

IDENTITY AND ACCESS MANAGEMENT

On this project I emphasize on:

Install active directory on the server

Promote the AD to a DC (domain controller)

Create a new domain Domain forest

Create OUs (Organisation Units)

Create Group

Create users

Change DNS of the users PCs to the IP address of the server

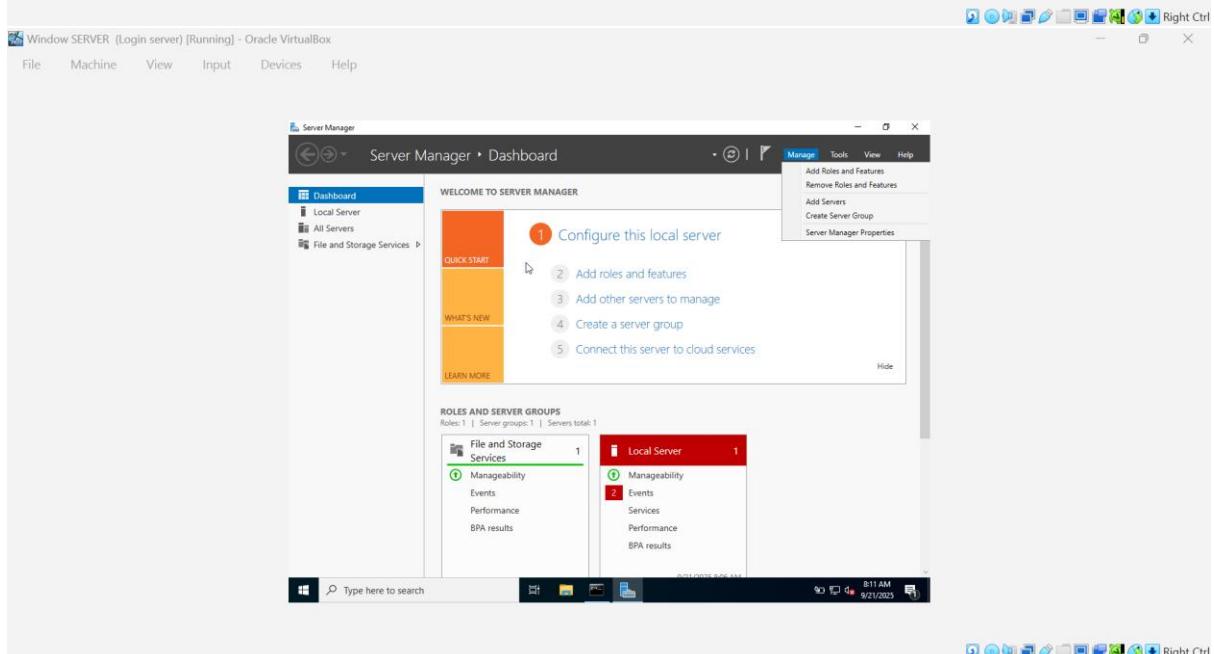
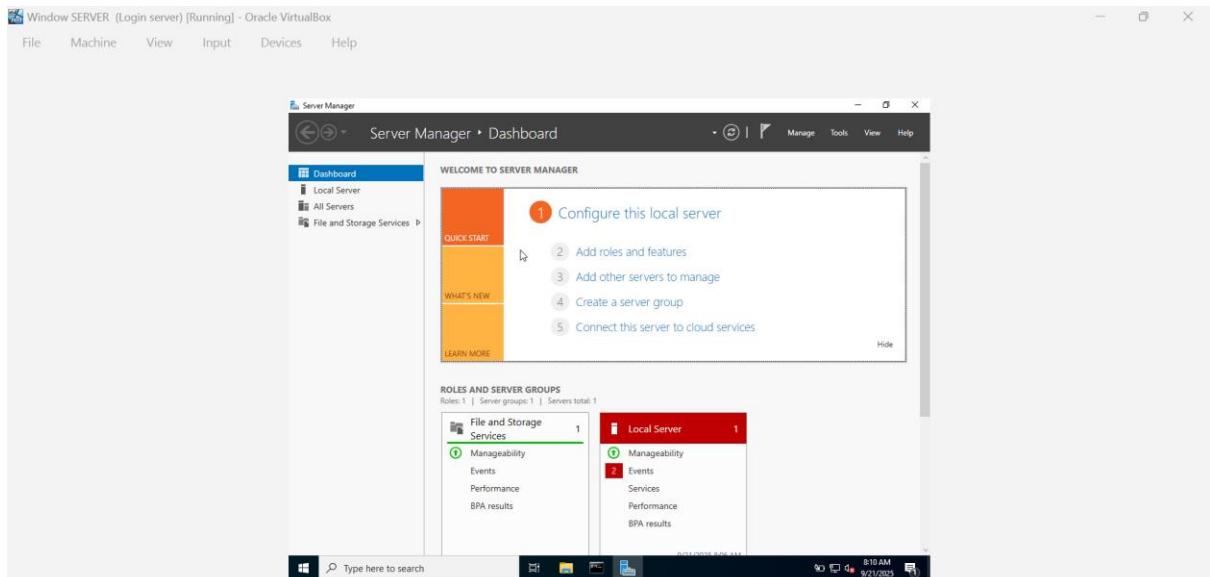
Create a new GPO (Group policy object)

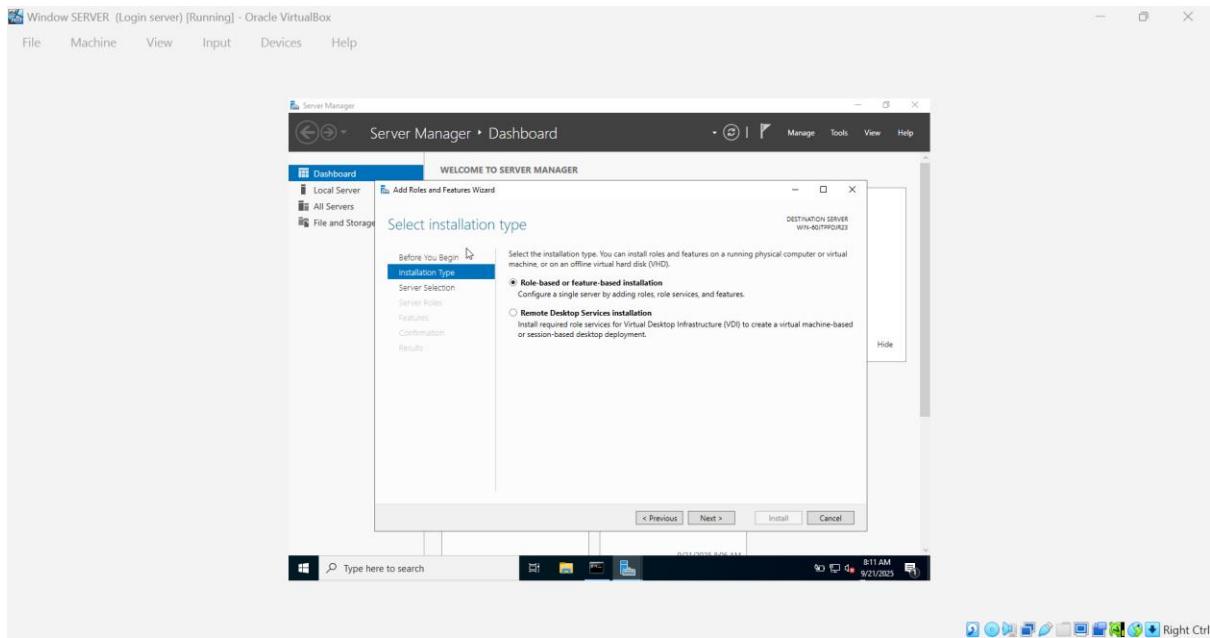
Assign policy.

Creation of Active Directory

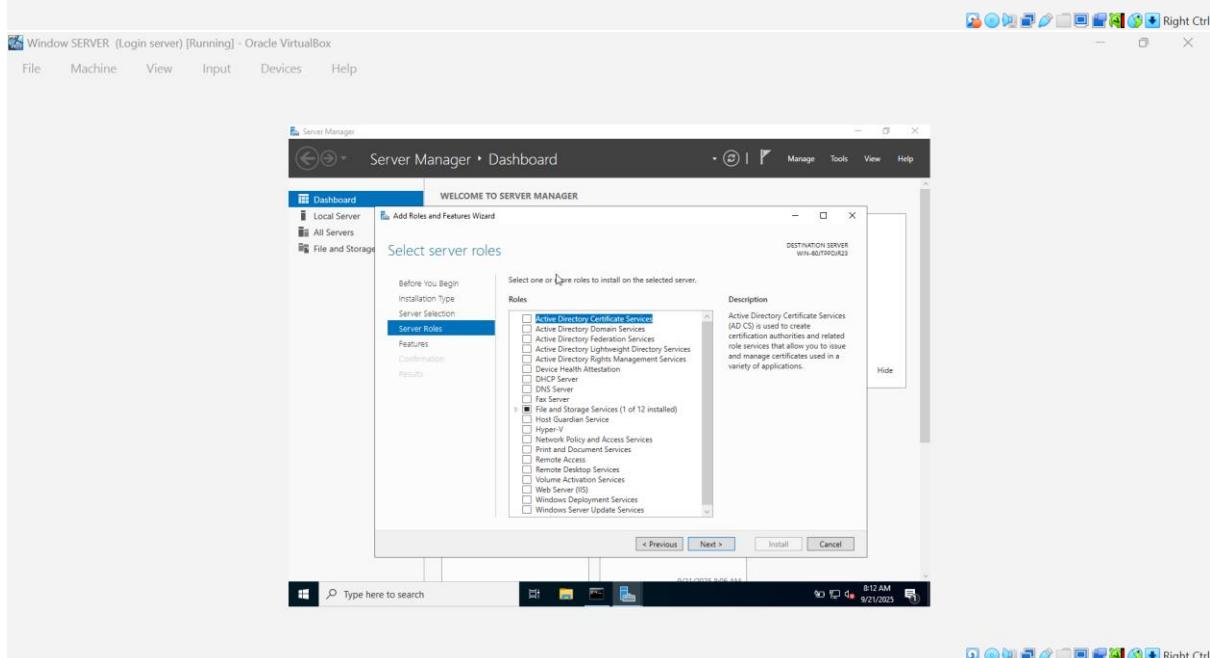
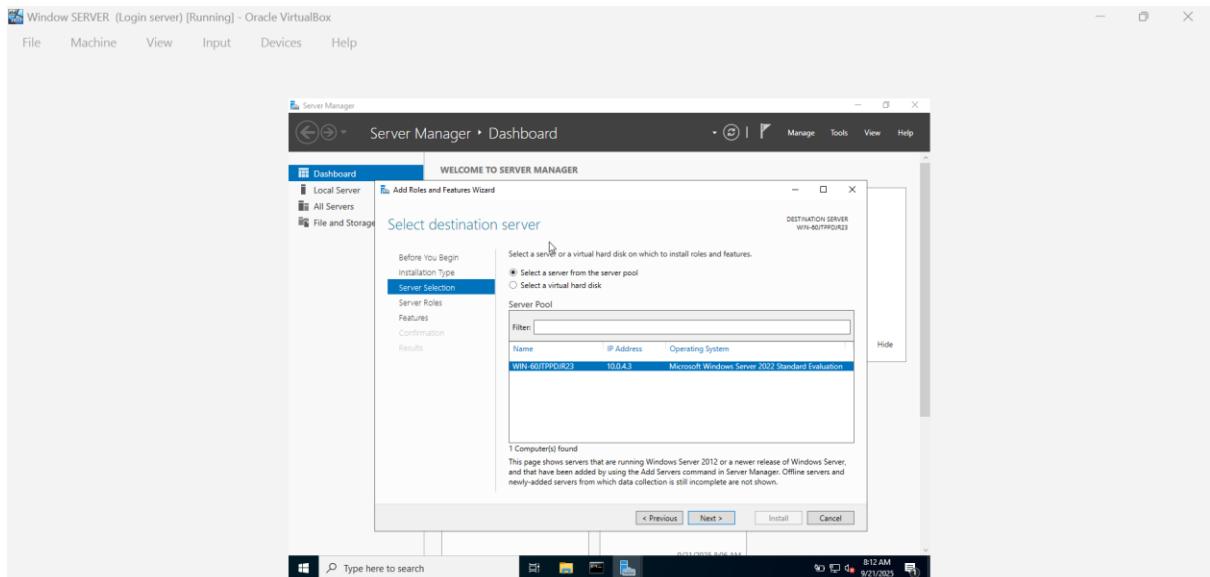
For this project, I developed a virtualized Active Directory (AD) environment to demonstrate network administration skills. Using VMware Workstation, I deployed three virtual machines: one running Windows Server 2022 as the domain controller and two running Windows 10 as client machines

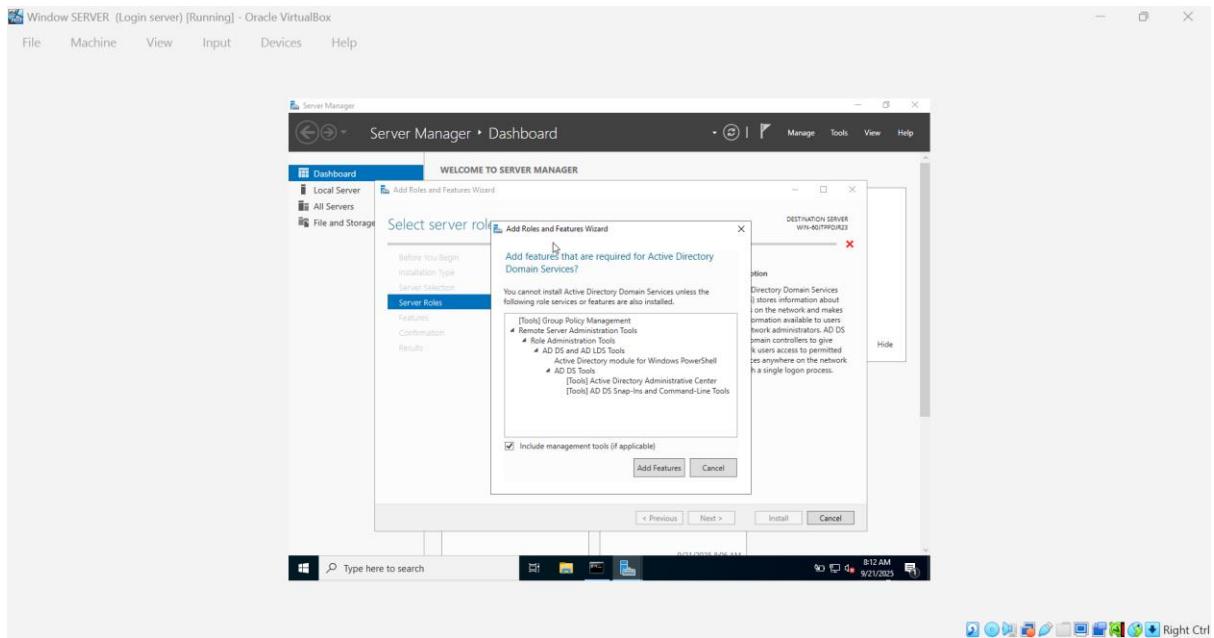
To initiate the Active Directory (AD) setup for my virtualized environment project, I configured the Windows Server 2022 virtual machine, hosted on VMware Workstation, to serve as the domain controller. In Server Manager, I accessed the "Manage" menu in the top-right corner and selected "Add Roles and Features Wizard." I proceeded through the wizard, choosing "Role-based or feature-based installation" as the installation type, and installed the Active Directory Domain Services (AD DS) role



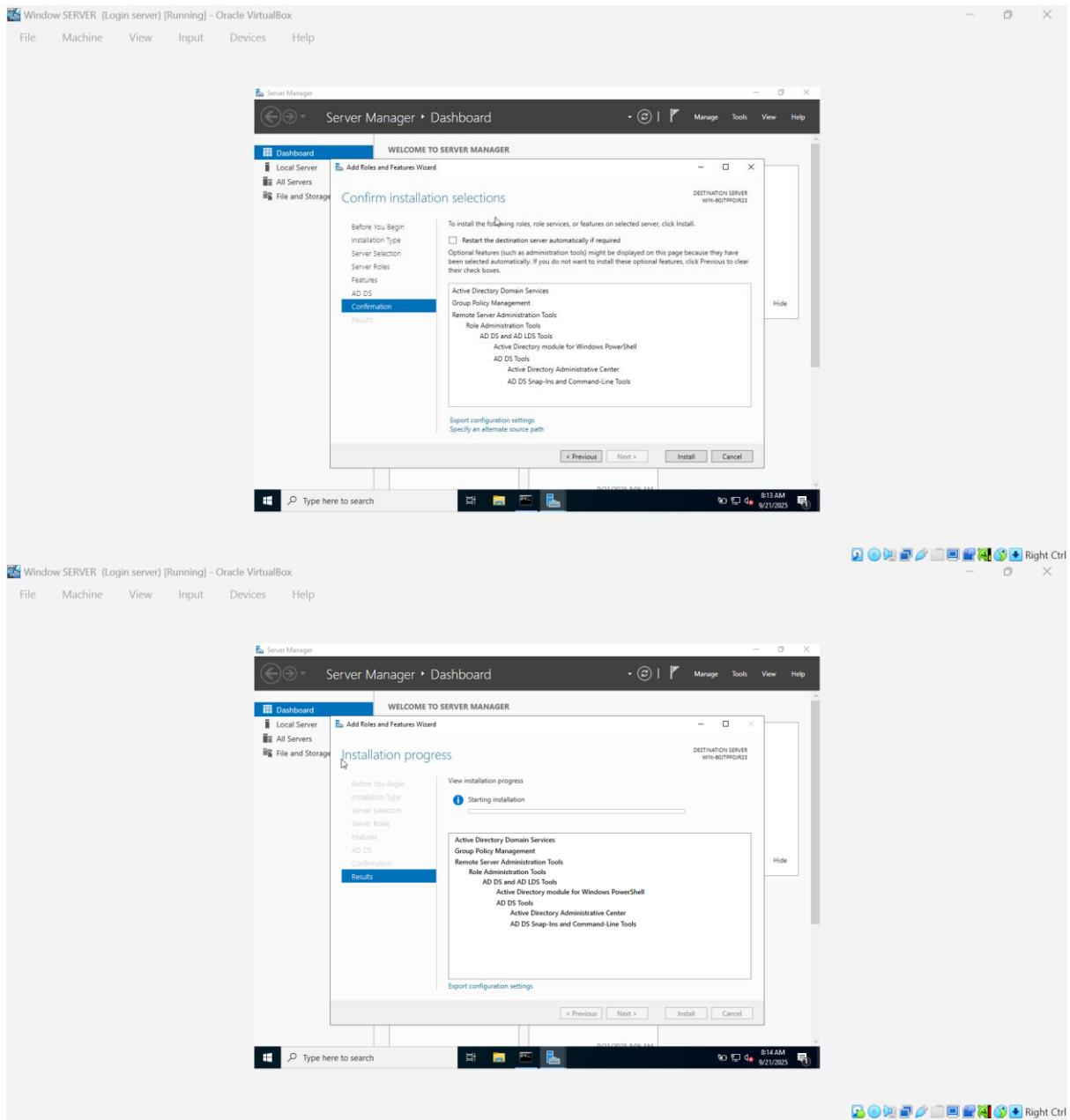


In the next phase of configuring my Windows Server 2022 virtual machine, I continued through the "Add Roles and Features Wizard" in Server Manager. In the "Server Selection" step, I chose the Windows Server 2022 machine from the server pool to apply the desired roles. Proceeding to the "Server Roles" section, I selected "File and Storage Services" to enable file sharing and storage management capabilities. I then advanced through the wizard to complete the installation of the selected role. (The screenshot illustrates these steps, displaying the server selection and role configuration interfaces.)





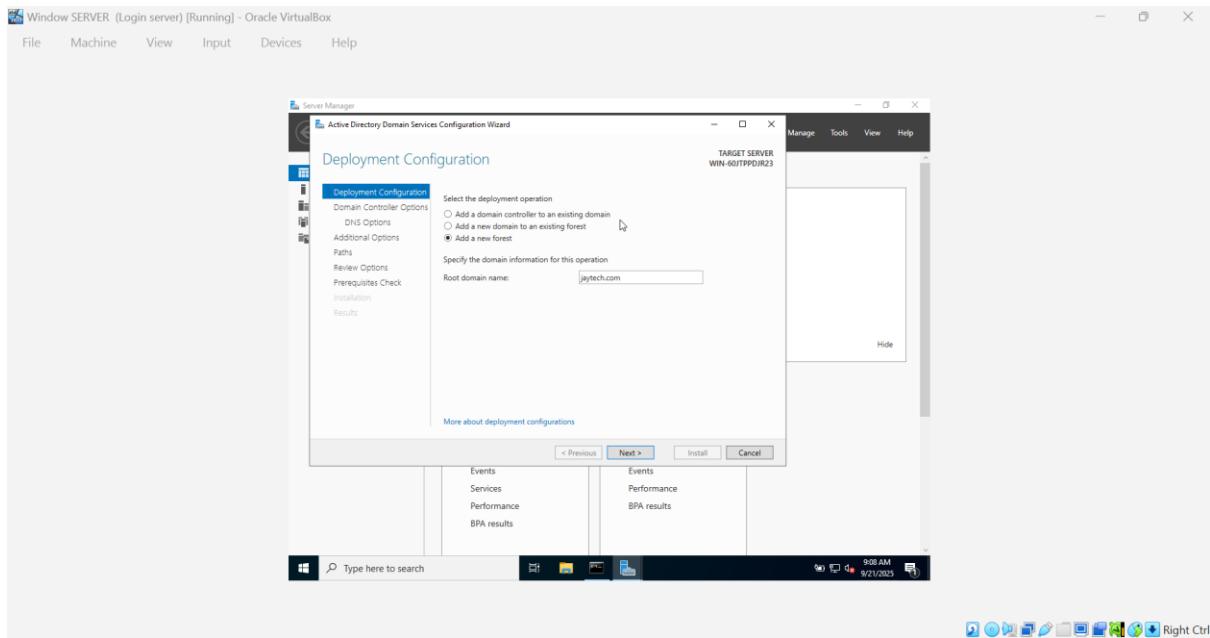
In the "Features" phase, I checked the appropriate options to support the installed roles. I then advanced to the "Confirmation" stage, reviewing the selected roles and features, and continued to the "Results" stage, clicking "Next" until reaching the final step. The installation completed successfully, enabling the configured services on the server. (The screenshot provides evidence of the successful installation, displaying the wizard's completion interface.)



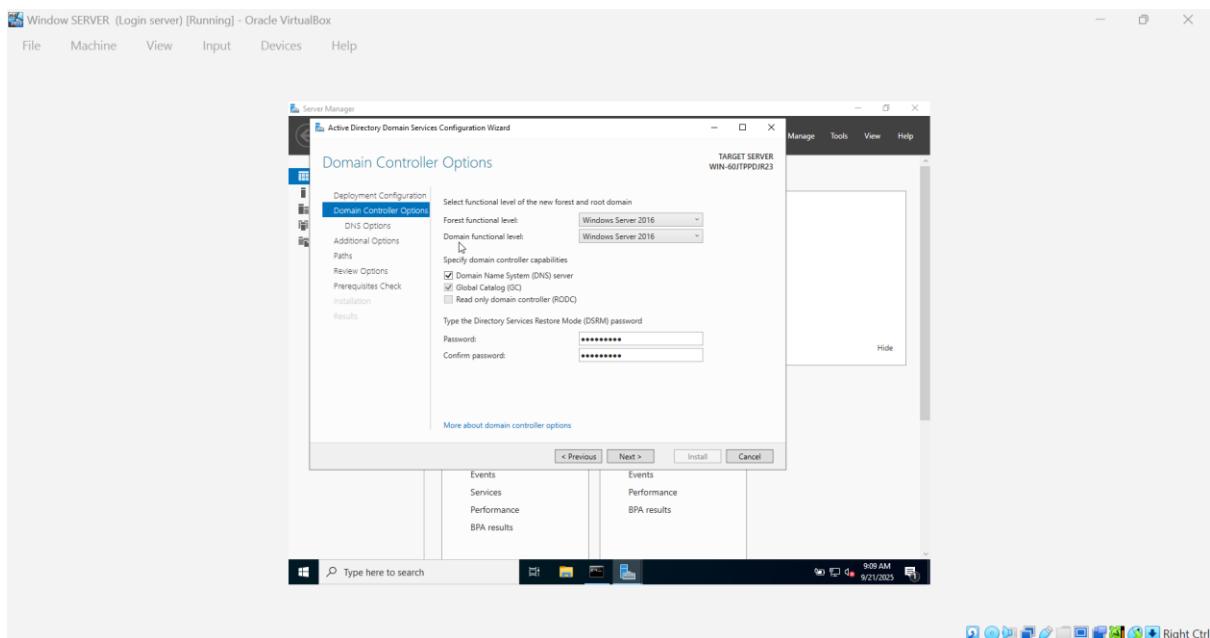
This above explanation and screenshot shows the proof and stage I passed through before I successfully installed active directory.

Promoting My Server to Domain Controller

After successfully installing Active Directory Domain Services (AD DS) as described earlier, I proceeded to promote the server to a domain controller. I opened Server Manager, clicked the yellow triangle in the top-right corner, and selected Promote this server to a domain controller. This launched the Deployment Configuration wizard

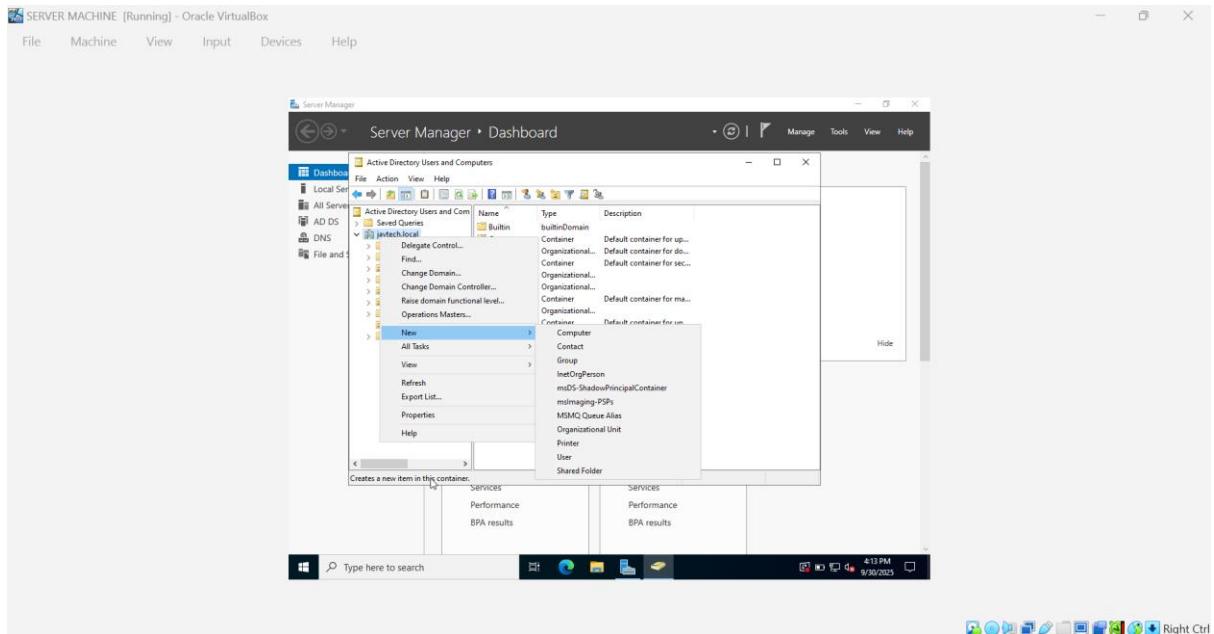


In the Deployment Configuration wizard, as shown in the referenced screenshot, I selected the option to add a new forest and specified the forest name as JAYTECH. I then proceeded to the Domain Controller Options step. Here, I created a Directory Services Restore Mode (DSRM) password, ensuring it was strong and complied with standard password policy requirements. The screenshot below provides further details.



After creating a strong Directory Services Restore Mode (DSRM) password that met standard policy requirements, I proceeded to the DNS Options step in the Active Directory Domain Services Configuration Wizard. I continued clicking next through the remaining steps until reaching the final stage, where I clicked Install. The installation completed successfully, promoting the server to a domain controller.

After setting up Active Directory and the forest, I proceeded to create Organizational Units (OUs) for staff located in different counties in the United Kingdom, specifically Liverpool, Manchester, and London. To begin creating the OUs, I started the server and accessed the Server Manager. From there, I clicked on "Tools" in the top-right corner to open "Active Directory Users and Computers." Next, I right-clicked on the domain I created, named "Jaytech," and selected "New" to create the desired Organizational Units. The process is further illustrated in the attached screenshot.

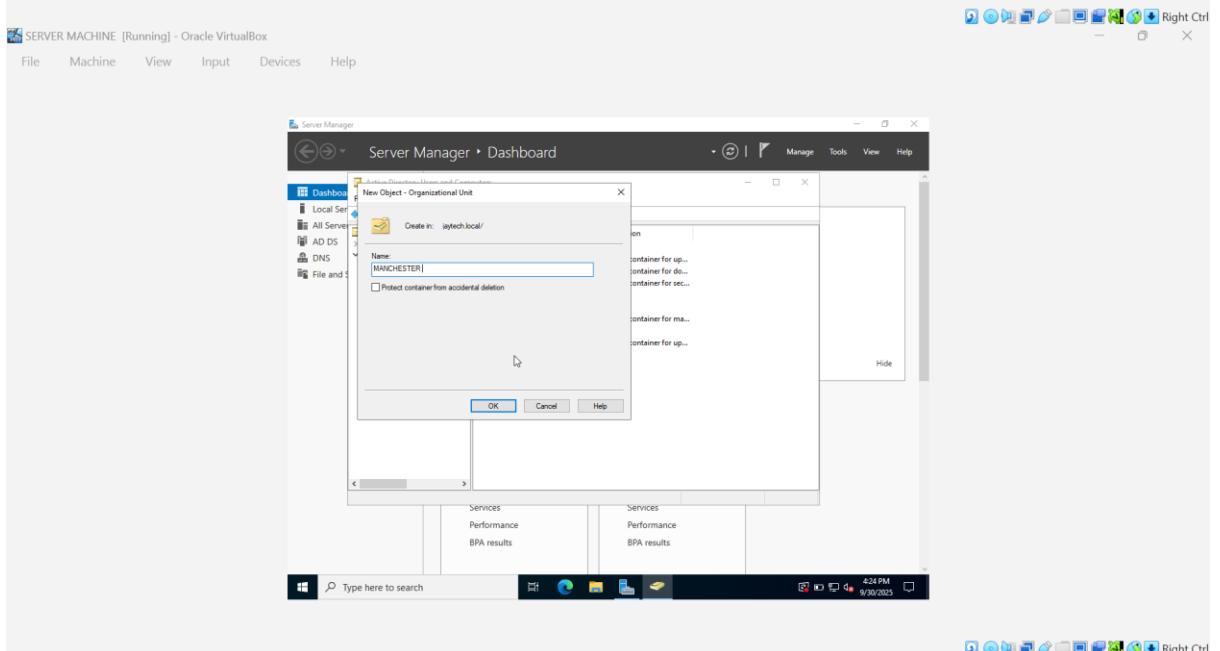
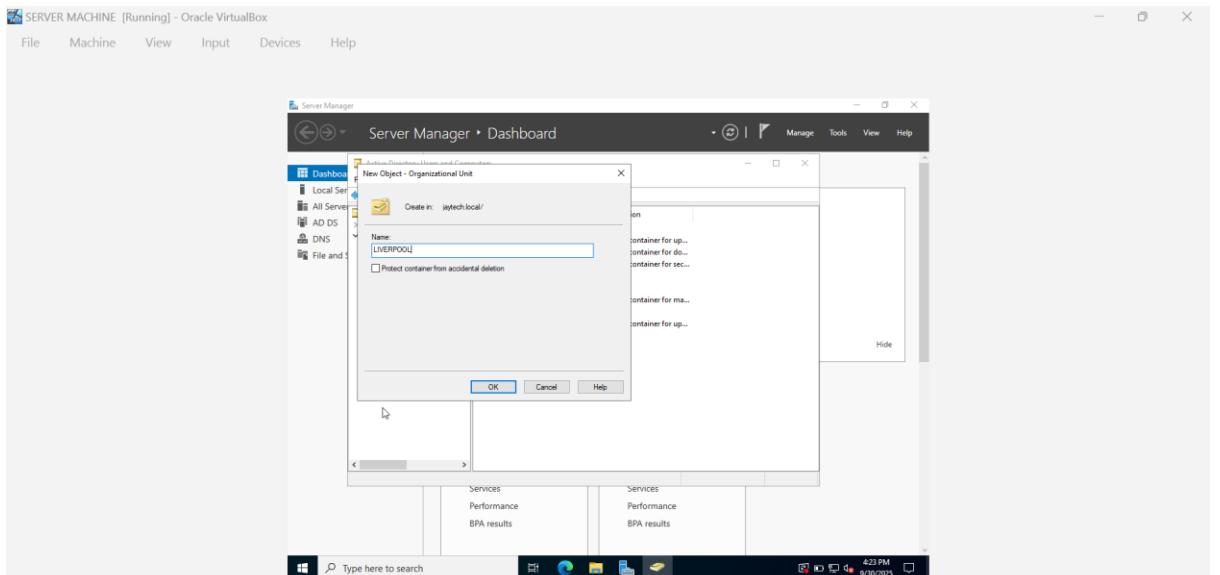


• Create a New Organizational Unit:

- After right-clicking the domain and selecting **New > Organizational Unit**, a dialog box appears.
- I enter a name for the OU, such as:
 - Liverpool
 - Manchester
 - London
- Optionally, uncheck the box **Protect container from accidental deletion** if you want to make it easier to delete the OU later (not recommended for production environments).
- Click **OK** to create the OU.

• Repeat for Additional OUs:

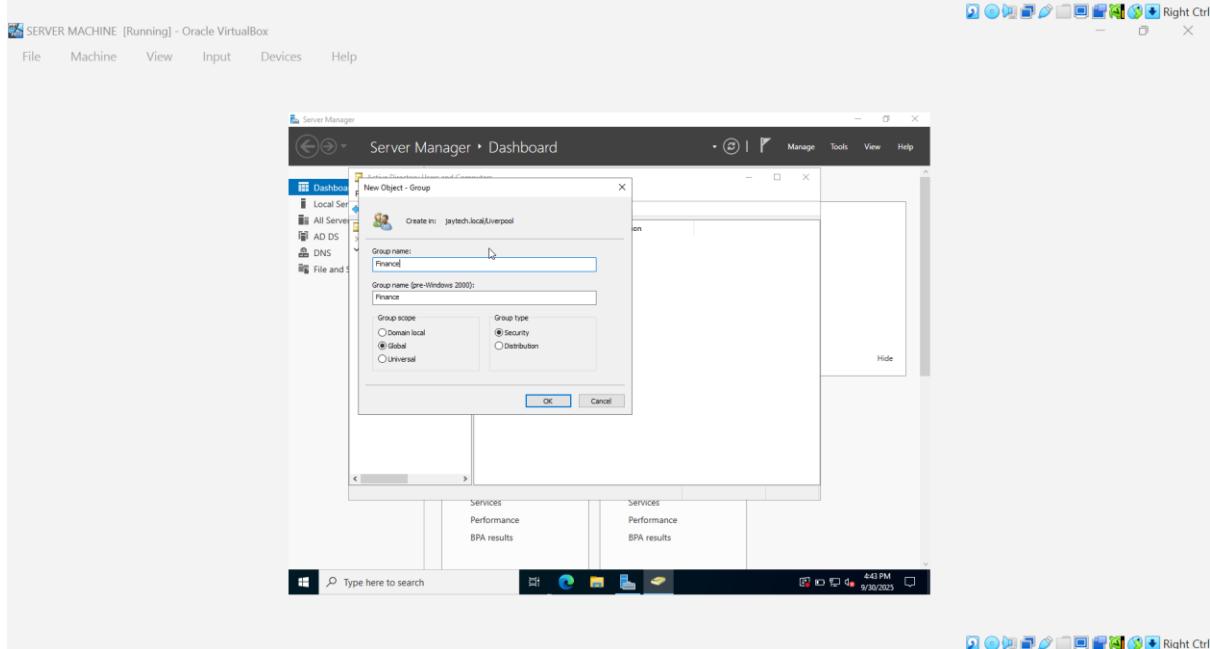
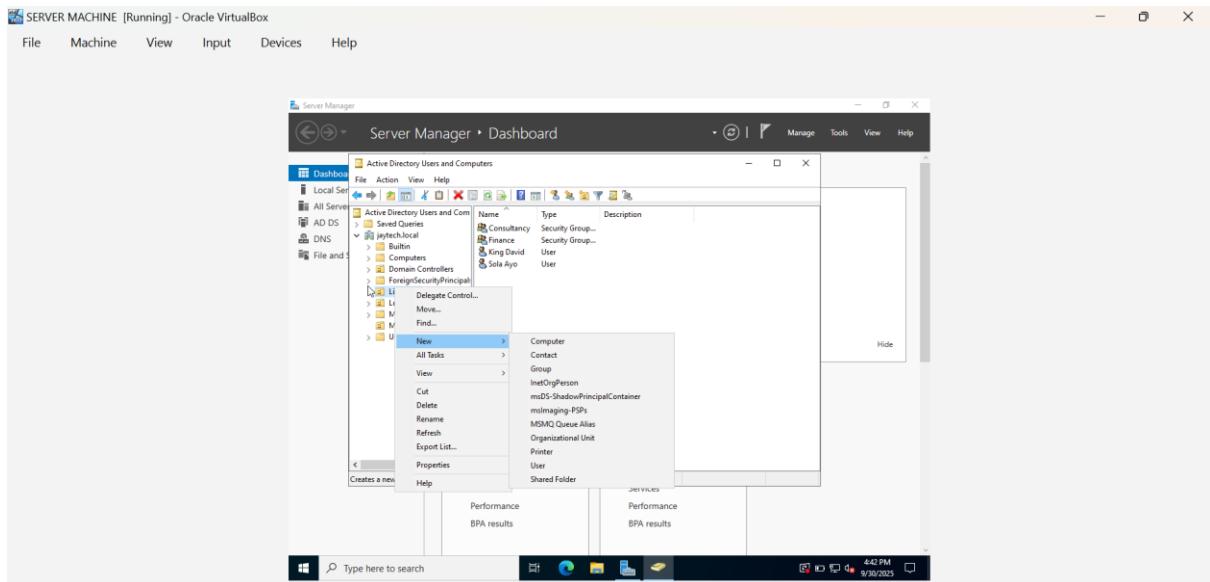
- Repeat the process for each location (e.g. Liverpool, Manchester, London) to create separate OUs for staff in each county.



• Create the Finance Group in the Liverpool OU:

- Right-click the Liverpool OU.
- Select **New > Group**.
- In the **New Object - Group** dialog box:
 - **Group name:** Enter Finance.
 - **Group scope:** Select **Global** (recommended for department-based groups to manage permissions or memberships across the domain).
 - **Group type:** Select **Security** (for assigning permissions) or **Distribution** (for email lists). For departmental use, **Security** is typically preferred.
 - Example settings:
 - Group name: Finance
 - Scope: Global

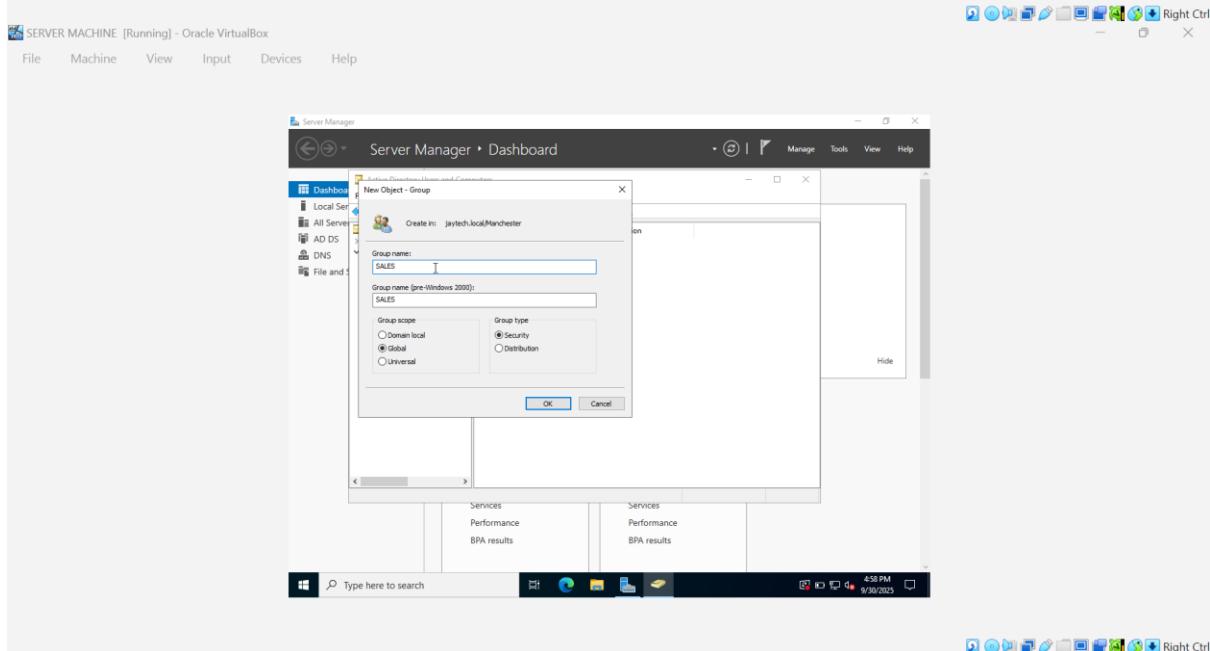
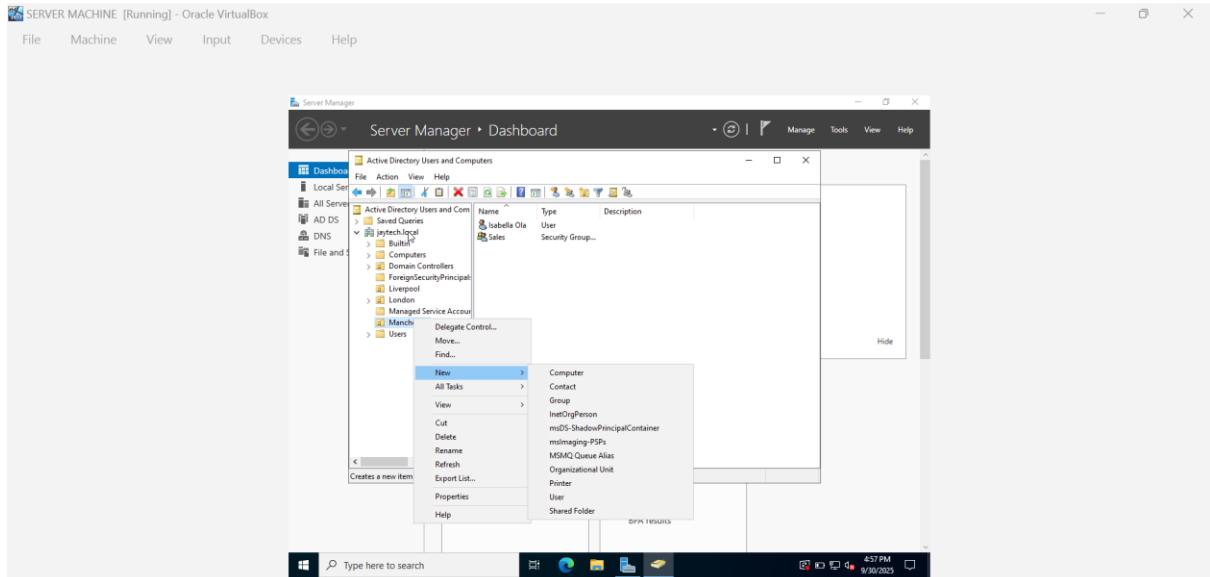
- Type: Security



- Create the Sales Group in the Manchester OU:

- Right-click the Liverpool OU.
- Select New > Group.
- In the New Object - Group dialog box:
 - Group name:** Enter Sales.
 - Group scope:** Select Global (recommended for department-based groups to manage permissions or memberships across the domain).
 - Group type:** Select Security (for assigning permissions) or Distribution (for email lists). For departmental use, Security is typically preferred.
 - Example settings:
 - Group name: Sales
 - Scope: Global

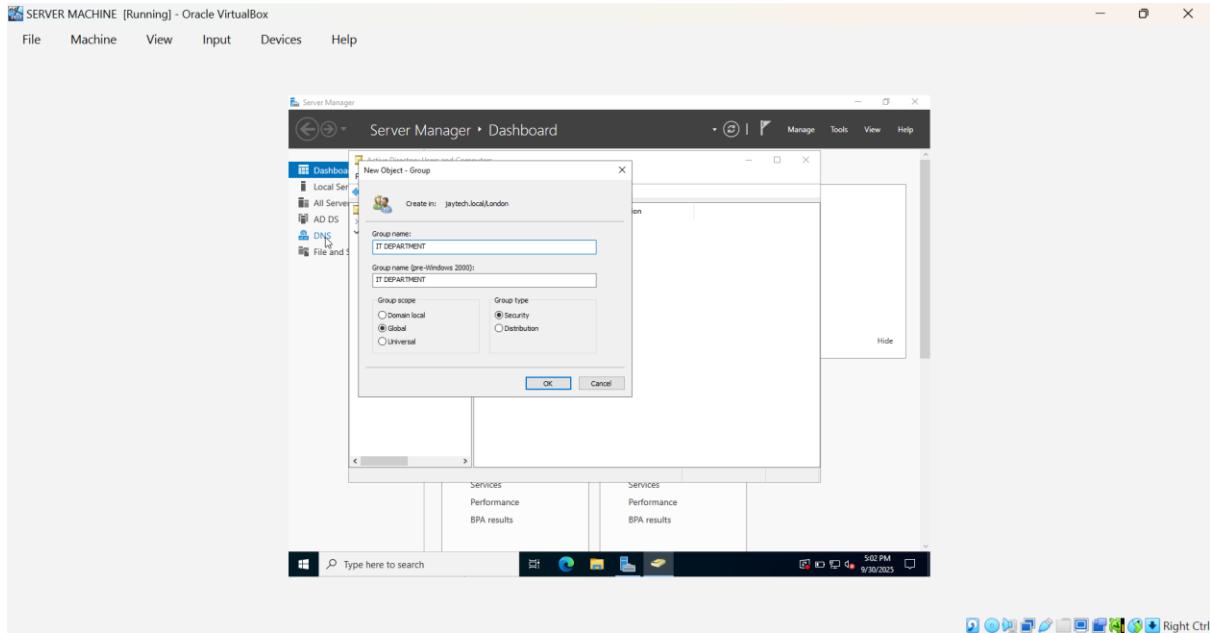
- Type: Security



- Create the IT Department Group in the London OU:

- Right-click the London OU.
- Select New > Group.
- In the New Object - Group dialog box:
 - Group name:** Enter IT.

- **Group scope:** Select **Global** (recommended for department-based groups to manage permissions or memberships across the domain).
- **Group type:** Select **Security** (for assigning permissions) or **Distribution** (for email lists). For departmental use, **Security** is typically preferred.
- Example settings:
 - Group name: IT
 - Scope: Global
 - Type: Security

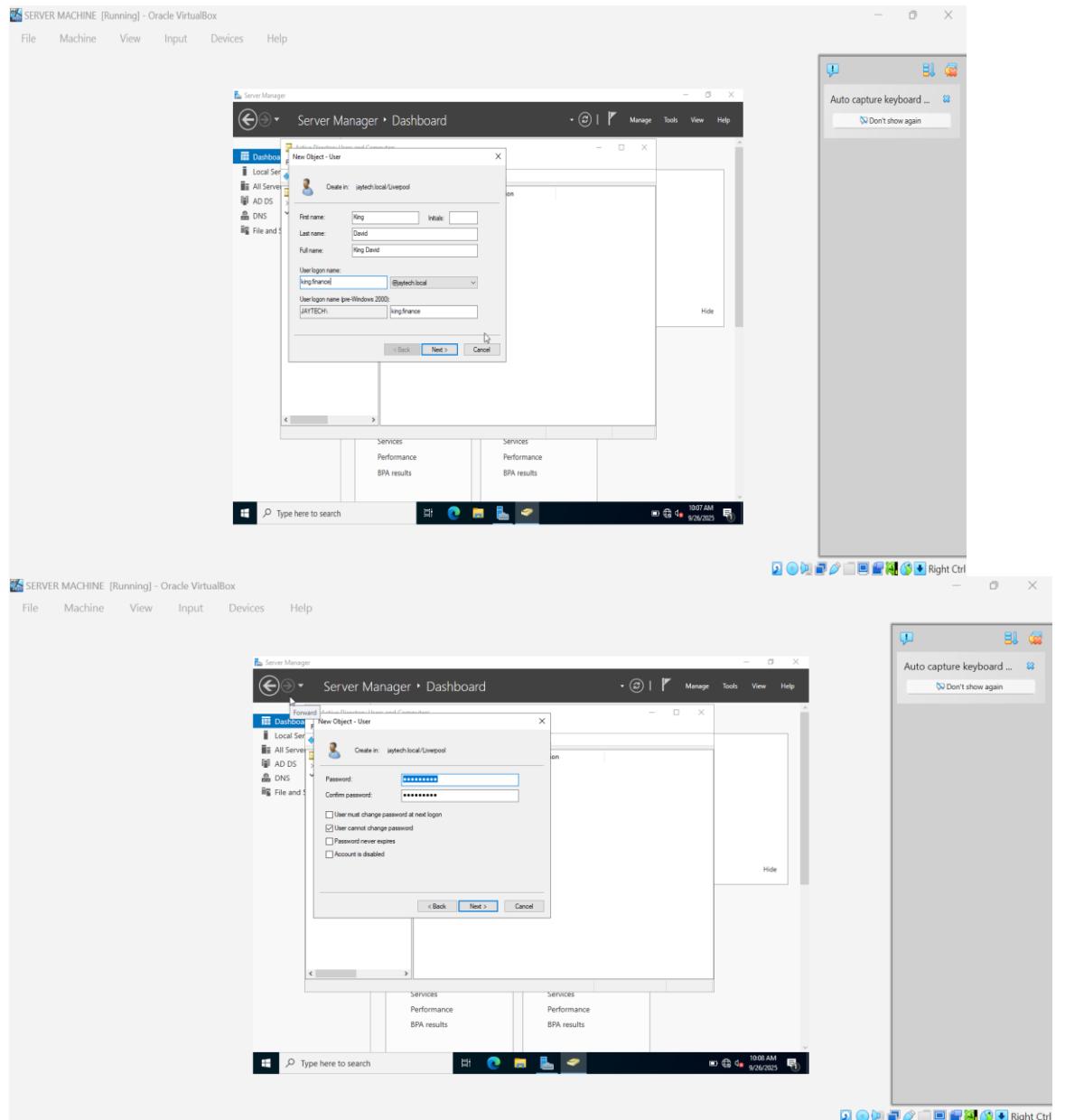


Steps to Create Users and Assign Group Membership

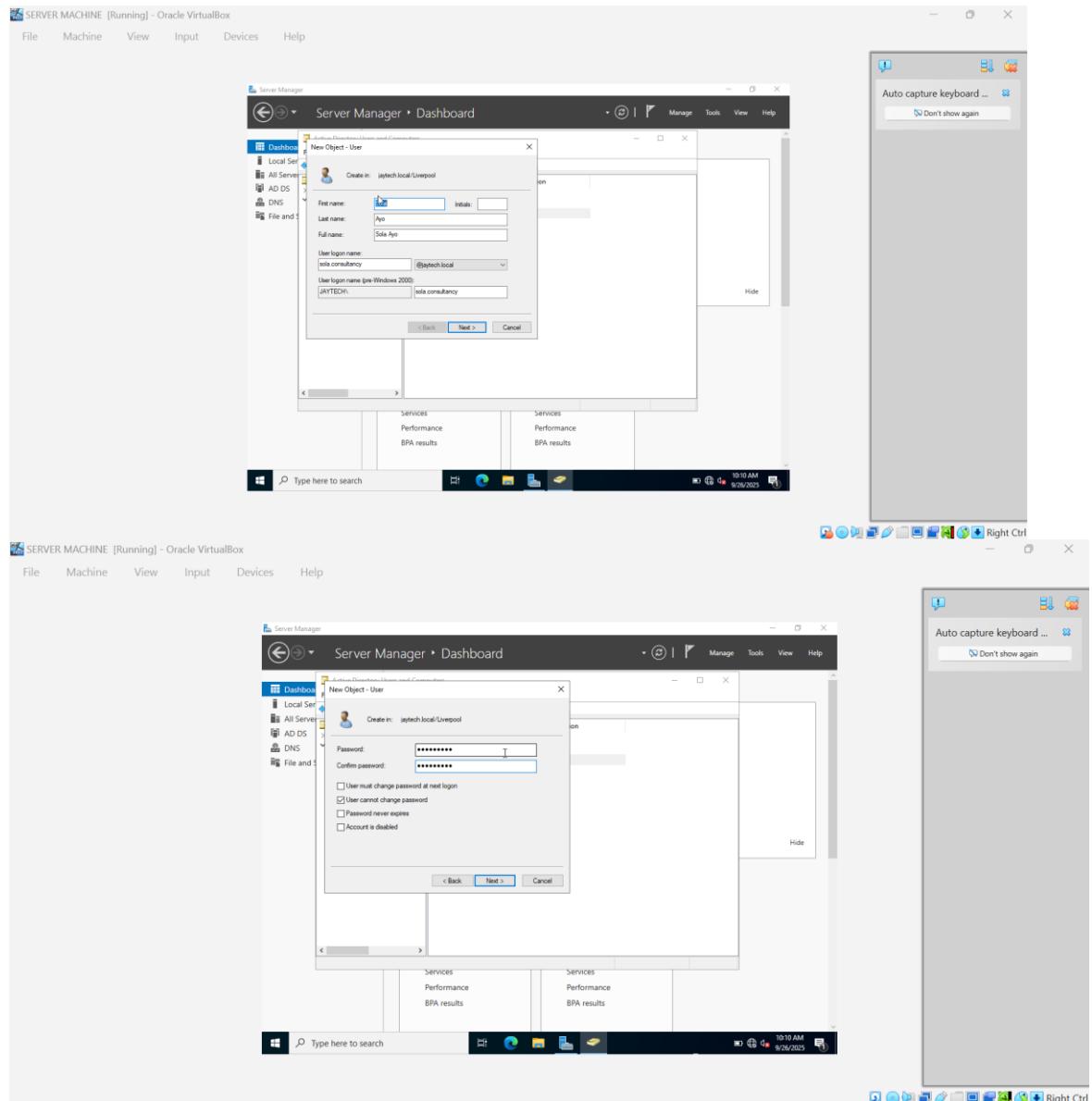
This is my outlines of the process I took for creating users (King David and Sola for Liverpool's Finance and Consultancy groups, Isabella for Manchester's Sales group, and Julius for London's IT group) within their respective Organizational Units (OUs) and adding them to the appropriate groups in Active Directory under the Jaytech.local domain using Active Directory Users and Computers (ADUC).

Creating Users in Liverpool OUs:

- For **Liverpool**:
 - Navigated to the Liverpool OU.
 - First user was created
 - Created user **King David**
 - Password was created (user cannot change the password was assigned)

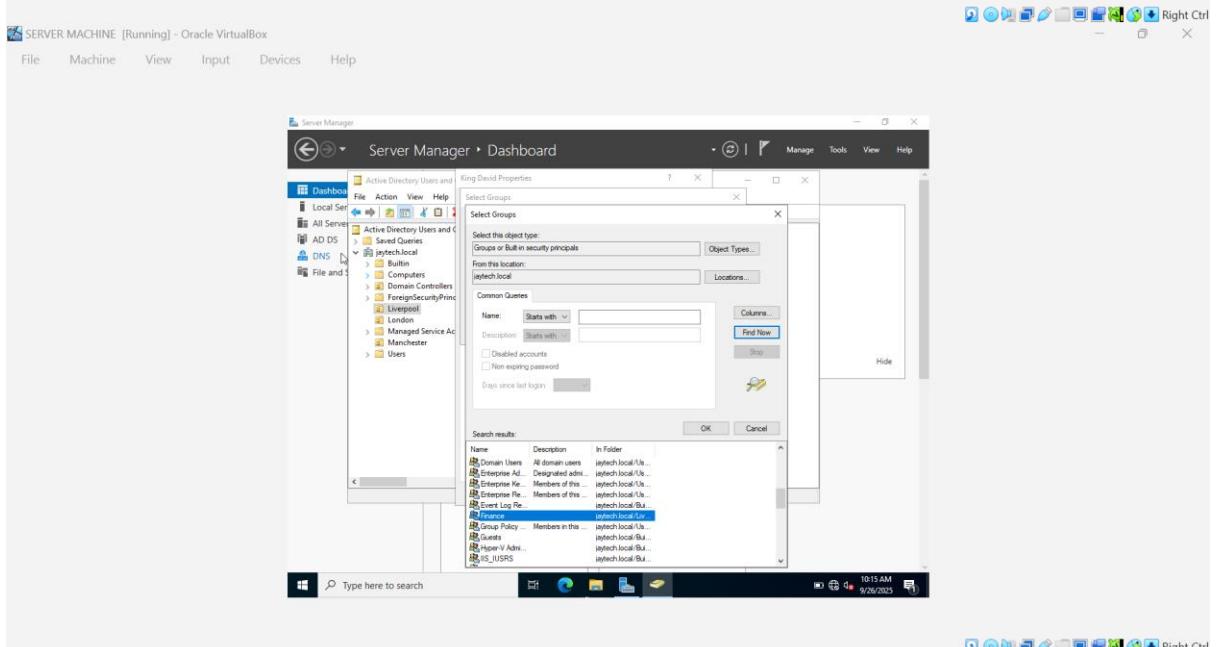
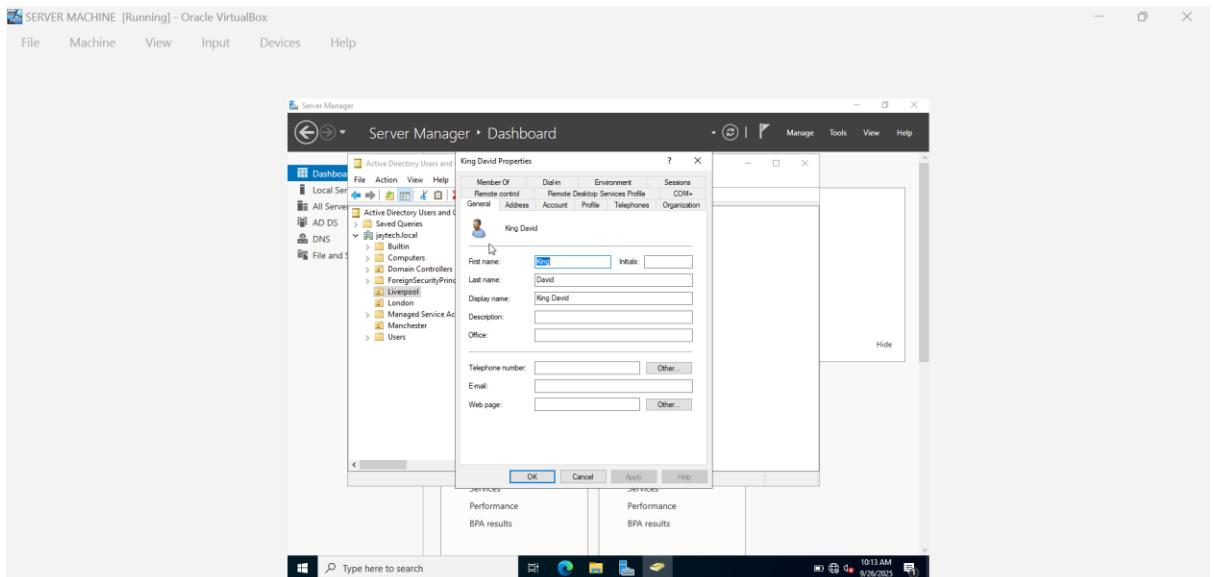


- Navigated to the Liverpool OU.
- Second user was created
- Created user **Sola Ayo**
- Password was created (user cannot change the password was assigned)



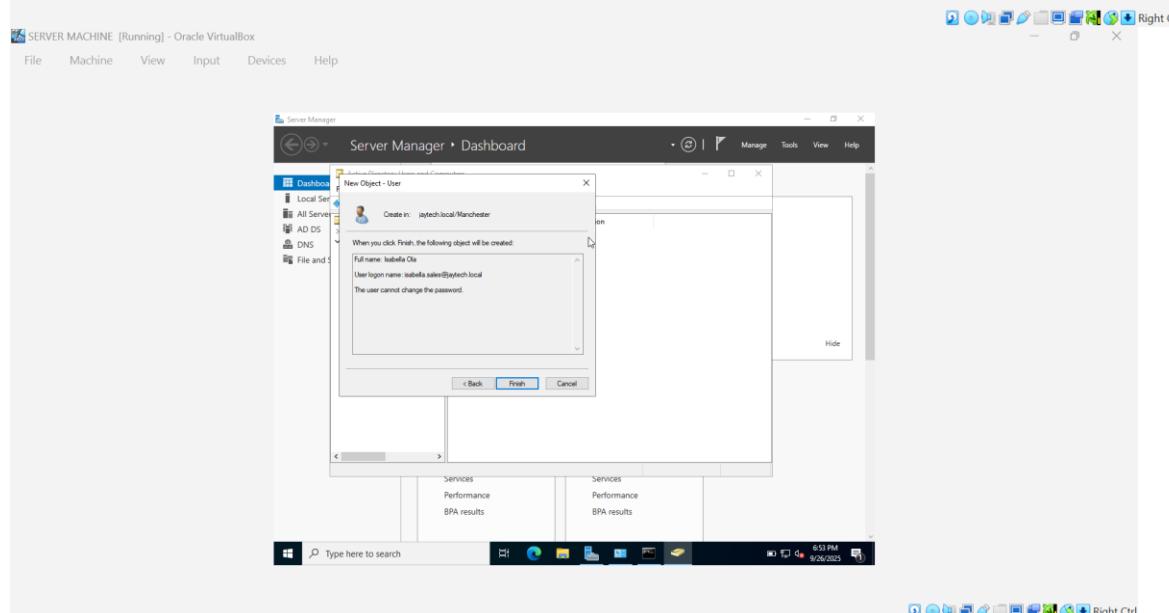
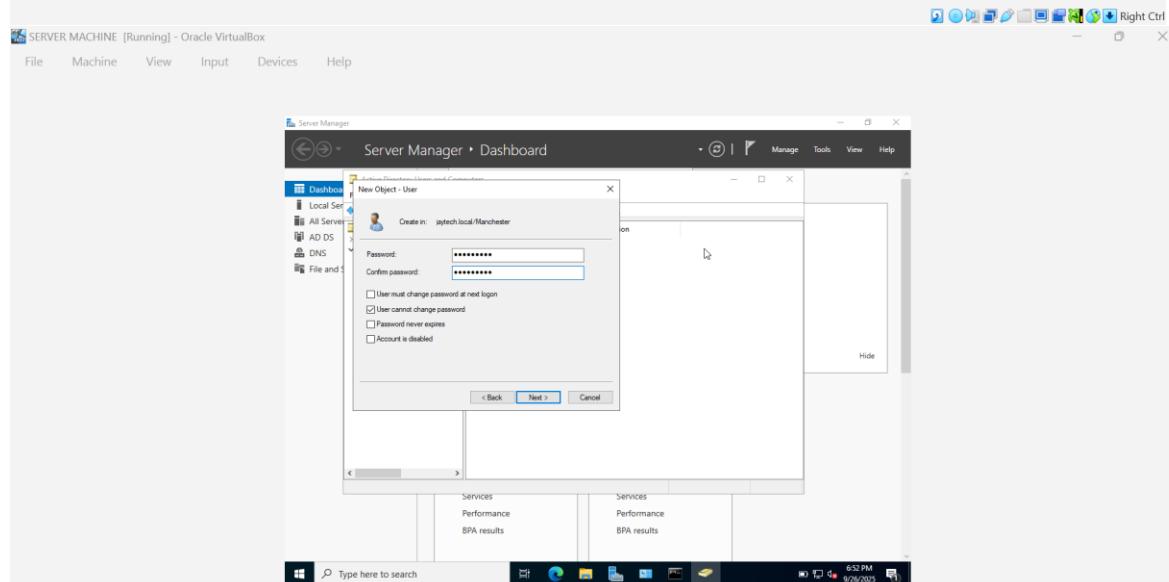
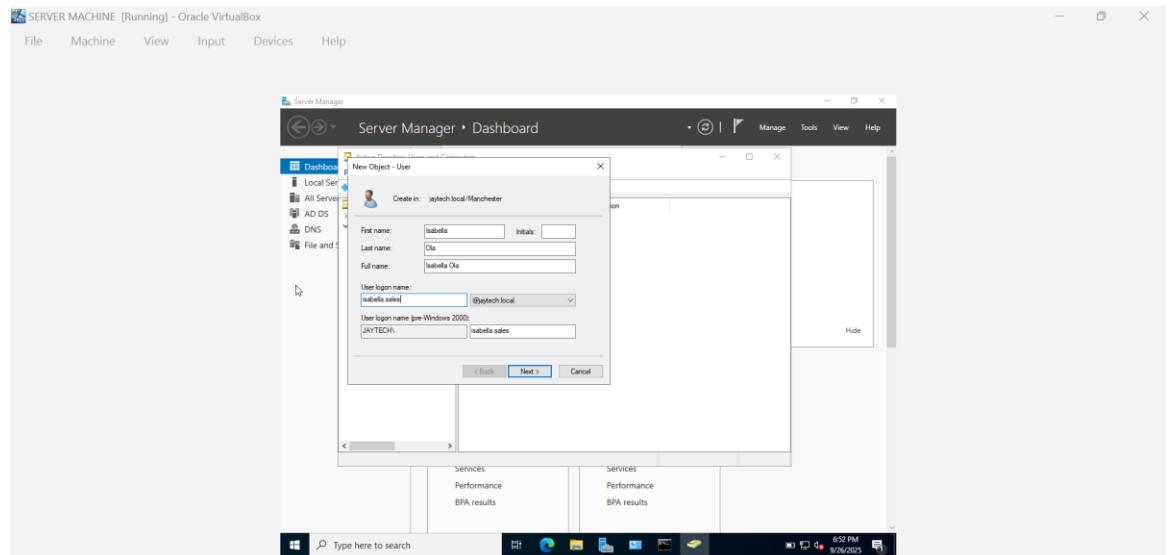
Added Group Membership to Liverpool OUs:

- Clicked **Add** in the **Member of** tab.
- In the **Select Groups** dialog, clicked **Advanced**.
- Used the **Find Now** option to search for groups.
- Selected the desired group and added it to assign the user to that group within the domain.



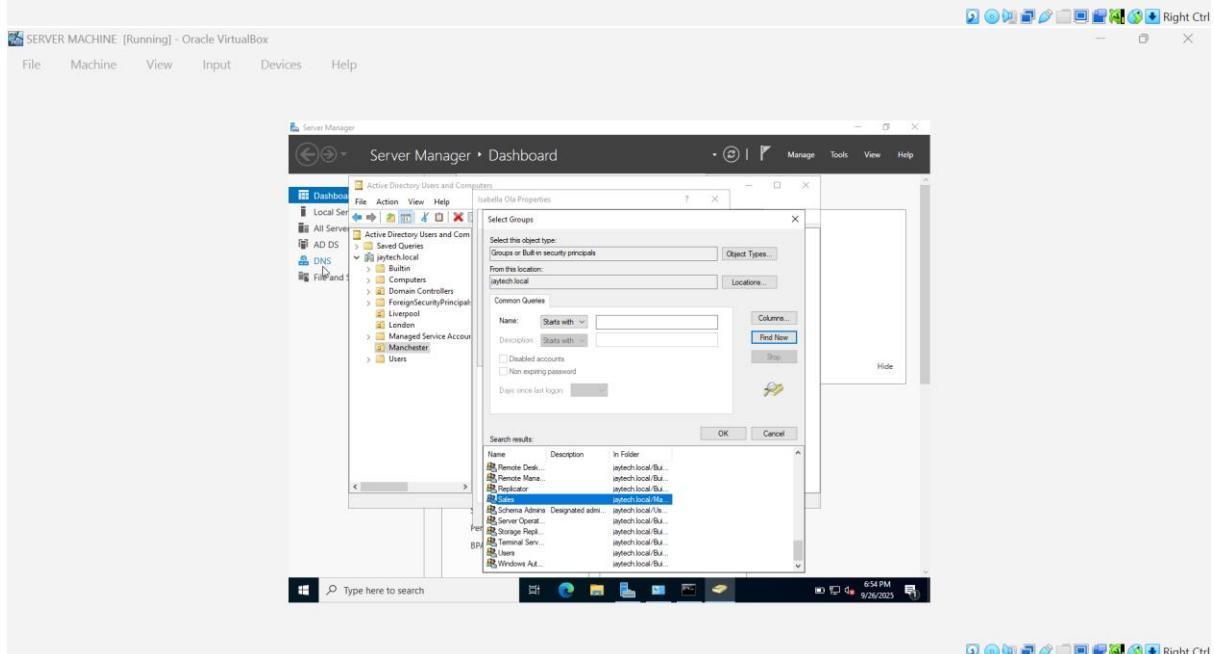
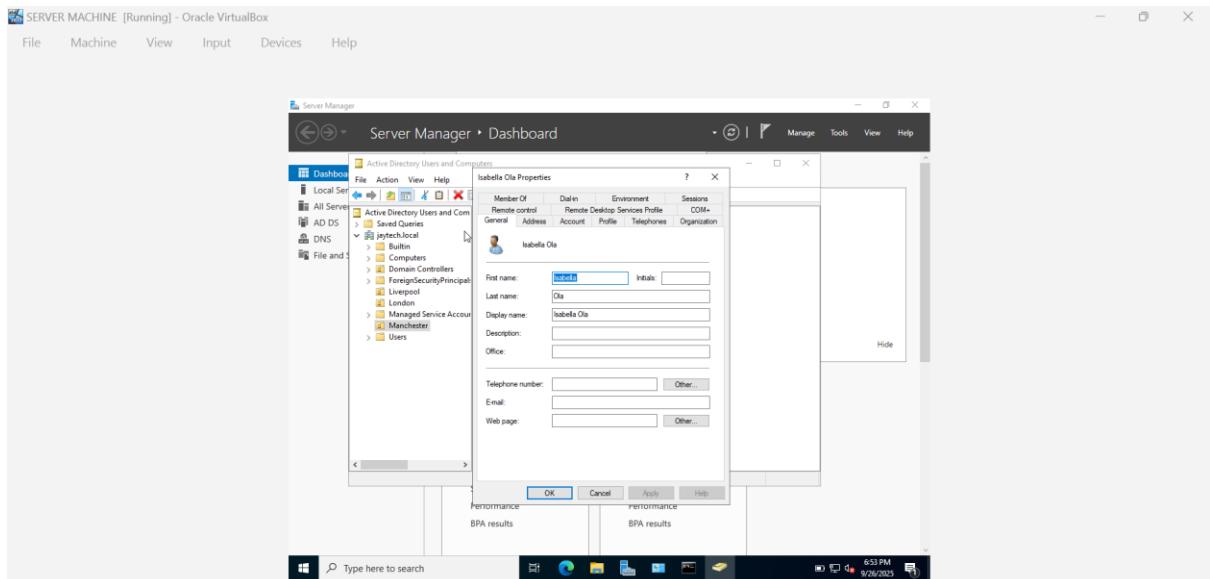
Creating Users in Manchester OUs:

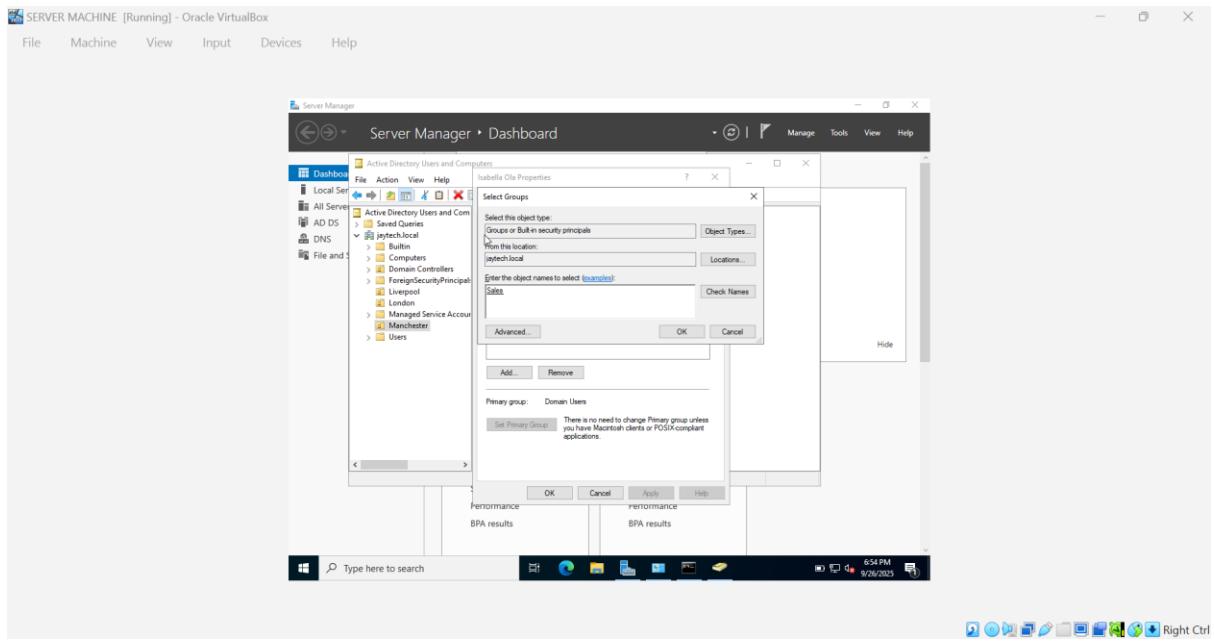
- For **Manchester**:
 - Navigated to the Manchester OU.
 - First user was created
 - Created user **Isabella Ola**
 - Password was created (user cannot change the password was assigned)



Added Group Membership to Manchester OUs:

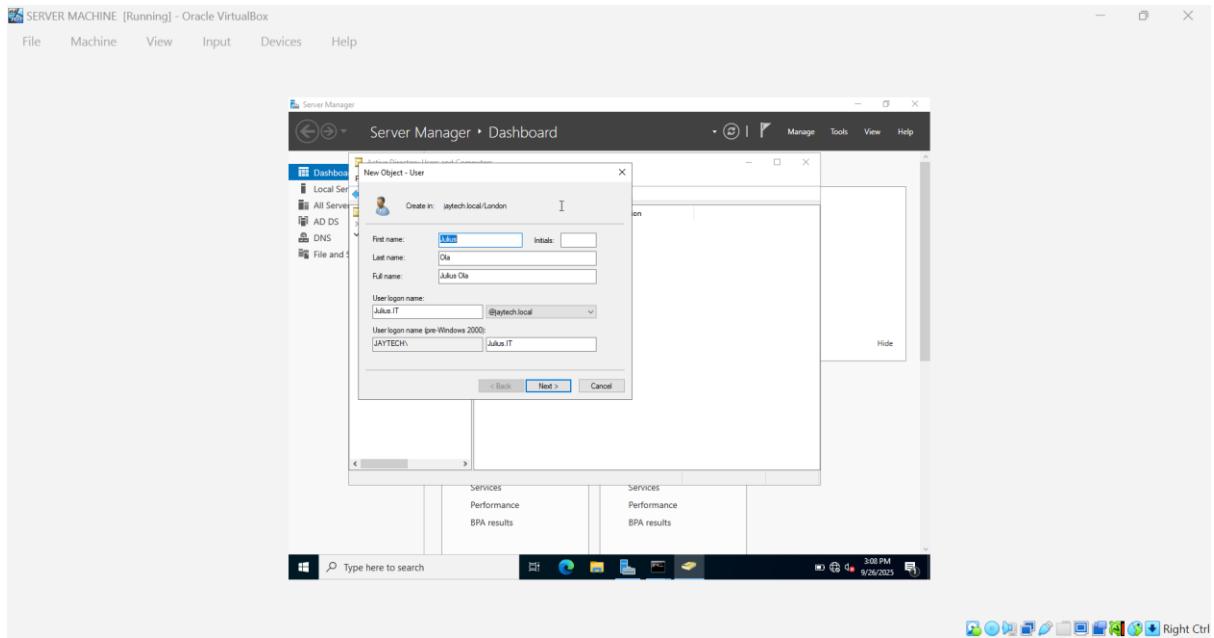
- Clicked **Add** in the **Member of** tab.
- In the **Select Groups** dialog, clicked **Advanced**.
- Used the **Find Now** option to search for groups.
- Selected the desired group and added it to assign the user to that group within the domain.

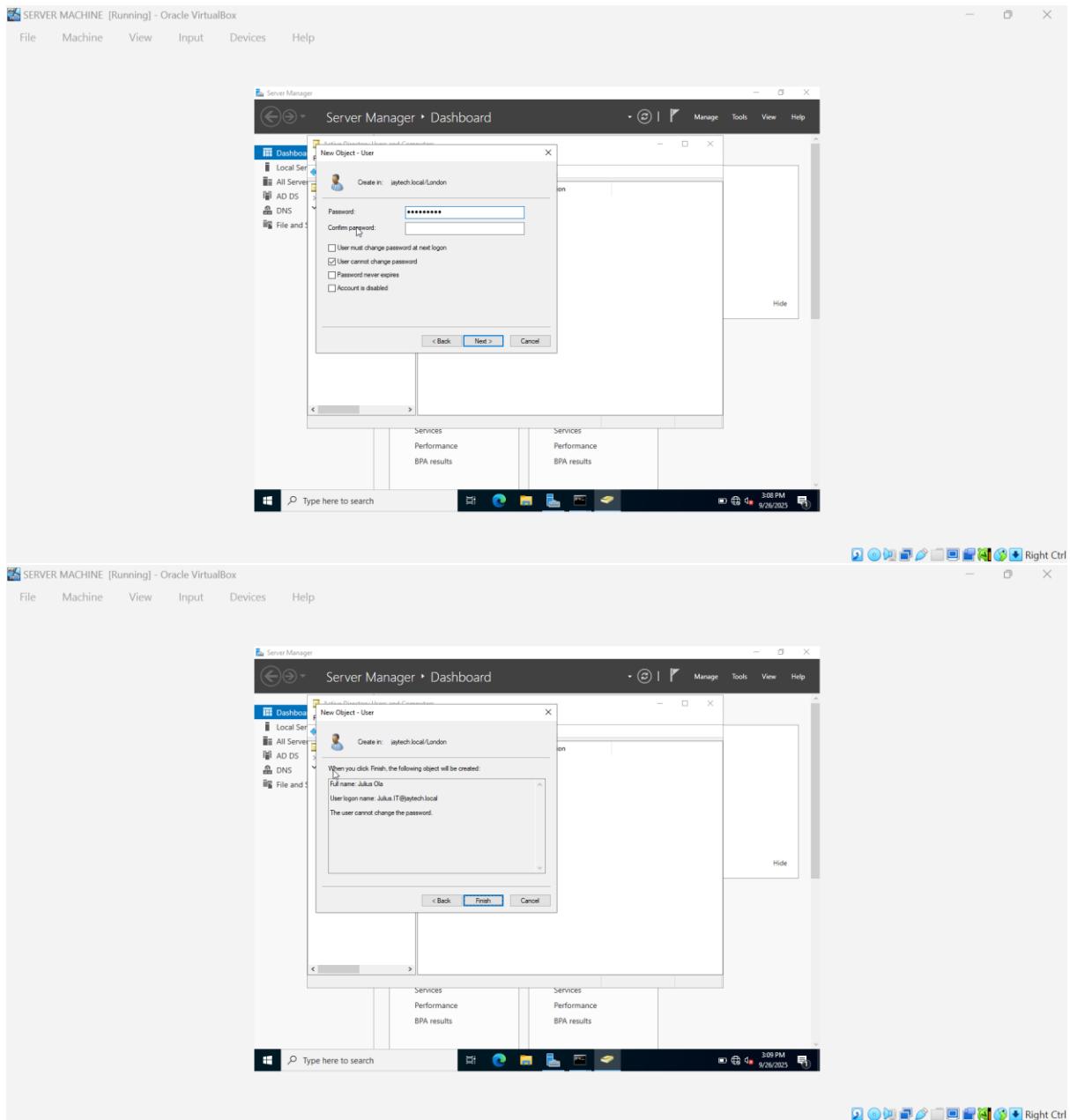




Creating Users in London OUs:

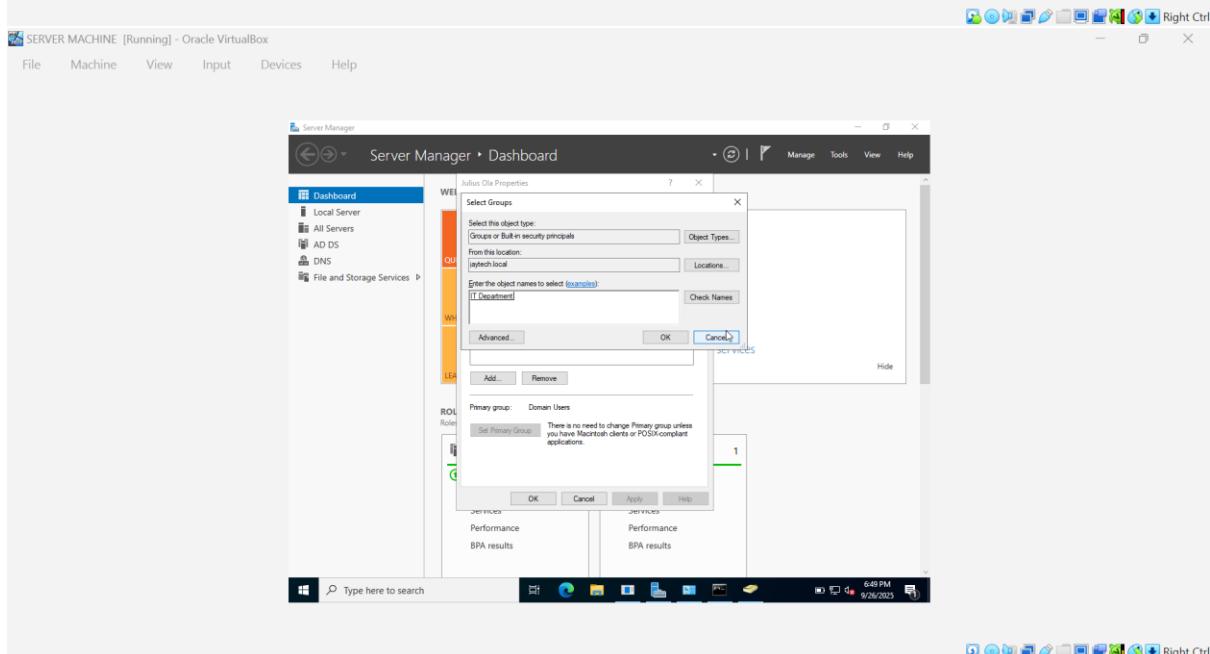
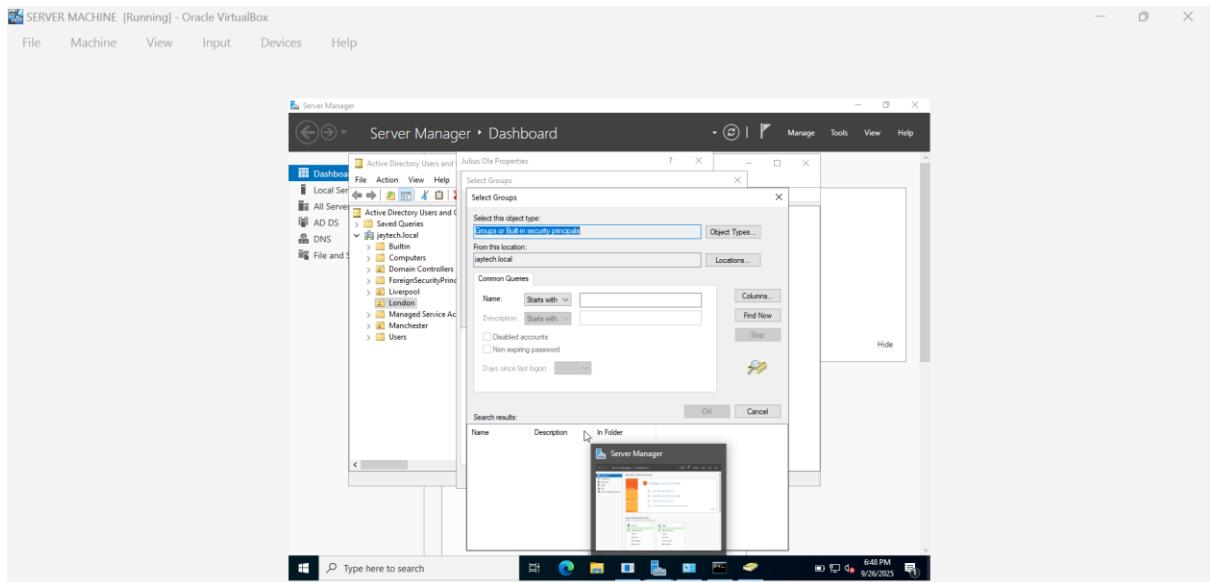
- For London:
 - Navigated to the London OU.
 - First user was created
 - Created user **Julius Ola**
 - Password was created (user cannot change the password was assigned)

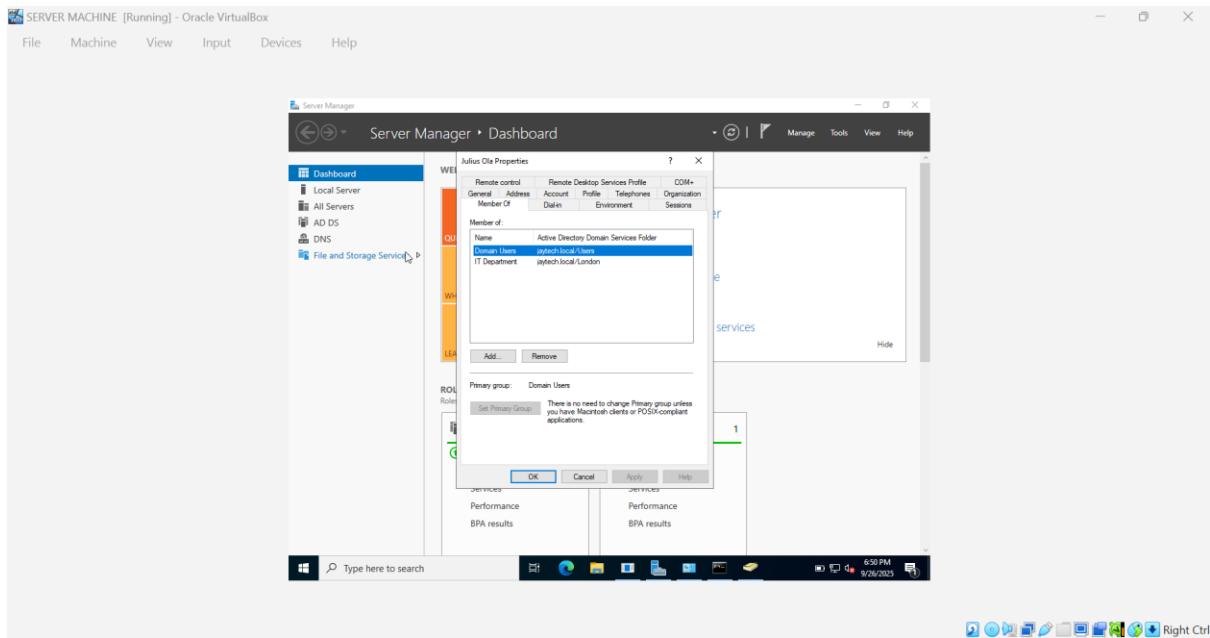




Added Group Membership to London OUs:

- Clicked **Add** in the **Member of** tab.
- In the **Select Groups** dialog, clicked **Advanced**.
- Used the **Find Now** option to search for groups.
- Selected the desired group and added it to assign the user to that group within the domain.





Change DNS of the users to PCs to the IP of the Server (Virtual Active directory process)

For this particular stage I will explain how I will used one system to explain how I joined all the system in different organisation to join domain.

Step 1: Configure VirtualBox Network

1. Create a Single NAT Network: (**MAIN NETWORK**)
 - o In VirtualBox, create a NAT network named "Main Network" to allow all virtual machines (VMs) to communicate on the same network.
 - o Configure all VMs (client systems and the domain controller server) to use the "Main Network" NAT network.

Step 2: Assign IP and DNS Configuration

1. Verify Server IP:
 - o Identify the IP address of the domain controller server (e.g., 10.0.2.3 in this setup).
 - o Use this IP address as the DNS server address for all client systems within the domain to ensure proper communication with the domain controller.
2. Configure Client Systems:
 - o For each client system, manually set the DNS server to the domain controller's IP address (10.0.2.3).
 - o Ensure all systems are on the same NAT network to enable smooth communication.

Step 3: Join Systems to the Domain

1. Access System Properties:

- On each client system, open File Explorer, right-click on **This PC**, and select **Properties**.
 - Navigate to **System Protection** or **Advanced System Settings** (depending on the Windows version).
 - Click the **Computer Name** tab, then click **Change**.
 -
2. **Join the Domain:**
- Change the system's name from **Workgroup** to **Domain**.
 - Enter the domain name of the domain controller (e.g., King.financial).
 - Authenticate using credentials with permission to join the domain (e.g., domain admin credentials).
 - Repeat this process for all systems in each Organizational Unit (OU), such as the Liverpool OU, Manchester OU and London OU.

Step 4: Assign Users to Organizational Units

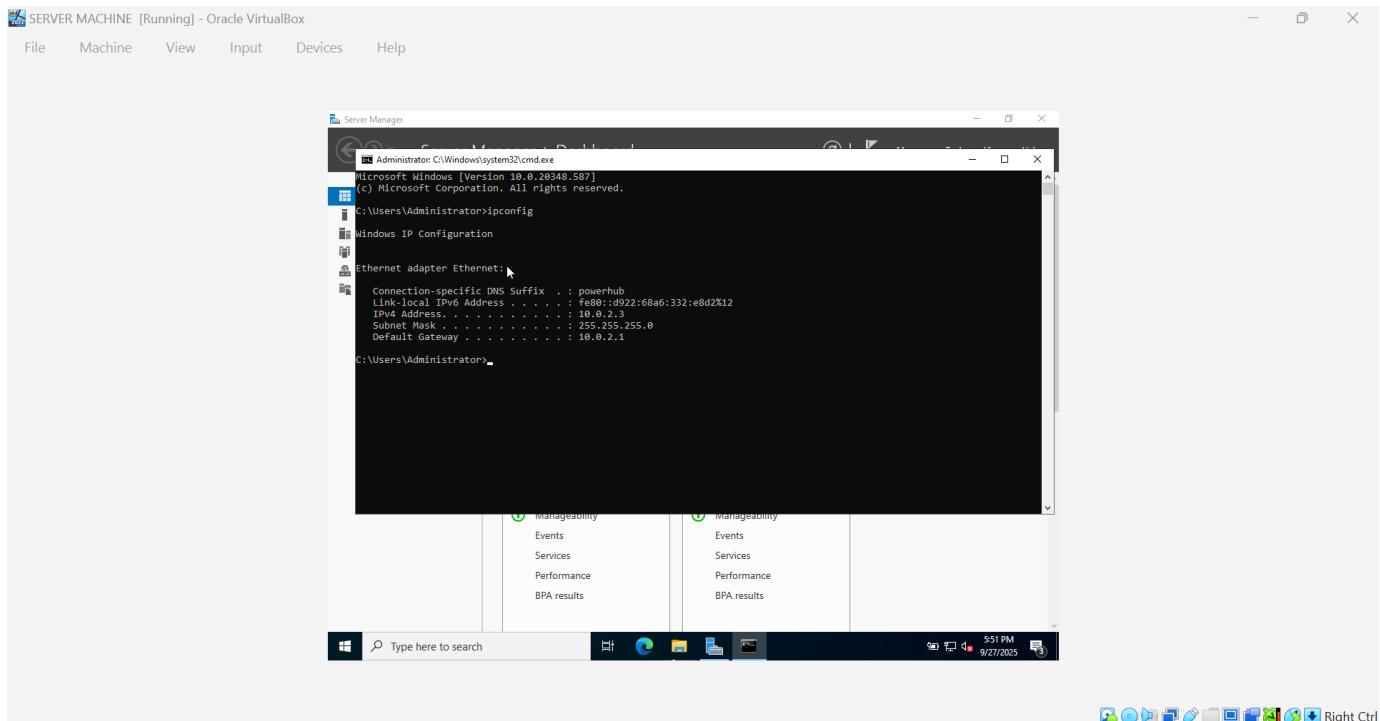
1. **User Assignment:**
- Ensure users in each OU (e.g., Liverpool OU) are configured to log in to their respective systems using their domain credentials. (e.g.; king.financial, Isabella.sales)
 - Verify that users are correctly assigned to their OUs in Active Directory Users and Computers (ADUC).

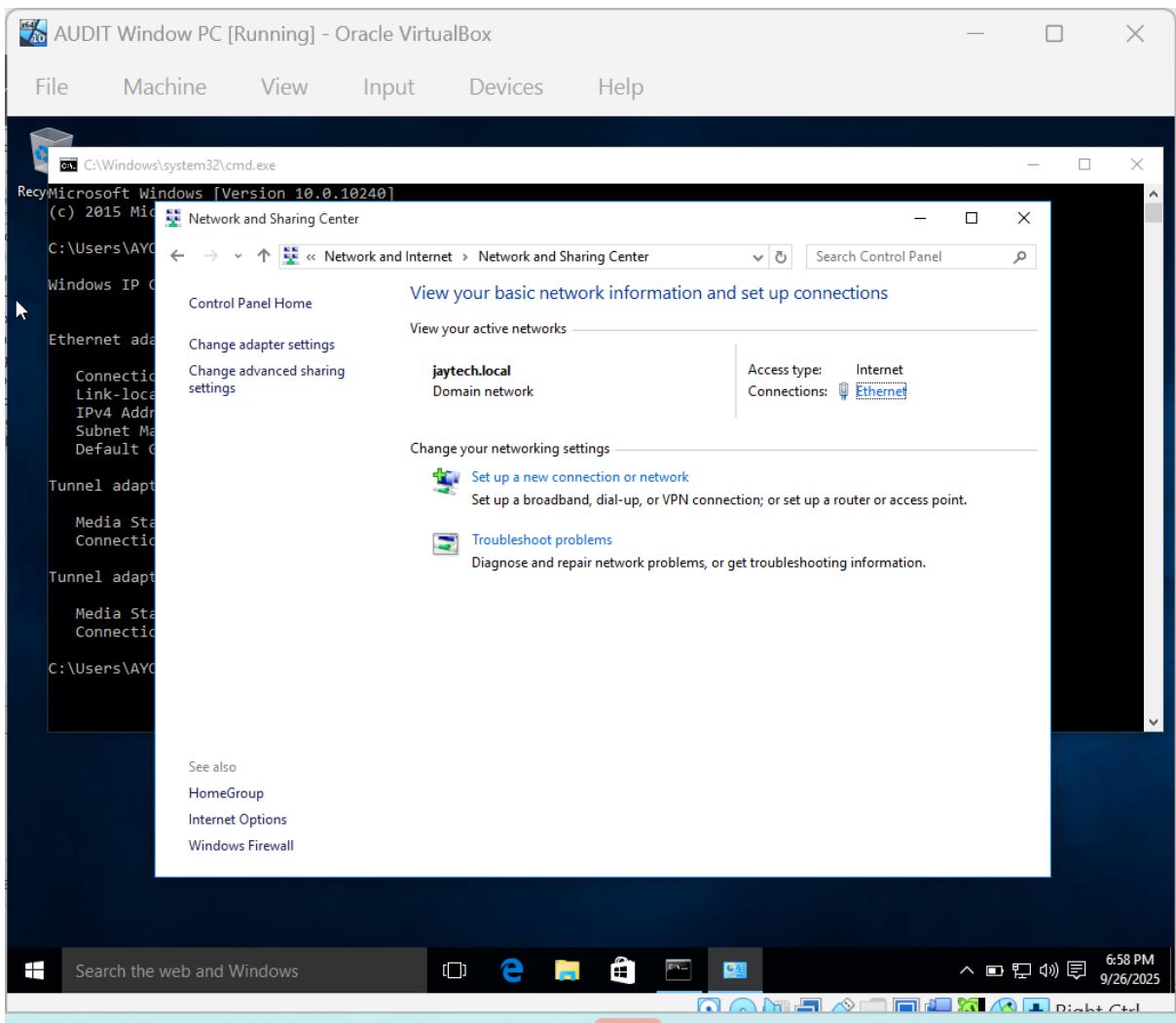
Step 5: Validation

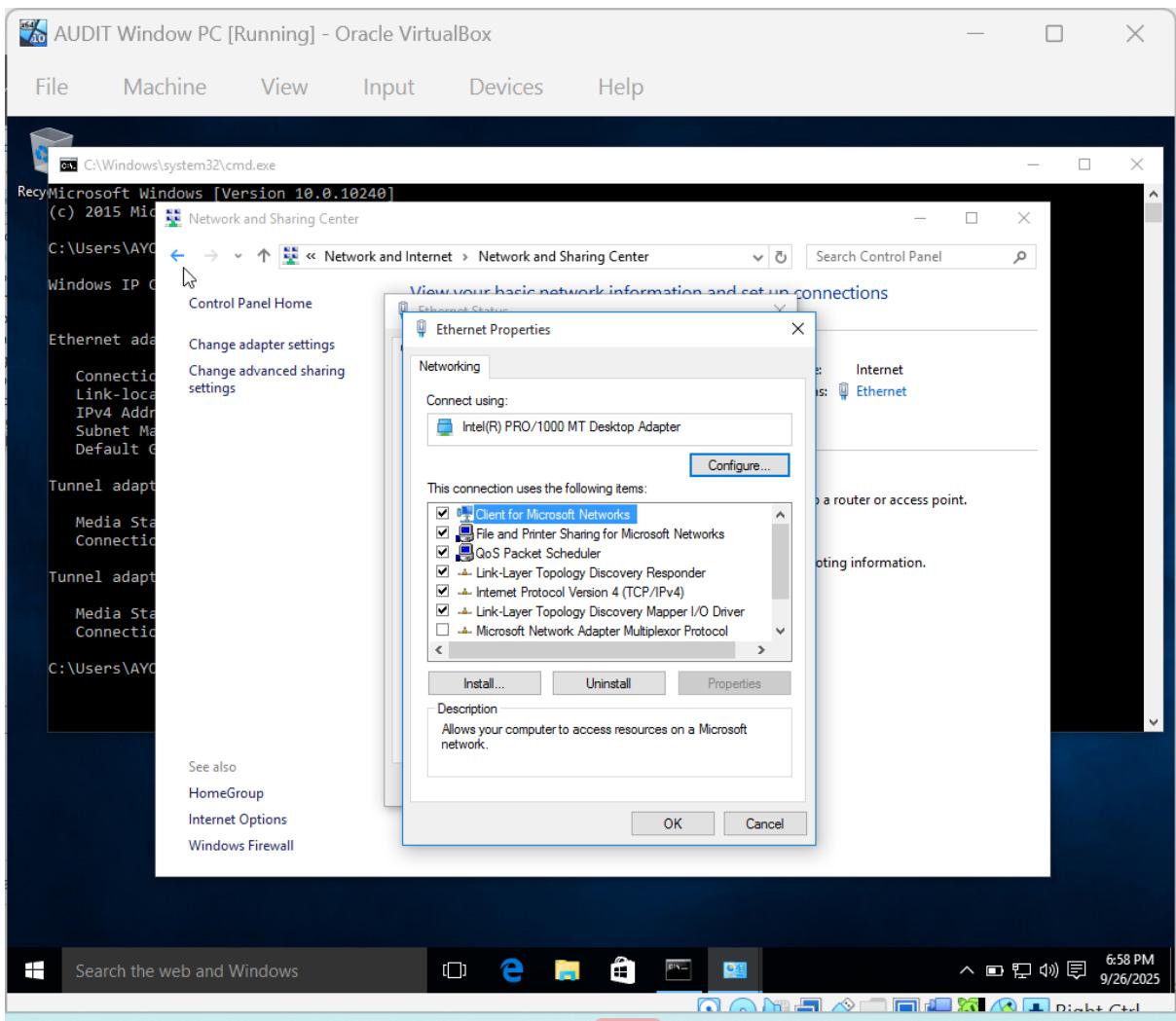
1. **Test Connectivity:**
- Confirm that all systems can communicate with the domain controller using the assigned DNS IP (10.0.2.3). Which IP Address of my server.
 - Test domain login by logging into each system with the respective user credentials.
2. **Troubleshooting:**
- If a system fails to join the domain, verify the DNS settings, network connectivity, and domain controller availability.
 - Ensure the domain controller is running and reachable on the NAT network.

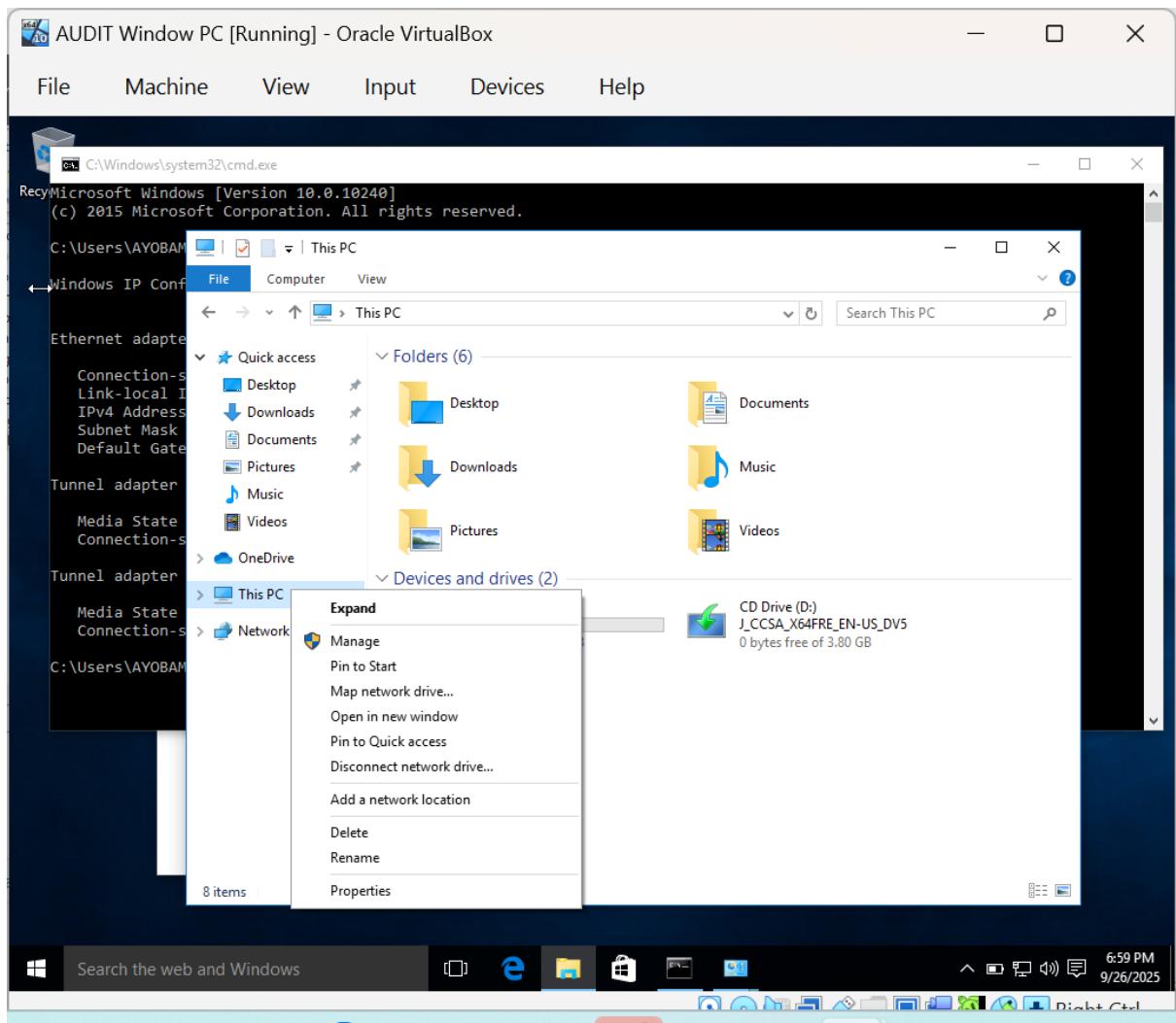
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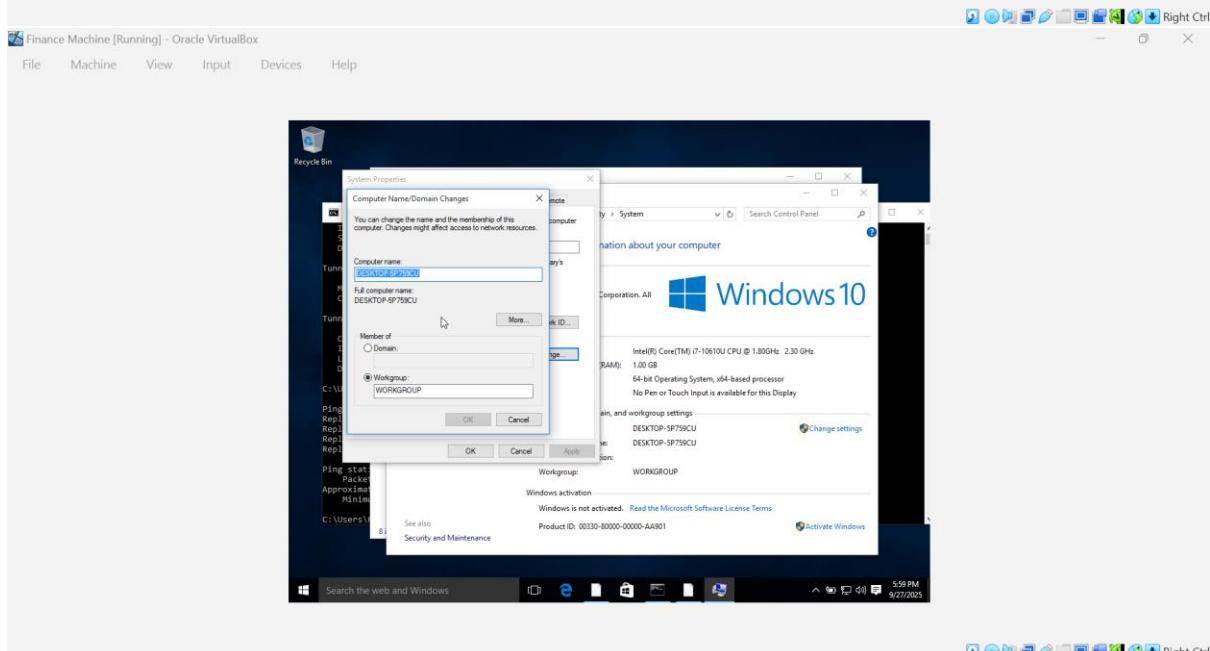
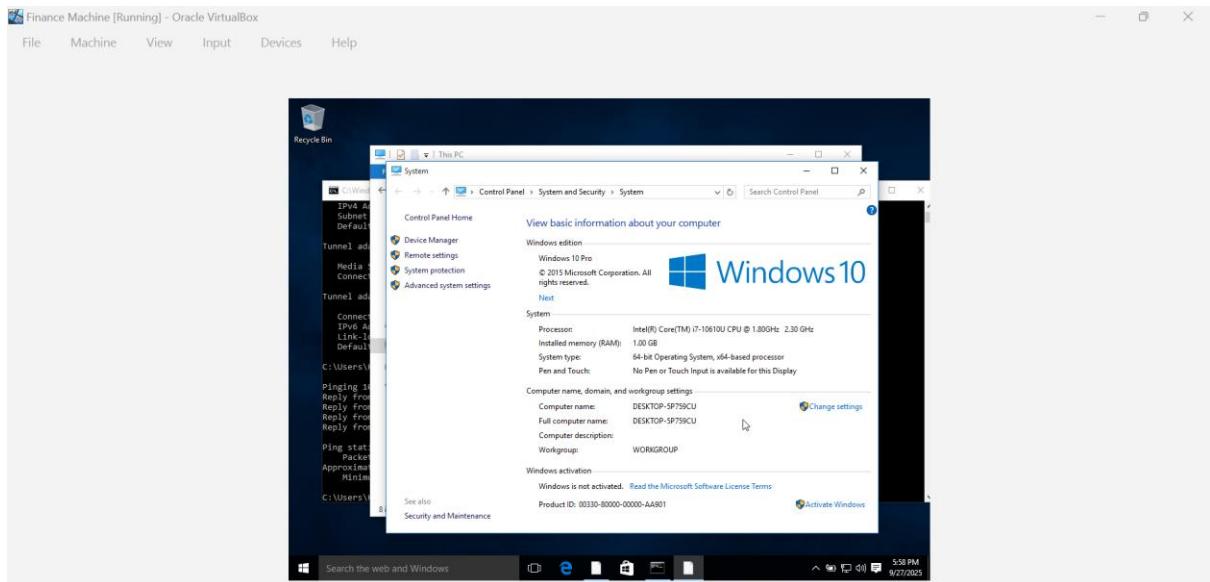
- This process assumes a single domain controller and multiple client systems within the same NAT network which is (**MAIN NETWORK**)
- The same **steps** were applied to all systems across different OUs in the organization.
- Screenshots of the configuration (e.g., system properties showing domain membership) can be used for documentation but are not included here.

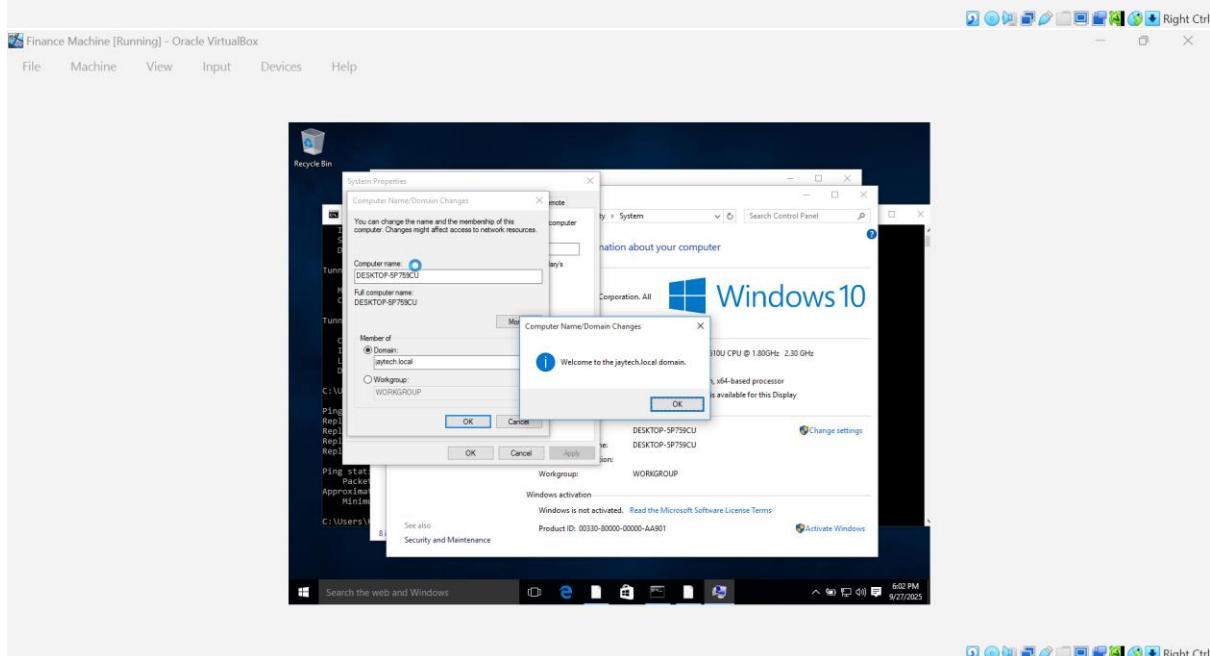
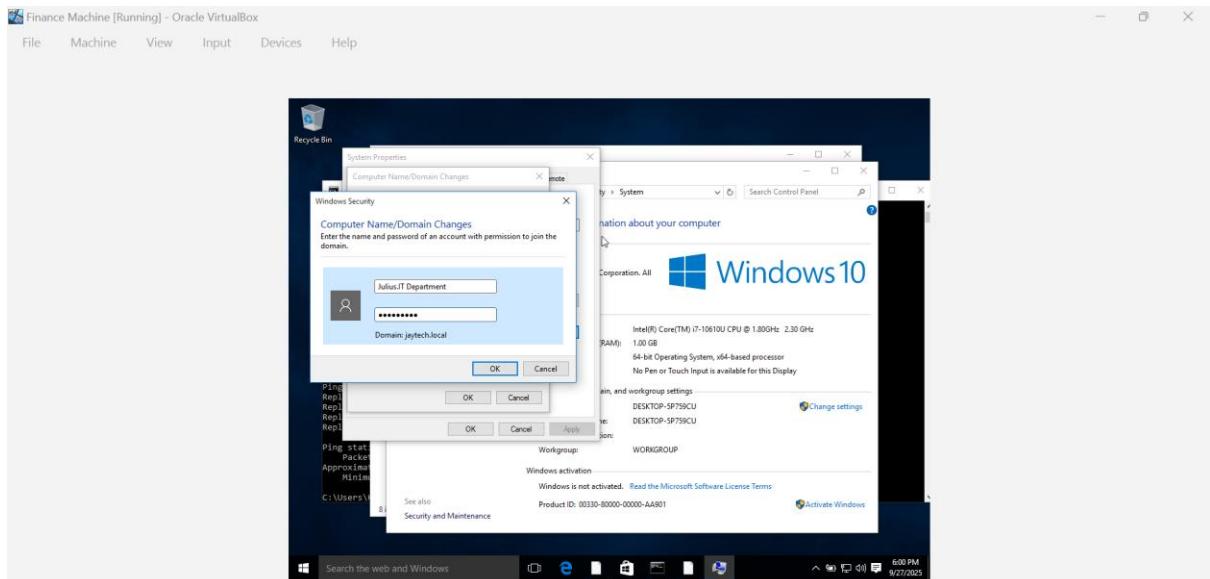


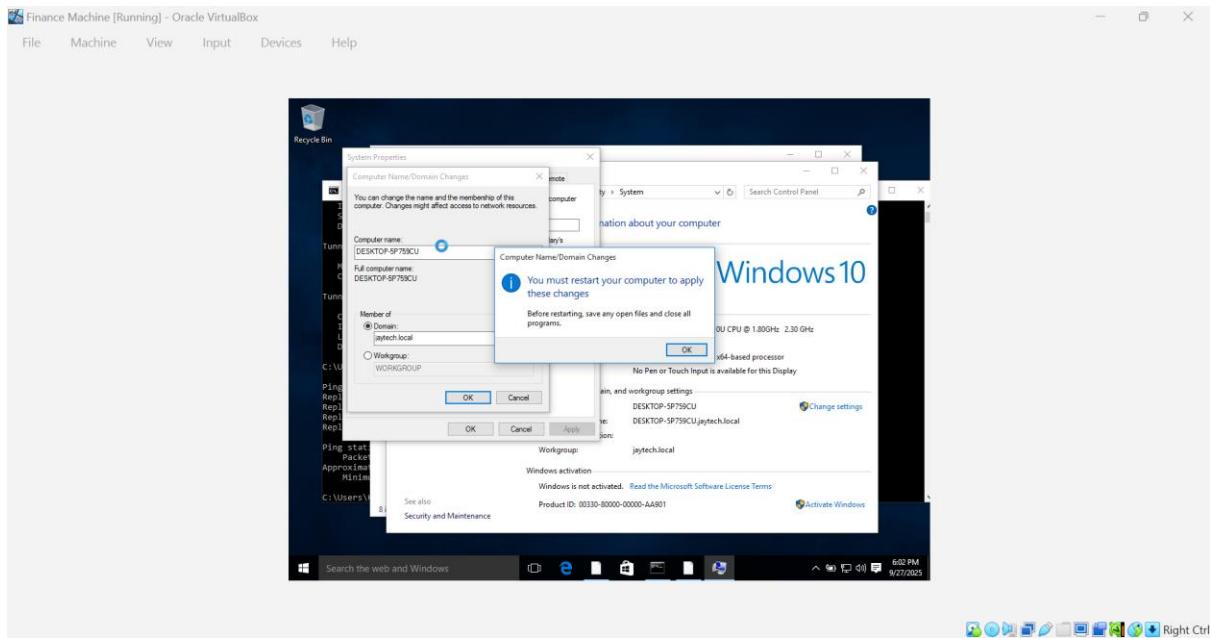












The last stage of this project is creating of New GPO (Group Policy) and Assign policy.

This process was taken for all the OUs (Liverpool, Manchester and London)

This document outlines the process of creating and applying a Group Policy to disable USB storage devices on client systems in the Jaytech.local domain as a security measure to protect the organization. The policy is applied to the Liverpool, Manchester, and London Organizational Units (OUs).

Step one: Decide on the Policy

- **Objective:** Implement a security policy to disable USB storage devices on all client systems to prevent unauthorized data transfer and also to prevent users not to be charging their device on the systems
- **Policy Chosen:** Disable USB storage access for enhanced organizational security.

Step two: Access Group Policy Management

1. **Open Server Manager:**
 - On the domain controller, launch **Server Manager**.
 - Navigate to **Tools** in the top-right corner of the Server Manager window.
 - Select **Group Policy Management** from the dropdown menu.
2. **Locate the Domain:**
 - In the Group Policy Management console, expand the forest and locate the domain Jaytech.local.

Step three: Create a New Group Policy Object (GPO)

1. **Create the GPO:**

- In the Group Policy Management console, expand Jaytech.local and right-click on **Group Policy Objects**.
 - Select **New** to create a new Group Policy Object.
 - Name the new GPO (e.g., Disable USB Policy).
2. **Edit the GPO:**
- Right-click the newly created Disable USB Policy GPO and select **Edit**.
 - In the Group Policy Management Editor, navigate to:
 - **Computer Configuration → Policies → Administrative Templates → System → Removable Storage Access.**
 - Double-click **All Removable Storage classes: Deny all access** in the right pane.
 - Set the policy to **Enabled** to deny access to all USB storage devices.
 - Click **Apply** and **OK** to save the changes.

Step four: Link the GPO to Organizational Units

1. **Link the GPO:**
- In the Group Policy Management console, navigate to each OU (Liverpool, Manchester, and London).
 - Right-click each OU and select **Link an Existing GPO**.
 - Choose the Disable USB Policy GPO from the list and click **OK** to link it to the OU.
 - Repeat this process for all three OUs (Liverpool, Manchester, and London).

Step five: Apply the Group Policy

1. **Force Policy Update:**
- Open a **Command Prompt** on the domain controller and client systems.
 - Run the following command to apply the Group Policy immediately:
- ```
gpupdate /force
```
- This ensures the Disable USB Policy is applied to all systems in the linked OUs.

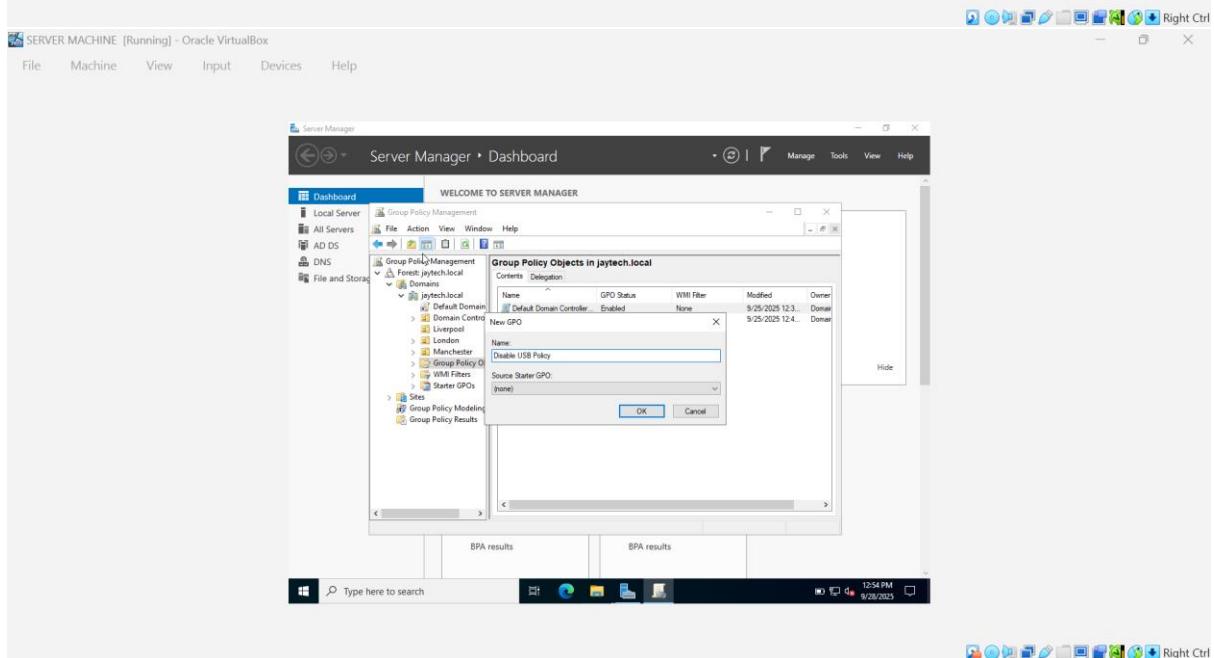
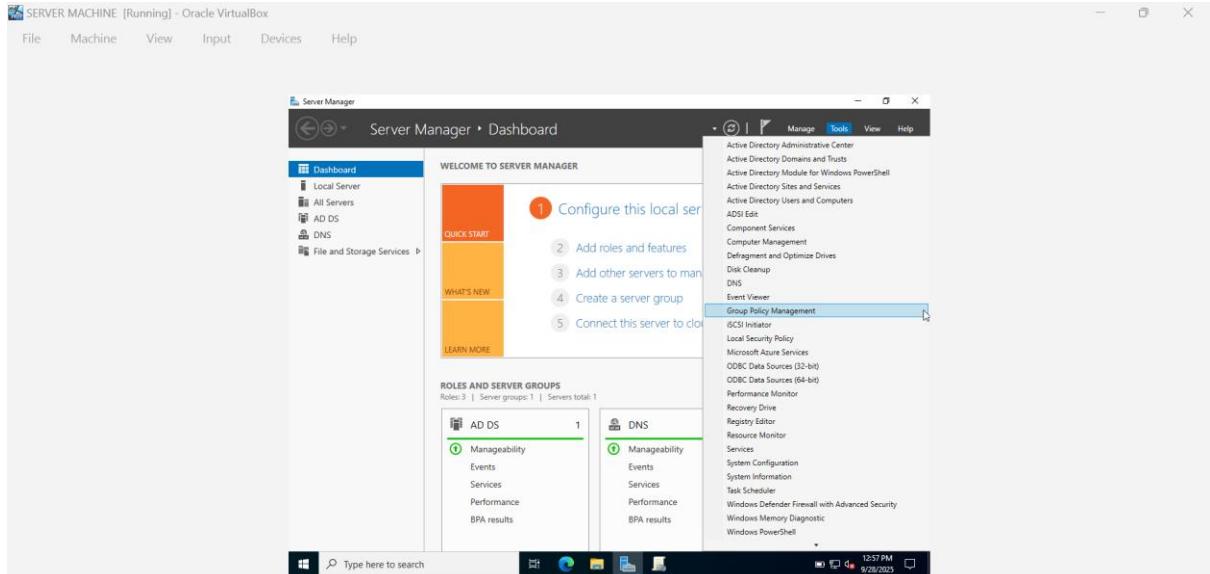
## Step six: Validation

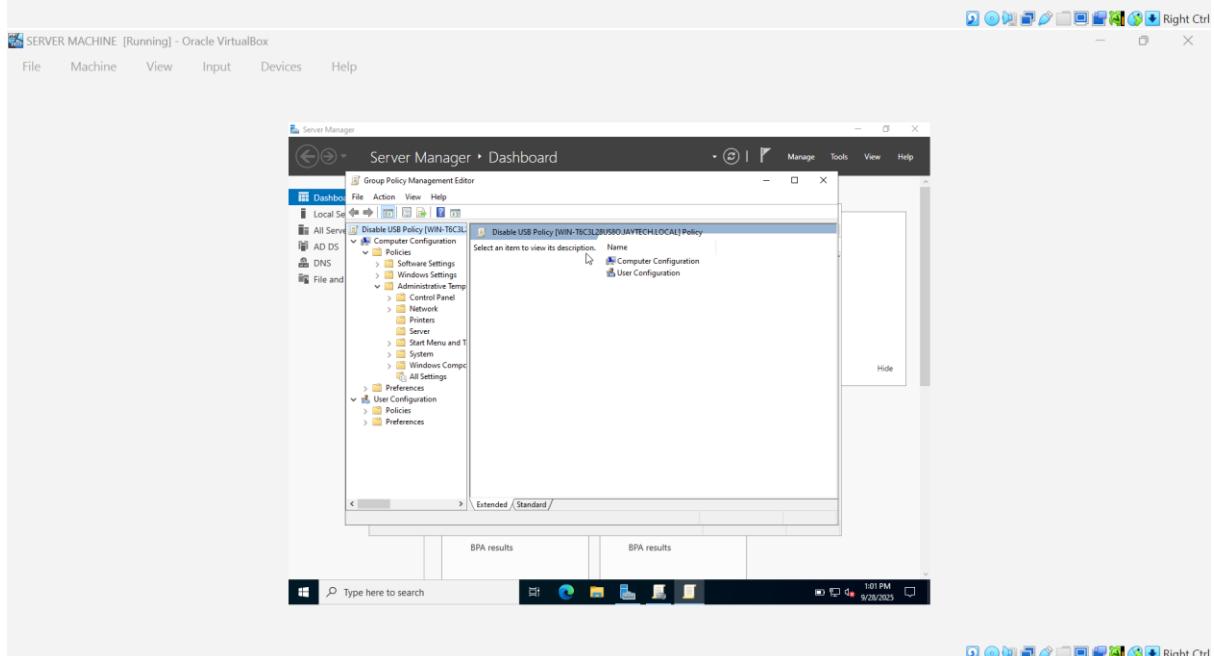
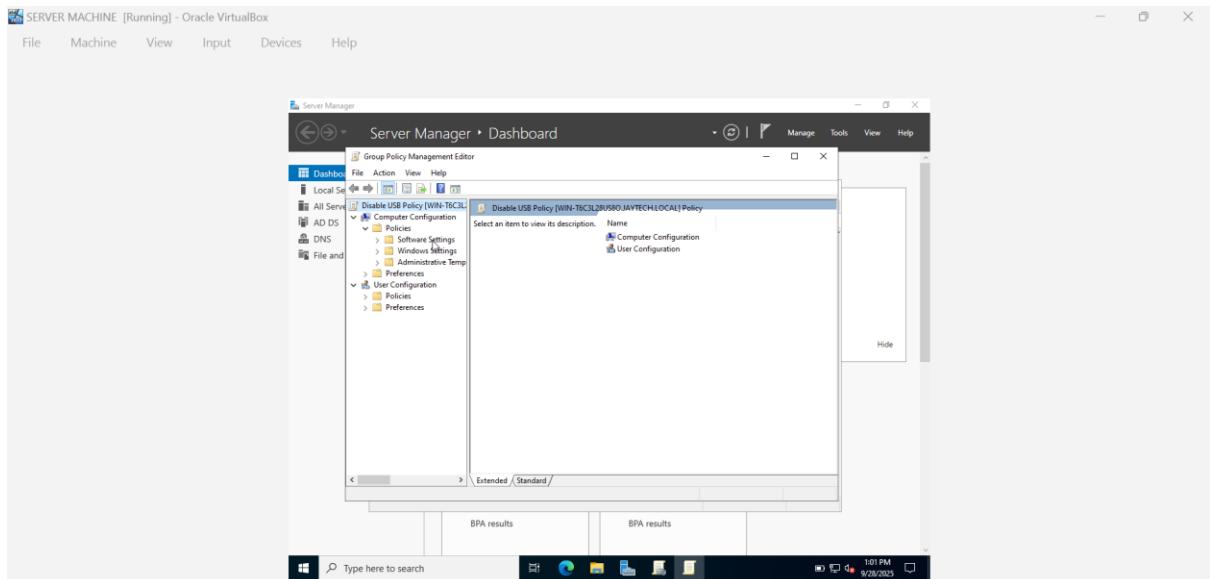
- **Verify Policy Application:**
- On a client system in one of the OUs (e.g., Liverpool), attempt to access a USB storage device to confirm it is blocked.
- Use the command `gpresult /r` on a client system to verify that the Disable USB Policy GPO is applied.

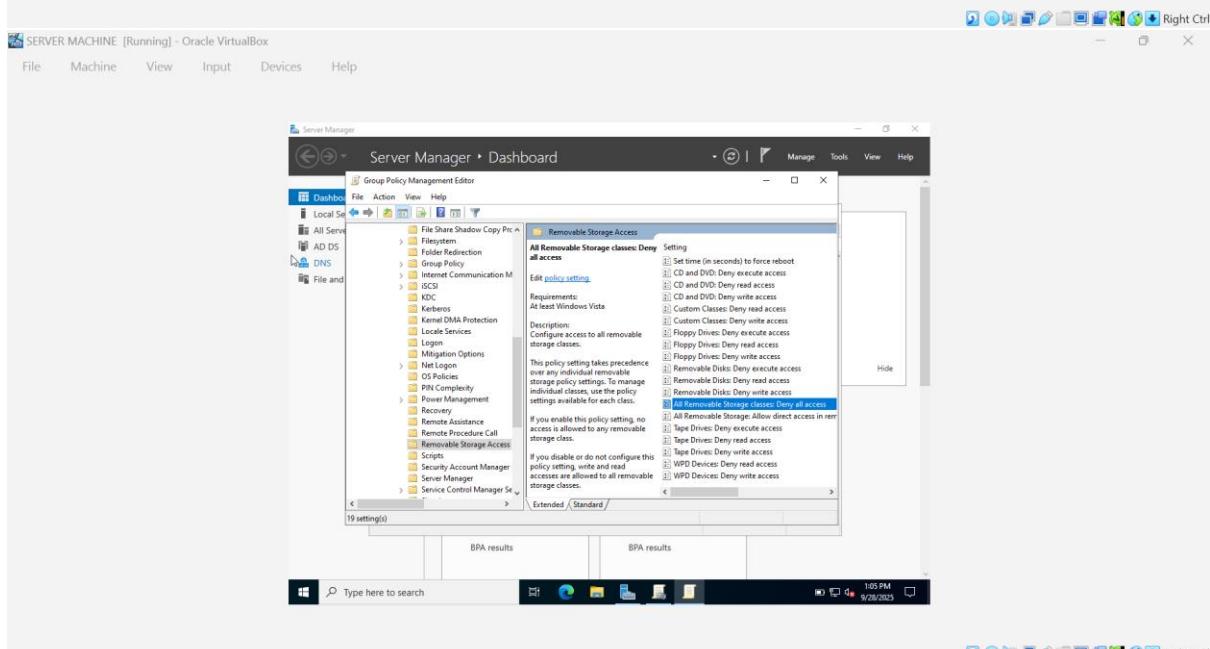
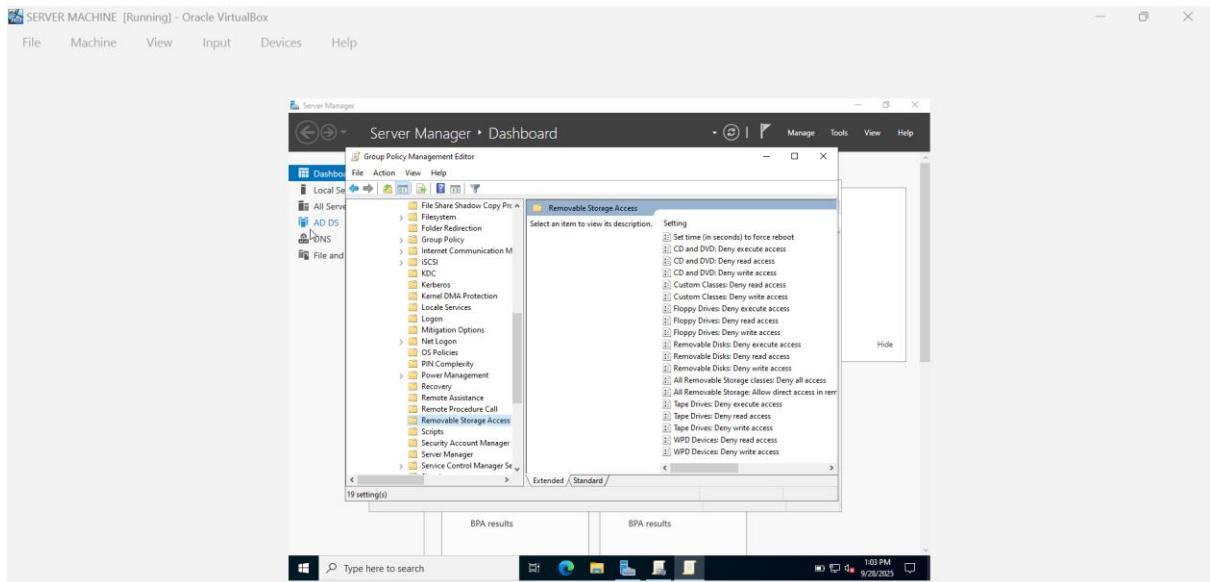
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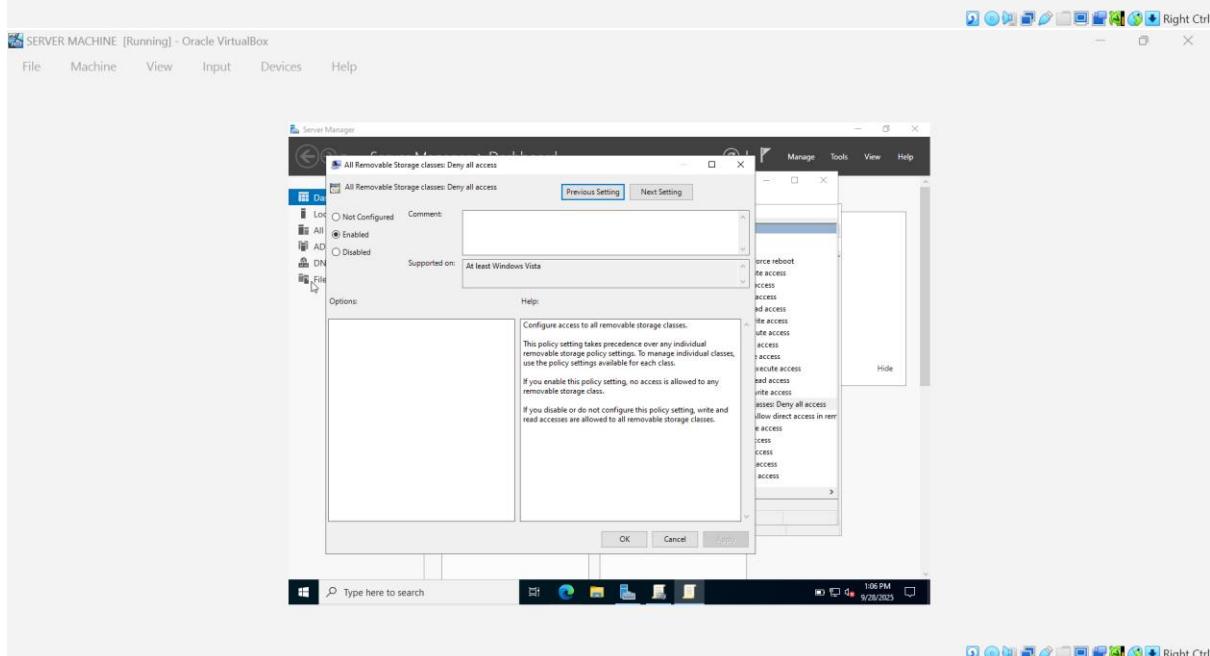
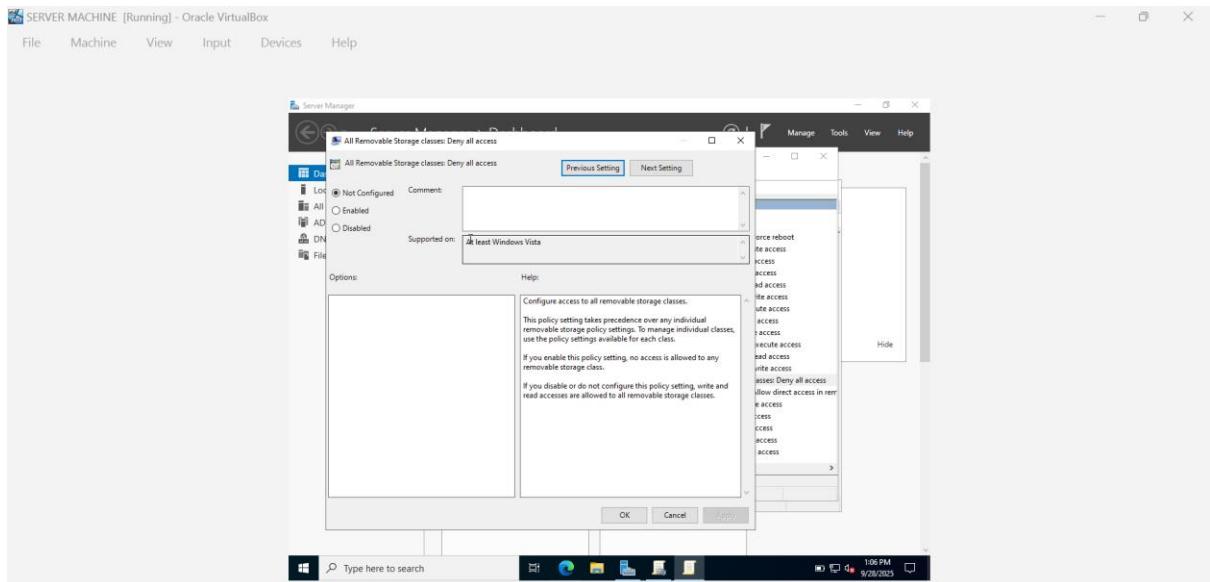
- This policy disables access to all removable storage devices, including USB drives, to enhance security.

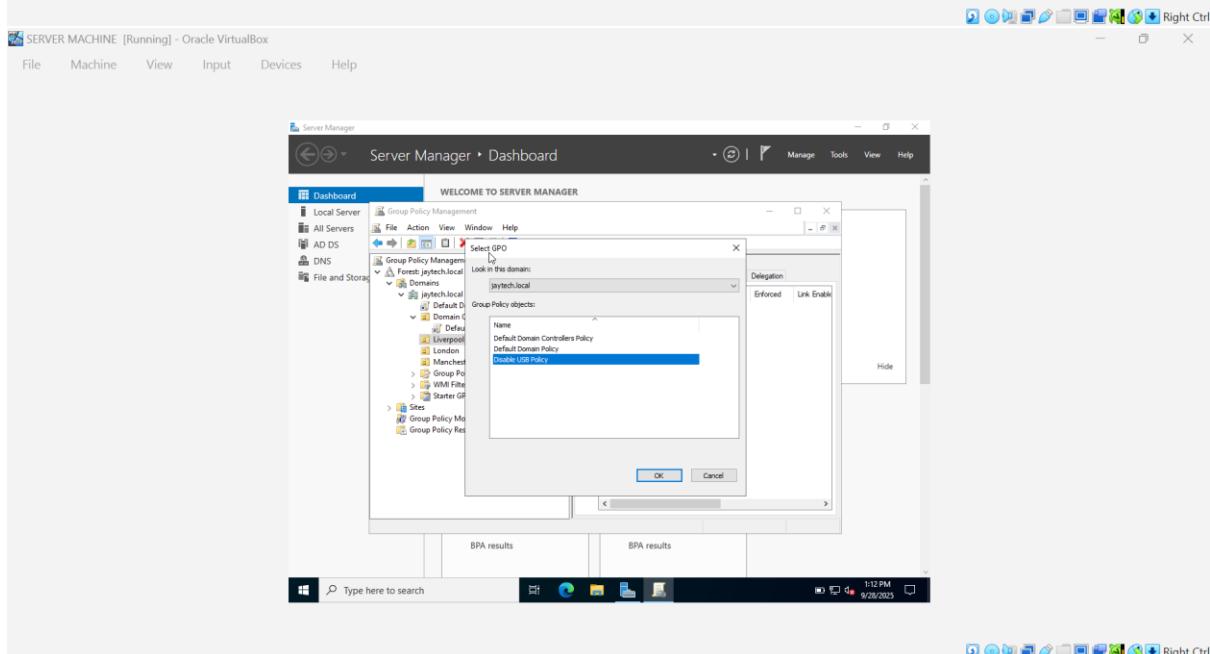
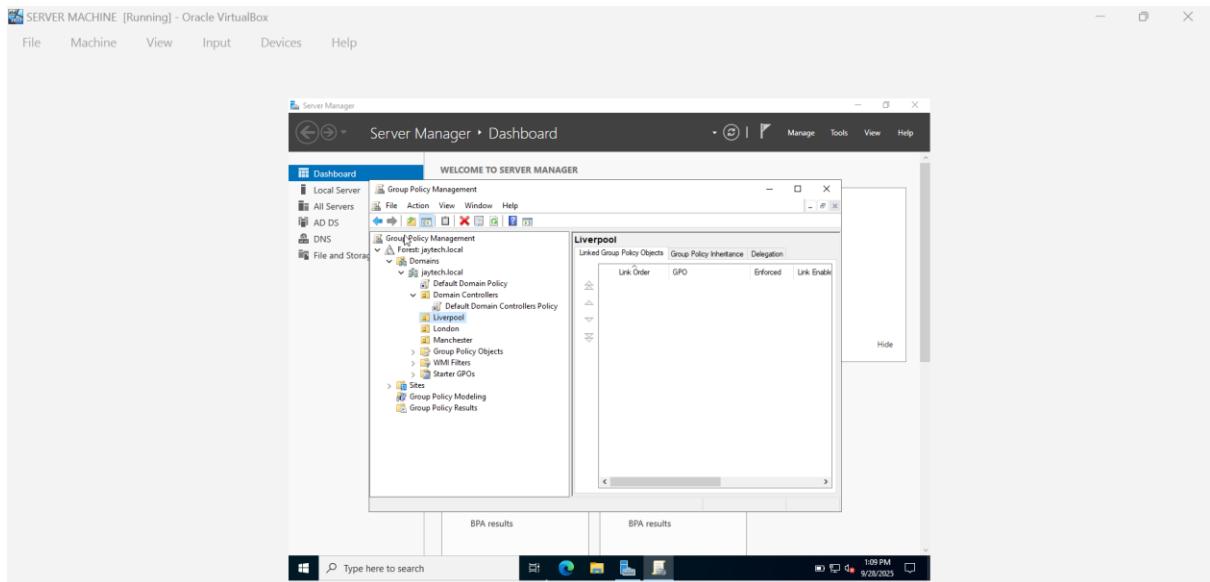
- Ensure that the GPO is correctly linked to the intended OUs and that no conflicting policies override it.
- If the policy does not apply, check for errors using gpreresult /r or ensure the client systems are properly joined to the Jaytech.local domain and have updated their Group Policy settings.

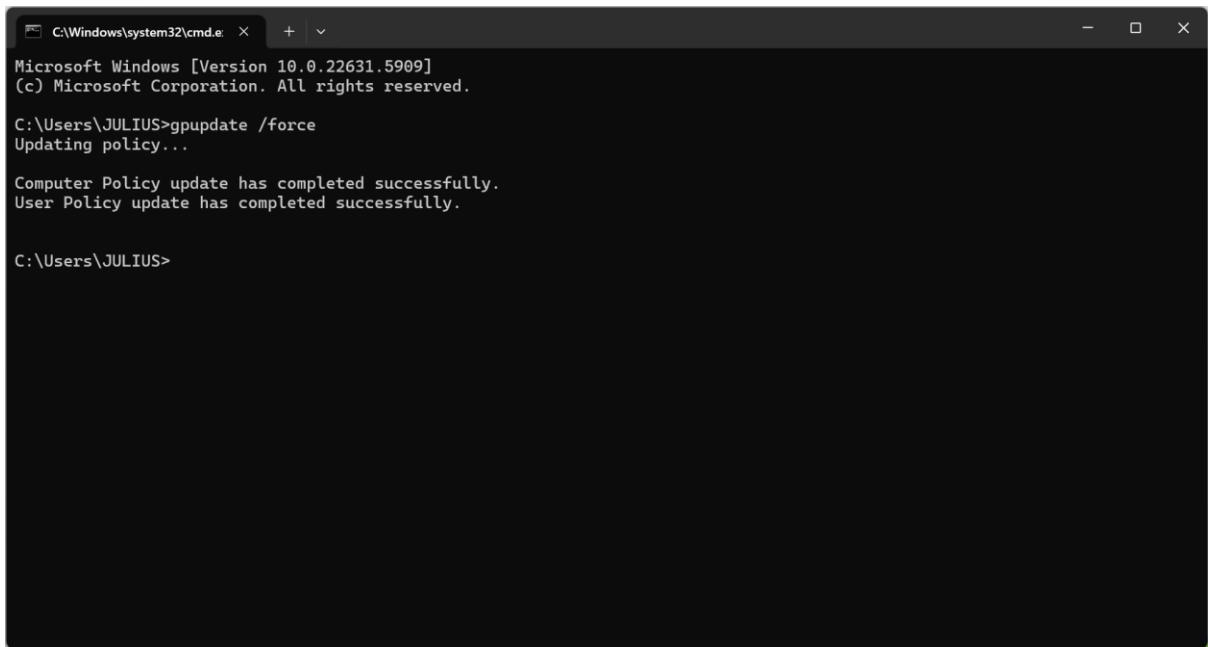












```
C:\Windows\system32\cmd.exe + - | X
Microsoft Windows [Version 10.0.22631.5909]
(c) Microsoft Corporation. All rights reserved.

C:\Users\JULIUS>gpupdate /force
Updating policy...

Computer Policy update has completed successfully.
User Policy update has completed successfully.

C:\Users\JULIUS>
```