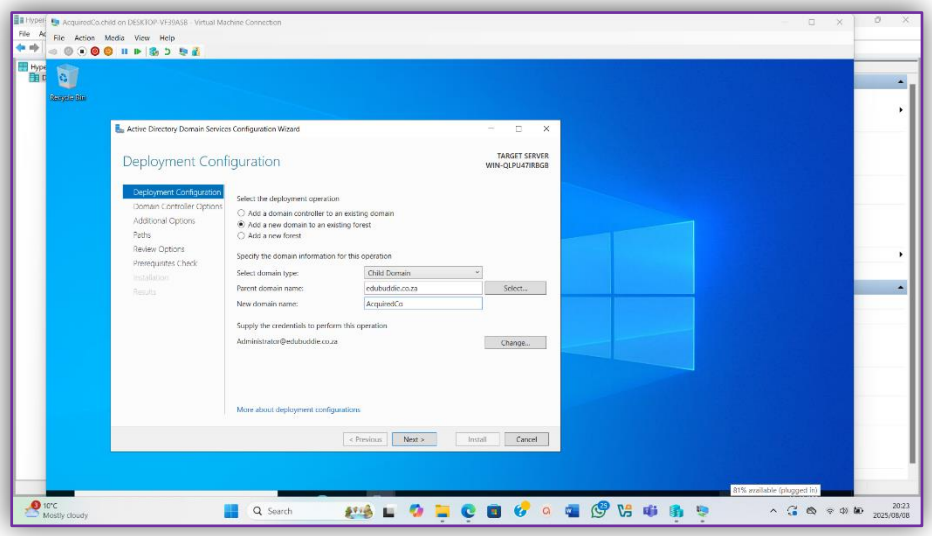
The following are both the VMs IP addresses.

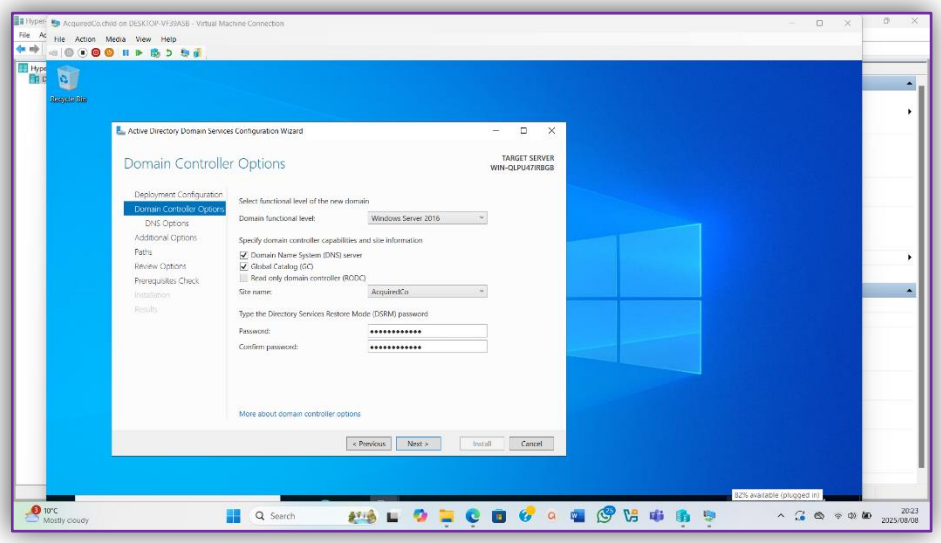


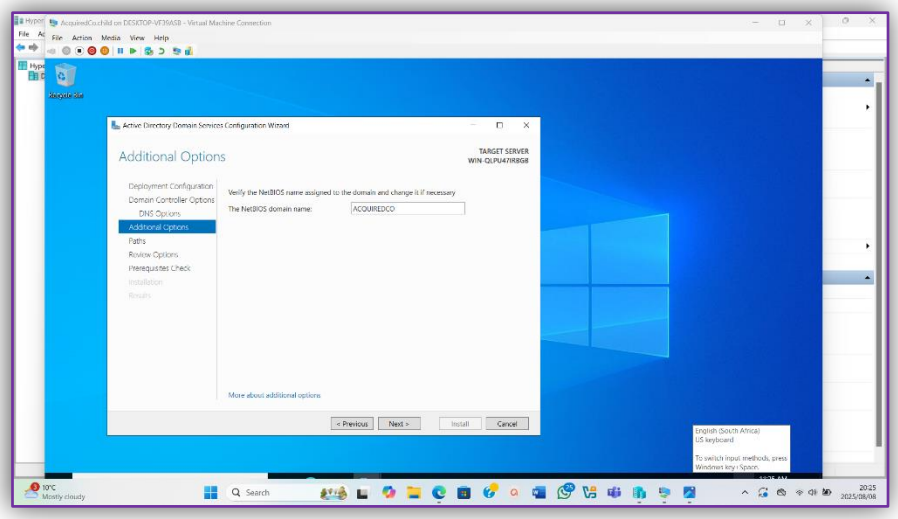


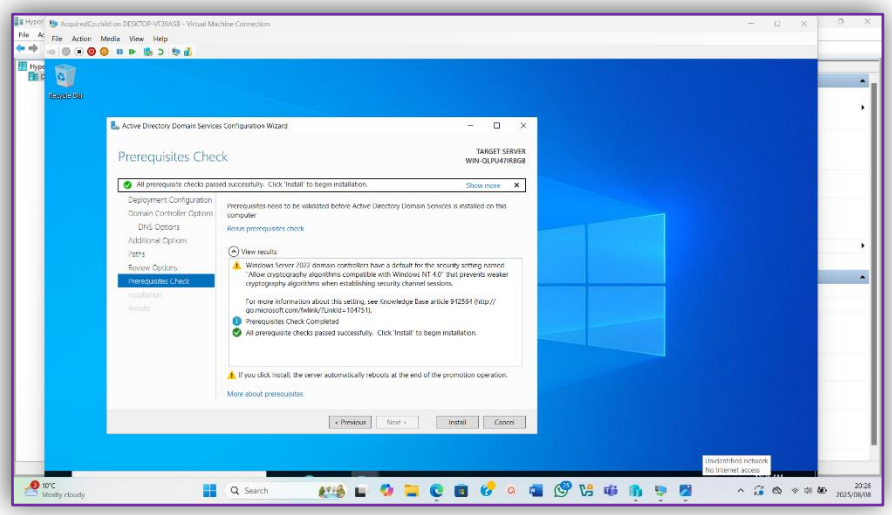
After setting up the IP addresses I then went ahead and configured the AD DS feature for the child machine, the following images show the steps on how I did that:



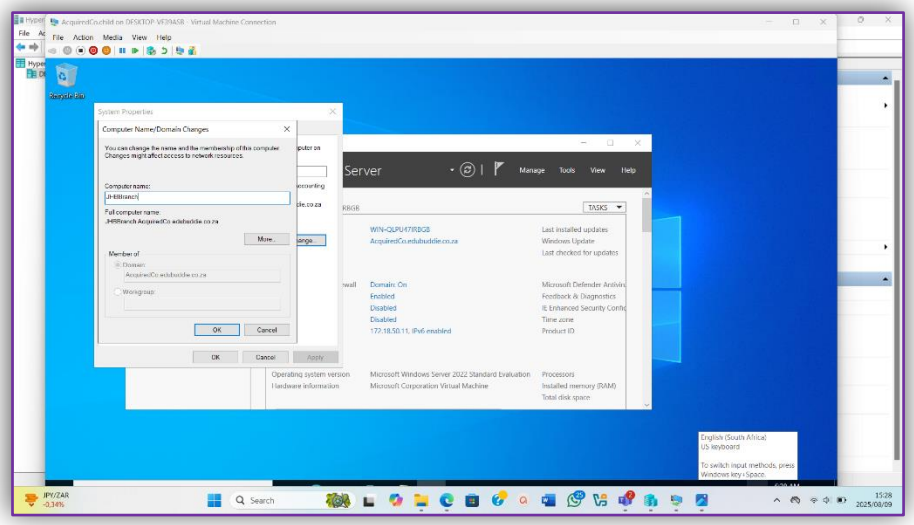


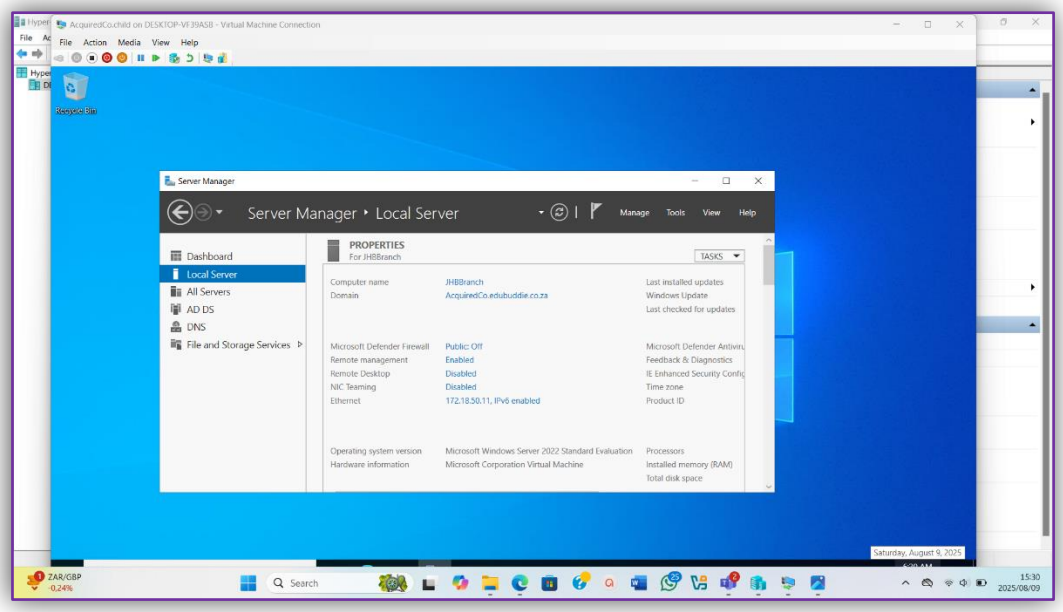


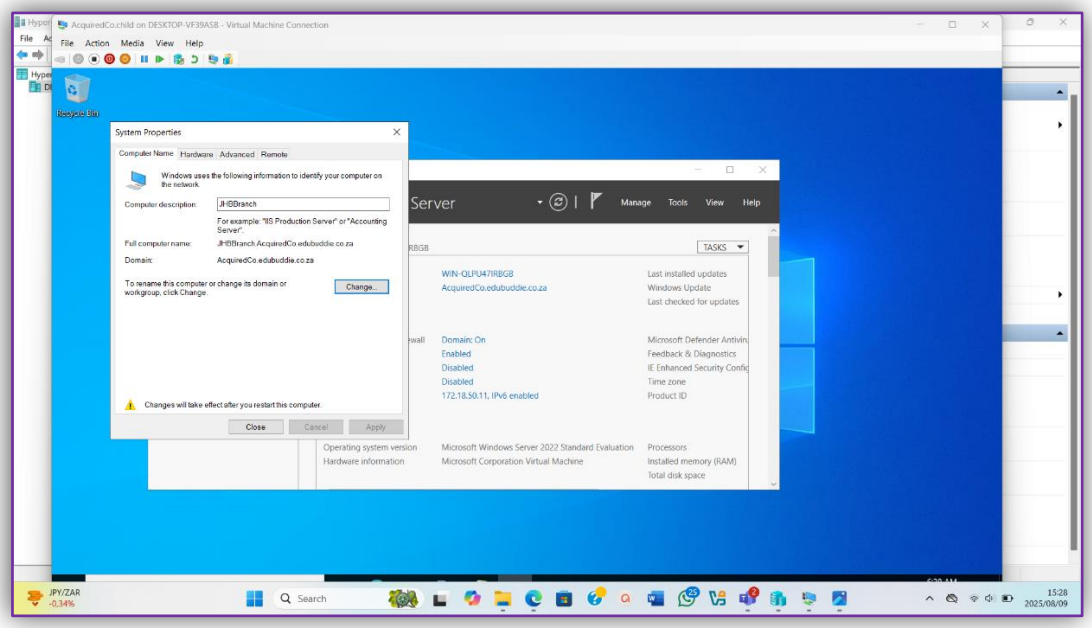




Once the installation finished that means that a child domain named AcquiredCo was added, I then went on to change the server's name or the name of the machine to JHBBranch. The following images show the steps on how I did that:



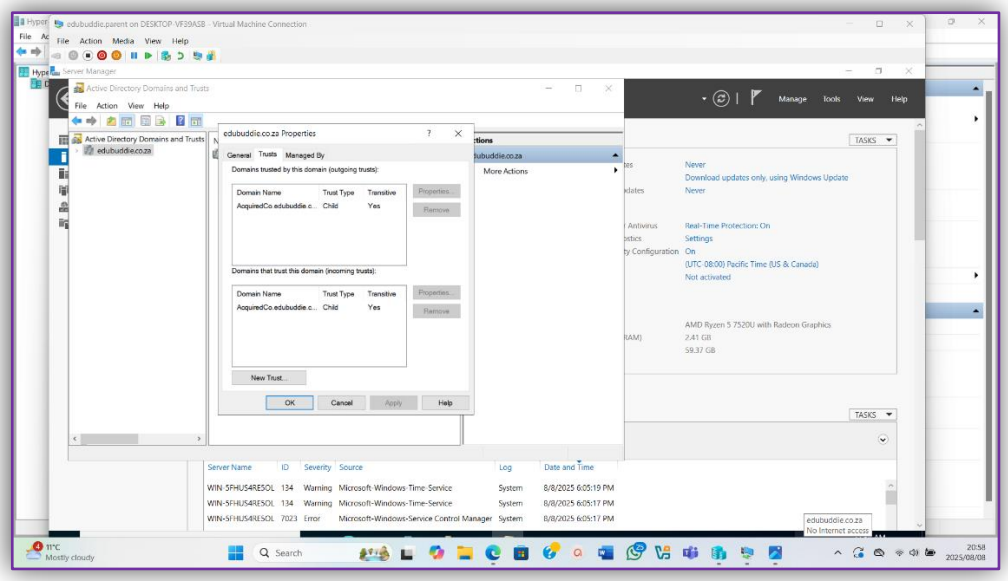


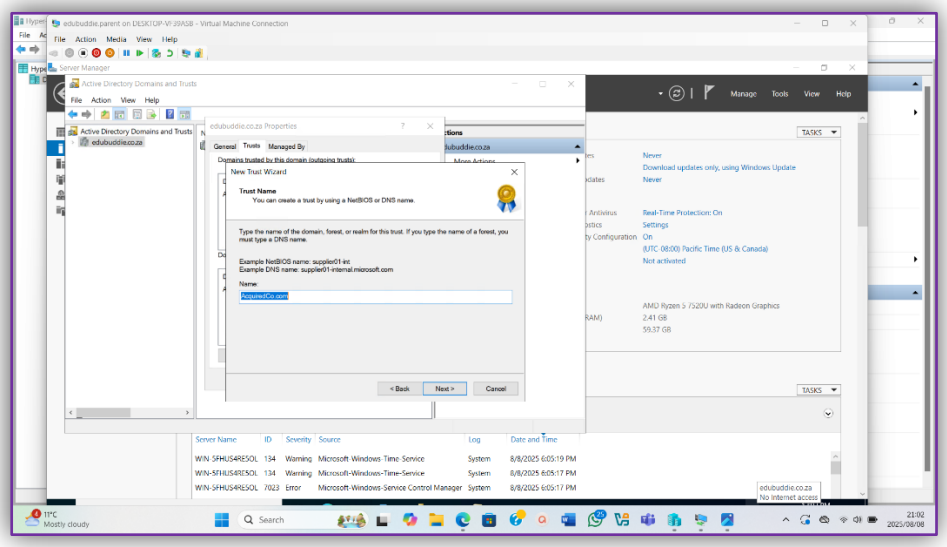


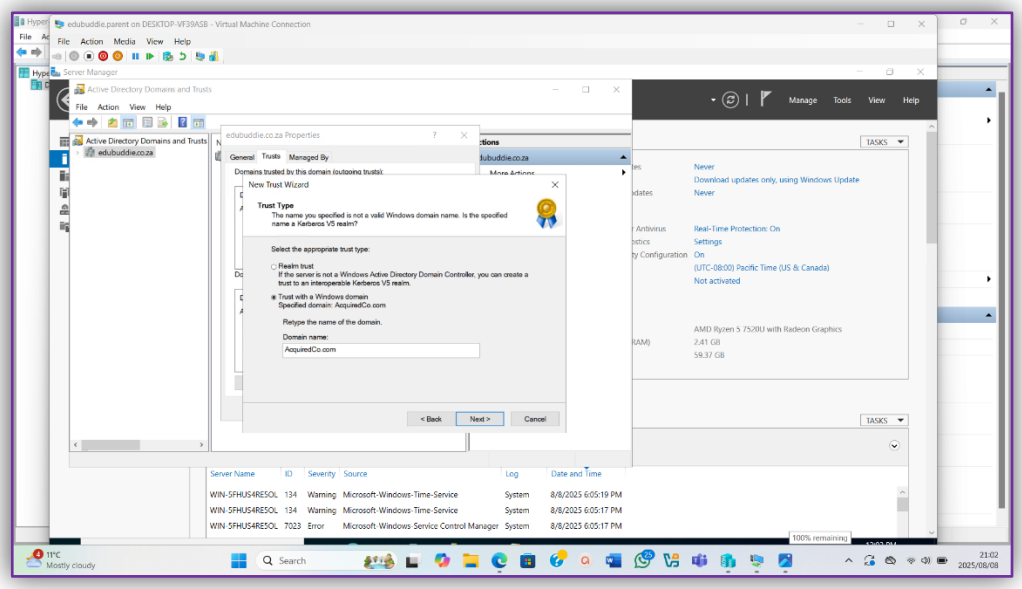
- Establish a two-way trust relationship between edubuddie.co.za and AcquiredCo.com.

(WebCast, Create Two-Way Forest Trust in Active Directory Forest | Windows Server 2019, 2019)

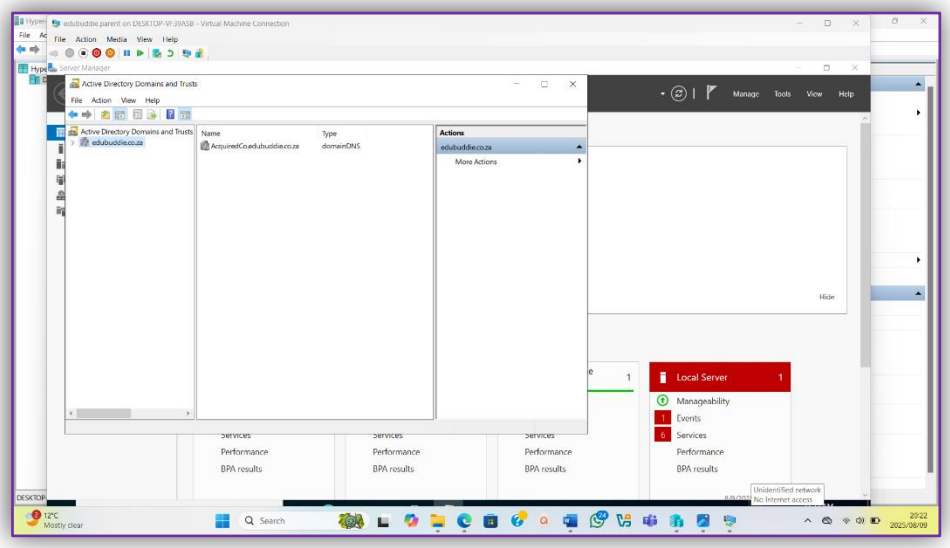
The first thing I did was login to the parent machine the one that I made a forest in which is “edubuddie.parent”, once I logged in, I went to “Tools” and selected “Active Directory Domains and Trusts” where I then right clicked the root domain name and selected “properties” and I then chose ”trust”, after I made that selection, I then started adding a new trust. The following images show the steps from that point:





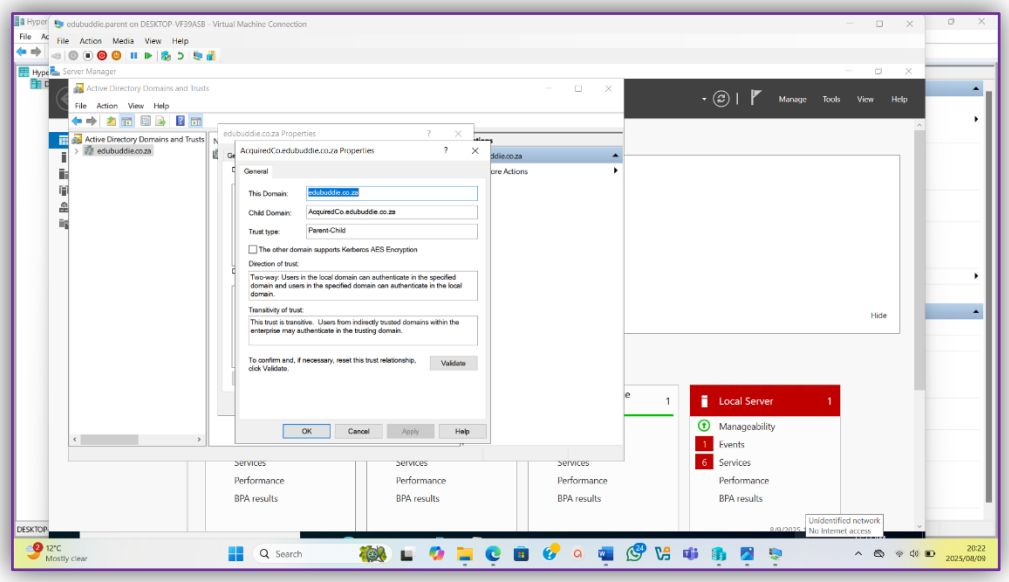


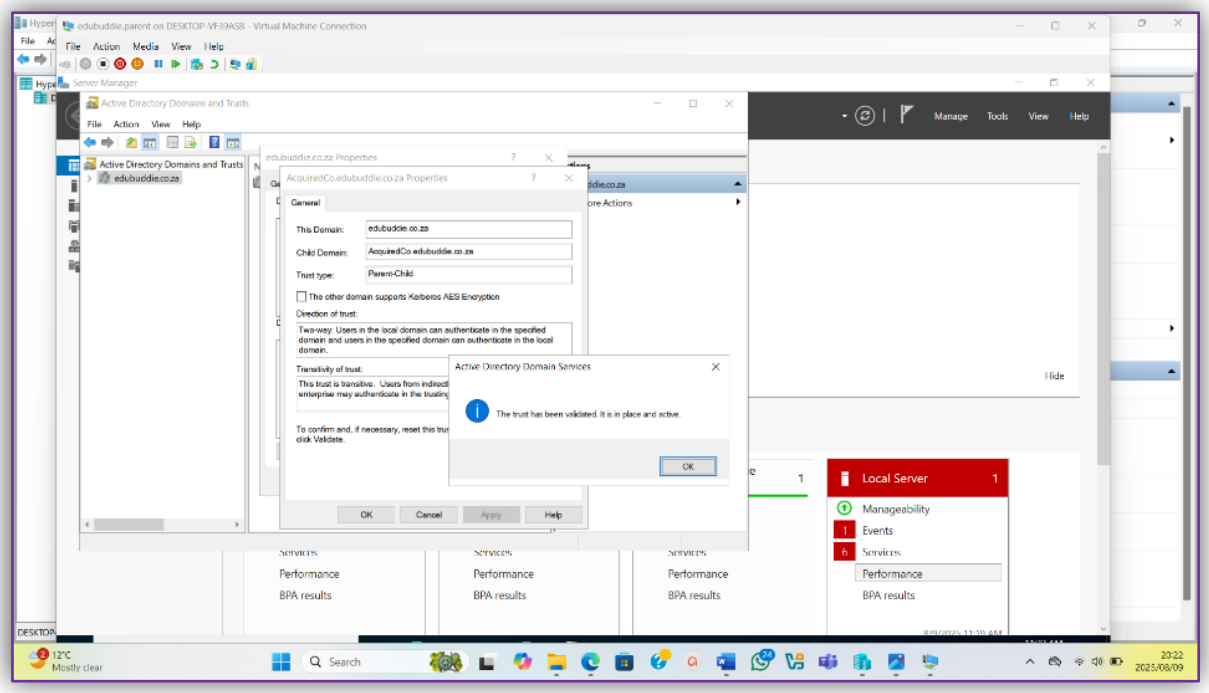
Once the wizard closes the trust will be created, in my case the trust that was created was visible in the middle payn.



- Verify trust relationship using the Active Directory Domains and Trusts tool.

The steps here are similar to the previous ones so the first thing I did was login to the parent machine the one that I made a forest in which is “edubuddie.parent”, once I logged in, I went to “Tools” and selected “Active Directory Domains and Trusts” where I then right clicked the root domain name and selected “properties” and I then chose ”trust”, after I made that selection, I then started clicked on the visible trust and went to properties and from there I selected “validate”, the result of this selection is visible on the last image:





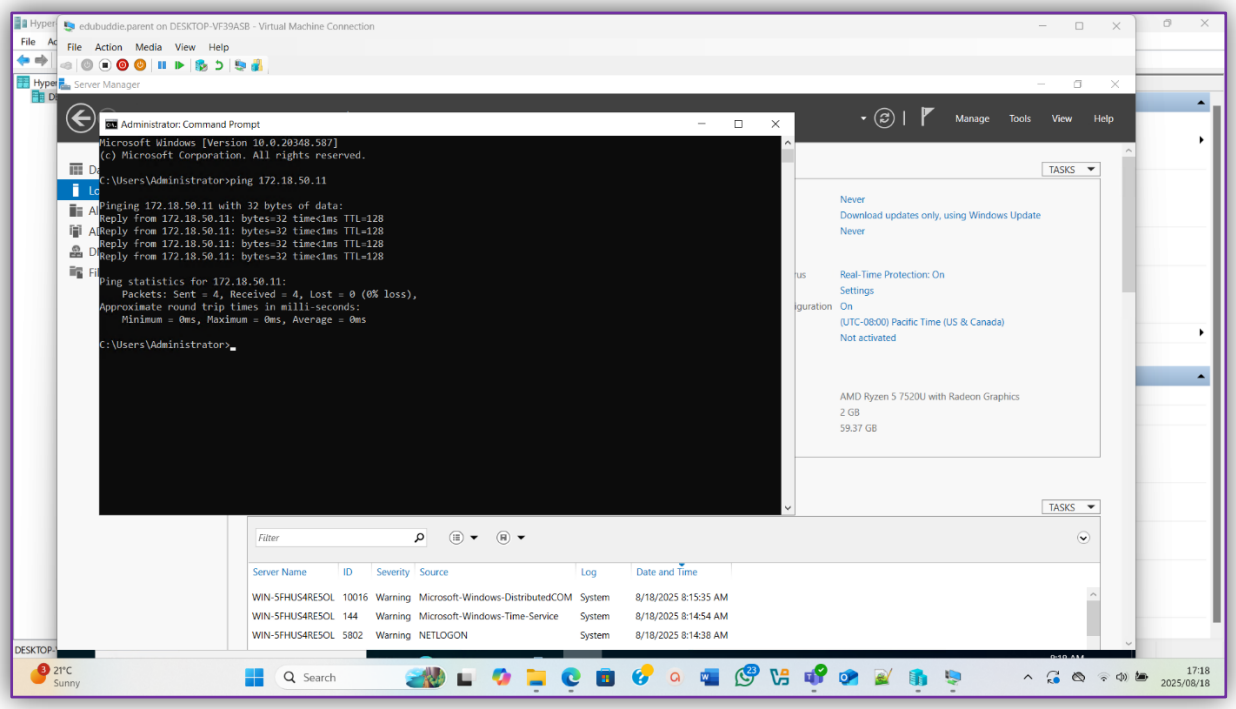
Question 2

2. Promote JHBBranch to a global catalog server:

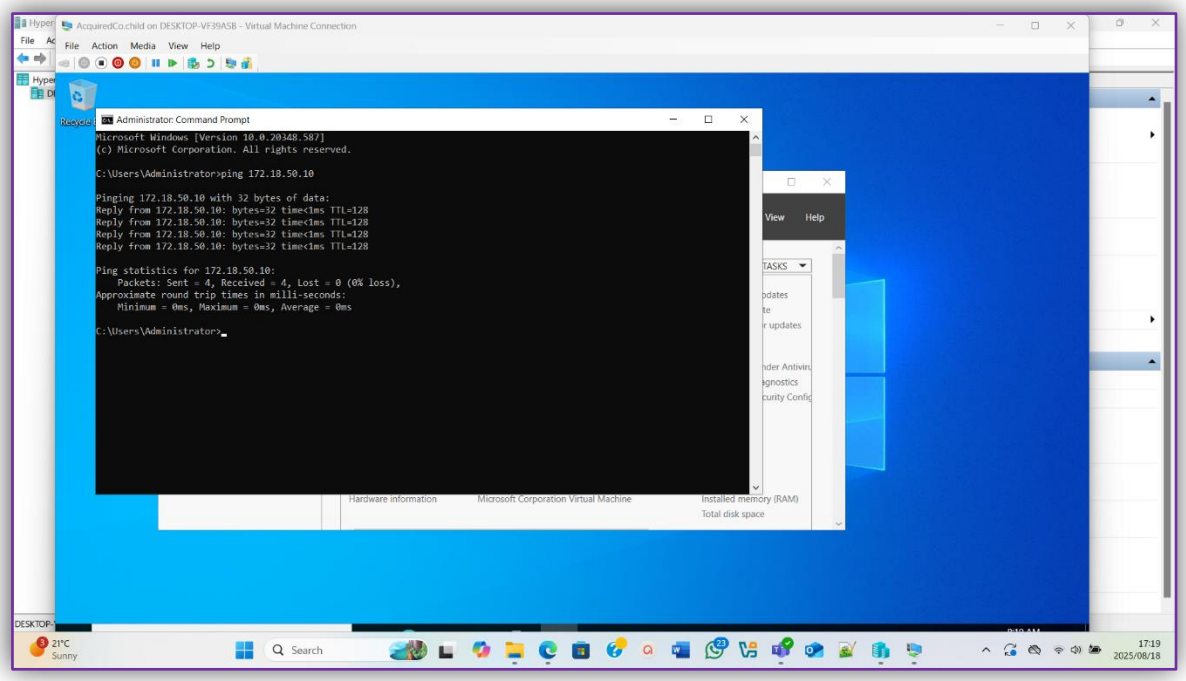
- Configure JHBBranch as the global catalog server for AcquiredCo.com.

The first thing I did was to make sure that both my machines are communicating so I went ahead and did a ping test on both VMs.

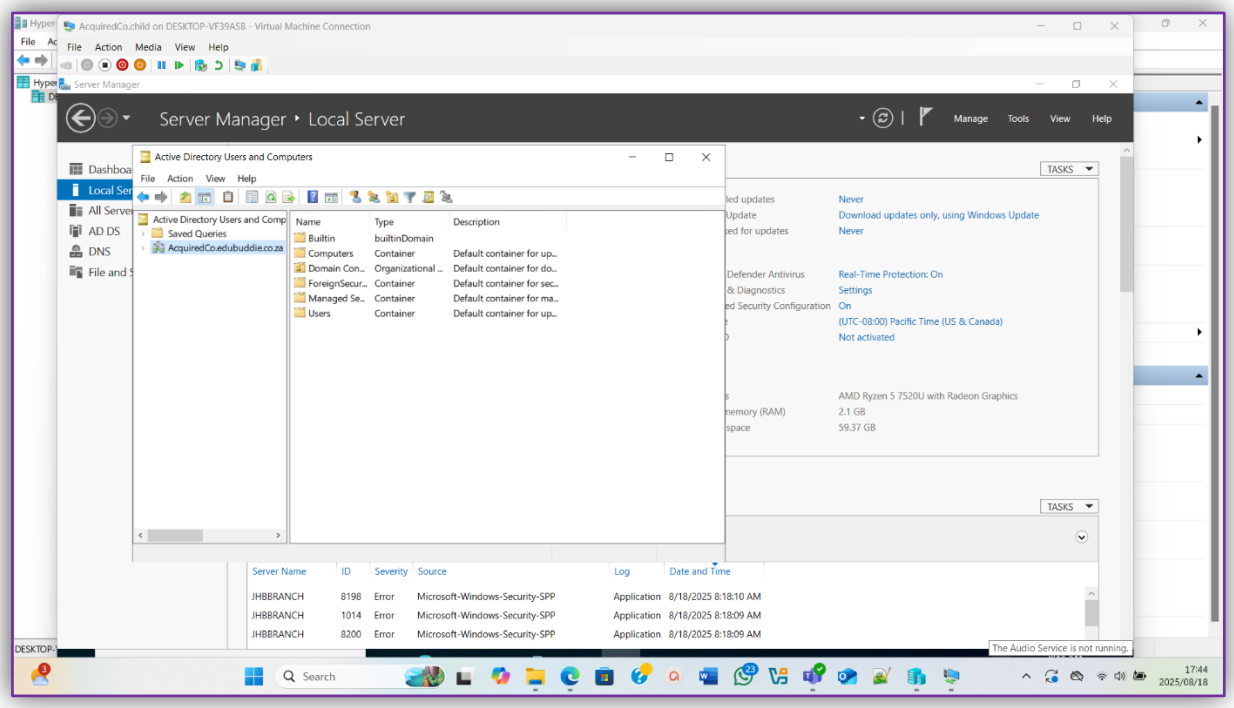
This ping test is from my parent machine.



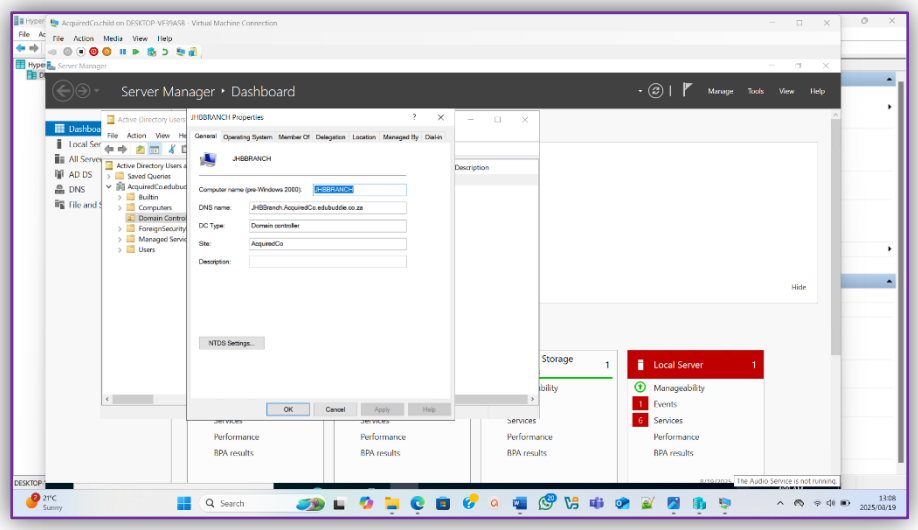
The following ping test is from the child machine.

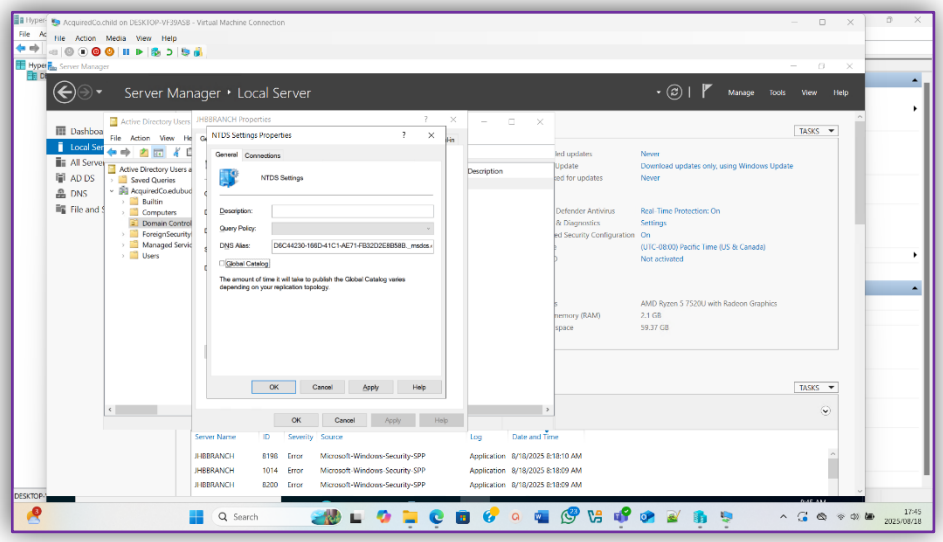


Once I saw that my machines indeed communicate, I went ahead and set the global catalog. I first went to “Tools” on my child machine which is “AcquiredCo.child”, I then selected “Active Directory Users and Computers” from tools.

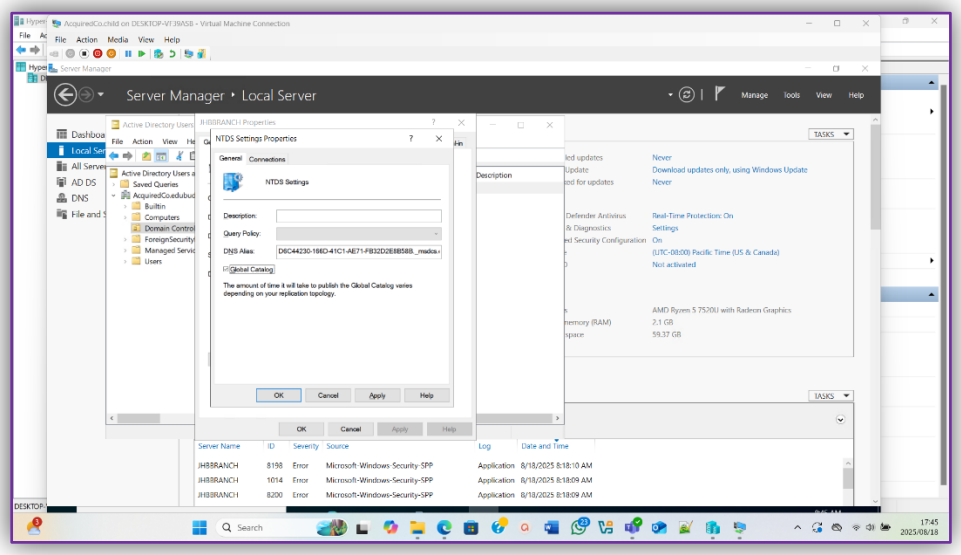


The second thing I did was double click “Domain controllers” where I had to change the DC type from “Domain Controller” to “Global Catalog”. Therefore, I went ahead and opened the “NTDS Settings”.

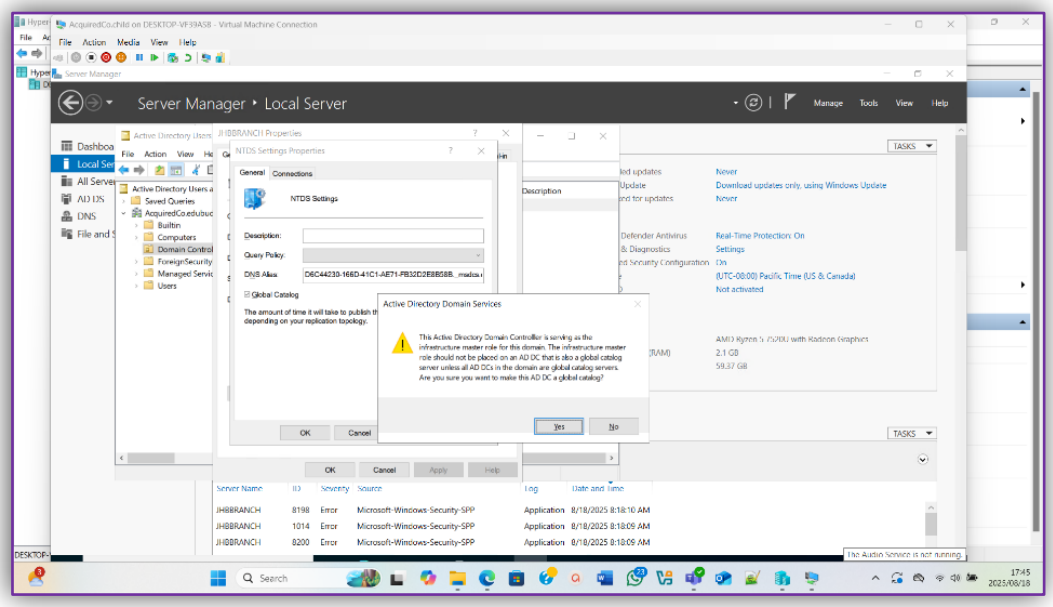


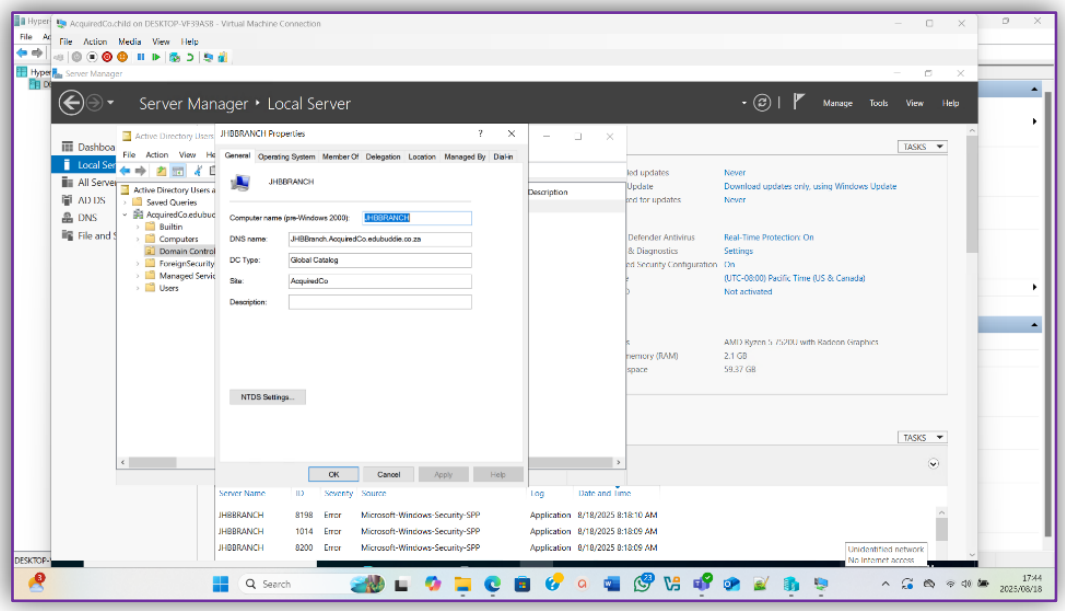


The following image shows when I checked the “Global Catalog” box changing the DC type. (WebCast, 37. Configure DC as Global Catalog Server | Windows Server 2022, 2024)



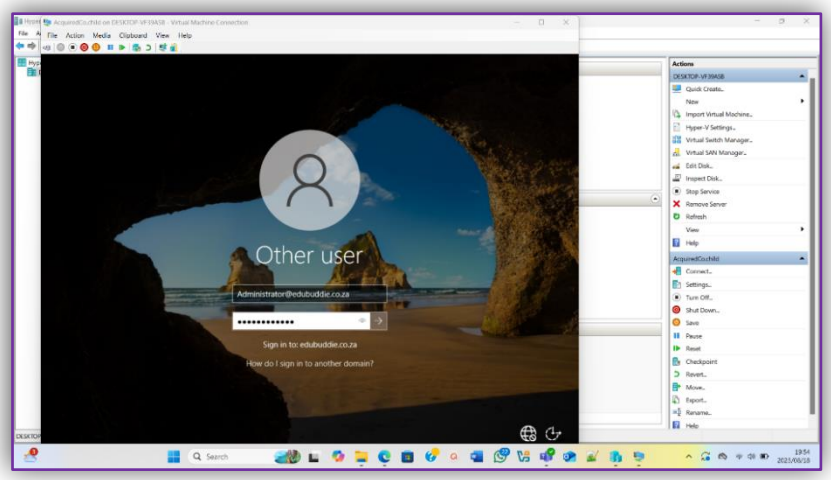
After clicking “Apply” a pop-up appeared. I clicked “yes” on the pop-up and just like that I promoted JHBBranch to a Global Catalog server. The following images show the pop-up and the changed DC type.



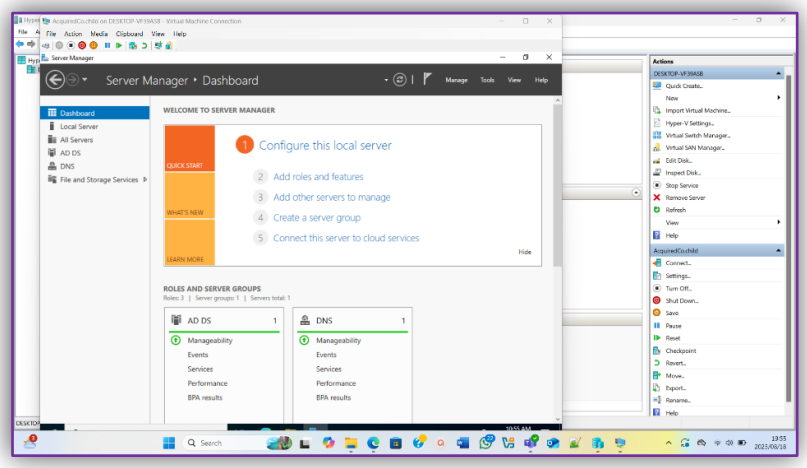


- Test cross-domain authentication by logging in with eddubudie.co.za credentials.

The first thing I did was check that the domains can talk to each other, I checked that from the “Active Directory Domains and Trusts”, which is found at “Tools”, I provided proof on the last screenshot found on the last bullet of question 1. Once that was done, I signed out of my child machine which is AcquiredCo.child, and I signed in again as the administrator from the edubuddie.co.za domain (which is the forest), to show that the GC that I made properly works. The login was successful which like I already mentioned proves that the Global Catalog was properly set and that the trust between the domains exists.



The following is what appeared once I signed in.

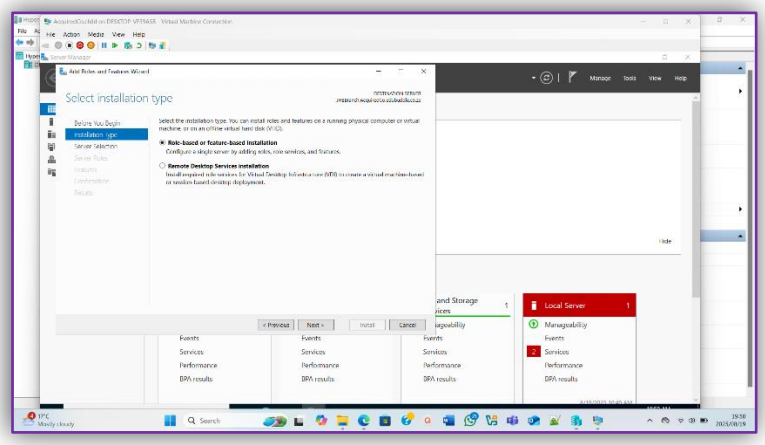


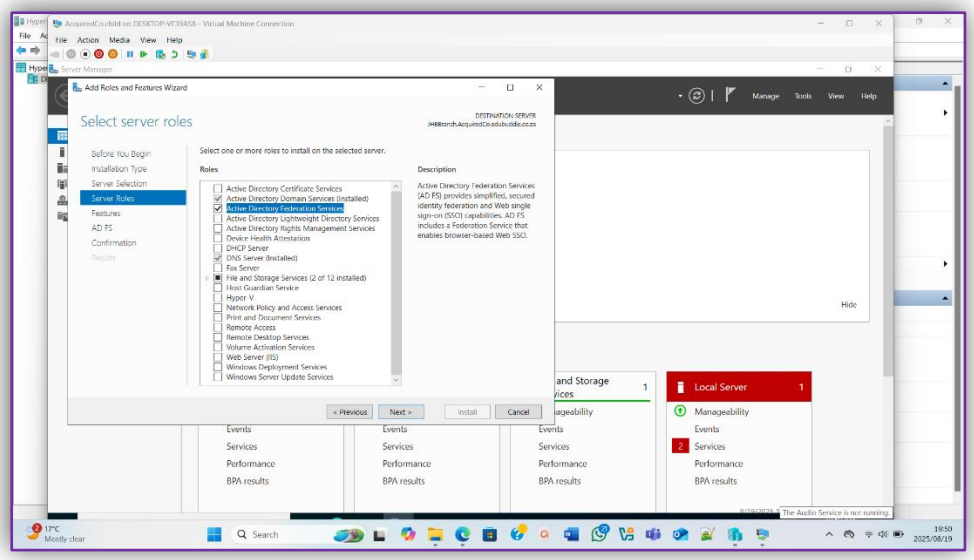
Question 3

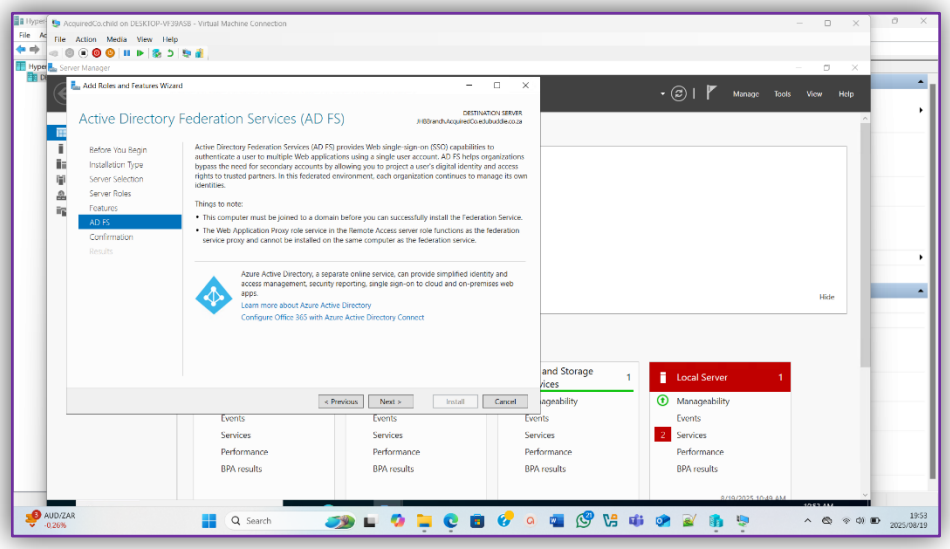
3.1. Implement Active Directory Federation Services (AD FS) for single sign-on (SSO):

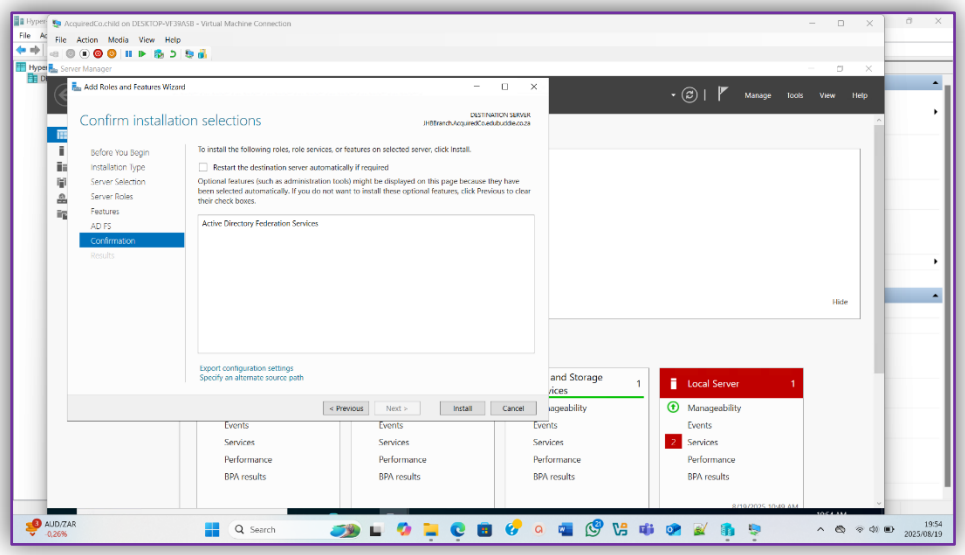
- Configure AD FS on JHBBranch using Windows Server 2022 features.

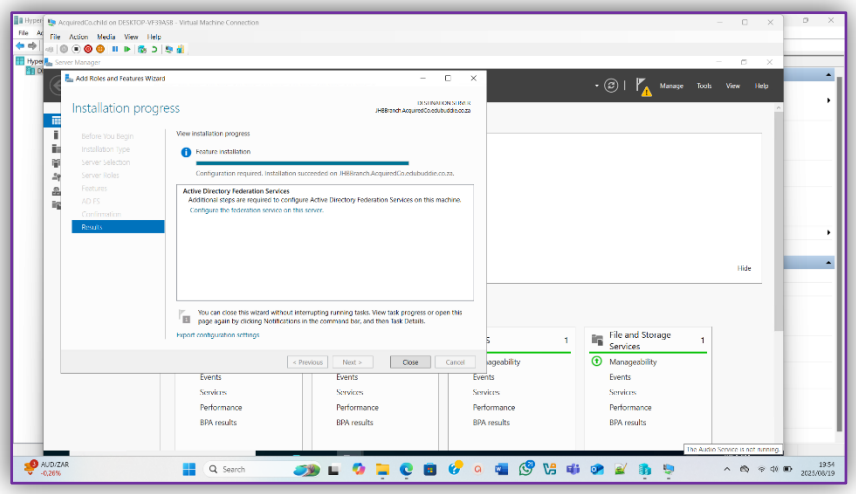
The first thing I did was to add the AD FS feature to the child machine which is “AcquiredCo.child”.




Add Roles and Features Wizard
Select server roles
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD FS
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Active Directory Certificate Services
Active Directory Domain Services (Installed)
Active Directory Federation Services
Active Directory Lightweight Directory Services
Active Directory Rights Management Services
Device Health Attestation
DHCP Server
DNS Server (Installed)
Fax Server
File and Storage Services (2 of 12 installed)
Host Guardian Service
Hyper-V
Network Policy and Access Services
Print and Document Services
Remote Access
Remote Desktop Services
Volume Activation Services
Web Server (IIS)
Windows Deployment Services
Windows Server Update Services
Description
Active Directory Federation Services (AD FS) provides simplified, secured identity federation and Web single sign-on (SSO) capabilities. AD FS includes a Federation Service that enables browser-based Web SSO.
< Previous
Next >
Install
Cancel
Local Server
Manageability
Events
Services
Performance
BPA results
Hide

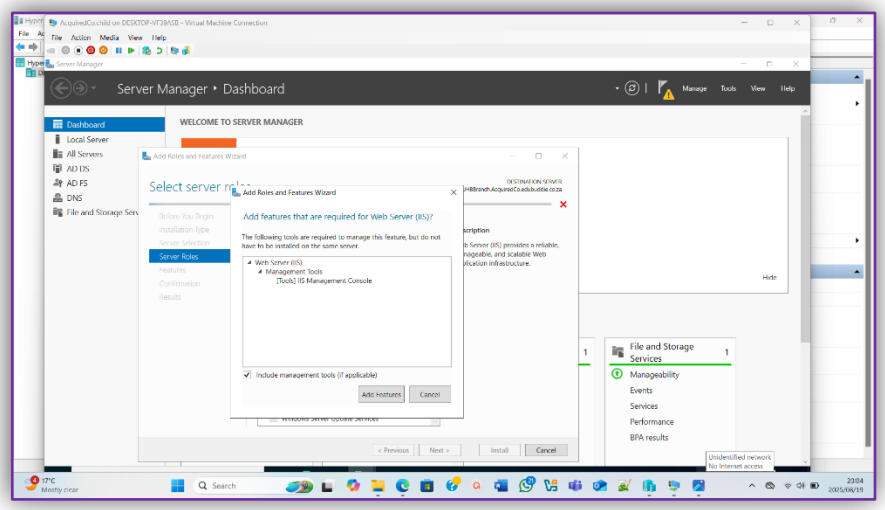

Add Roles and Features Wizard
Active Directory Federation Services (AD FS)
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD FS
Confirmation
Results
Active Directory Federation Services (AD FS) provides Web single-sign-on (SSO) capabilities to authenticate a user to multiple Web applications using a single user account. AD FS helps organizations bypass the need for secondary accounts by allowing you to project a user's digital identity and access rights to trusted partners. In this federated environment, each organization continues to manage its own identities.
Things to note:
This computer must be joined to a domain before you can successfully install the Federation Service.
The Web Application Proxy role service in the Remote Access server role functions as the federation service proxy and cannot be installed on the same computer as the federation service.
Azure Active Directory, a separate online service, can provide simplified identity and access management, security reporting, single sign-on to cloud and on-premises web apps.
Learn more about Azure Active Directory
Configure Office 365 with Azure Active Directory Connect
< Previous
Next >
Install
Cancel
Local Server
Manageability
Events
Services
Performance
BPA results
Hide

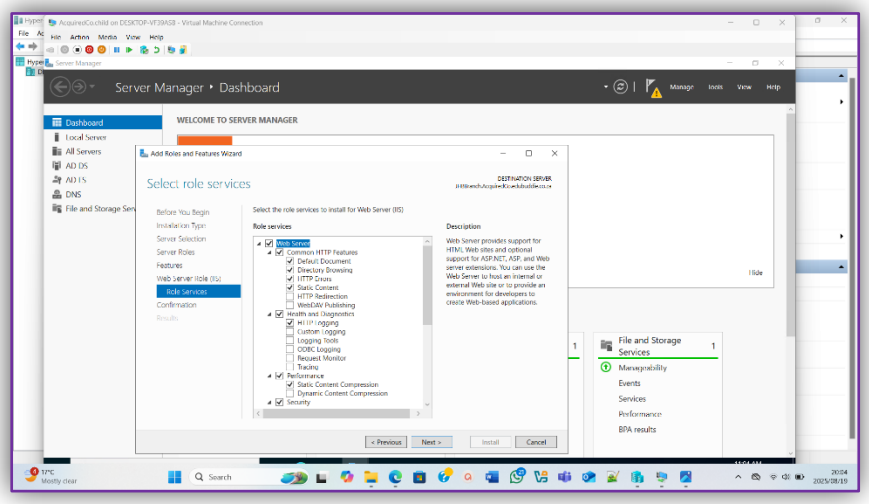

Add Roles and Features Wizard
Confirm installation selections
Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD FS
Confirmation
Results
To install the following roles, role services, or features on selected server, click Install.
Restart the destination server automatically if required
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.
Active Directory Federation Services
Export configuration settings
Specify an alternate source path
< Previous
Next >
Install
Cancel
Local Server
Manageability
Events
Services
Performance
BPA results
Hide



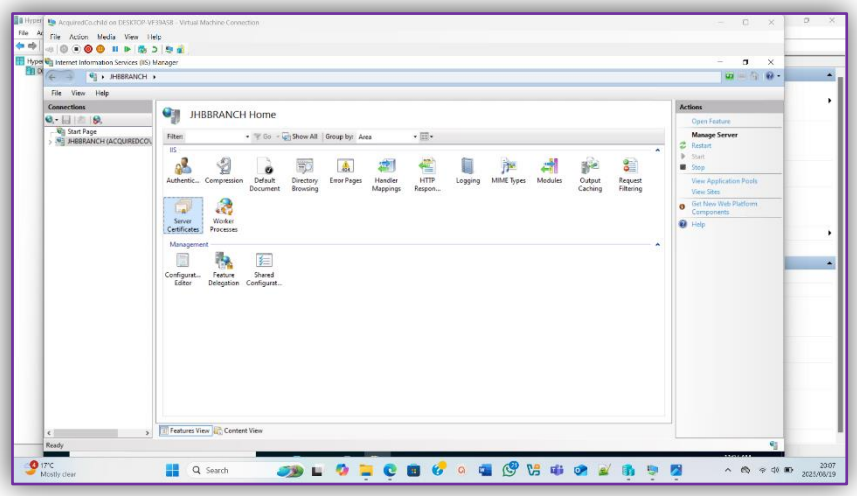
Once the installation was finished, I then went ahead and installed the Web Server (IIS) feature before configuring the AD FS role so that I can see, manage and create certificates.

The following images only show the parts that prove that I did indeed add the Web Server (IIS) role and the way the role was added is the same as the previous images.

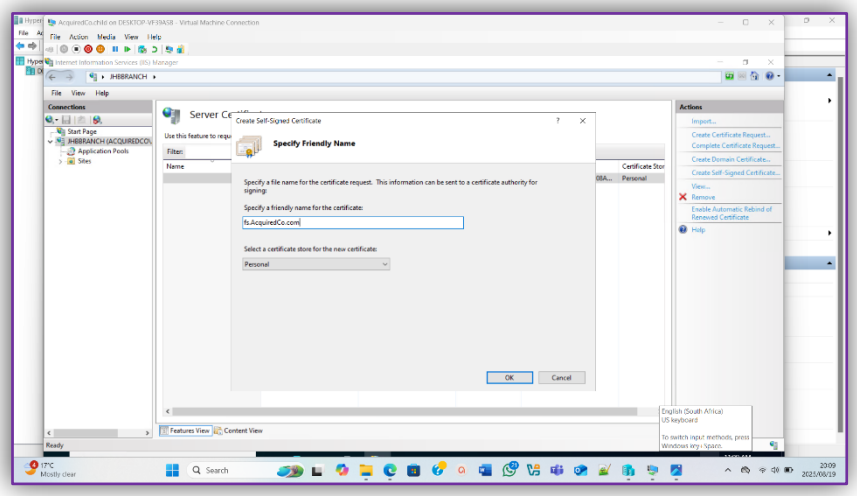


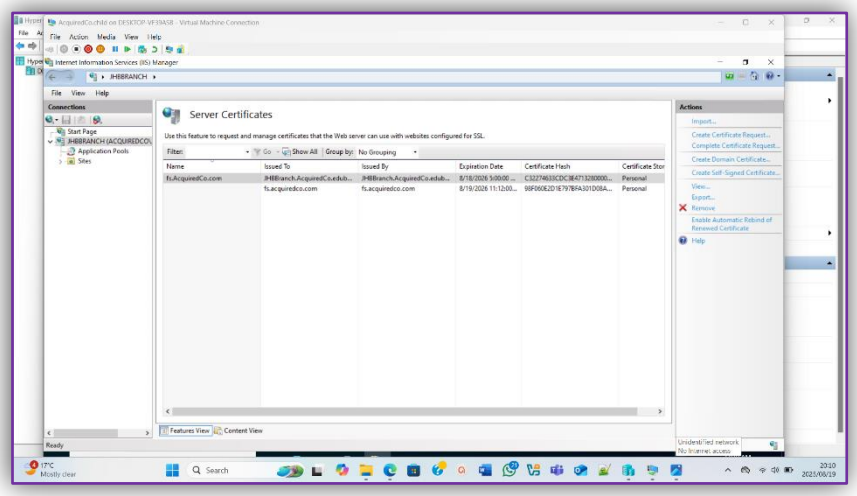


I then went ahead and installed the feature. Once the feature was installed, I went ahead and opened the “IIS Manager” under “Tools” so that I can see the present certificates and create a “Self-Signed Certificate” for the configuration of the AD FS role. (WebCast, 2025)

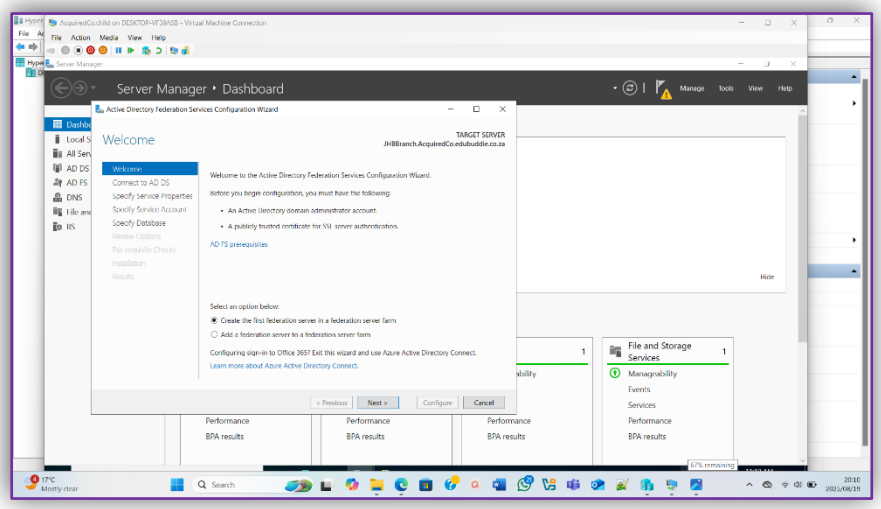


The following image shows the creation of the self-signed certificate which I named “fs.AcquiredCo.com”.

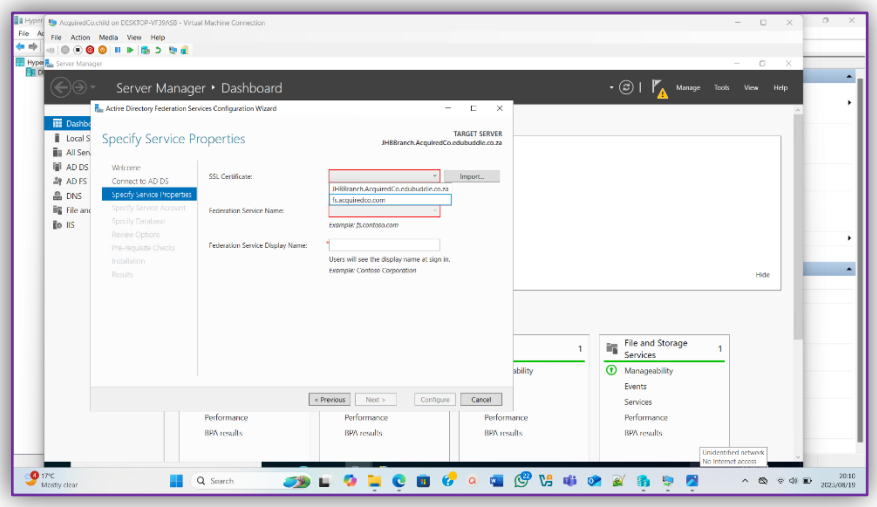


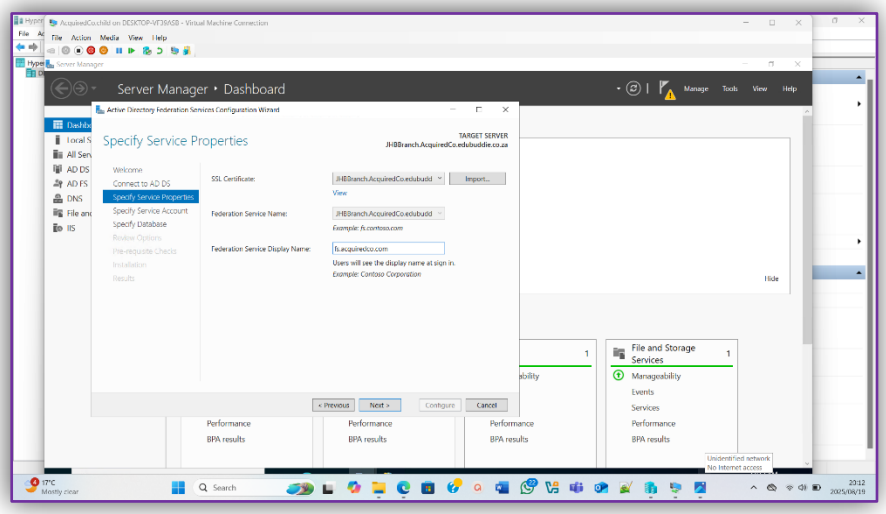


Once that was done, I then went ahead and configured the AD FS role.

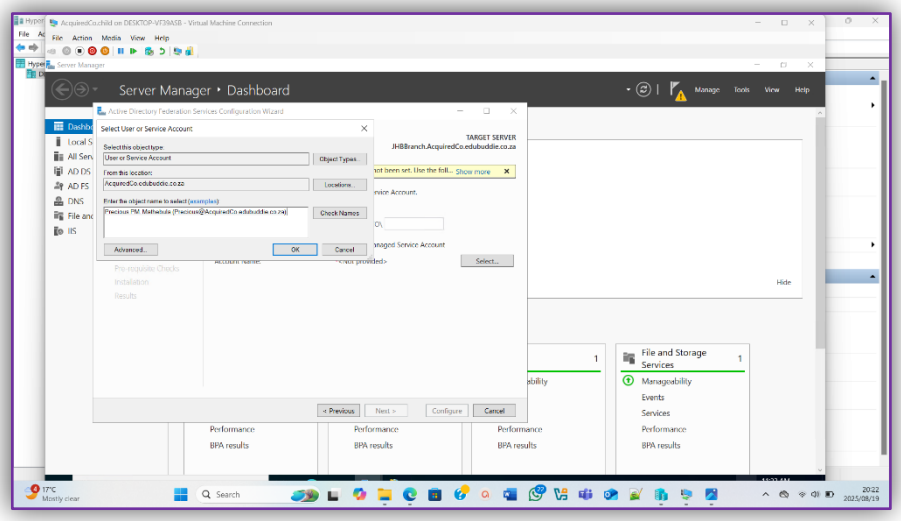


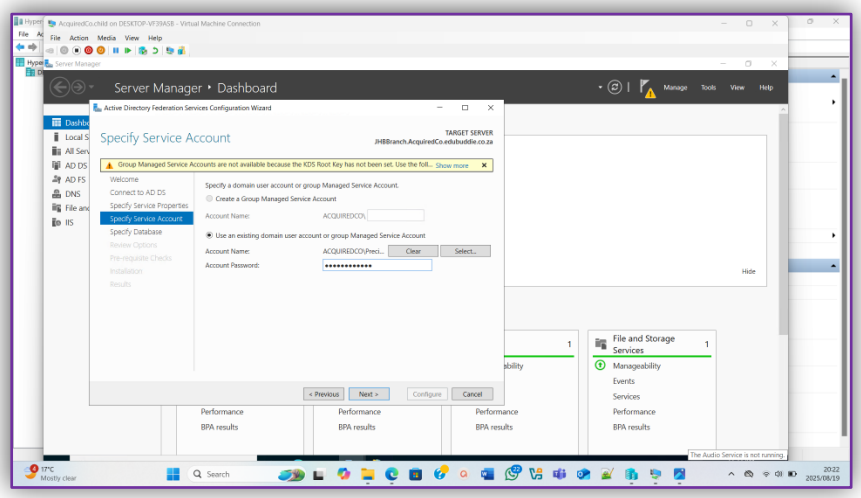
The following image shows the step where I had to choose between the self-signed certificate that I made as well as the certificate which was already present. In my case I choose the certificate that I created.

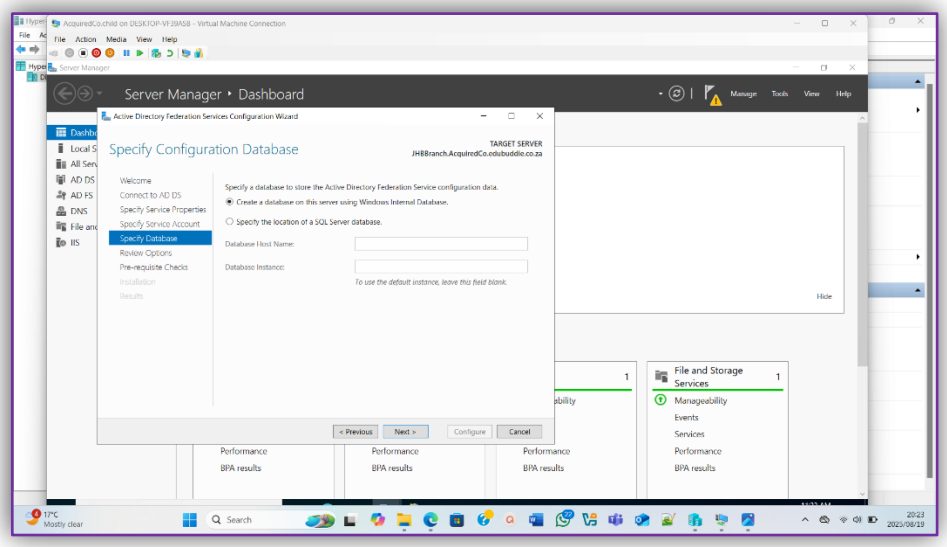


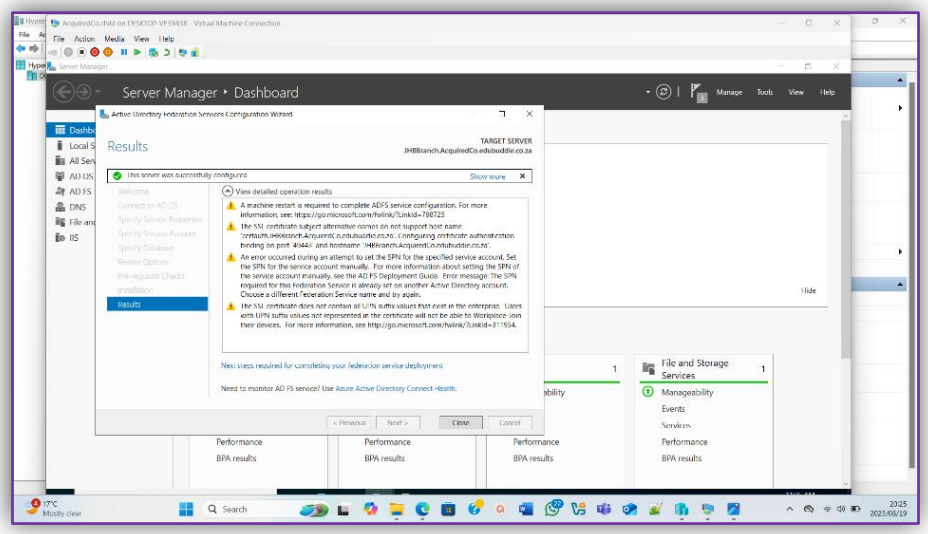


For the following image the first thing I did was to create a user under “Active Directory Users and Computers” and I then added that user as part of the Domain Admins so that I can add the user to this part of configuring the AD FS role.





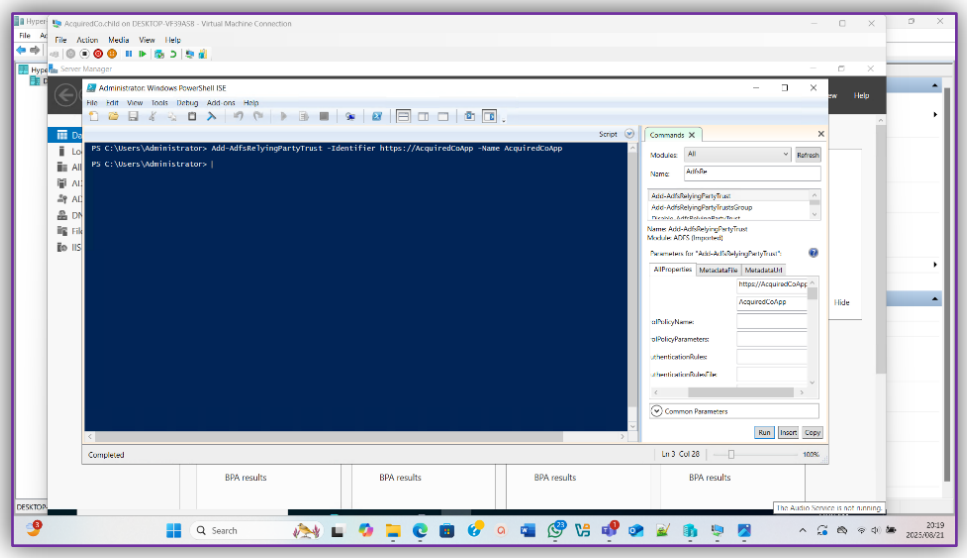




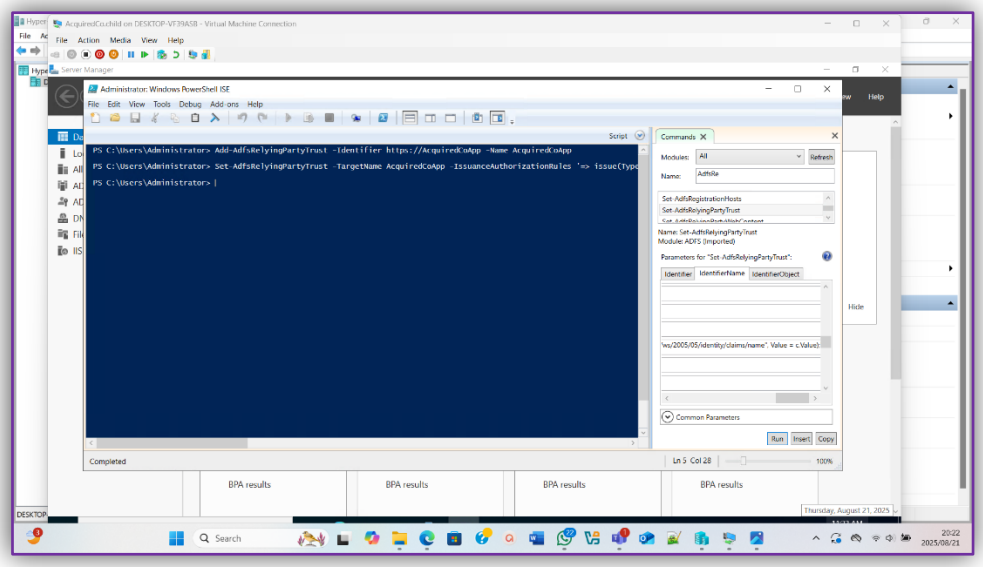
- Use PowerShell to configure claims-based authentication for a sample web application.

I used a “Relying Party Trust” which is like a fake or sample web app. (HaNa, 2017)

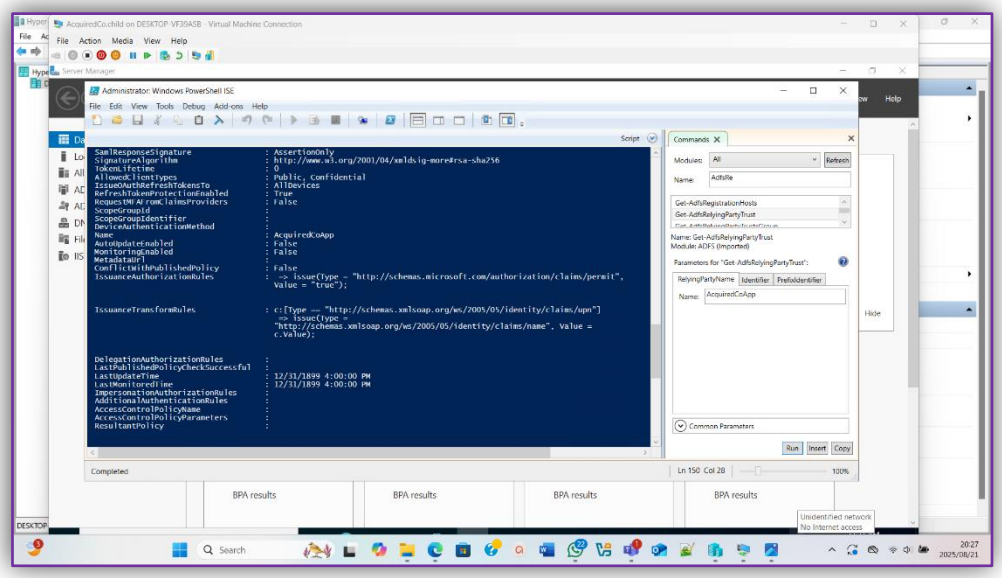
I first made use of the “Add-AdfsRelyingPartyTrust” which enables single sign on (SSO)and it establishes a trust between AD FS and the application or service and it also configures security settings. Therefore, without this step, AD FS would not know that the application exists or that it should trust it for authentication. The following image shows this step as well as the other commands that I made use of.



I then made use of the “Set-AdfsRelyingPartyTrust” which is used to modify or update an existing relying party trust in AD FS, in essence it updates URLs or Identifiers, adjusts token settings, changes access control policies, it also modifies claims settings and last but not least it enables or disables relying party. The following image shows the code.

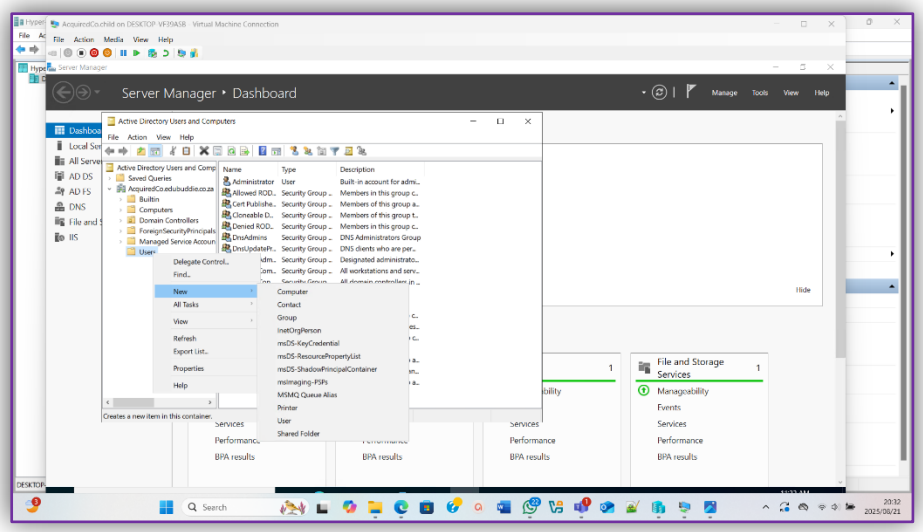


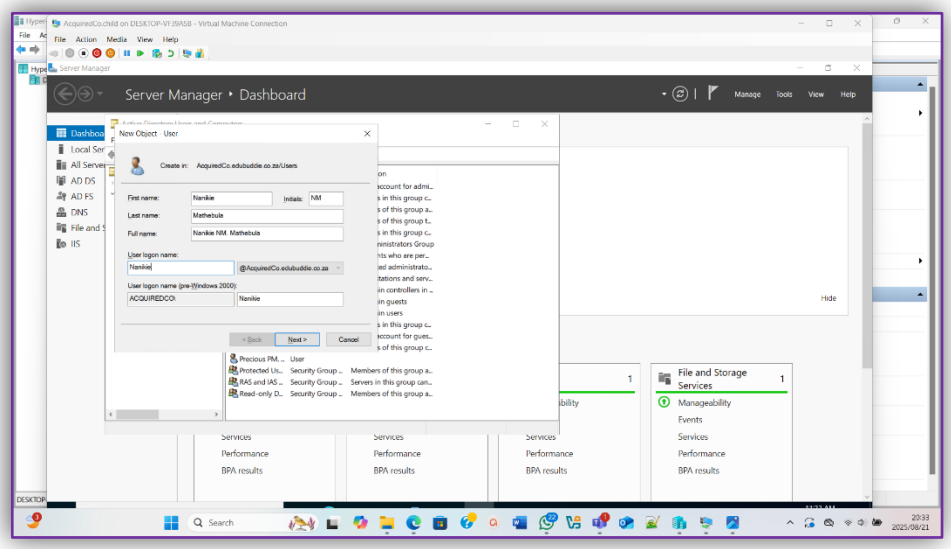
The following image represents the last code that I made use of which is the “Get-AdfsRelyingPartyTrust” which is responsible for retrieving and displaying information about the relying party trusts that I configured and its key responsibilities are to list existing relying parties, to view configuration details as well as troubleshooting and verification.

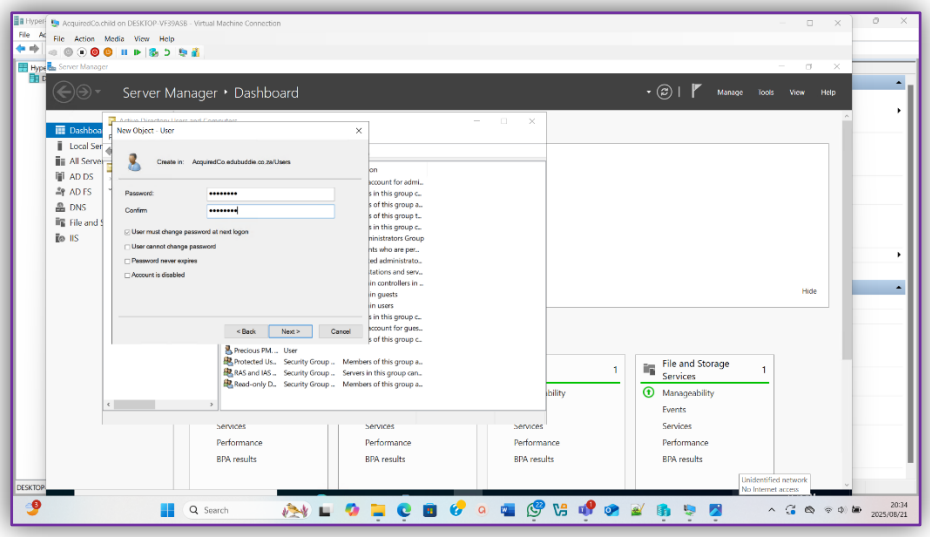


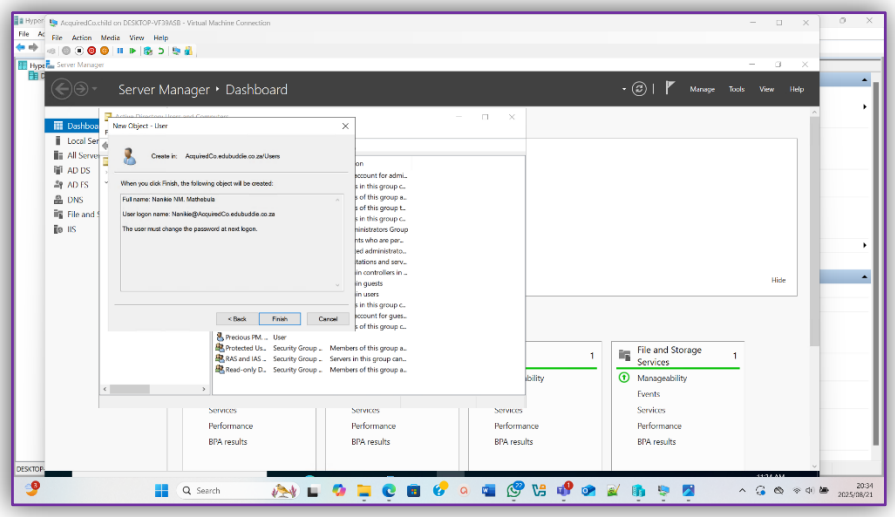
- Test the SSO functionality with a test account.

The first thing I did was create account that I will use as the test account, to do that I went to the “Active Directory Users and Computers”. The following images show how I created the user and the user’s credentials.

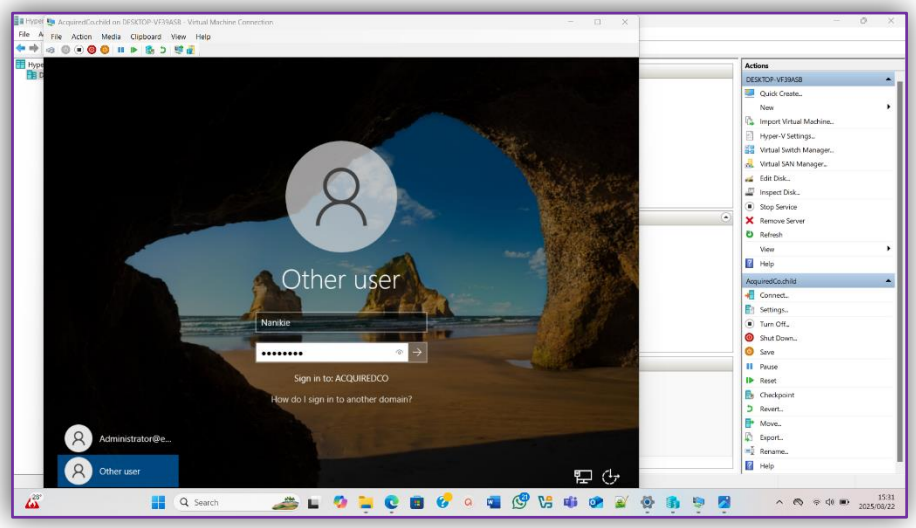

Server Manager • Dashboard
Active Directory Users and Computers
File and Storage Services

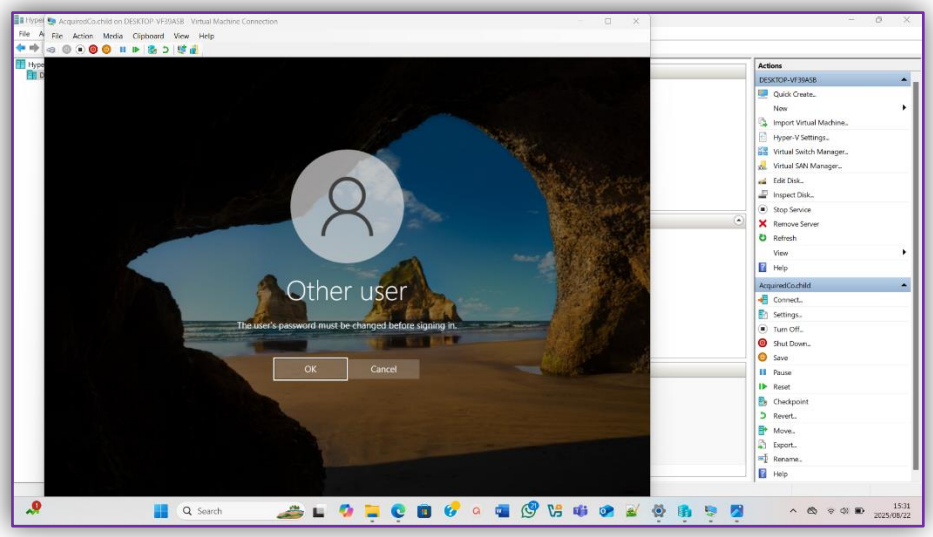

Server Manager • Dashboard
New Object - User
File and Storage Services

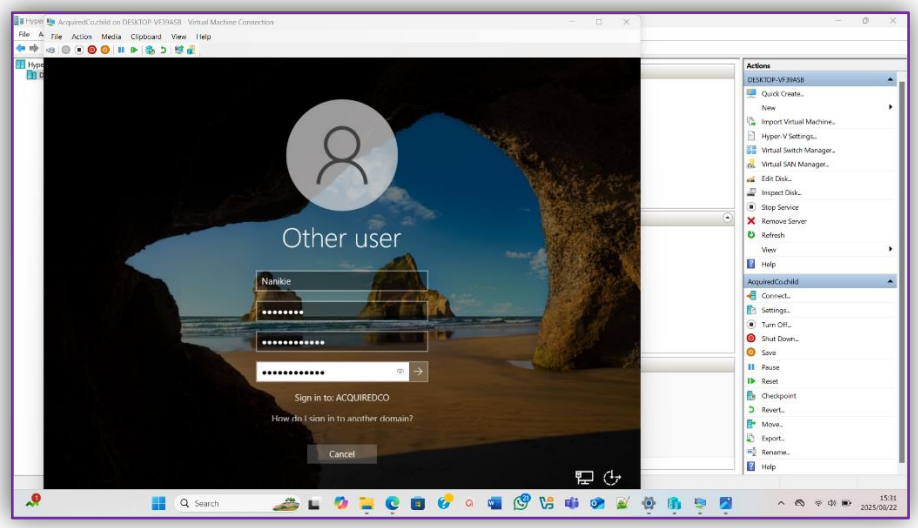

Server Manager • Dashboard
New Object - User
File and Storage Services

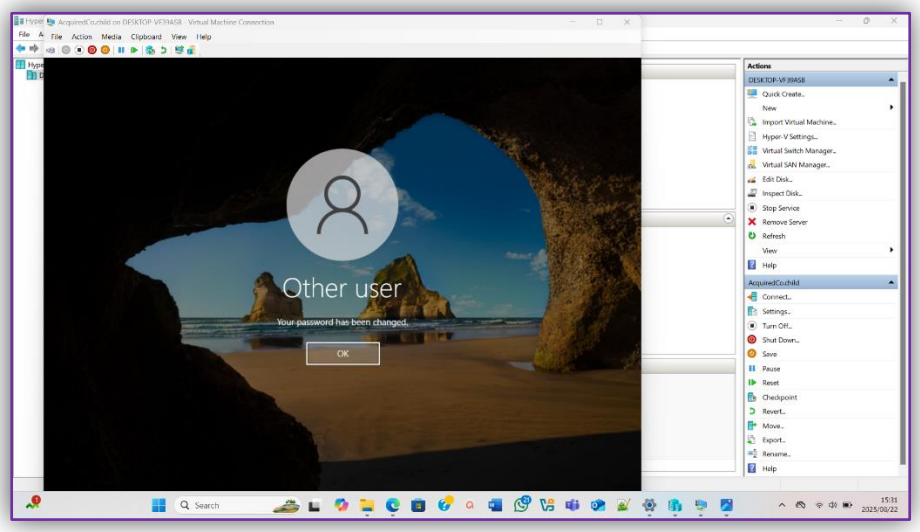


Once this step was finished, I then signed out as the Administrator, I then signed in as the test account that I created on the same machine I had signed in as the admin which is the child machine "AcquiredCo.child". The following images show the sign in steps.

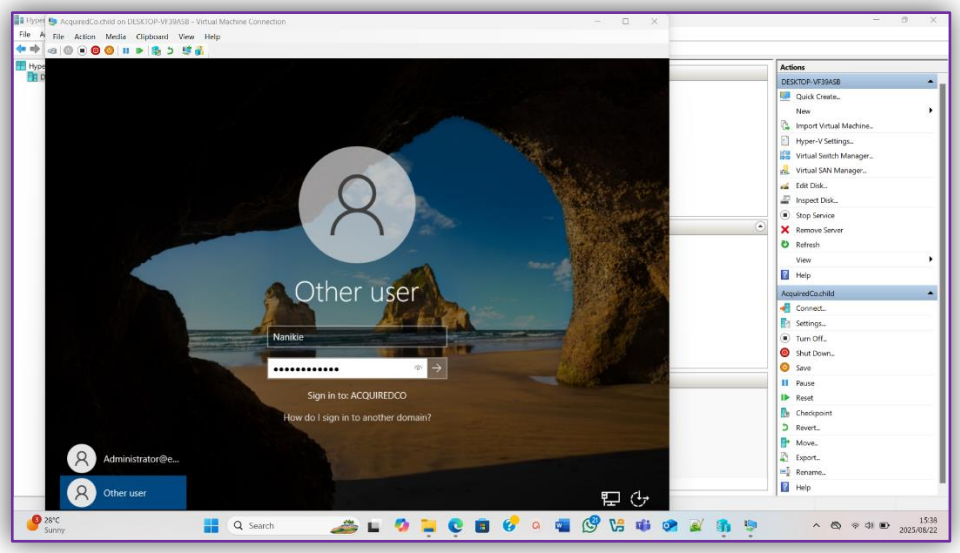




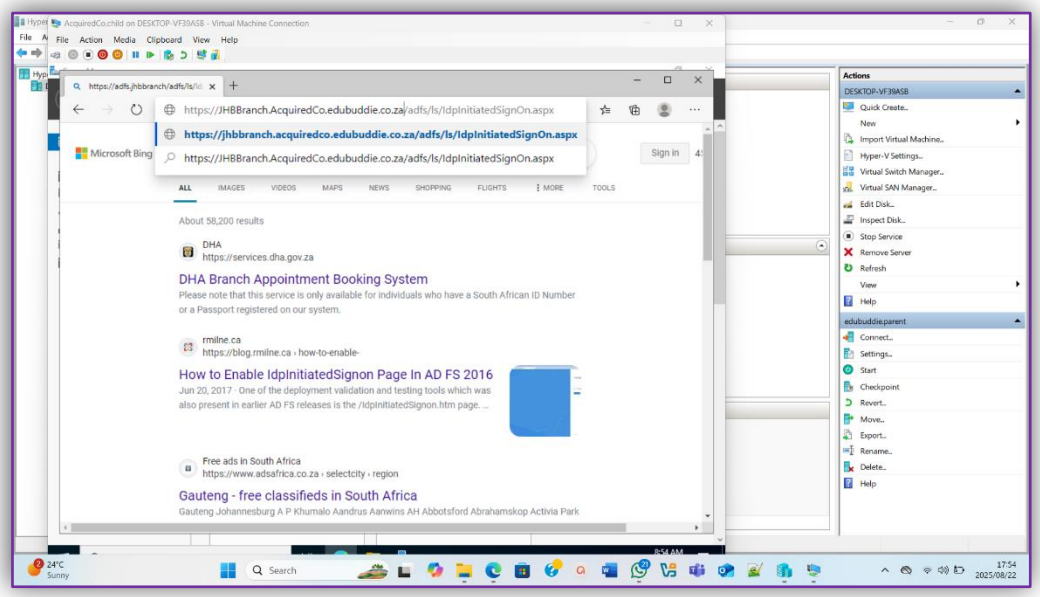




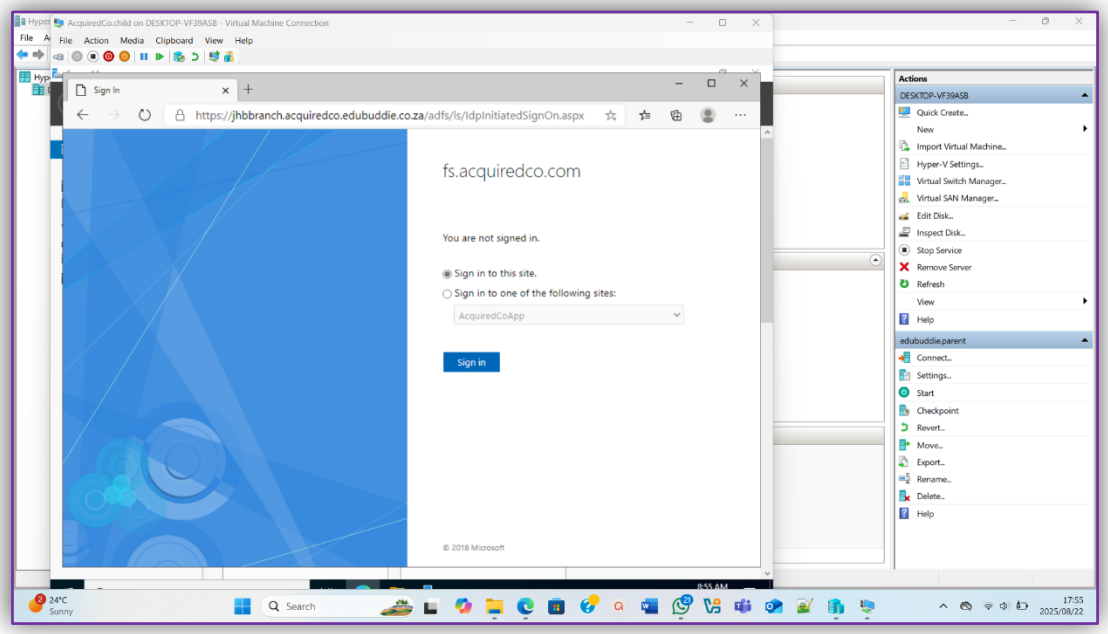
Once this was done I than had to sign in as “Nanikie” and then test the SSO functionality.

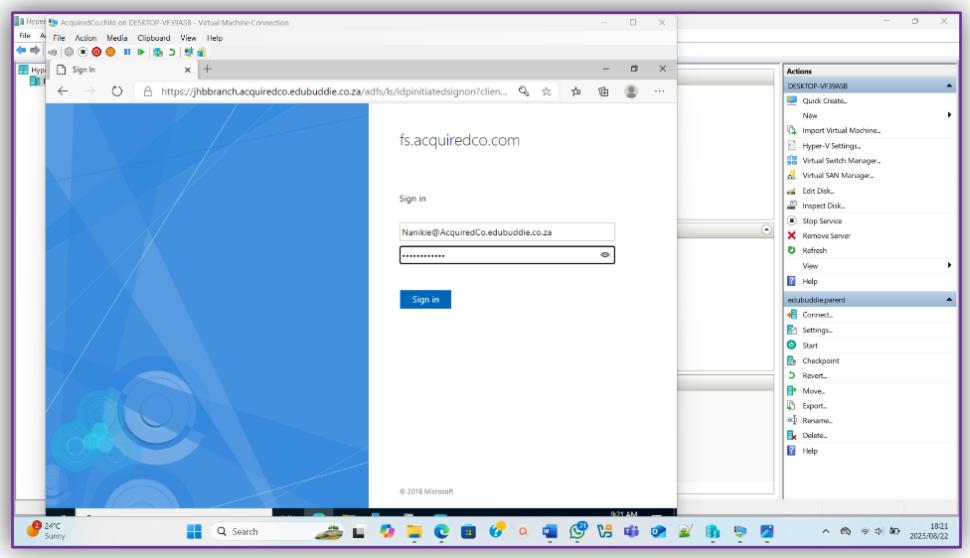


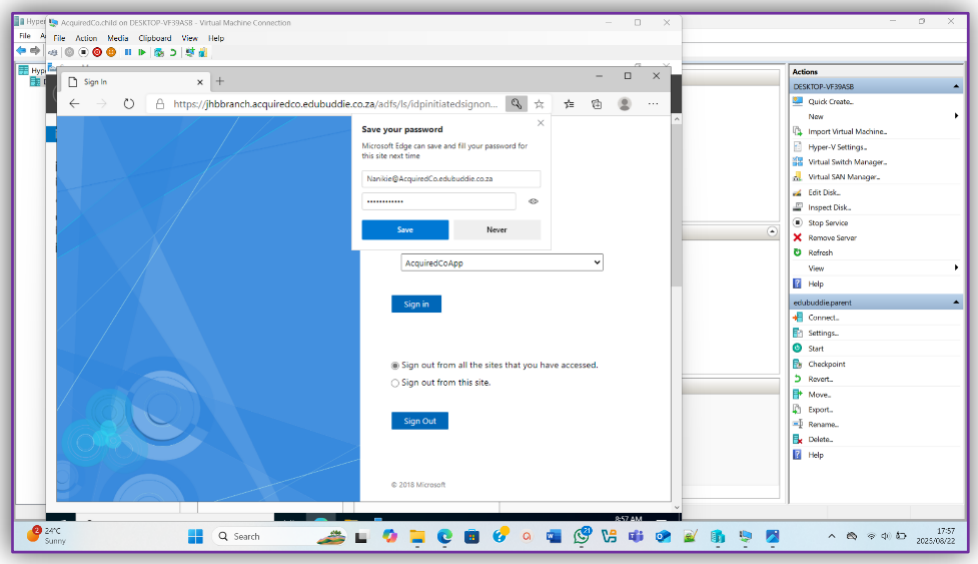
Once I entered my desktop I then opened up Microsoft Edge so that I can see if the SSO functionality is present and active by searching the URL for my sample app which is supposed to let me sign in as well as out so that it shows that the functionality is indeed successful, working and present. The following image shows the part where I searched my sample app URL.



The following images shows the signing in step as well as the page where by I can sign into the app or sign out of that page which allows you to sign into the app.







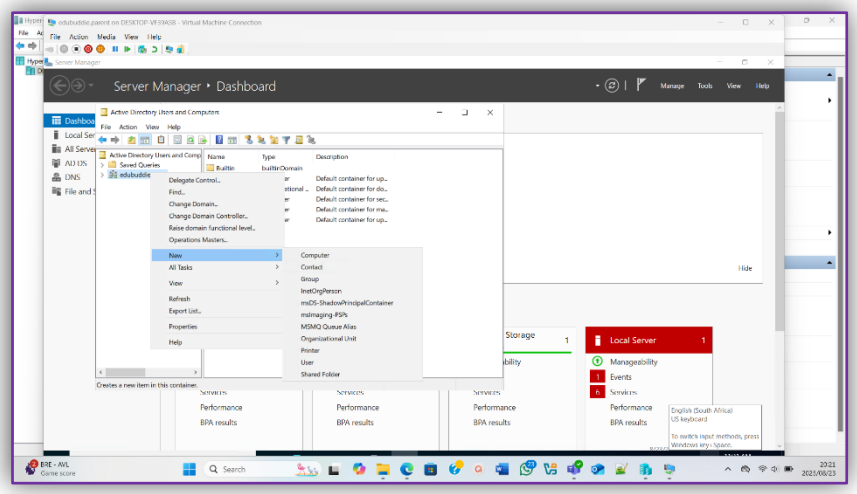
Since I could see the page whereby, I can sign into the app this proves that the SSO functionality is very much present and active and that the test was successful. I could not sign into the app since it's a sample app and it does not exist.

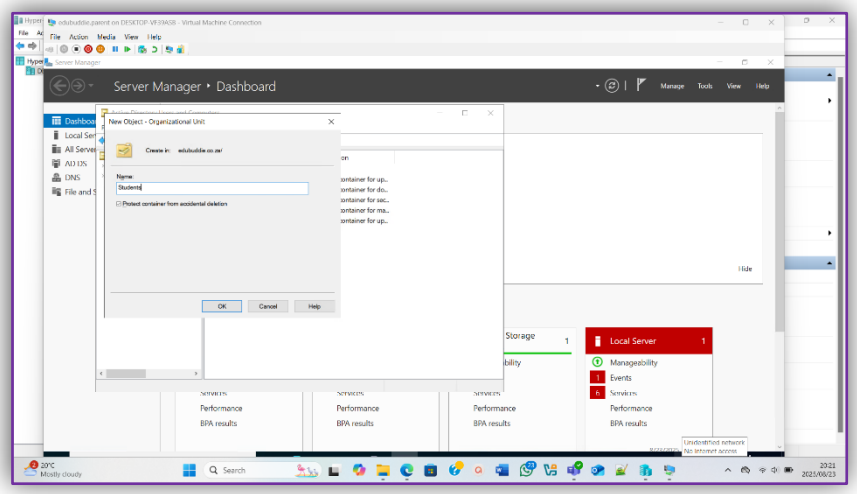
Question 4

4.1. Create 10 user accounts on ServerDC and migrate the user accounts from SERVERDC to JHBBranch:

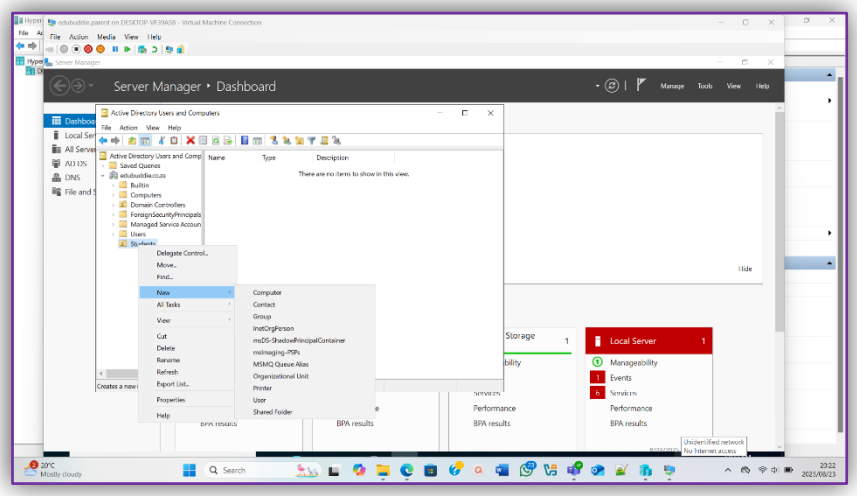
- Use the Active Directory Migration Tool (ADMT) to migrate user accounts while retaining all group memberships and permissions.

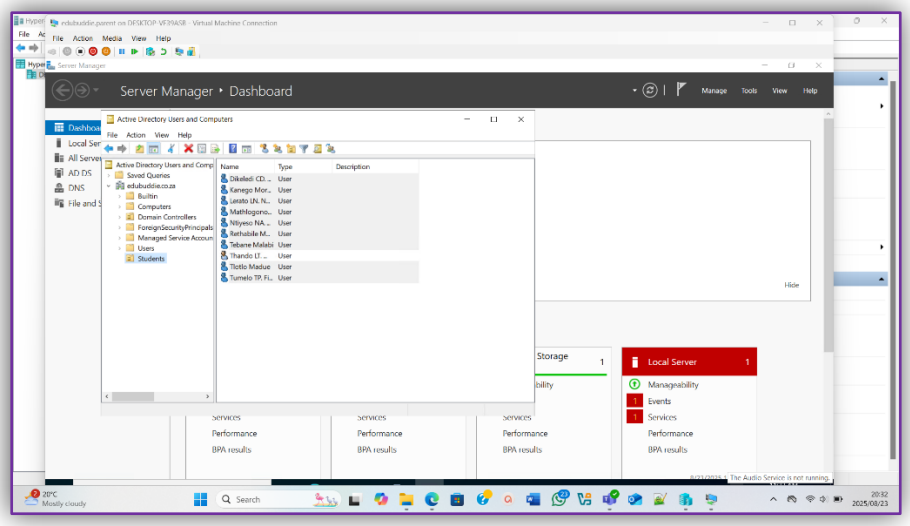
The first thing I did was to create an organizational unit where I was going to add all 10 users in. I did all this in the parent machine which is (edubuddie.co.za).



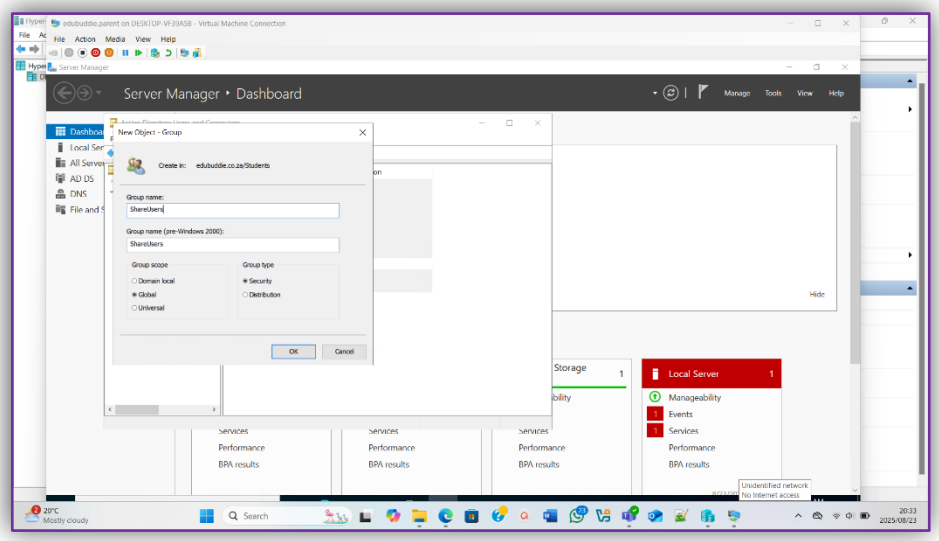


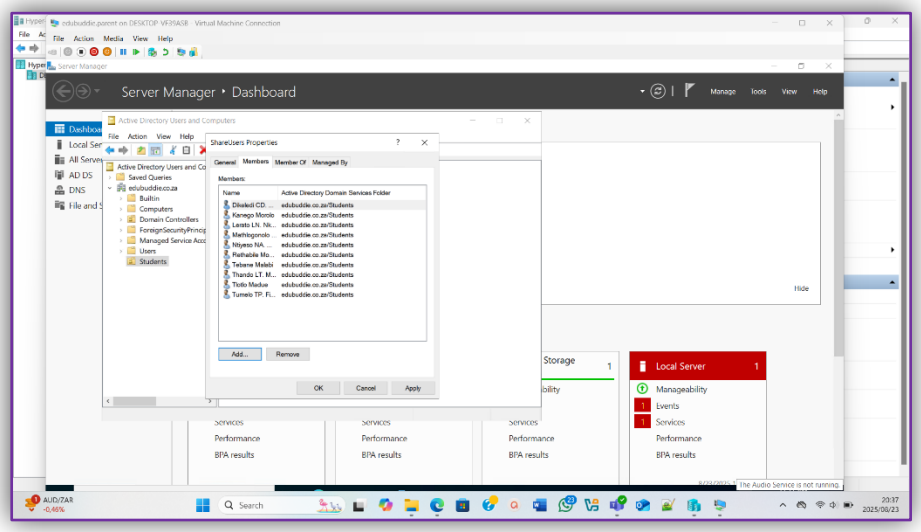
Once that was done, I then went ahead and added the 10 users that have to be migrated from source to the target machine which is “AcquiredCo.child”, and that is the JHBBranch machine.



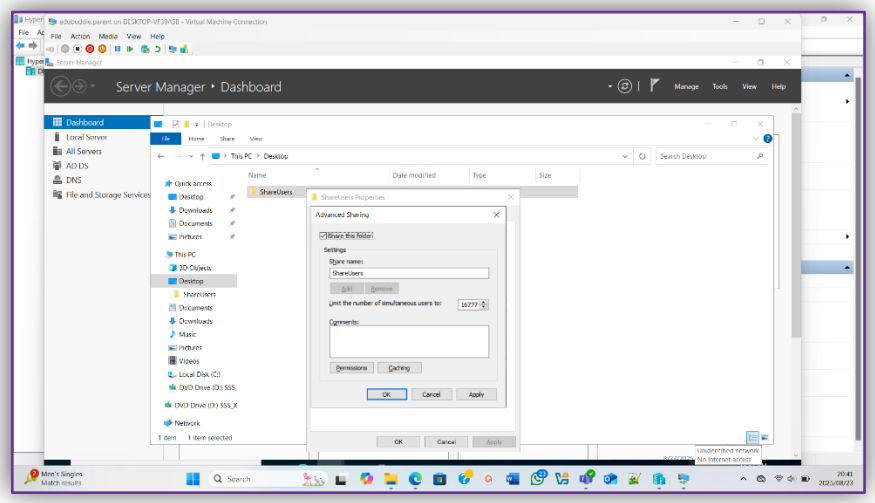


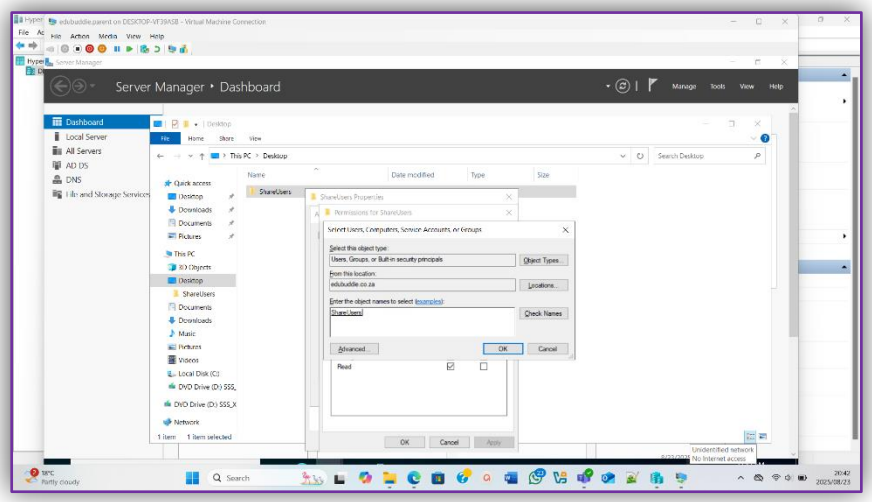
Once that was done, I then created a group inside the OU where I put all 10 of the users so that I can give then permissions as a whole instead of doing it individually.

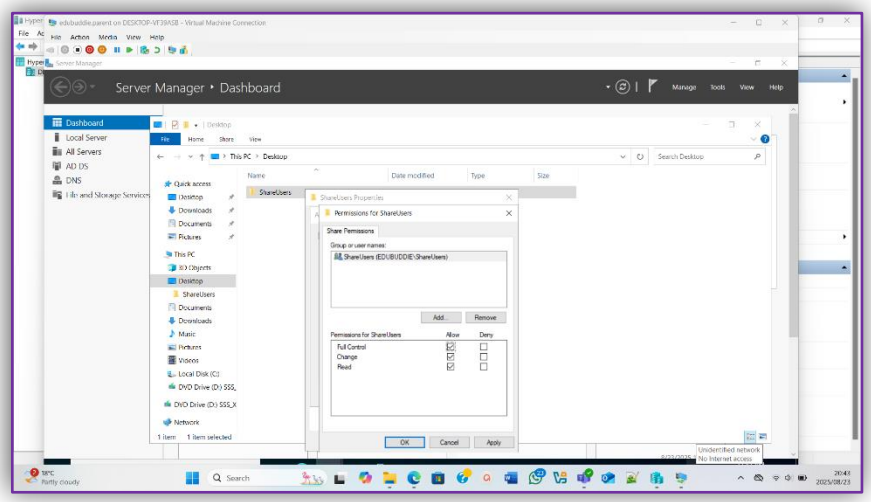


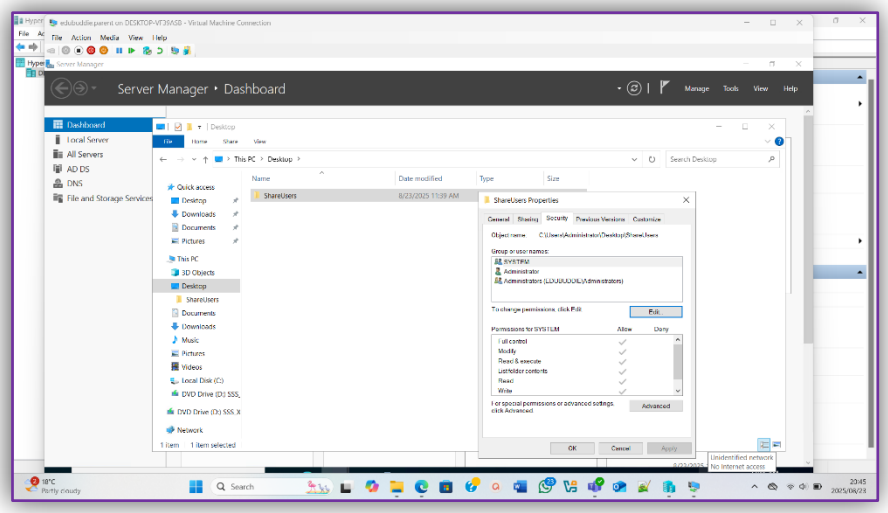


I then went ahead a created a folder for the group “ShareUsers” where I then assigned the permissions for the users. I went to “Properties”>” Sharing”>” Advanced Sharing”, then share as “ShareUsers”. After I did that, I gave all the users full control as their permissions and checked that the Security (NTFS) is set as “Modify”.

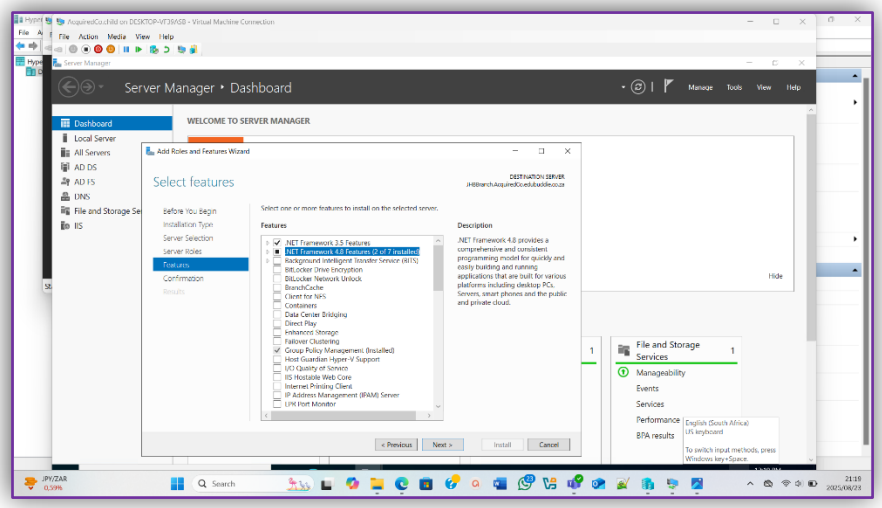


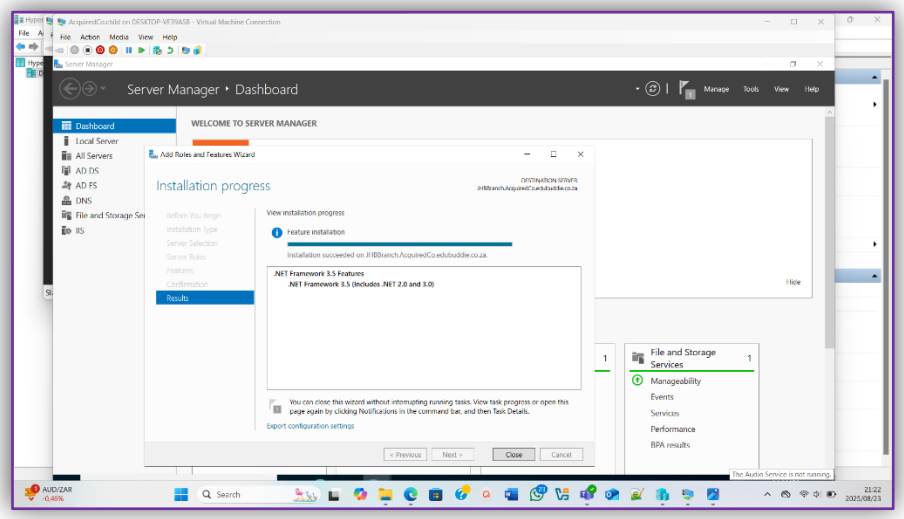




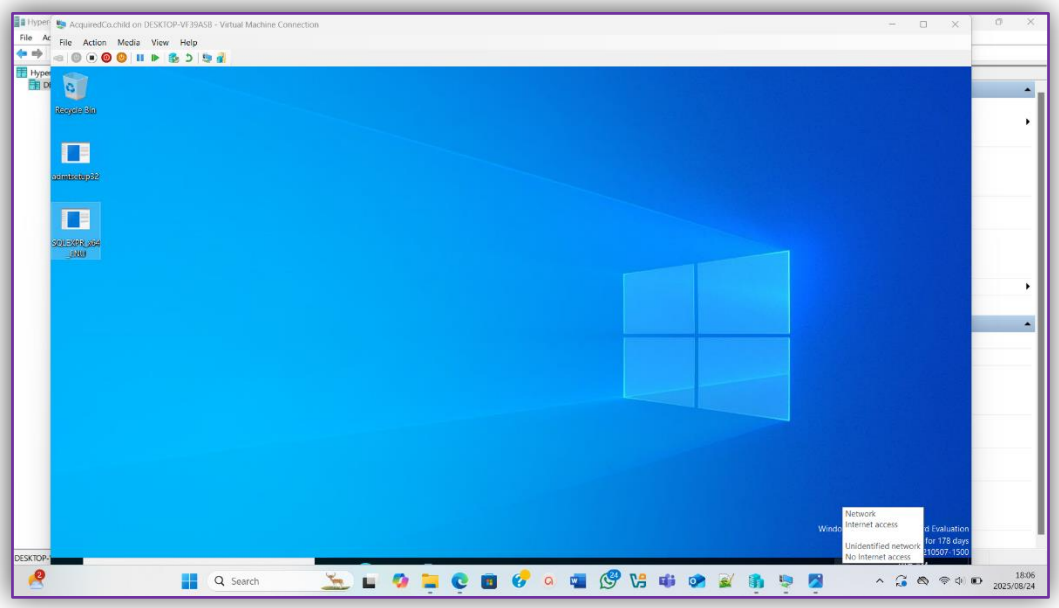


Once this was done, I added a new feature which is ".Net Framework 3.5" on the target machine (everything from here is on the target machine), this was to allow the installations that I was about to make to work properly since ADMT 3.2 is an old version and the feature that I added supports it or rather allows it to be functional.





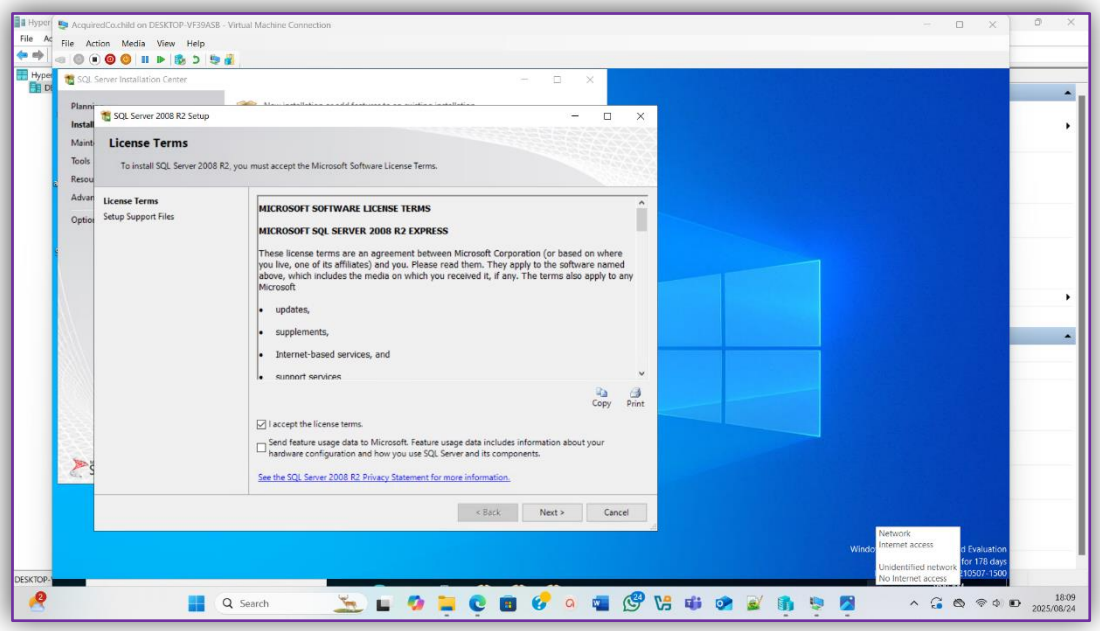
After the installation was done, I then went ahead and installed SQL Express as well as ADMT v3.2.

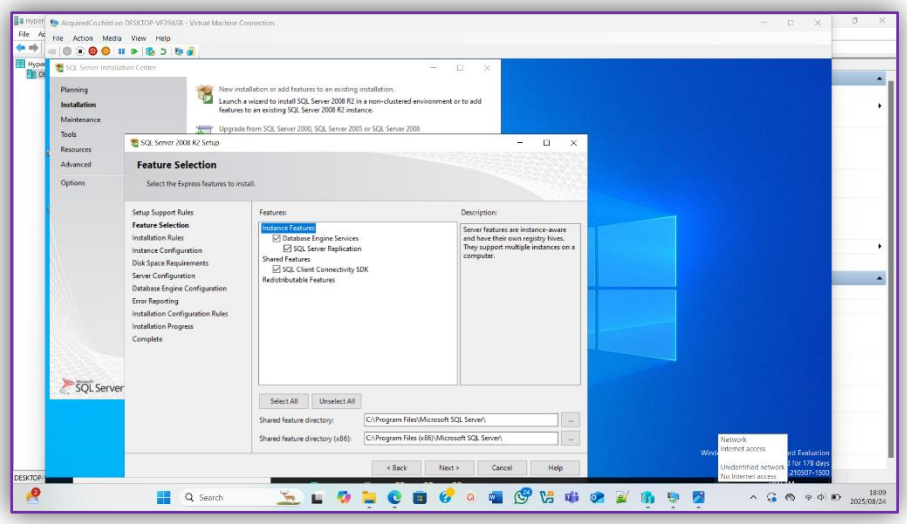


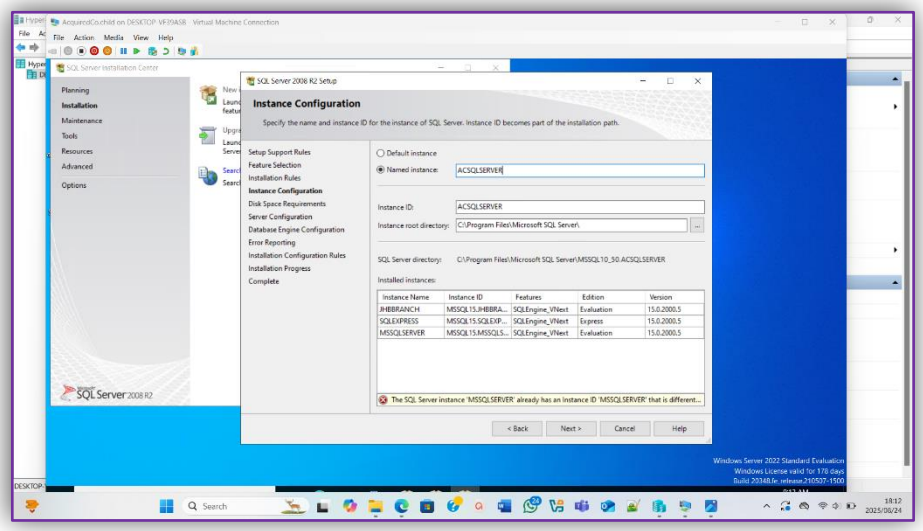
I then went ahead and started the SQL Server installation, this installation is necessary because without the SQL Server the ADMT will have no where to save its migration history, passwords and SID history as well as logs of success or failure.

The following images show the steps of setting up and installing the SQL Server.

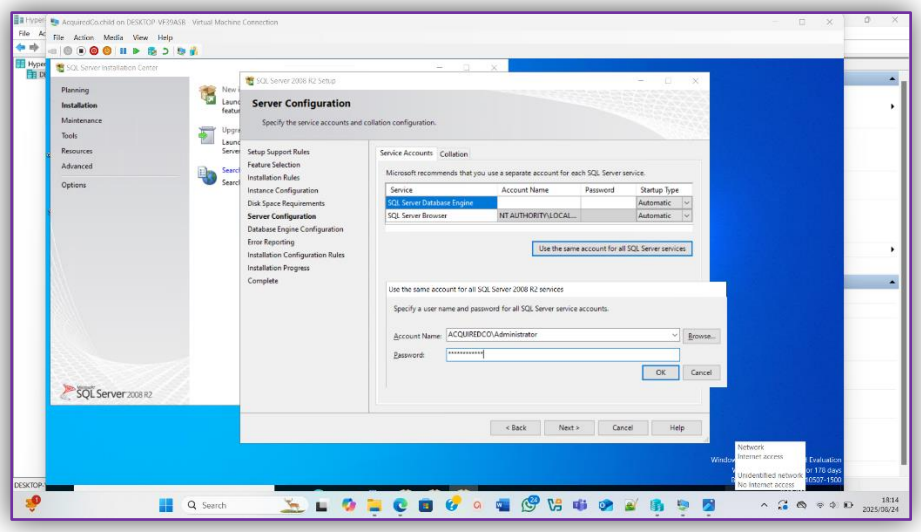
I first accepted the licensing agreement.

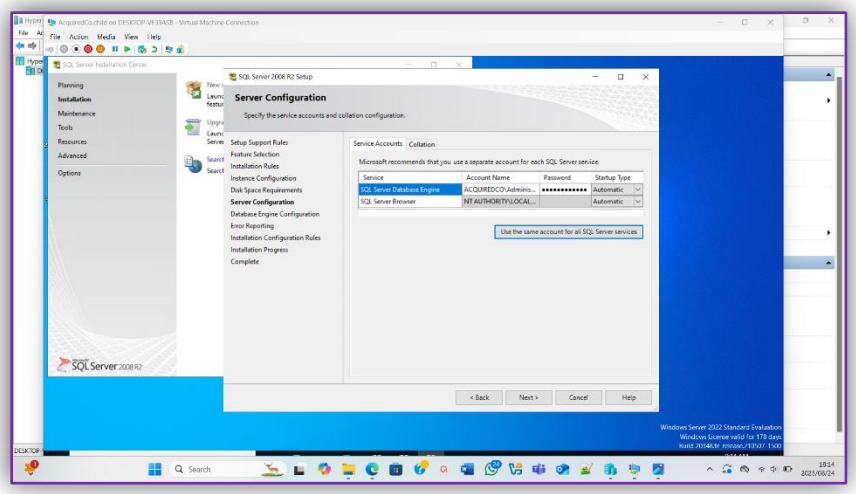


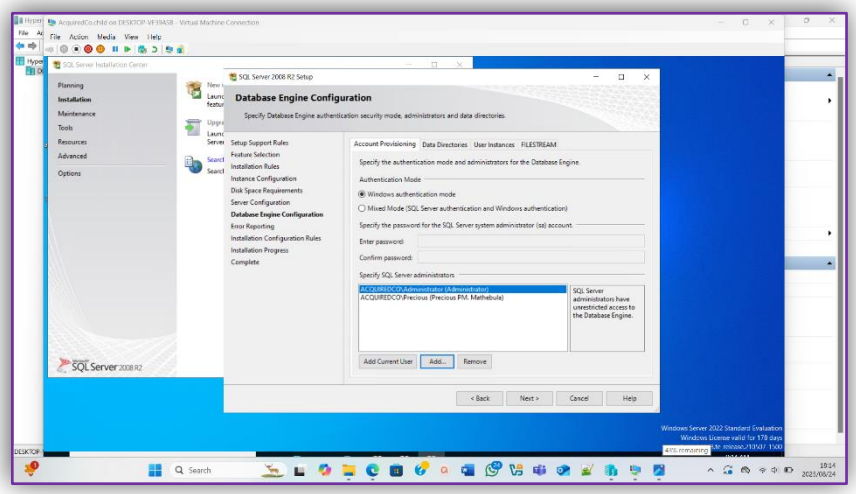


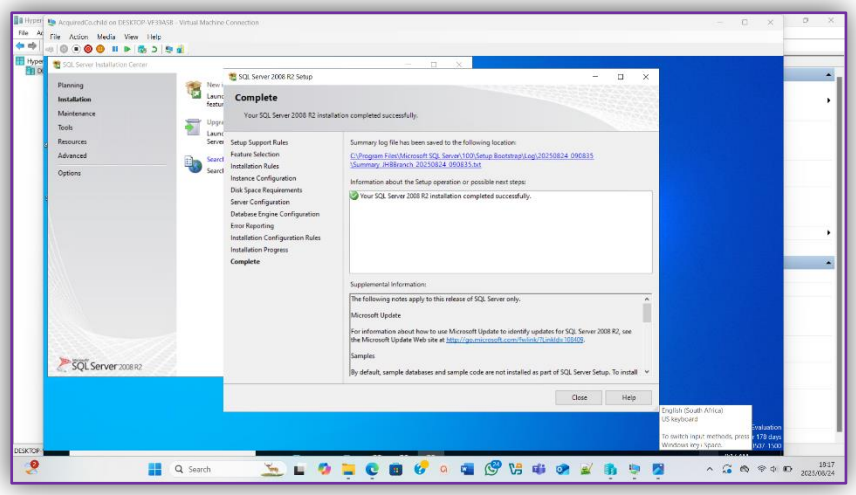


After this step comes the Server configuration and for this step, I used the same account for all SQL Server services so the following images show when I choose the account as well as setting up the password and the steps after that.

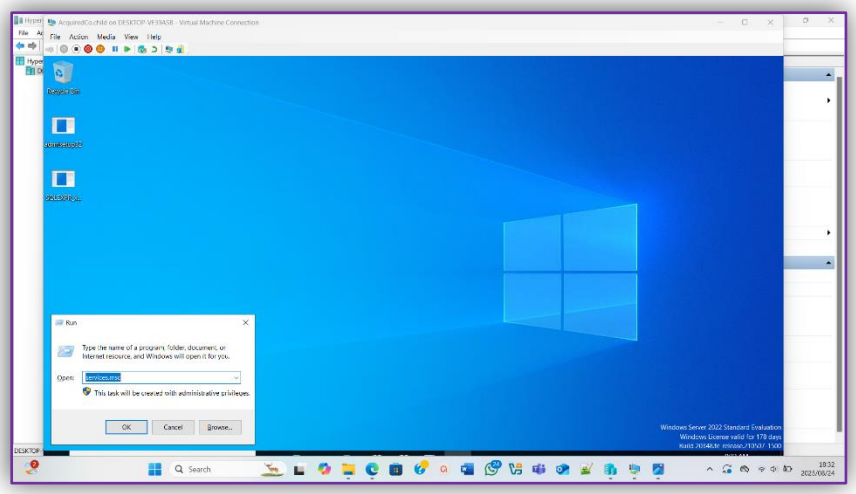


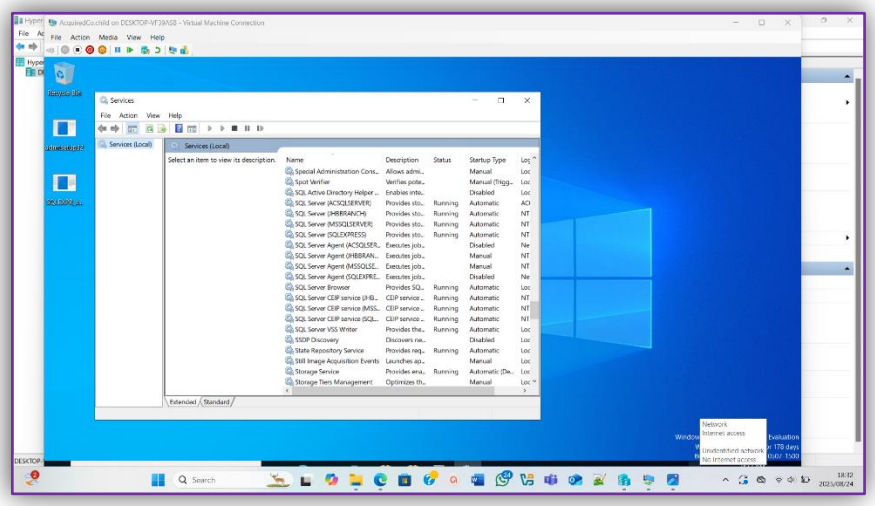






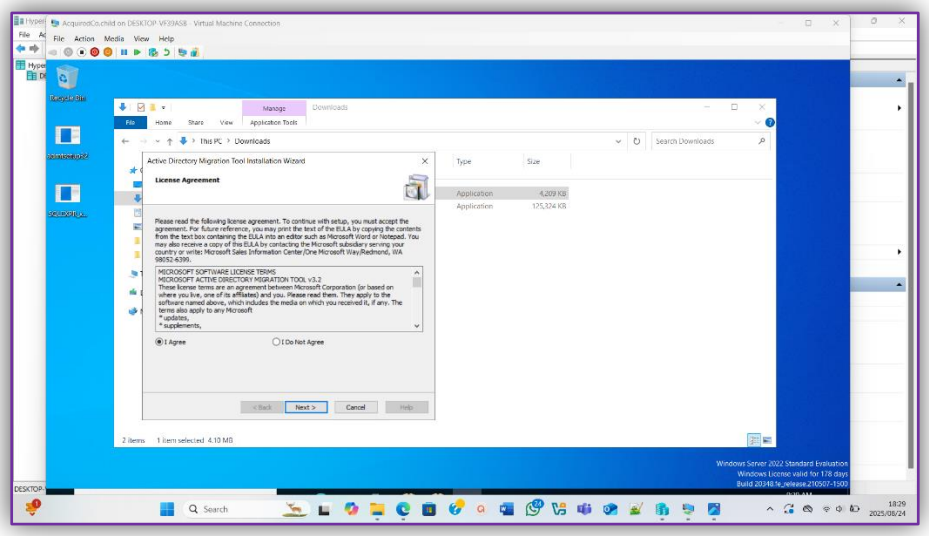
After the install I went and checked the services to see if the SQL Services that need to be running are running.

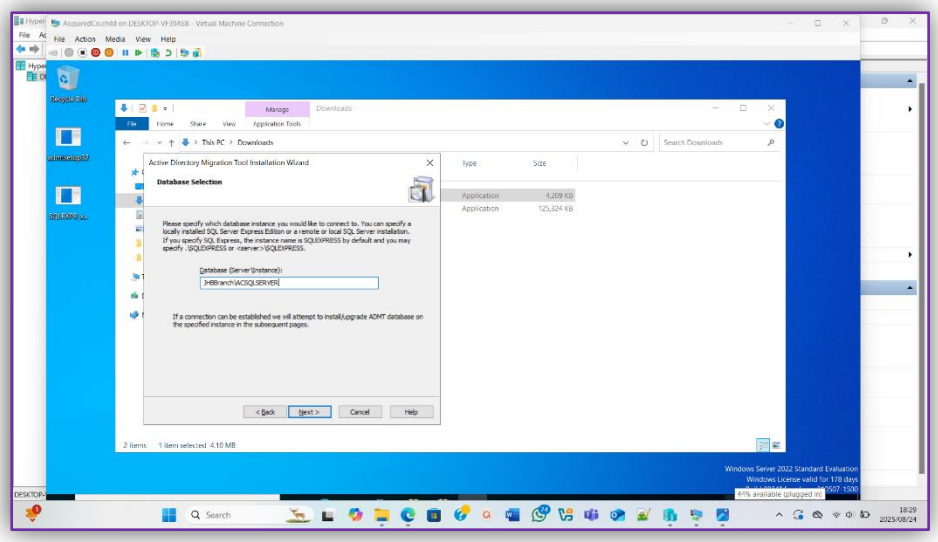


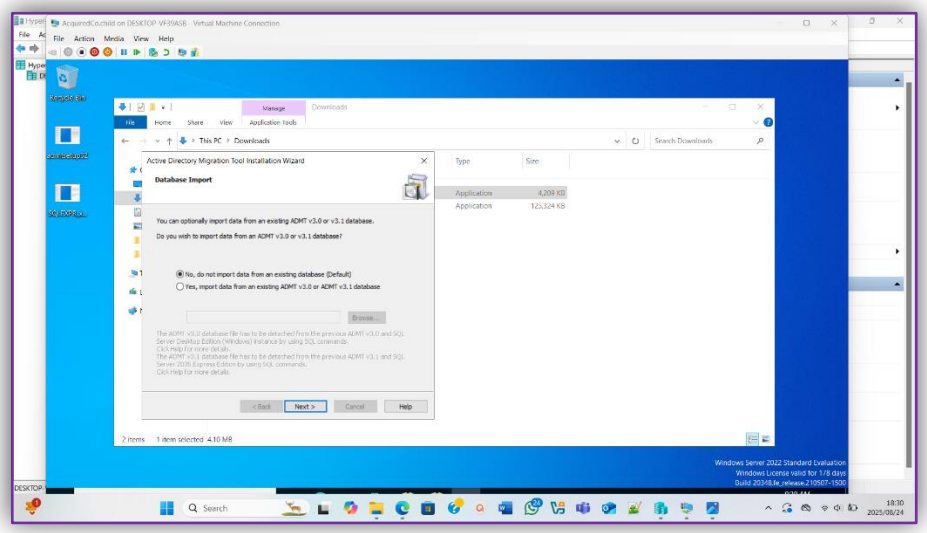


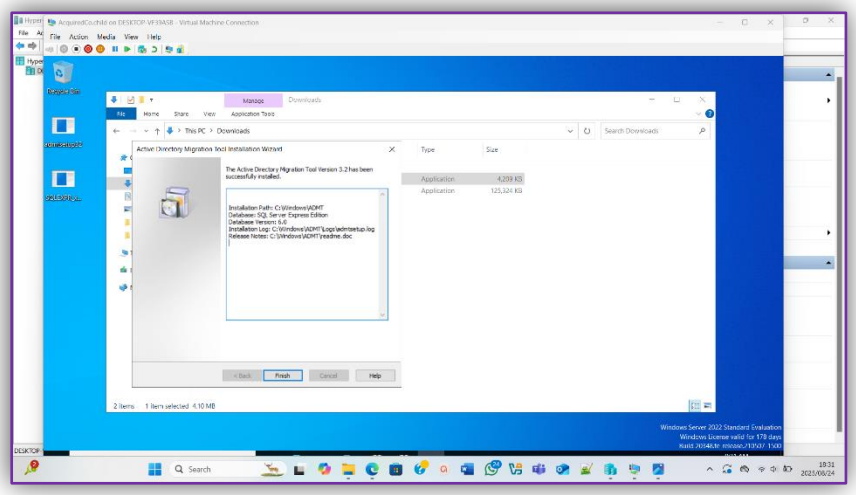
Once the SQL Server installation was complete, I then started the ADMTv3.2 installation. The following images show the installation process of the ADMT installation.

The first thing I did was agree to the license agreement.

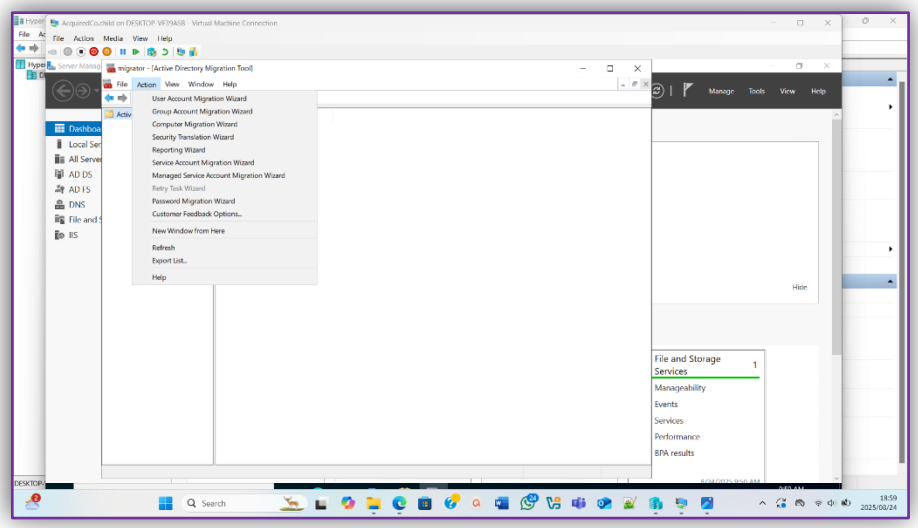


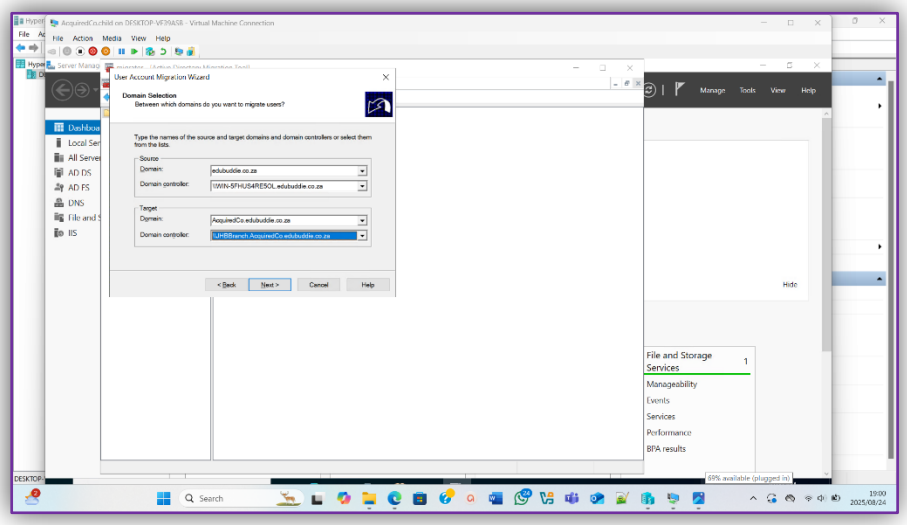


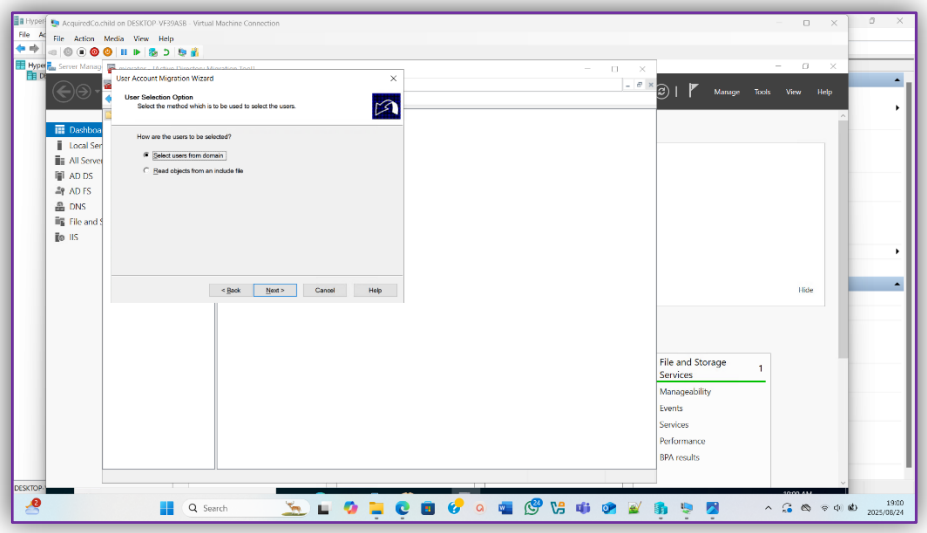


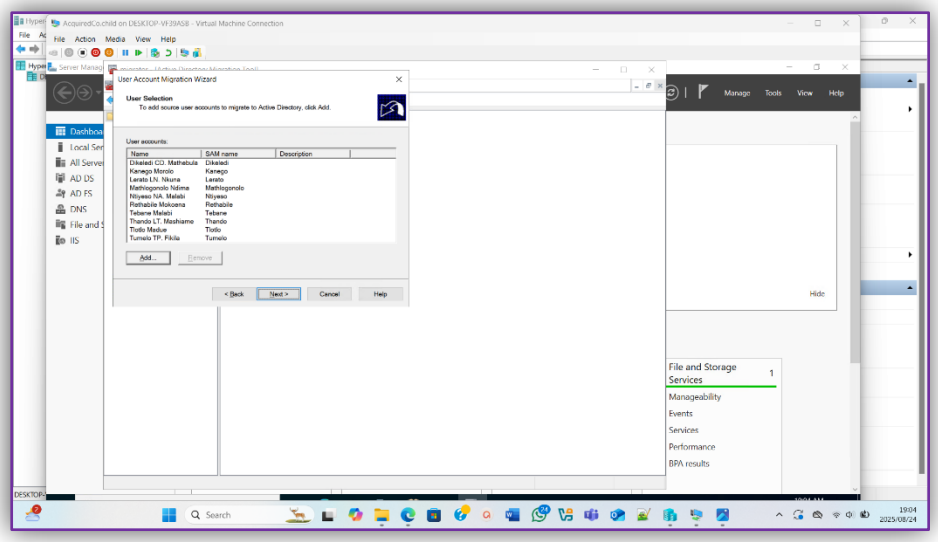


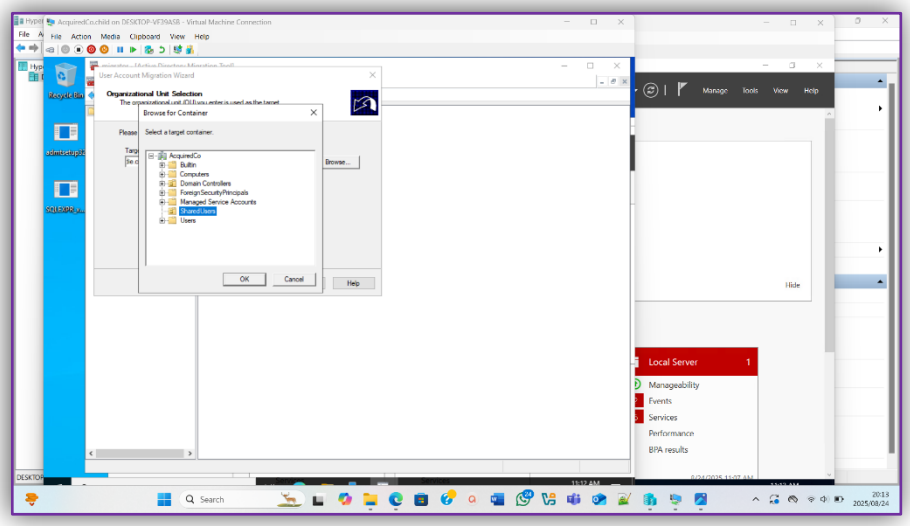
After the install I started the “User Migration Wizard”, which is what allows the users to be moved from the source to the target

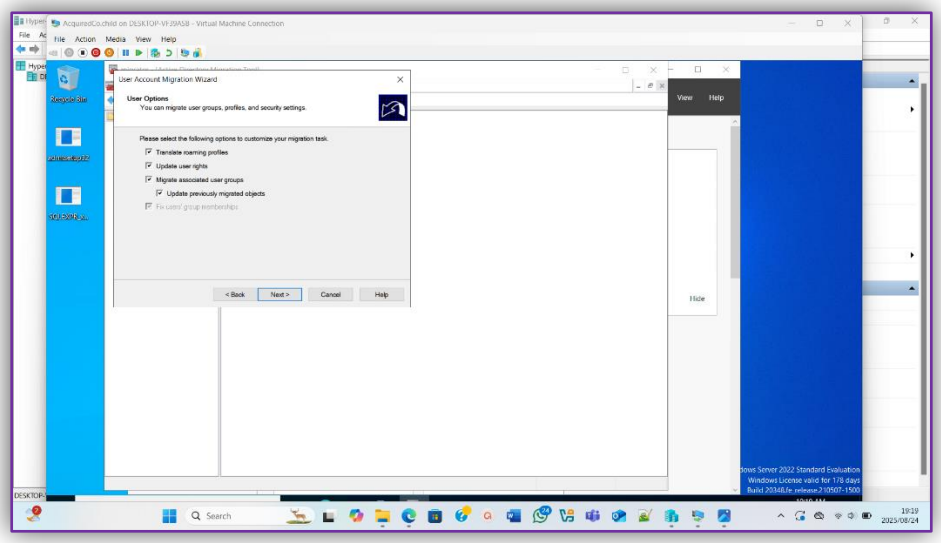

migrator - [Active Directory Migration Tool]
User Account Migration Wizard
Group Account Migration Wizard
Computer Migration Wizard
Security Translation Wizard
Reporting Wizard
Service Account Migration Wizard
Managed Service Account Migration Wizard
Password Migration Wizard
Customer Feedback Options...
New Window from Here
Refresh
Export List...
Help
File and Storage Services
Manageability
Events
Services
Performance
BPA results

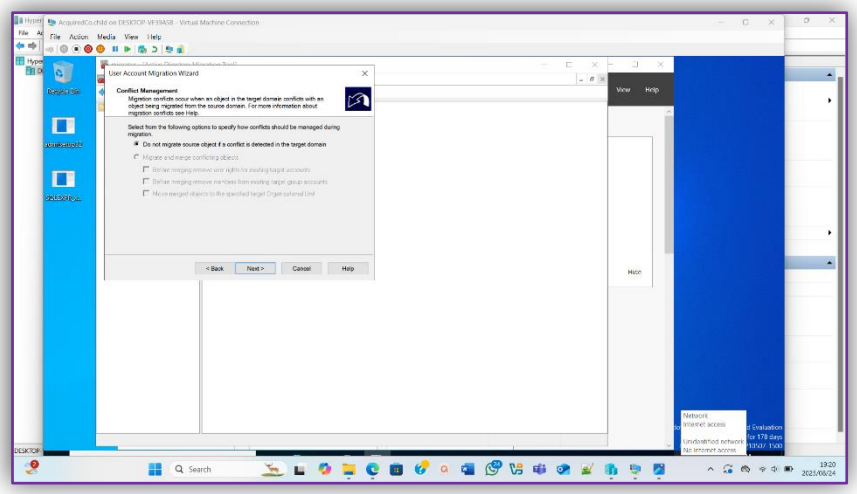

User Account Migration Wizard
Domain Selection
Between which domains do you want to migrate users?
Type the names of the source and target domains and domain controllers or select them from the lists.
Source
Domain:
Domain controller:
Target
Domain:
Domain controller:
< Back
Next >
Cancel
Help
File and Storage Services
Manageability
Events
Services
Performance
BPA results

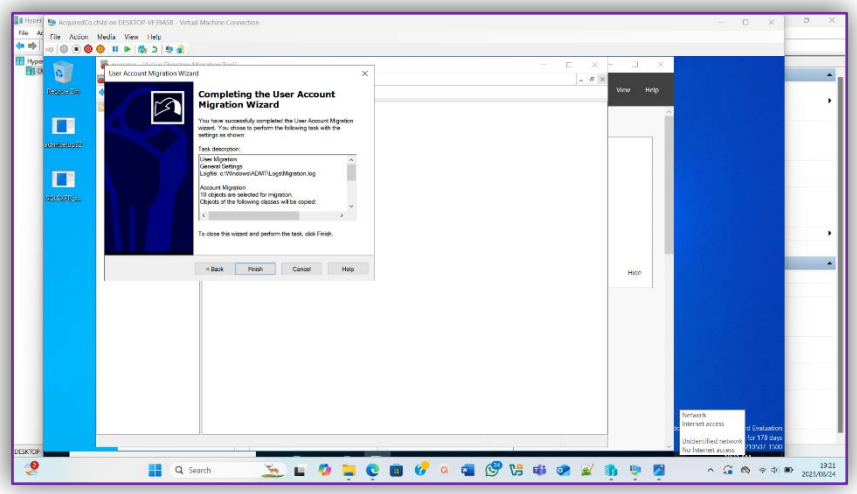

User Account Migration Wizard
User Selection Option
Select the method which is to be used to select the users.
How are the users to be selected?
Select users from domain
Read objects from an include file
< Back
Next >
Cancel
Help
File and Storage Services
Manageability
Events
Services
Performance
BPA results


User Account Migration Wizard
User Selection
To add source user accounts to migrate to Active Directory, click Add.
User accounts:
Name
SAM name
Description
Add...
Remove
< Back
Next >
Cancel
Help
File and Storage Services
Manageability
Events
Services
Performance
BPA results

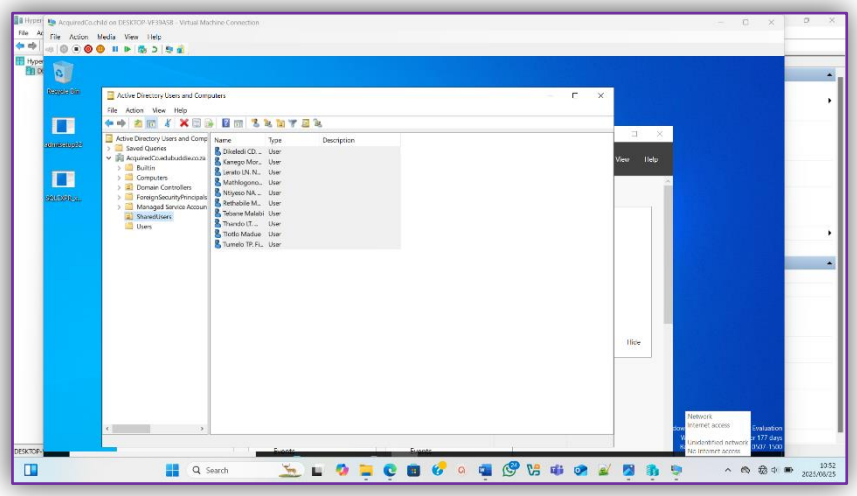

User Account Migration Wizard
Organizational Unit Selection
Browse for Container
Please select a target container.
OK
Cancel
Help
Local Server
Manageability
Events
Services
Performance
BPA results


User Account Migration Wizard
User Options
You can migrate user groups, profiles, and security settings.
Please select the following options to customize your migration task.
Translate roaming profiles
Update user rights
Migrate associated user groups
Update previously migrated objects
< Back
Next >
Cancel
Help





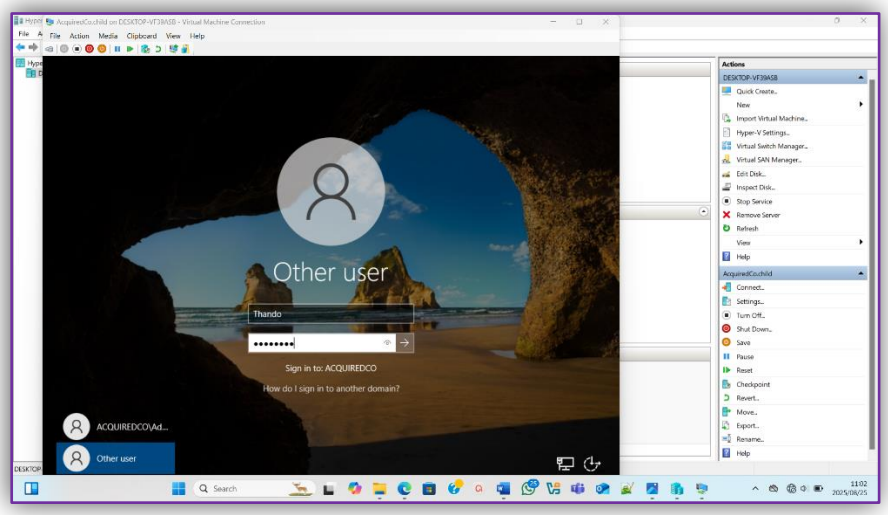
After the installation is finished there will be pop-up that says “Migration in progress” and it will then start migrating from the source to the target and it will show the errors and if there are errors then the migration failed and once it shows that 10 users and 1 group was migrated, I went ahead and checked where I choose the users to end up to see if the migration was indeed a success. The following images represent when I went and checked that the migration was success, when I got to the folder, I found all 10 users meaning that it was indeed a success.

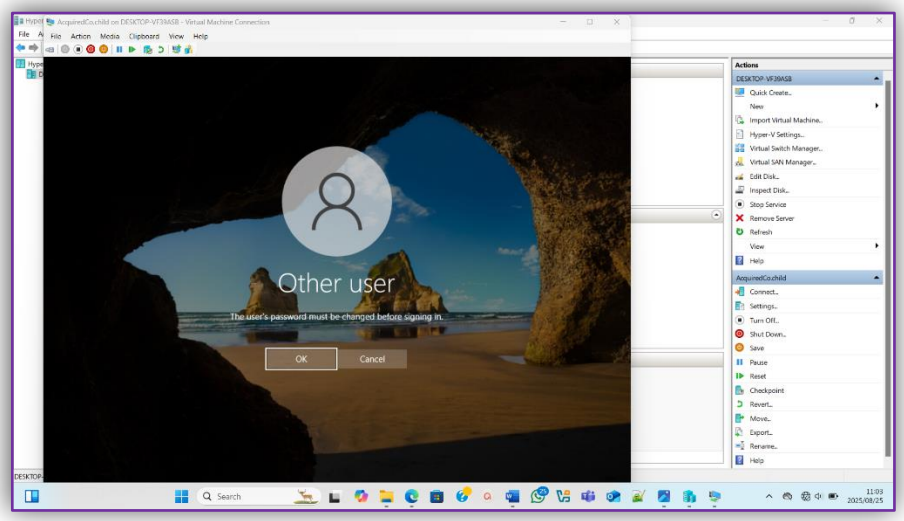


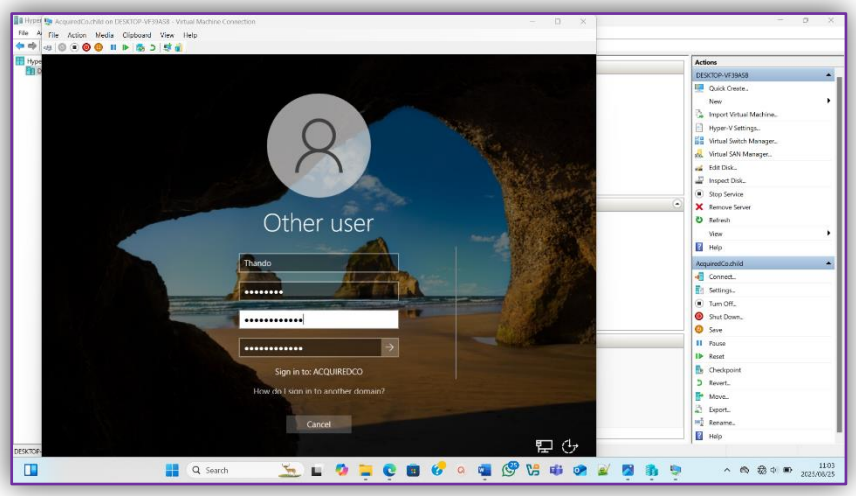
I signed out as the administrator so that I could test that the migration was a success by signing in as one of the users.

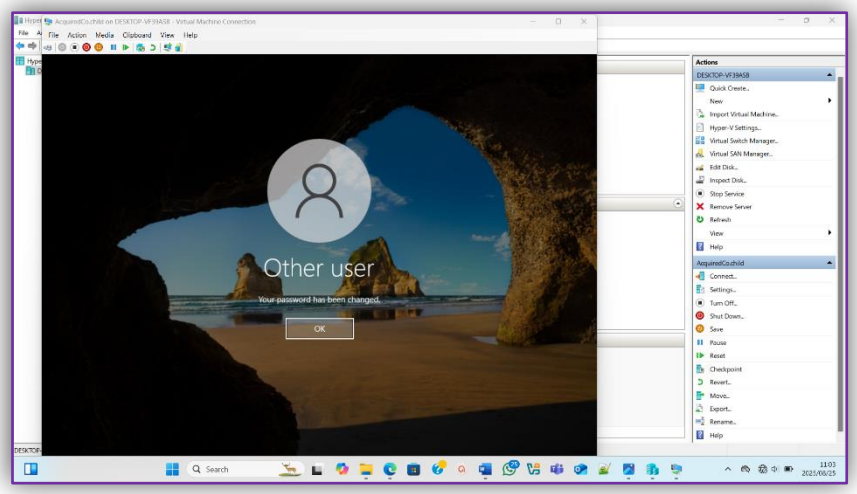
- Test the migrated accounts by logging in and accessing resources.

Like I mentioned above I had to sign in as a migrated user to see that the migration was successful.

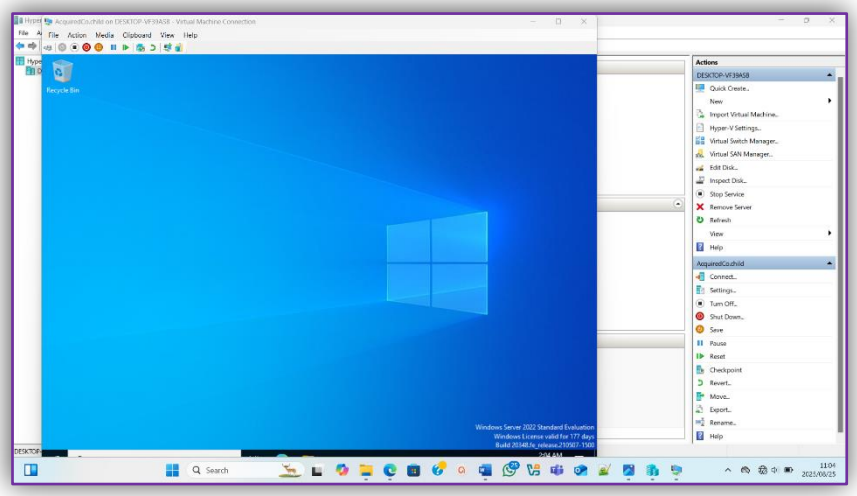








After changing the password, I then continued to sign in and once you sign in you should see the desktop.



AI Declaration

I carefully read the assignment instructions, and the extent to which AI may be used for the assignment.
I used the following AI system(s)/tool(s): I did not use any AI tool.
I used it for the following: I did not make use of any AI tool.
If I quoted or paraphrased an AI output, I have referenced the relevant tool, version, and the date I used the tool.
I still consider this work my own (i.e., I have not outsourced the final product, or significant portions of it, to AI tools/systems)
If required, I can defend my argument/perspective, explain my choices and approach, and can show that I am knowledgeable about the details of my work.

References

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WebCast, M. (2025, May 30). *45. Configure Hyper-V Replica in Workgroup with Self signed Certificate*. Retrieved from YouTube: https://youtu.be/40q0EfxSexk?si=y4tYT72oNiG7Clzy