

Windows Server 2022 Virtualization & Network Infrastructure Project

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Executive Summary

This report presents the design and implementation of a **Windows Server 2022 virtualized network environment** using **Oracle VirtualBox**.

The project demonstrates hands-on system administration skills such as configuring **Active Directory**, **DHCP**, **Group Policy Management**, **RAID storage**, and **user access control**. The environment simulates a small enterprise network with centralized authentication, security enforcement, and automated software deployment.

The outcome is a fully operational domain-based infrastructure that showcases core competencies in **IT infrastructure management**, **virtualization**, and **Windows Server configuration**.

Project Overview

The purpose of this project was to deploy and manage a virtualized enterprise network for a fictional company called **DigiTech**.

The infrastructure consists of two Windows Server 2022 virtual machines:

- **DNS-2024359:** Configured as the Domain Controller and DNS server.
- **WEB-2024359:** Configured as a client and test server within the same domain.

Both machines were networked internally in Oracle VirtualBox, enabling centralized management and policy enforcement across users and departments.

Technical Objectives

Area	Objective
Active Directory	Deploy domain services and create a centralized authentication structure.
DHCP Configuration	Automate IP allocation with reserved addresses for specific clients.
Group Policy Management	Enforce domain-wide password, lockout, and user access policies.
File & Permission Management	Implement departmental folders with NTFS and sharing permissions.
Storage Management	Configure RAID 1 and RAID 5 for redundancy and data protection.
Patch Management	Deploy WSUS for centralized update management.

System Architecture

Overview:

The virtual network was designed to emulate a small company structure, where one server functions as the **Domain Controller** and the other as a **client machine** within the same domain. Both were connected via an internal VirtualBox network for communication and testing.

Implementation Summary

1. Active Directory Deployment

Installed **Active Directory Domain Services (AD DS)** on the DNS server and created a new forest named `digitech.abc`.

The WEB server was joined to the same domain for authentication and testing.

2. User and Group Management

Created **Organizational Units (OUs)** for *Accounting* and *Sales* departments.

Added users to respective **Global Security Groups**, assigning passwords and policies.

This structure enabled group-based management and access control.

3. Folder and Permission Configuration

Created departmental folders — **AccountingDocuments** and **SalesDocuments** — on the DNS server.

Applied **NTFS permissions** to restrict access by group membership.

Verification tests showed that users could only access their own departmental folders

4. Group Policy Enforcement

Implemented domain-level security policies using **Group Policy Management Console (GPMC)**:

- Password expiration: 30 days
- Lockout threshold: 3 failed attempts
- Account lockout duration: 5 minutes
- Logon hours: 9 AM–5 PM for Accounting, 8 AM–6 PM for Sales
- Restricted Control Panel access for non-admin users
- Automatic software installation via GPO

5. DHCP Configuration

Installed and configured **DHCP Server** on the Domain Controller to dynamically assign IP addresses.

Created scope and reservations for specific clients using MAC addresses.

Verified that the WEB server successfully received its IP address via DHCP reservation.

6. RAID Storage Setup

Configured **RAID 5 (Drive E:)** using four virtual disks for performance and **RAID 1 (Drive F:)** using two disks for redundancy.

Tested fault tolerance by simulating disk removal and confirming successful rebuild operations.

7. WSUS Deployment

Attempted to set up **Windows Server Update Services (WSUS)** for centralized patch management.

Post-deployment configuration initially failed, leading to troubleshooting around database permissions and service dependencies.

Lessons Learned / Personal Insights

This project provided valuable hands-on experience in **enterprise infrastructure management**.

I strengthened my ability to plan, configure, and troubleshoot complex Windows Server environments.

Issues such as DHCP reservations and WSUS errors required in-depth problem solving, while successful AD DS, GPO, and RAID configurations proved my understanding of practical system administration.

Through this project, I gained confidence in **Windows Server deployment**, **user access management**, and **policy automation** — all essential skills for roles in **System Administration**, **DevOps**, and **IT Infrastructure Engineering**.

Future Improvements

- Automate domain configuration using **PowerShell** or **Ansible**.
- Integrate Linux web servers for cross-platform network testing.
- Fully implement WSUS with successful synchronization.
- Add centralized monitoring with **Grafana** or **Zabbix**.
- Document PowerShell scripts for configuration reproducibility.

Contents

Project Introduction	5
Section 0: Adding Active Directory Domain Services	6
a. Adding Active Directory to DNS-2024359	7
Section 1: Setting up the resources and network users.....	11
1a. Setting up Organizational Units.....	11
1b. Creating Global Security Groups	12
1c. Creating User Accounts.....	14
1d. Adding Users to groups	17
1e. Creating and Sharing departmental folders with permissions.....	18
1f. Testing folder permissions for each department.....	19
1g. Applying Domain password and Account lockout policies.....	25
Section 2: Setting up a DHCP Server for the Domain	31
2a. Configure DHCP using DHCP console in Administrative tools	31
2b. Configure the Web VM to dynamically receive the IP address from the reservation	35
Section 3 : Configuring RAID on the Web Server.....	37
3a. Use four of disks to create RAID 5 volume which will be Drive E:.....	40
3b. Use two of the hard disks to create a RAID 1 Mirrored which will be drive F:	41
3c. Testing the fault tolerance for the raid volumes	43
Section 4 : Challenge Task 1	47
4a. Custom-Wallpaper.....	47
4b. Control panel - Removal	52
4c. Logon hours	56
4d. Automated software installation for Sales.....	62
4e. Automated software installation for Accounting.....	64
4f. FTP Server.....	66
Section 5 : Patch management.....	71
5a. Windows Software Update Server	71
References	73
Table of Figures	74

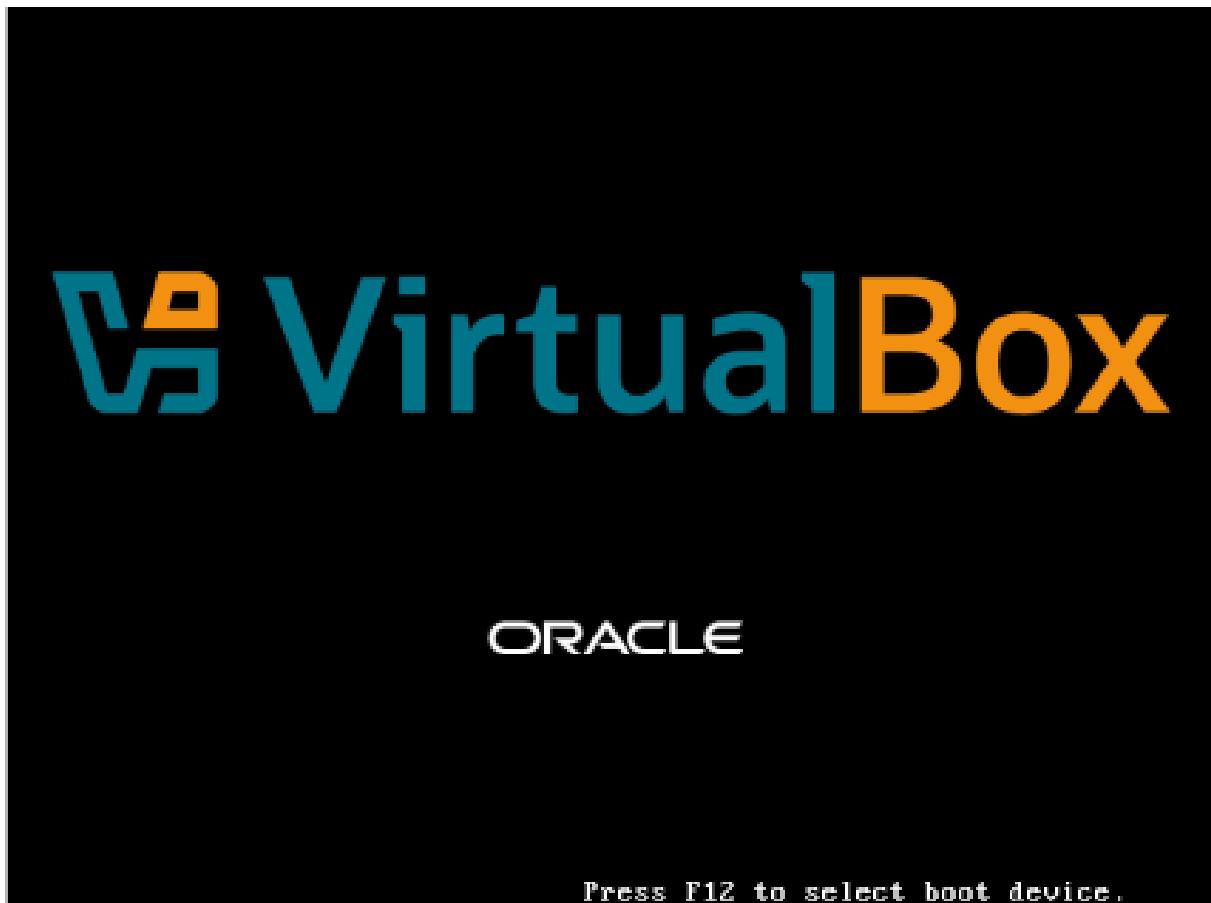


Fig. 1: Oracle VirtualBox example

Operating Systems and Architecture

VIRTUAL WINDOWS ACTIVE DIRECTORY / NETWORK SERVER VIRTUALIZATION

Project Introduction

The focus of this project is to work on 2 clones of Virtual Machine (Microsoft Windows Server 2022) for Digitech, acting as the assistant of the Network Administrator. One VM will act as a DNS server and Domain Controller (Administrator) and the other will serve as a host server which will help us to test the network and Directory configurations. The report aims to show organizational units for sales and accounting departments, configuring different settings for each department users.

Hypothetical case: I'm the assistant to the Network Administrator of a busy product services company called DigiTech. I'm required to build a fully operational Server that will be running as a Domain Controller for the Network.

Section 0: Adding Active Directory Domain Services



Fig. 2: Running the DNS-2024359 machine

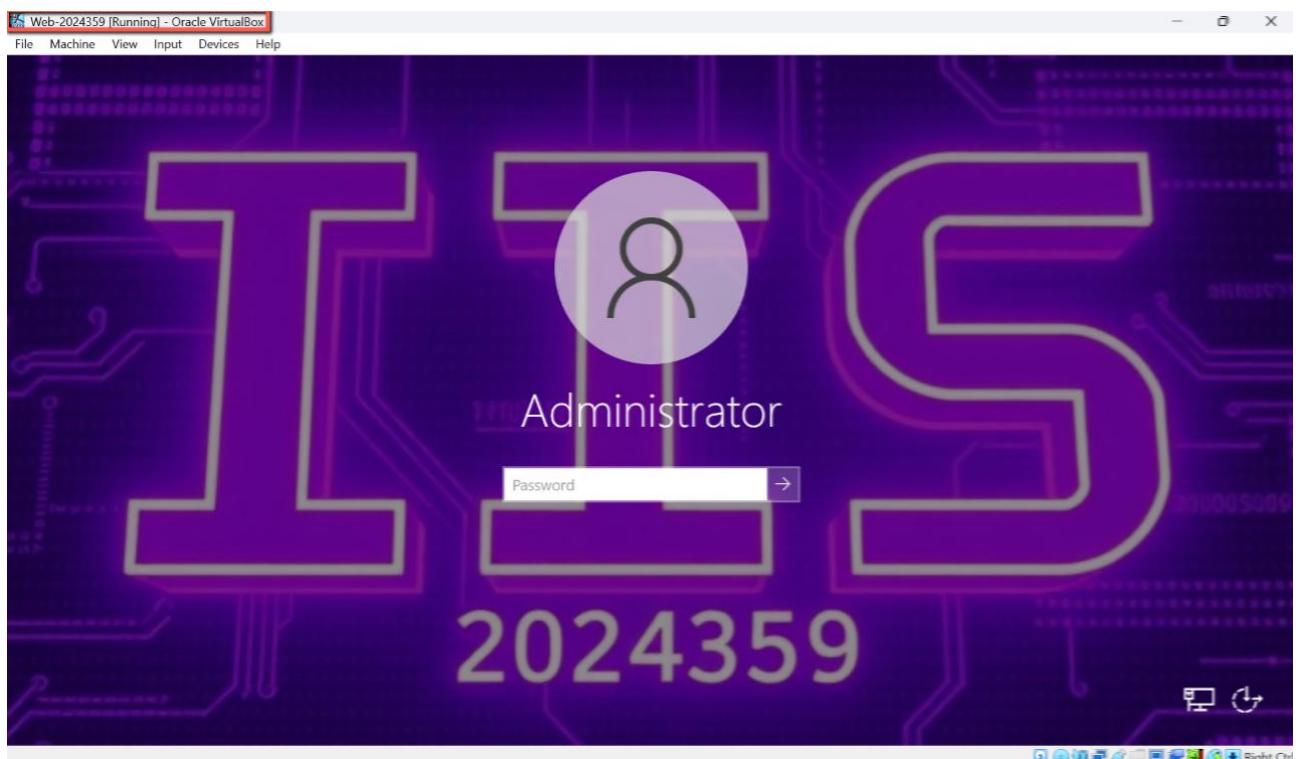


Fig. 3: Running the Web-2024359 Machine

a. Adding Active Directory to DNS-2024359

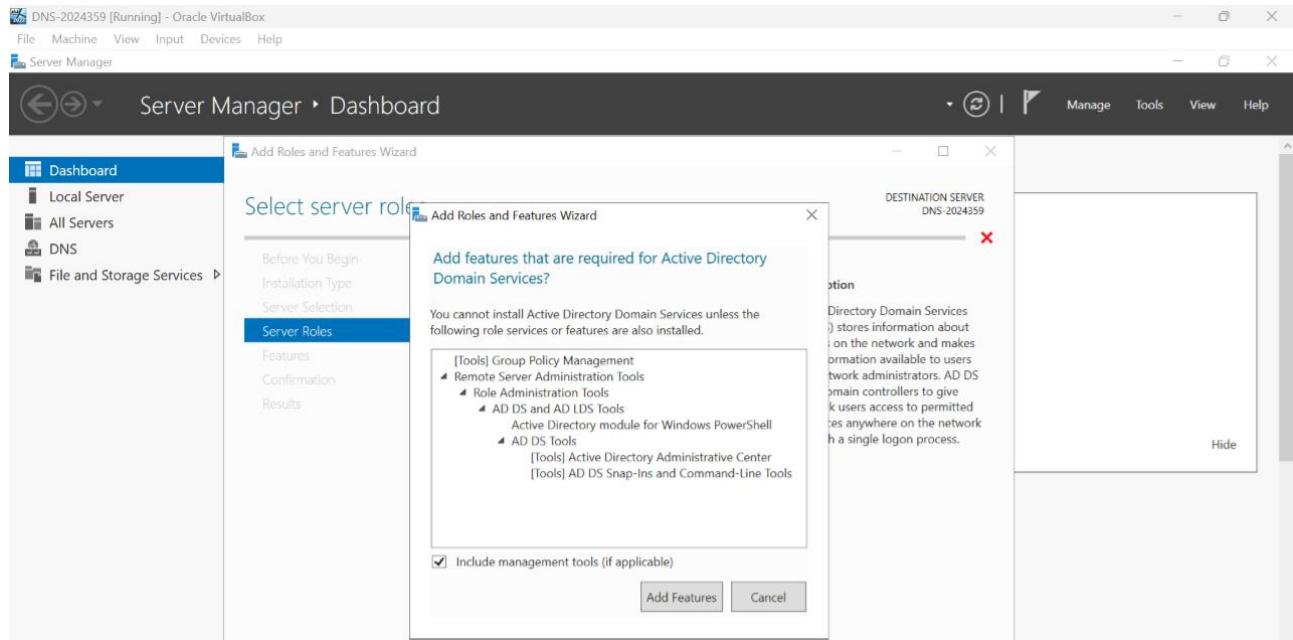


Fig. 4: Adding roles and features for AD DS

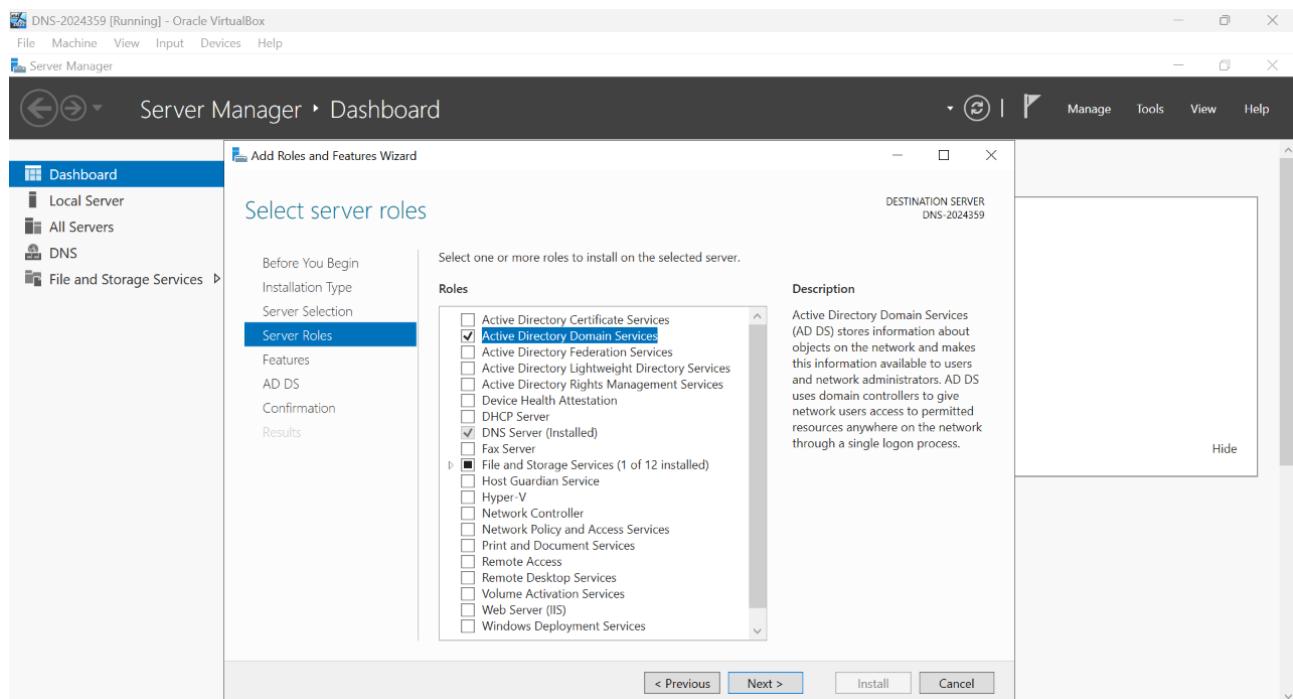


Fig. 5: Checking AD DS for DNS machine

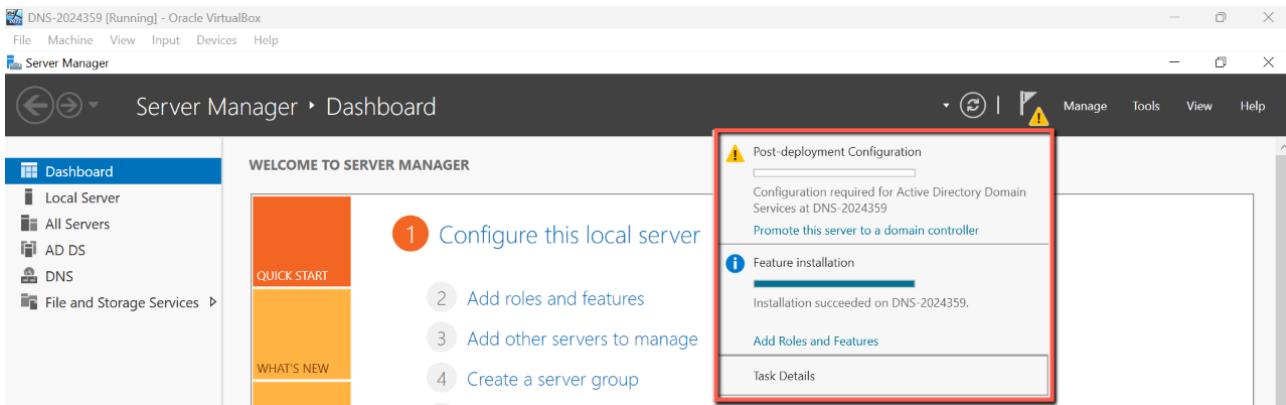


Fig. 6: Post-deployment Configuration for AD DS on DNS machine

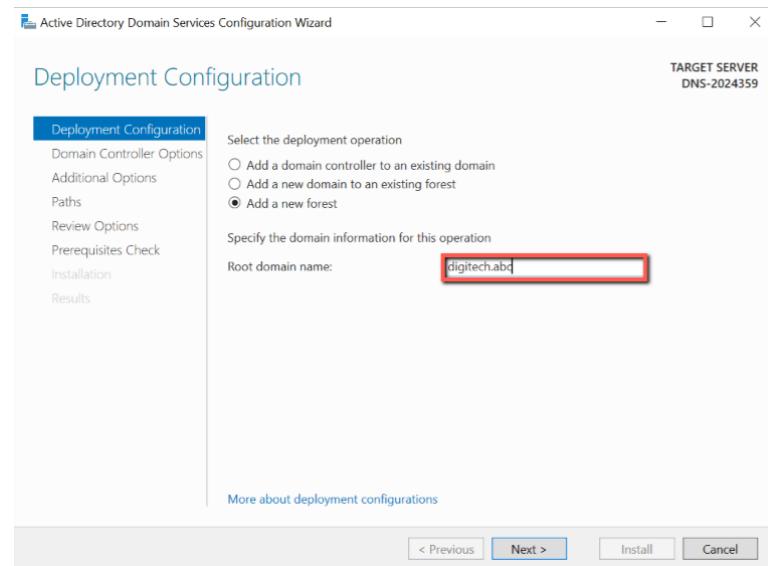


Fig. 7: Adding a new forest called digitech.abc

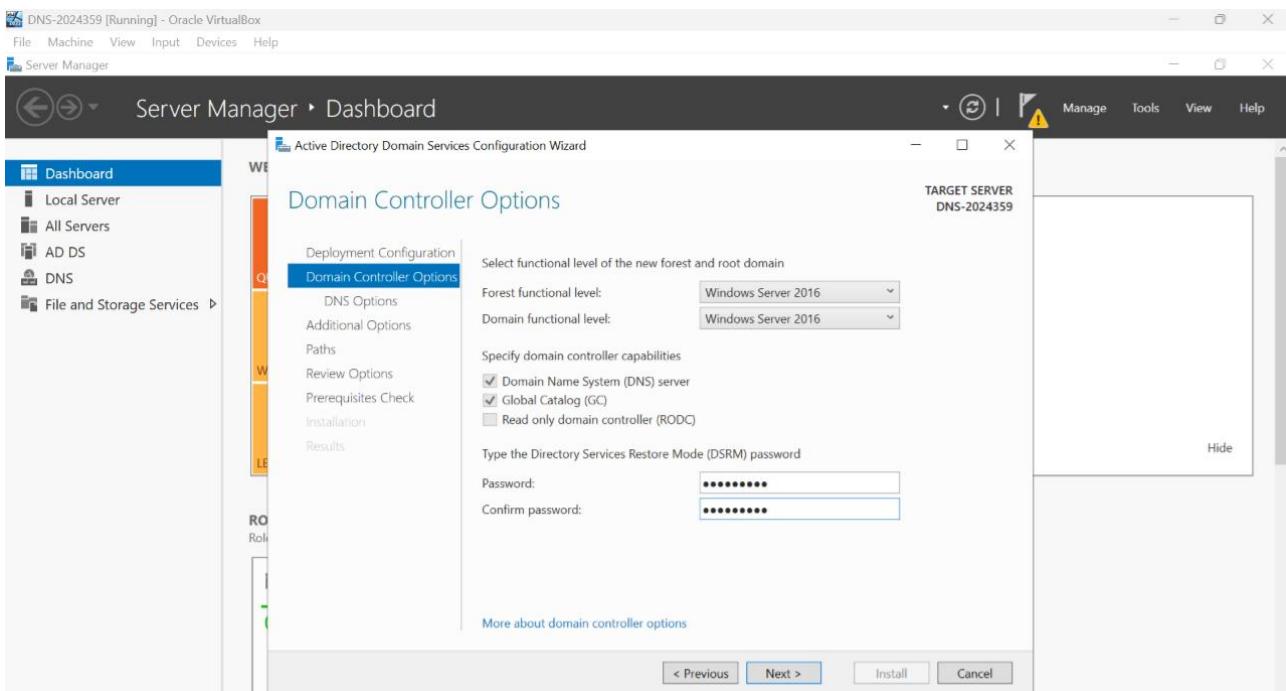


Fig. 8: Setting a password as pass1234!

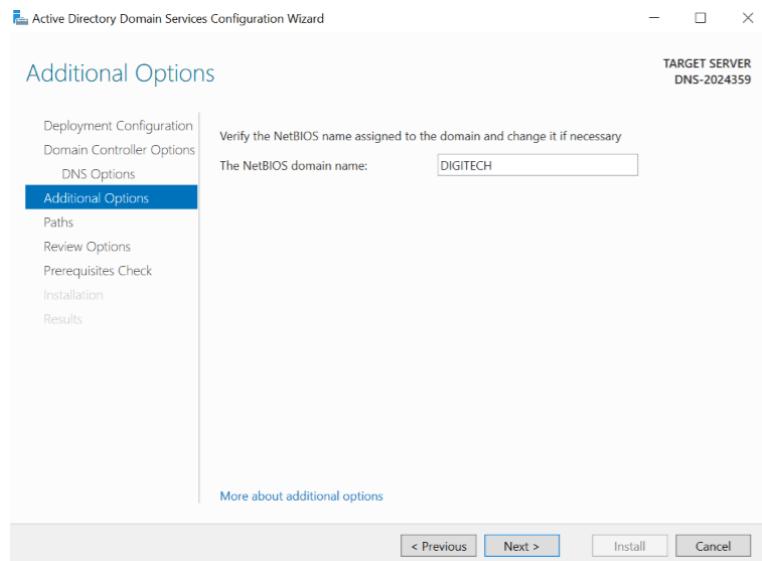


Fig. 9: Setting the domain name as digitech

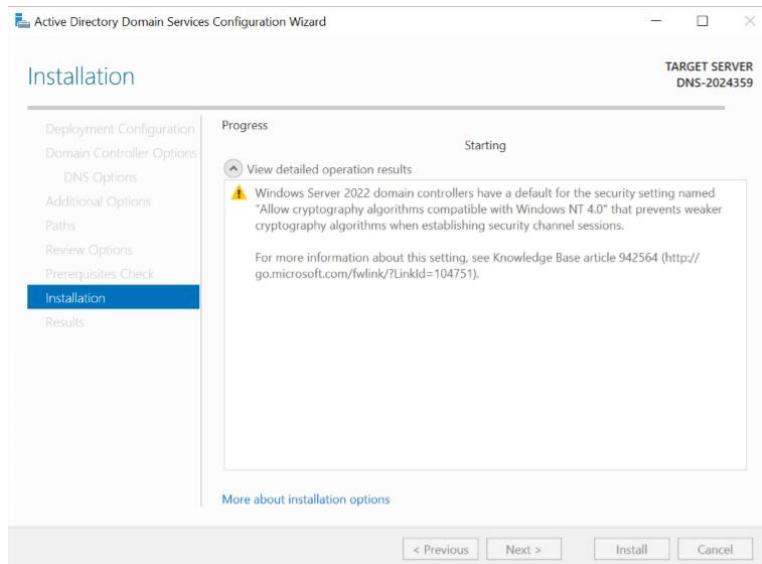


Fig.10: Getting ready to install the AD DS

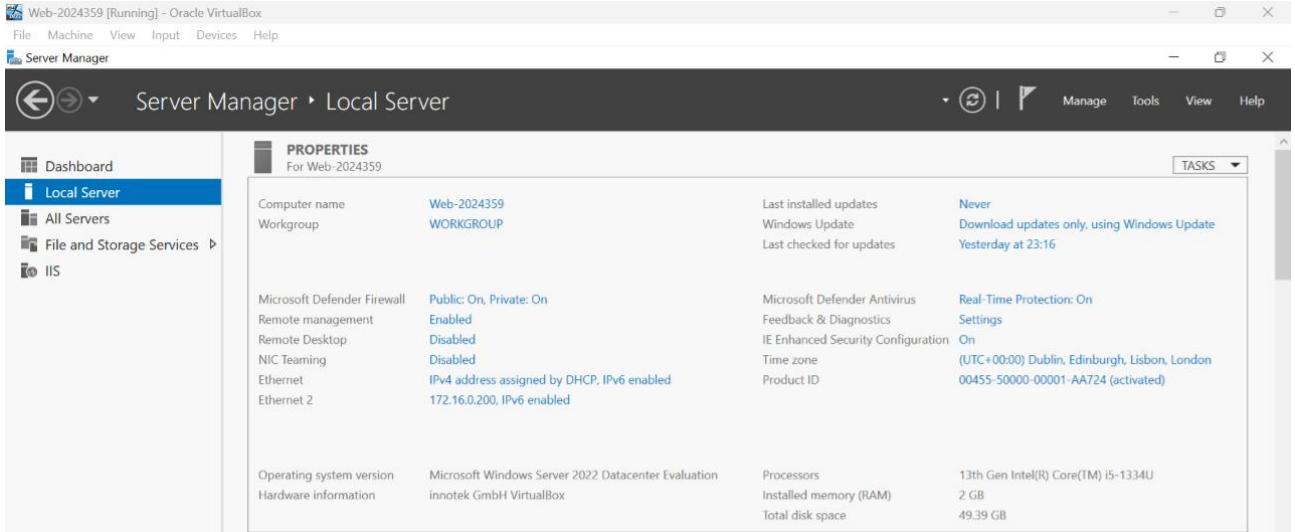


Fig. 11: Logging in as Web machine and opening workgroup

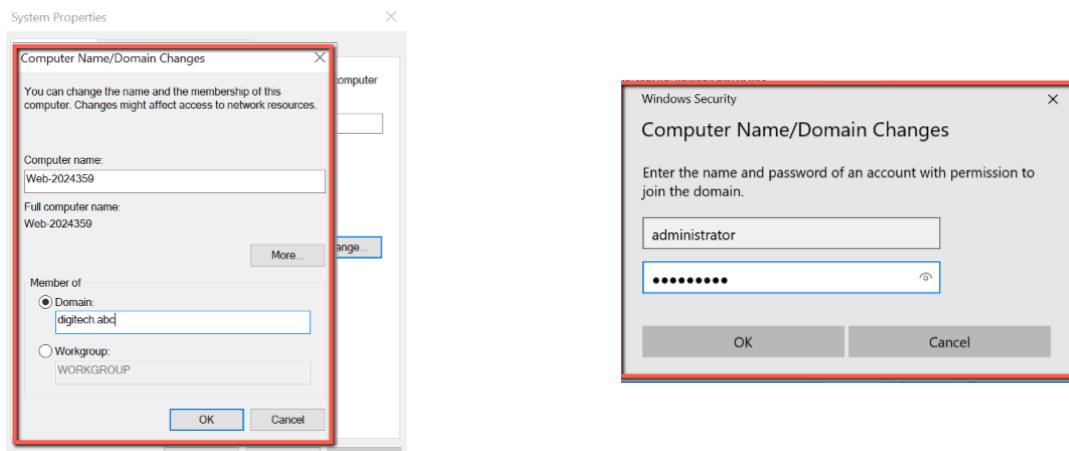


Fig. 12: Setting the domain as digitech.abc

Fig. 13: Logging as an admin

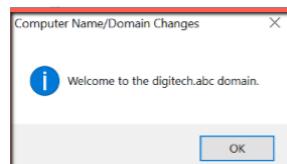


Fig. 14: Setting the domain as digitech.abc

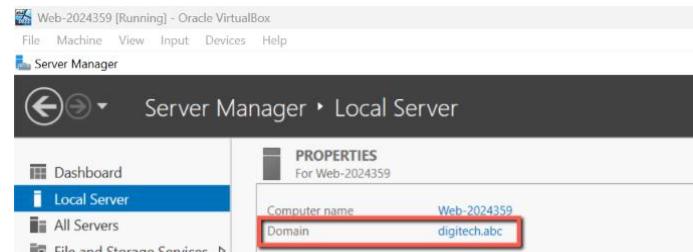


Fig. 15: Domain: digitech.abc on Web machine

Setting up the domain controller for the DNS server machine.

Section 1: Setting up the resources and network users

1a. Setting up Organizational Units

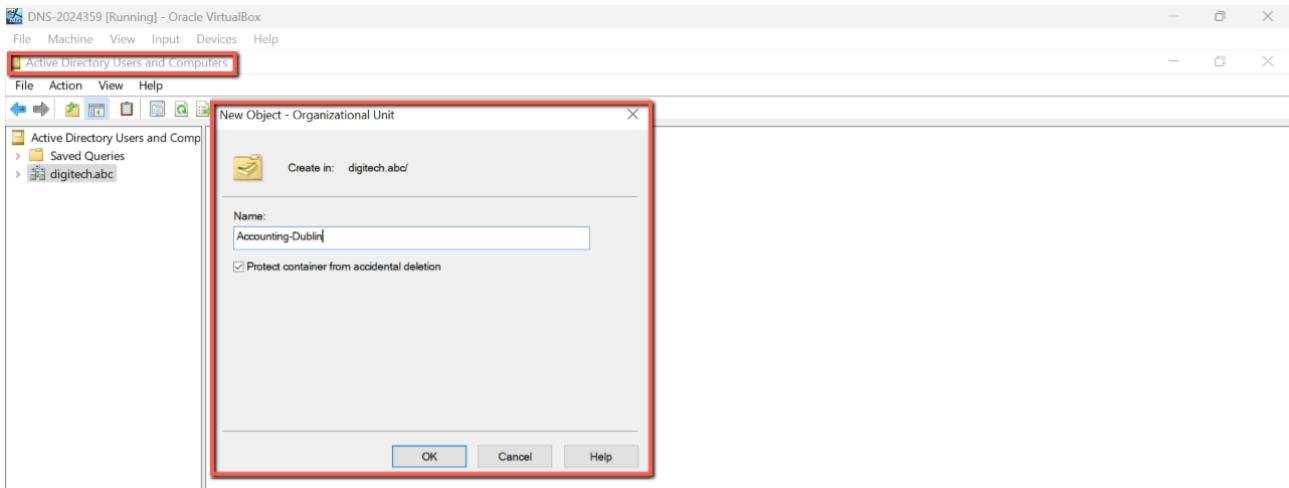


Fig. 16: Creating the OU for the Accounting Department

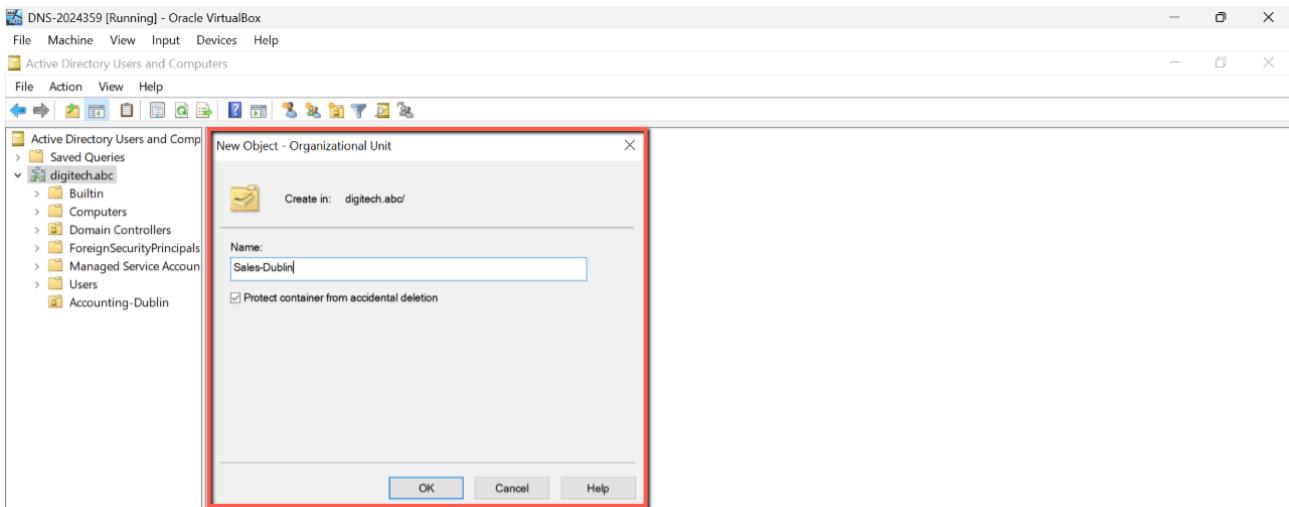


Fig. 17: Creating the OU for the Sales Department

Name	Type	Description
Builtin	builtinDomain	
Computers	Container	Default container for up...
Domain Con...	Organizational ...	Default container for do...
ForeignSecur...	Container	Default container for sec...
Managed Se...	Container	Default container for ma...
Users	Container	Default container for up...
Accounting-...	Organizational ...	
Sales-Dublin	Organizational ...	

Fig. 18: After creating the OUs on DNS machine

1b. Creating Global Security Groups

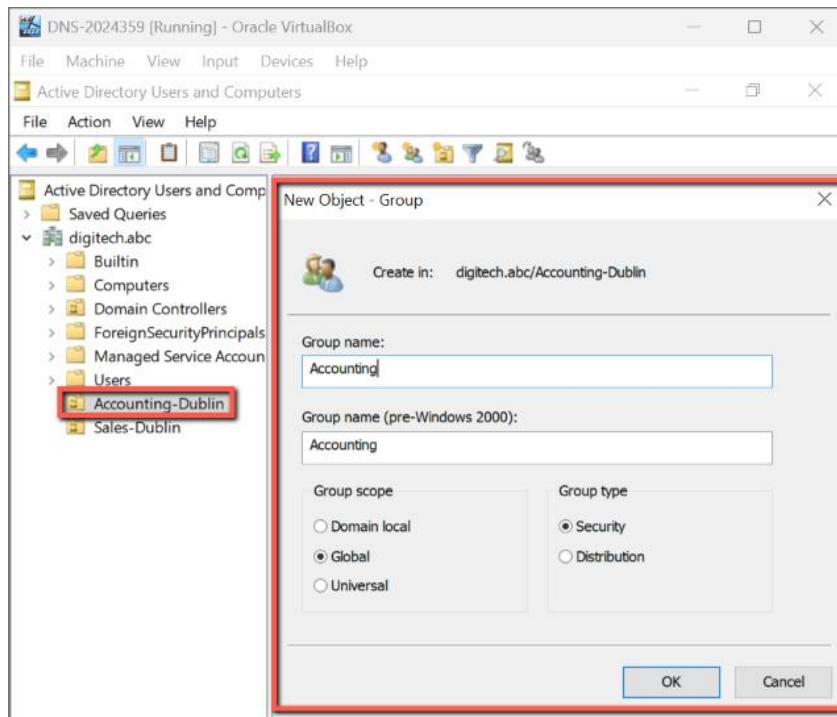


Fig. 19: Creating the Global Security Group for Accounting department

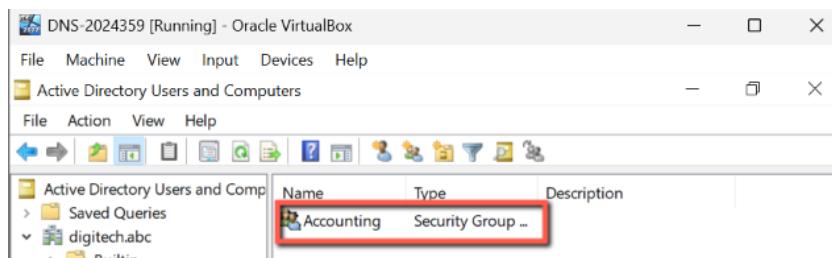


Fig. 20: Accounting group

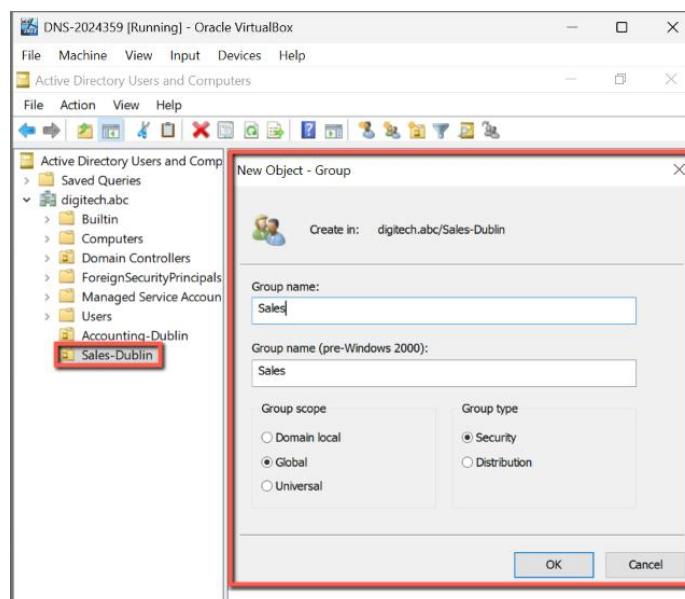


Fig. 21: Creating the Global Security Group for Sales Department

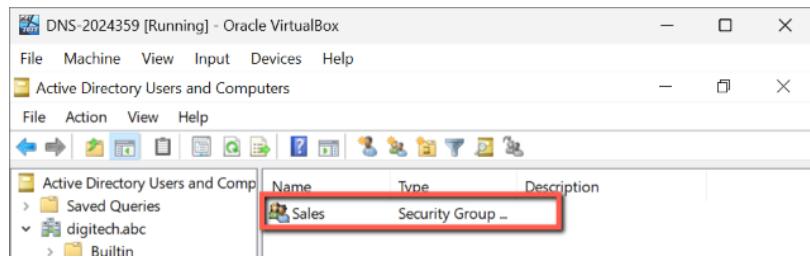


Fig. 22: Sales Group

1c. Creating User Accounts

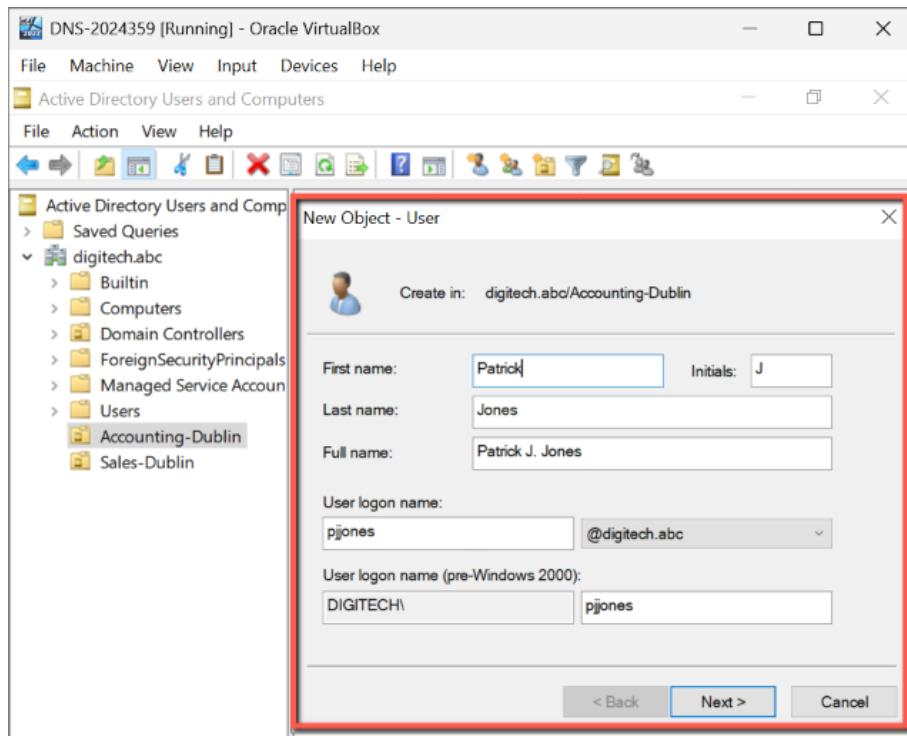


Fig. 23: Creating user account on Accounting-Dublin/Assigning names

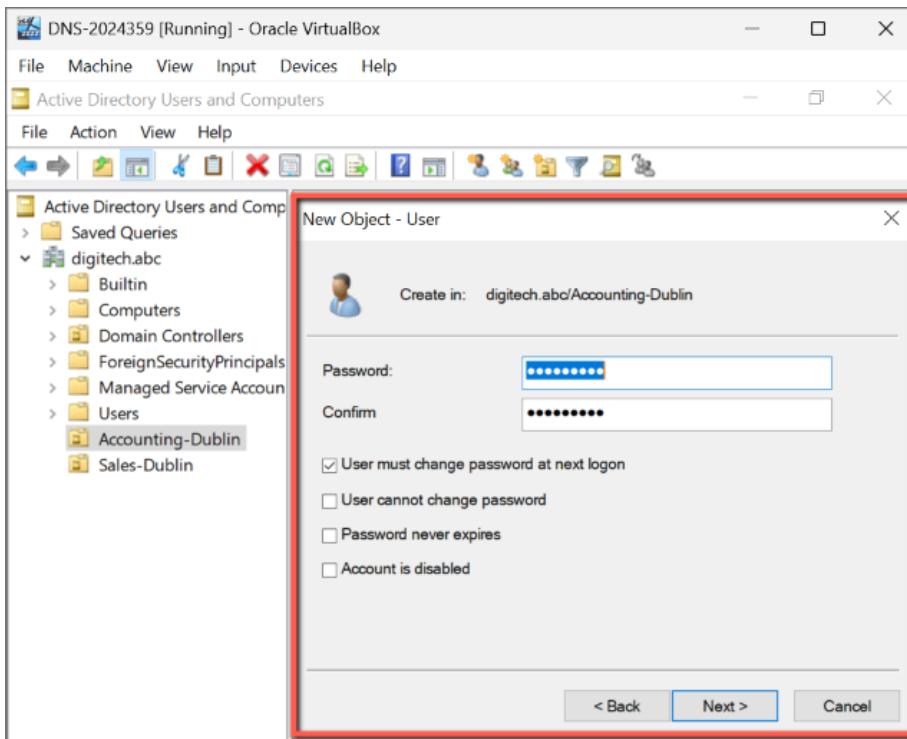


Fig. 24: Creating user account on Accounting-Dublin/Assigning password – pass1234!

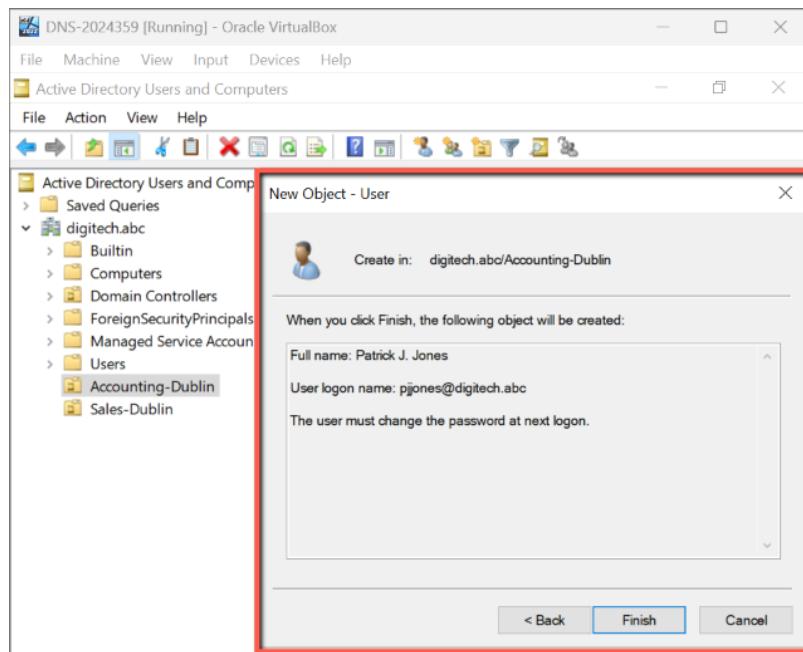


Fig. 25: New user account on Accounting Department

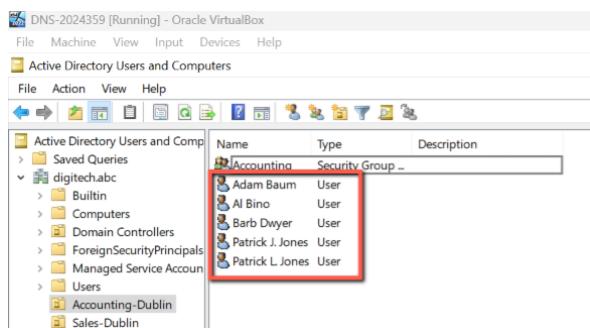


Fig. 26: All the user accounts on Accounting Department

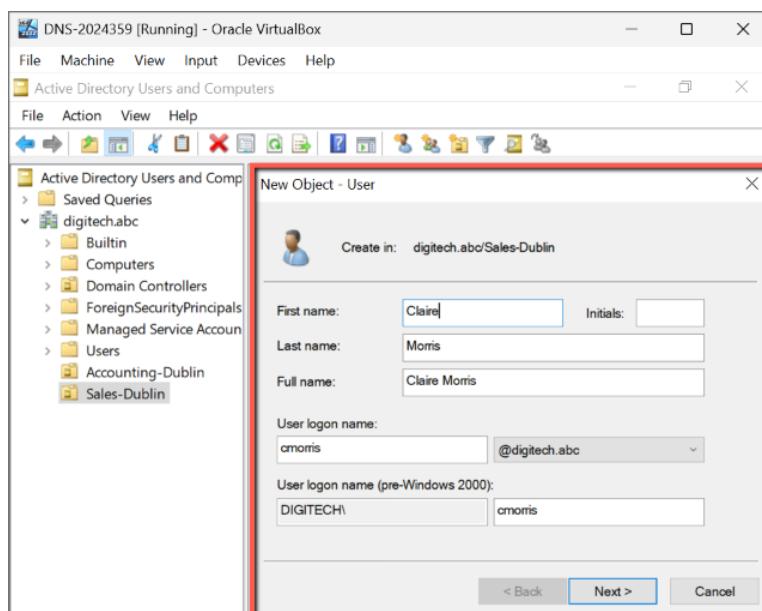


Fig. 27: Creating user account on Sales-Dublin/Assigning names

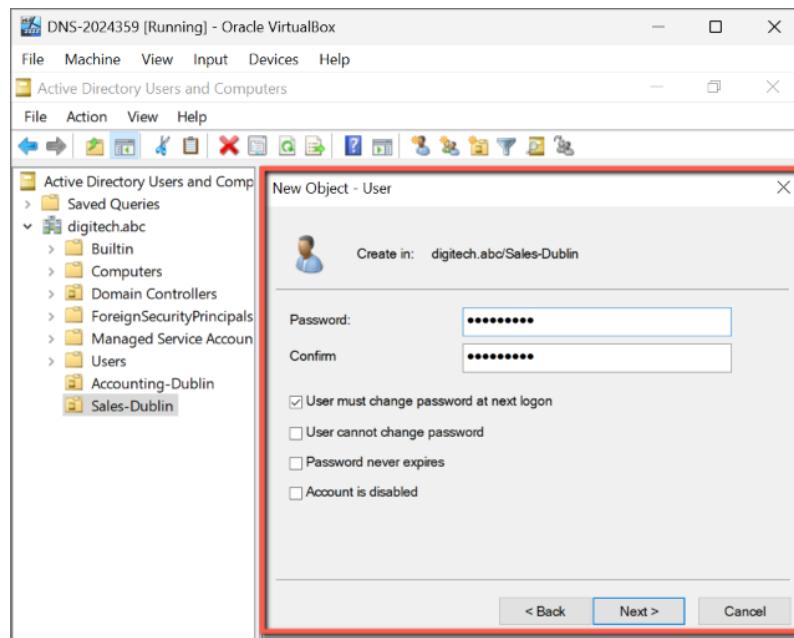


Fig. 28: Creating user account on Sales-Dublin/Assigning password – pass1234!

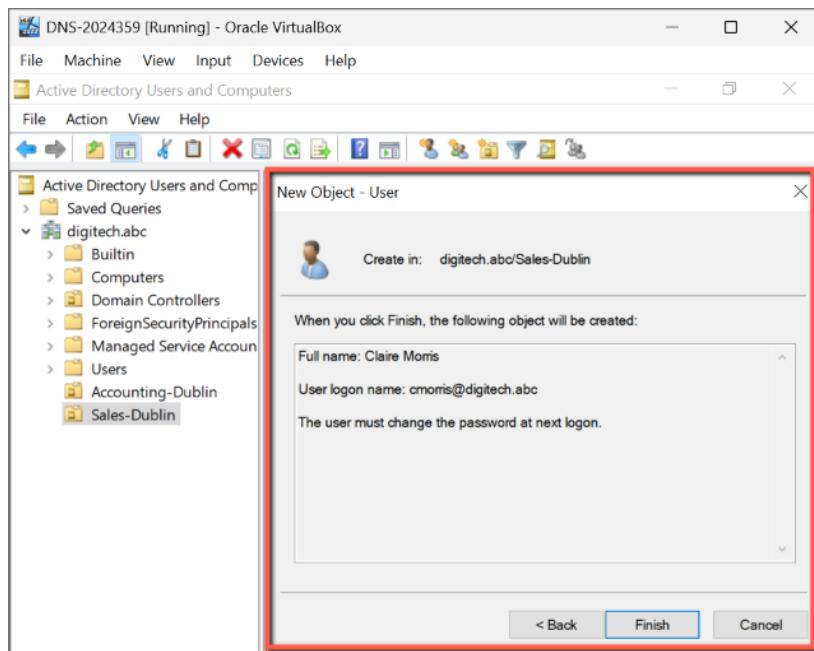


Fig. 29: New user account on Sales Department

Name	Type	Description
Sales	Security Group	
Claire Morris	User	
Claire Galway	User	
Annabelle Le...	User	
Anna Conda	User	
Justin Case	User	

Fig. 30: All the user accounts on Sales Department

1d. Adding Users to groups

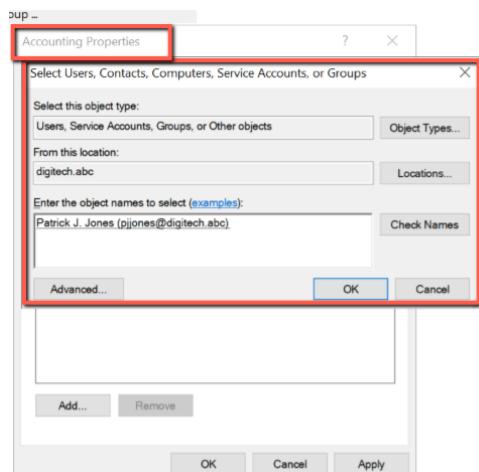


Fig. 31: Adding Accounting Members to the Accounting group

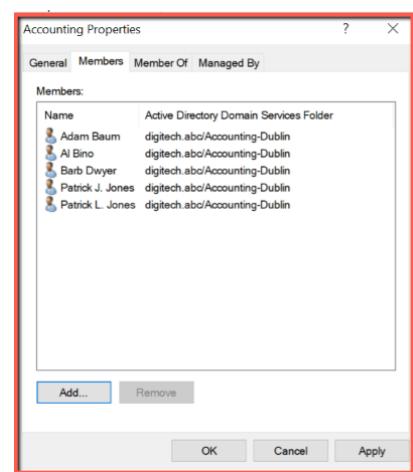


Fig. 32: All the members on the Accounting group

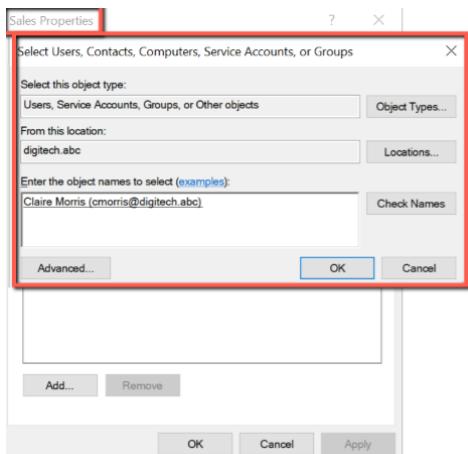


Fig. 33: Adding Sales Members to the Sales group

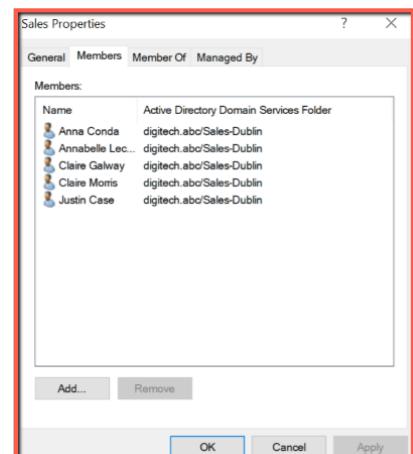


Fig. 34: All the members on the Sales group

1e. Creating and Sharing departmental folders with permissions

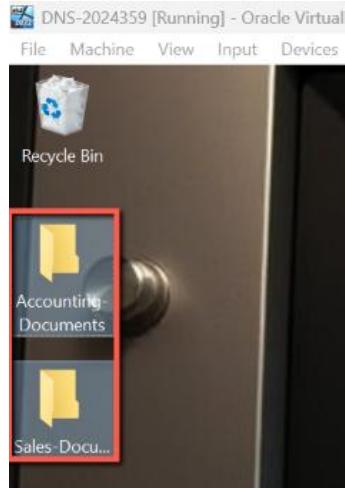


Fig. 35: Creating 2 new folders for Accounting and Sales departments

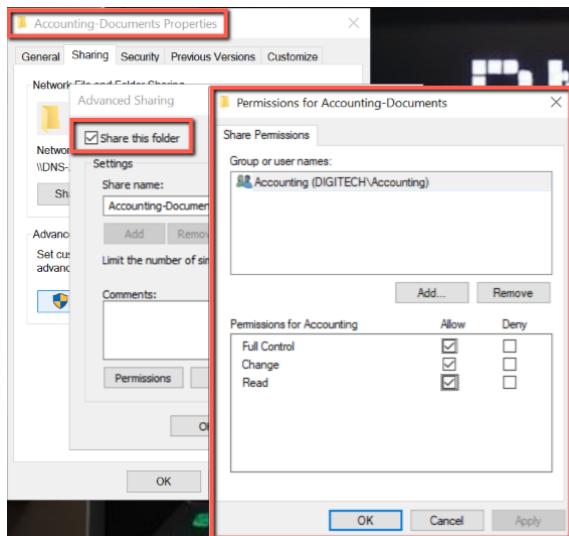


Fig. 36: Sharing the folder with the accounting group

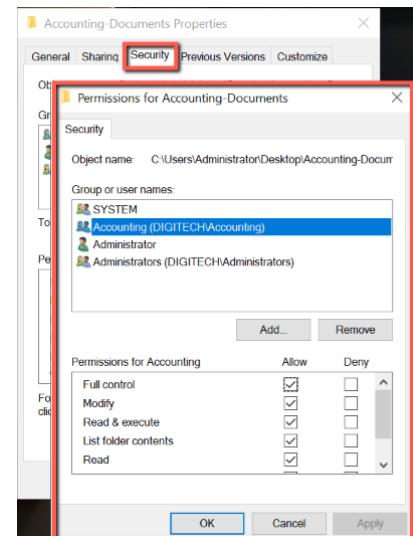


Fig. 37: Applying NTFS permissions to the Accounting group

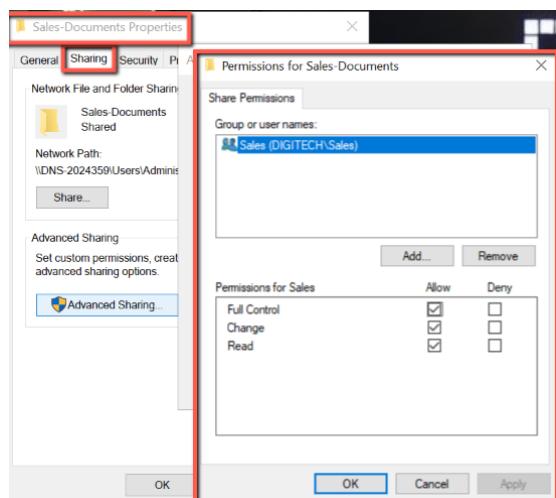


Fig. 38: Sharing the folder with the Sales group

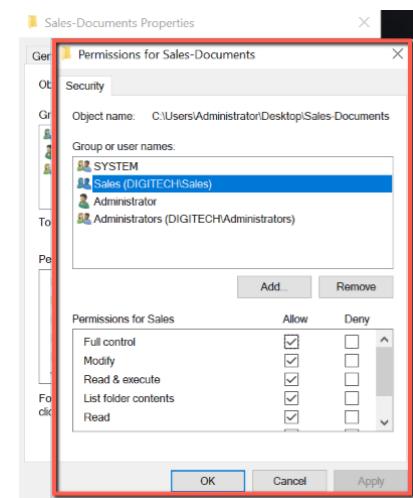


Fig. 39: Applying NTFS permissions to the Sales group

1f. Testing folder permissions for each department

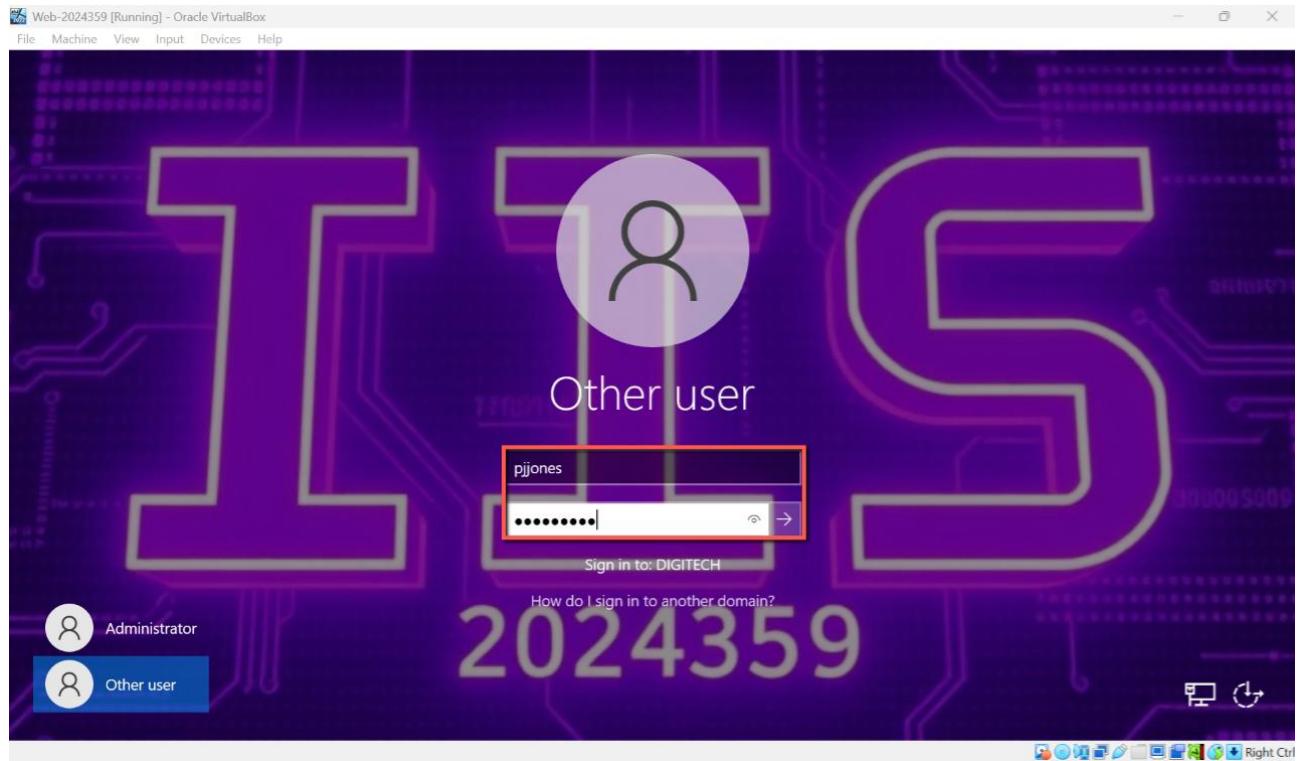


Fig. 40: Logging in as Accounting user (pjones, pass1234!) on Web VM

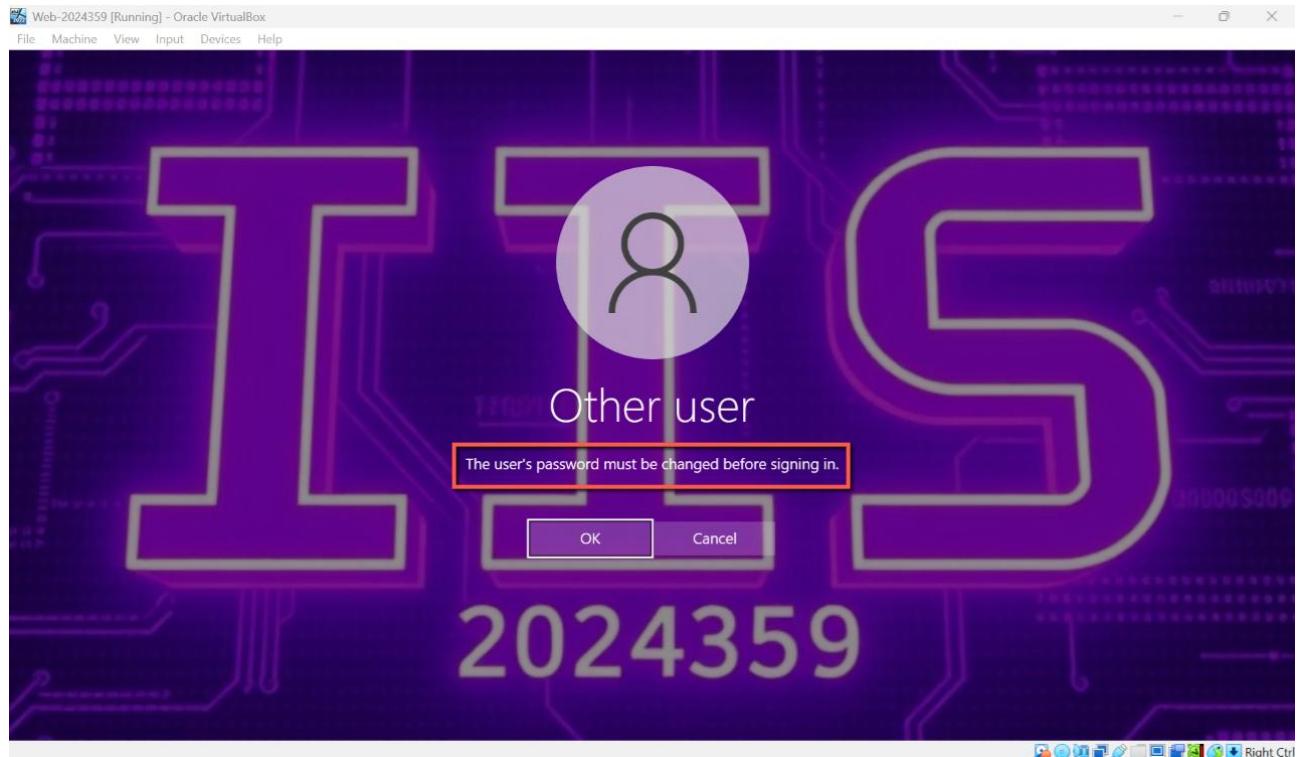


Fig. 41: Accounting user must change the password on first logon

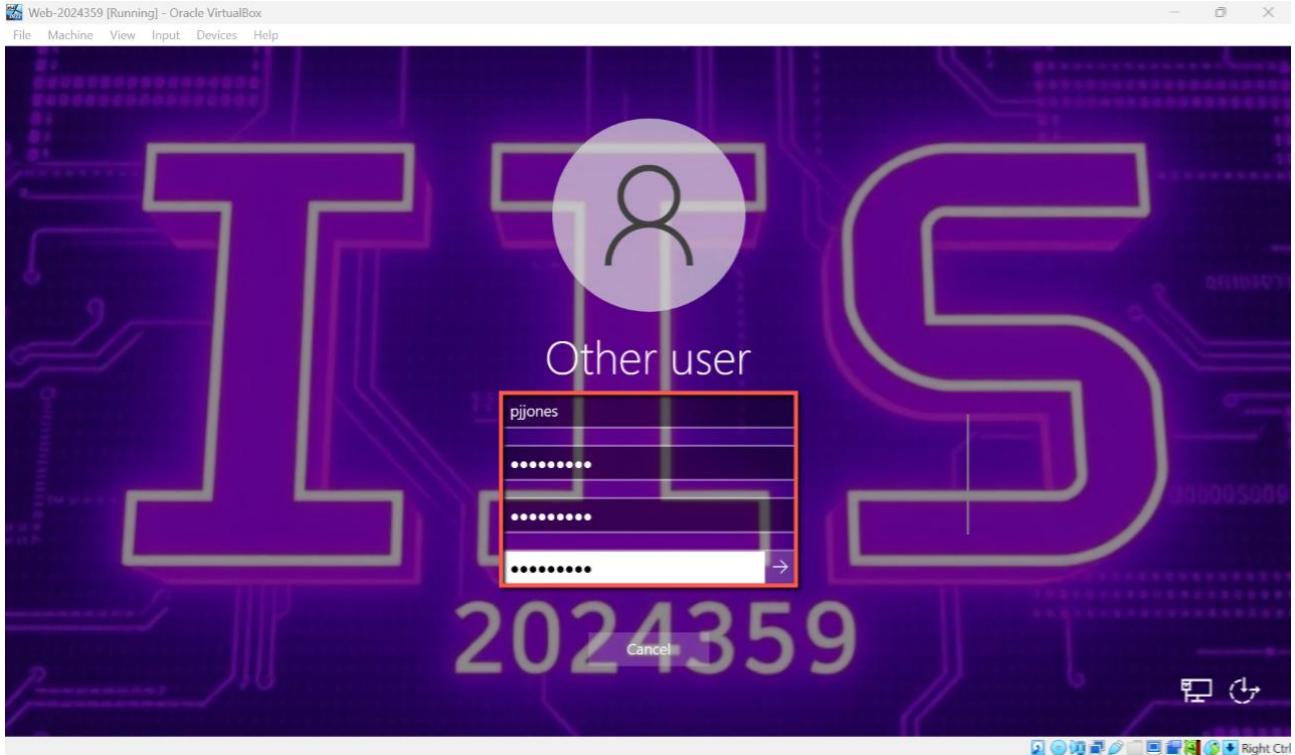


Fig. 42: Changing the Accounting user password to pass1234\$

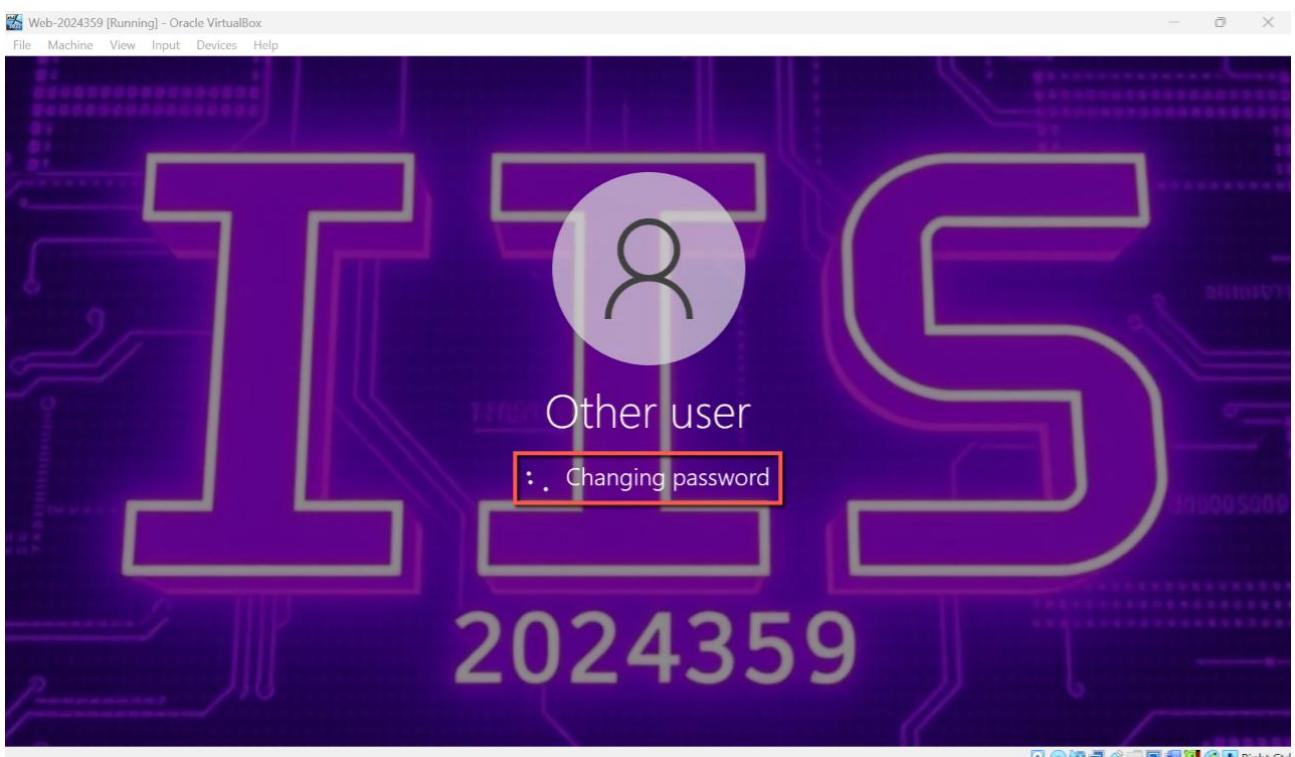


Fig. 43: Changing the password for Accounting User Patrick J. Jones

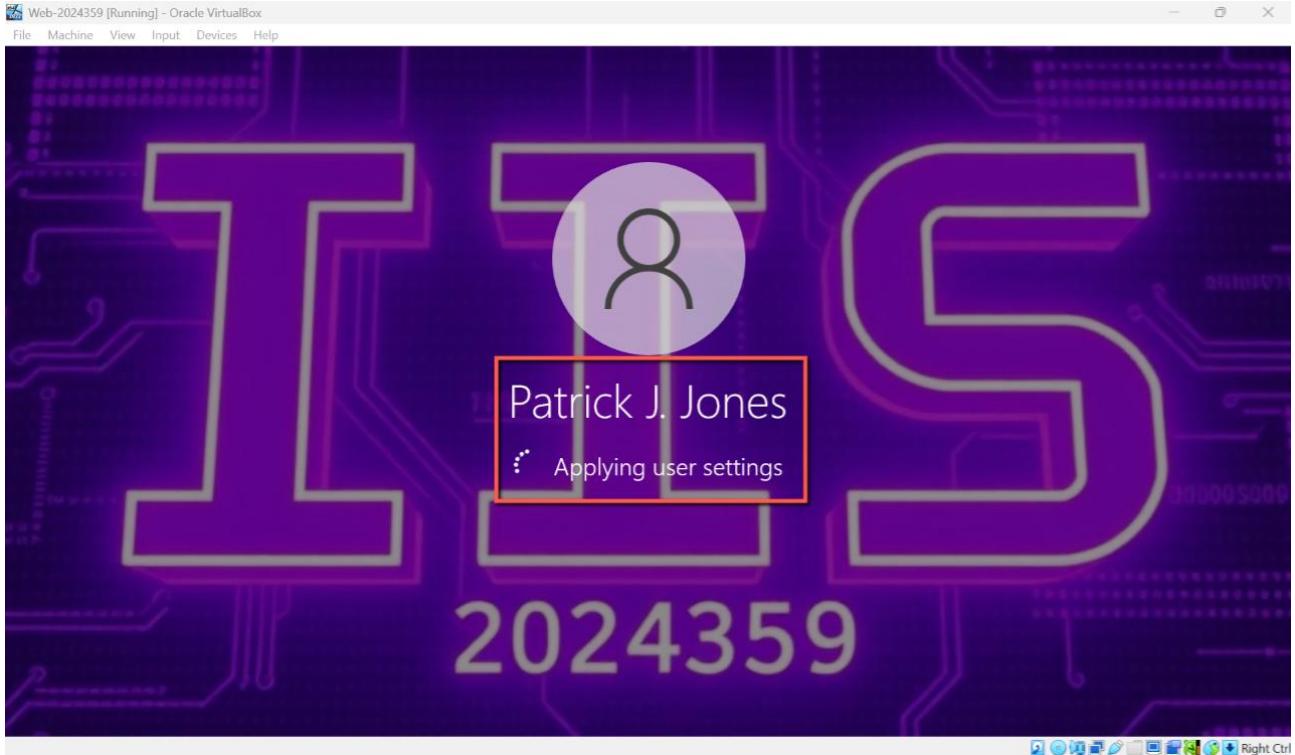


Fig. 44: Applying user settings for Patrick J. Jones

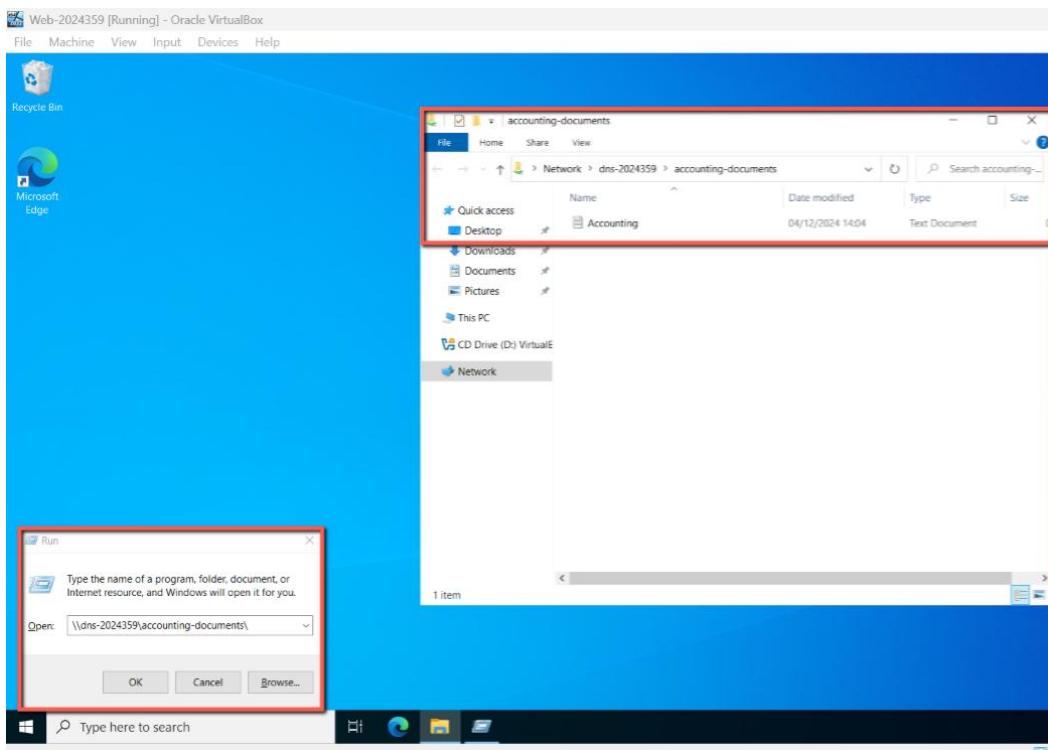


Fig. 45: Running UNC path for Accounting-Documents and accessing the folder/Accounting User on WebVM

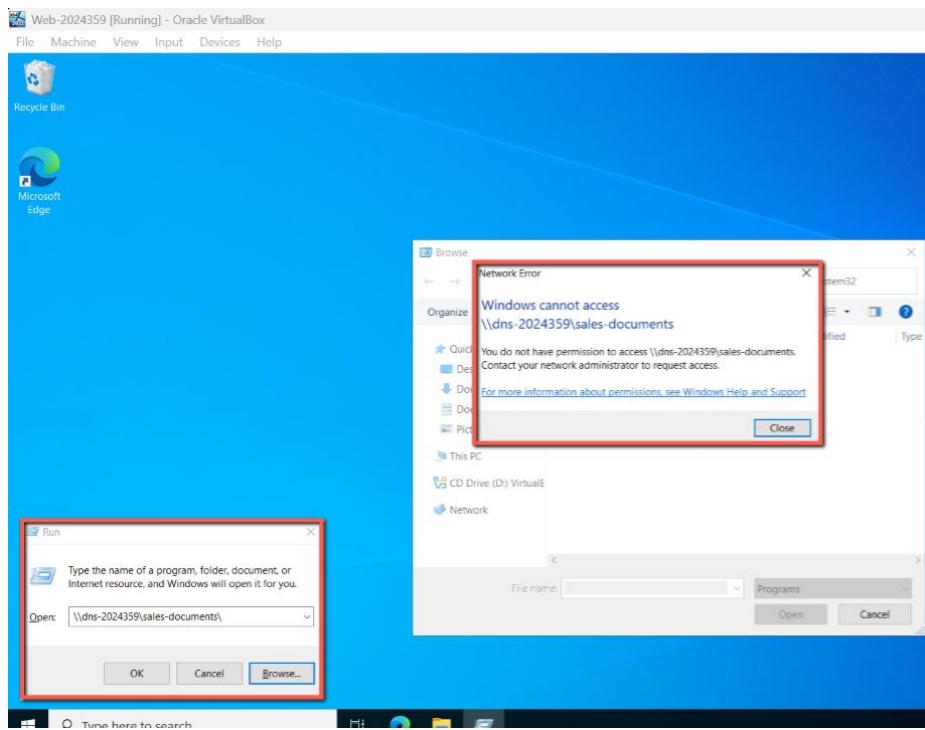


Fig. 46: Running the UNC path for Sales-Documents and getting rejected to access/Accounting User-WebVM

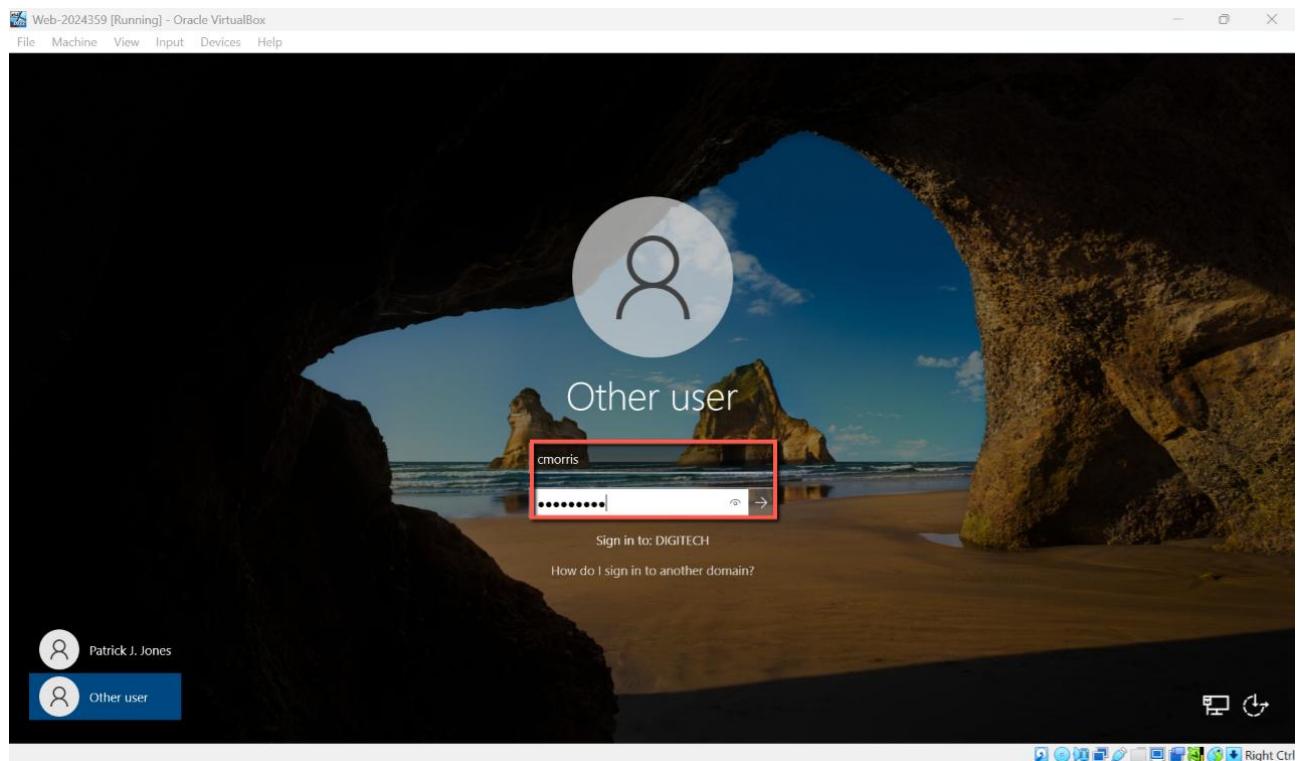


Fig. 47: Logging in as Sales user (cmorris, pass1234!) on Web VM

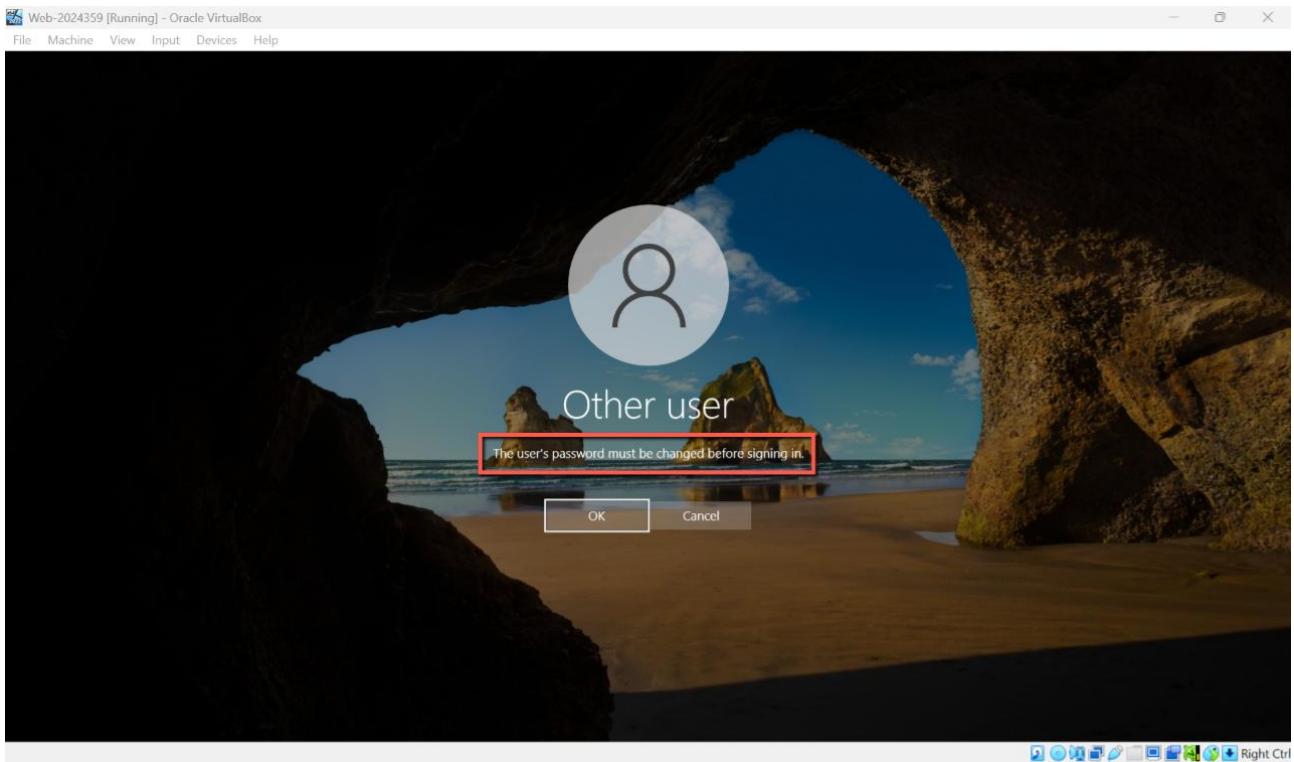


Fig. 48: Sales user must change the password on first logon

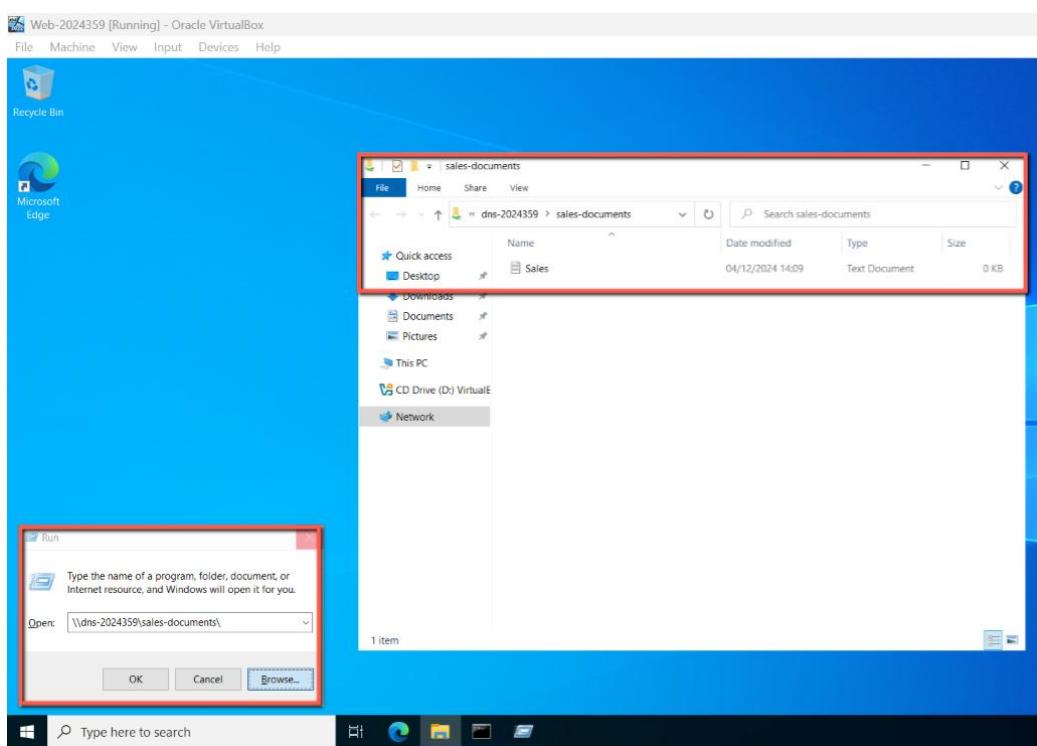


Fig. 49: Running UNC path for Sales-Documents and accessing the folder/Sales User on WebVM

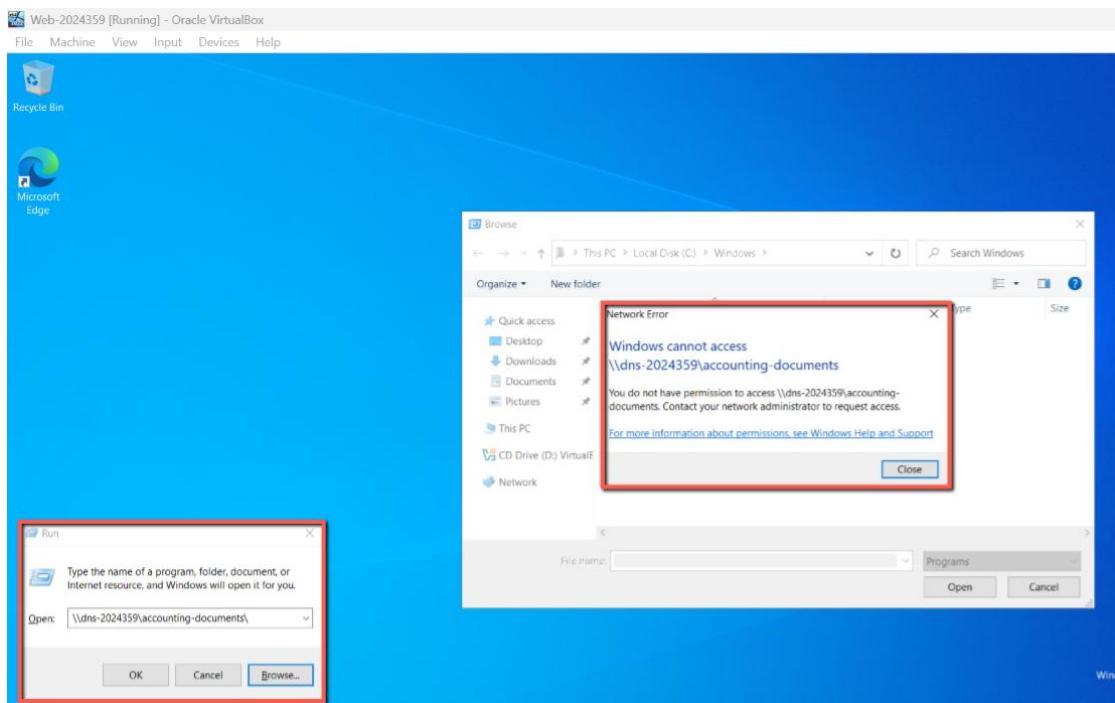


Fig. 50: Running the UNC path for Accounting-Documents and getting rejected to access/Sales User-WebVM

1g. Applying Domain password and Account lockout policies



Fig. 51: Opening the Group Policy Management on Active Directory

The screenshot shows the 'Group Policy Management' window for the 'digitech.abc' forest. The left pane displays a tree structure with 'Forest: digitech.abc', 'Domains' (containing 'digitech.abc'), and 'Sites'. The right pane shows a table with one row for the 'Default Domain Policy'. The row is highlighted with a red box. The table columns are 'Precedence' (1), 'GPO' (Default Domain Policy), 'Location' (digitech.abc), 'GPO Status' (Enabled), and 'WMI Filter' (None). Below the table, a message states: 'This list does not include any GPOs linked to sites. For more details, see Help.'

Fig. 52: Finding the default domain policy

The left screenshot shows the 'Default Domain Policy' context menu with the 'Edit...' option highlighted with a red box. The right screenshot shows the 'Default Domain Policy [DNS-2024359.DIGITECHABC] Policy' editor. The 'Computer Configuration' node is expanded, showing 'Policies' which further expand into 'Software Settings', 'Windows Settings', 'Security Settings', and 'Account Policies'. The 'Password Policy' under 'Account Policies' is selected and highlighted with a red box.

Fig. 53: Editing the Default domain policy

Fig. 54: Password policy

The screenshot shows the 'Default Domain Policy [DNS-2024359.DIGITECHABC] Policy' editor. The 'Computer Configuration' node is expanded, showing the 'Policies' node which contains 'Software Settings', 'Windows Settings', 'Security Settings', and 'Account Policies'. Under 'Account Policies', the 'Password Policy' is selected. A table on the right lists various password policy settings with their current values:

Policy	Policy Setting
Enforce password history	24 passwords remembered
Maximum password age	42 days
Minimum password age	1 days
Minimum password length	7 characters
Minimum password length audit	Not Defined
Password must meet complexity requirements	Enabled
Relax minimum password length limits	Not Defined
Store passwords using reversible encryption	Disabled

Fig. 55: Before the settings / password policy

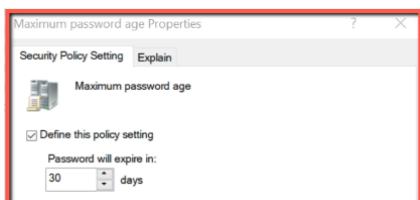


Fig. 56: Changing the password age to 30 days

Policy	Policy Setting
Enforce password history	10 passwords remembered
Maximum password age	30 days
Minimum password age	1 days
Minimum password length	8 characters
Minimum password length audit	Not Defined
Password must meet complexity requirements	Enabled
Relax minimum password length limits	Not Defined
Store passwords using reversible encryption	Disabled

Fig. 57: After the password settings / password policy

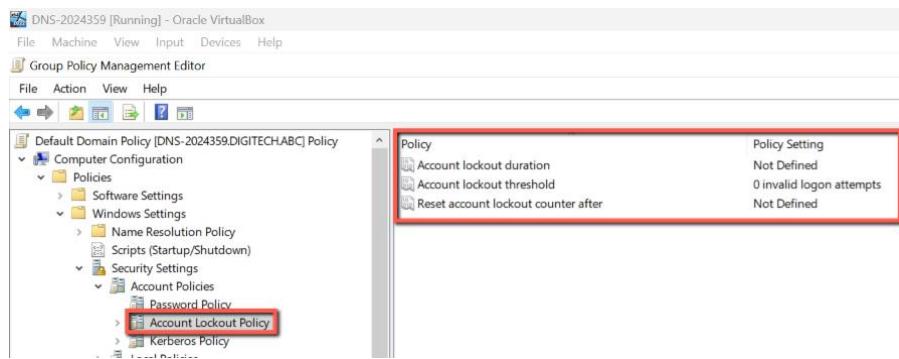


Fig. 58: Before the settings / account lockout policy

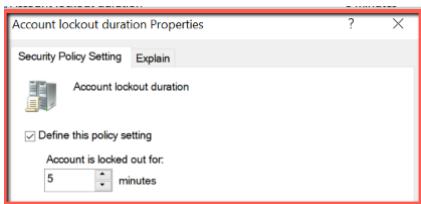


Fig. 59: Changing the account lockout to 5 mins

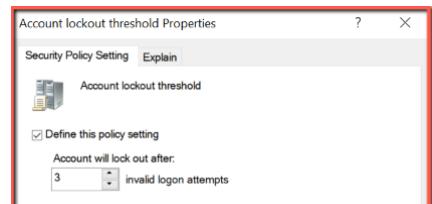


Fig. 60: Changing the invalid login attempts to 3

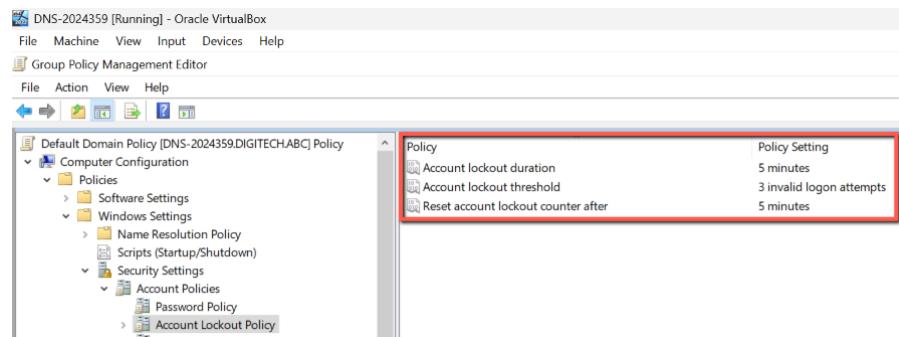


Fig. 61: Account lockout policy after the settings

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.20348.587]
(c) Microsoft Corporation. All rights reserved.

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

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

Fig. 62: Updating group policy on command prompts using force

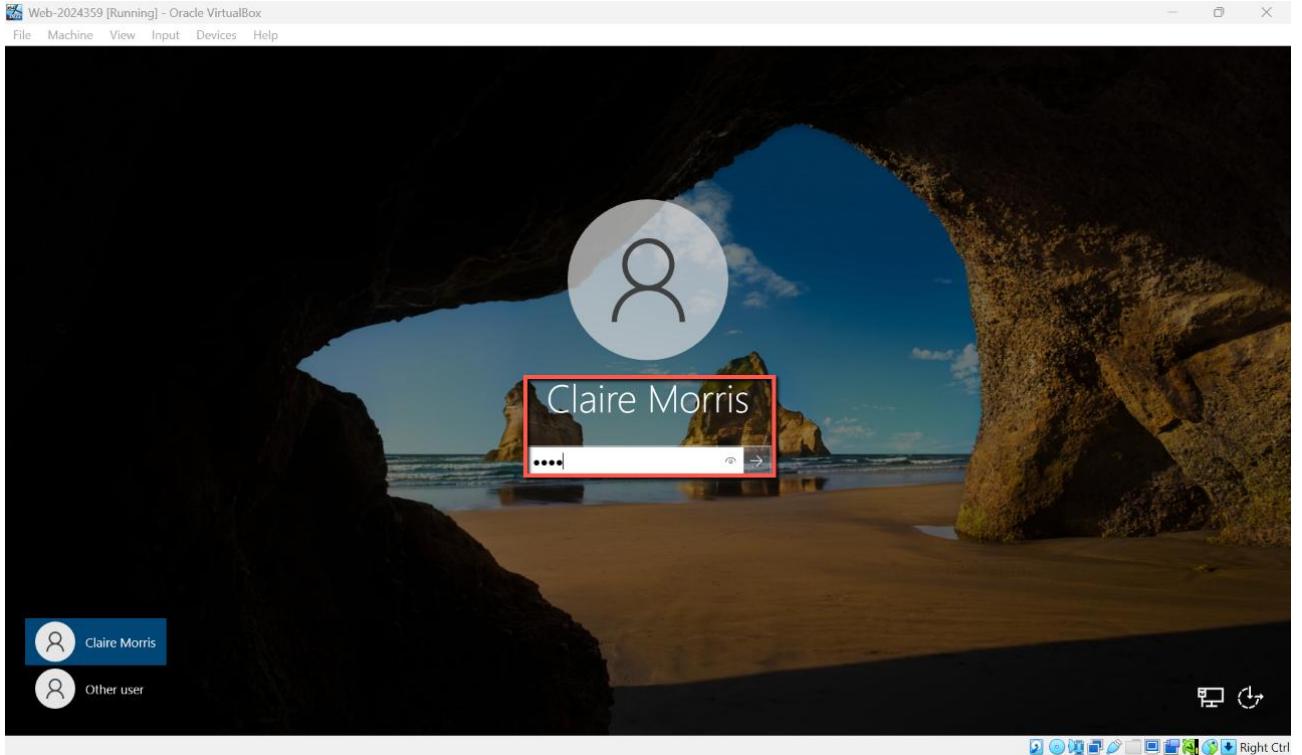


Fig. 63: First attempt – wrong password (1234) / Web VM

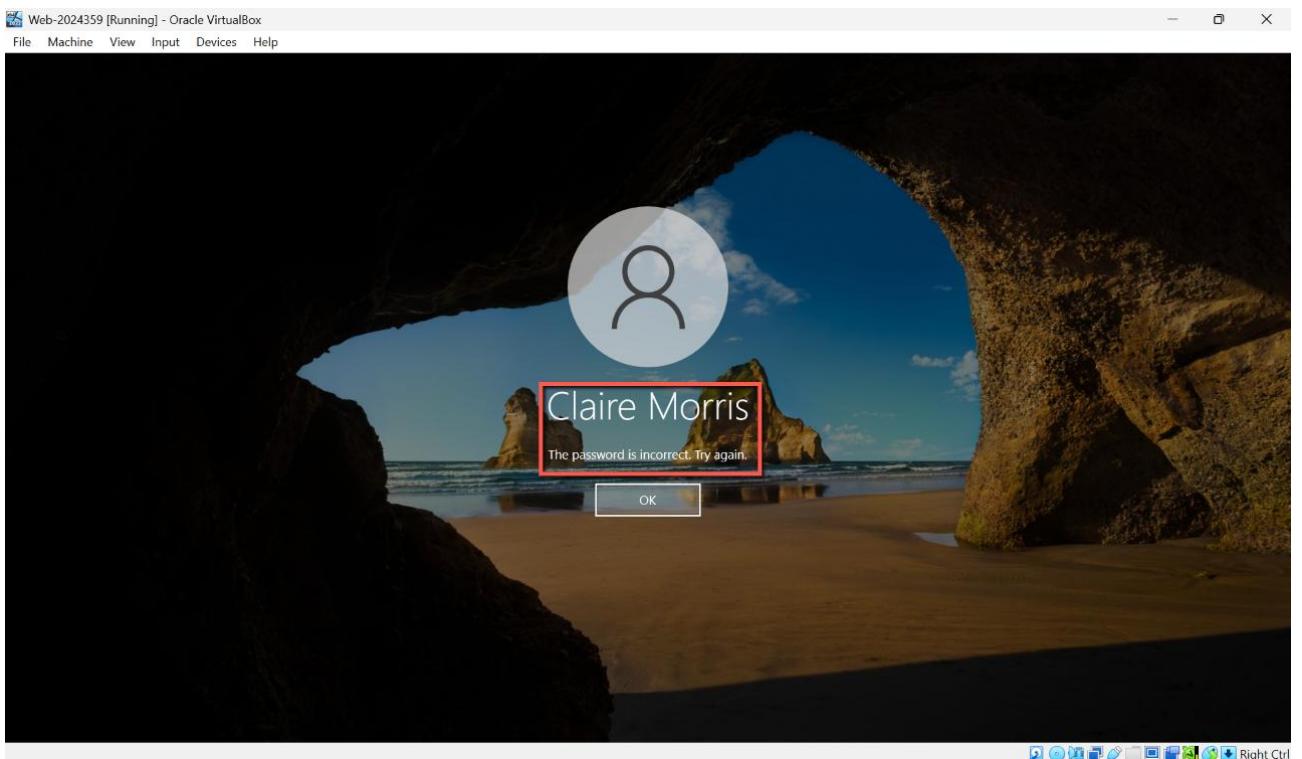


Fig. 64: First attempt – wrong password notification

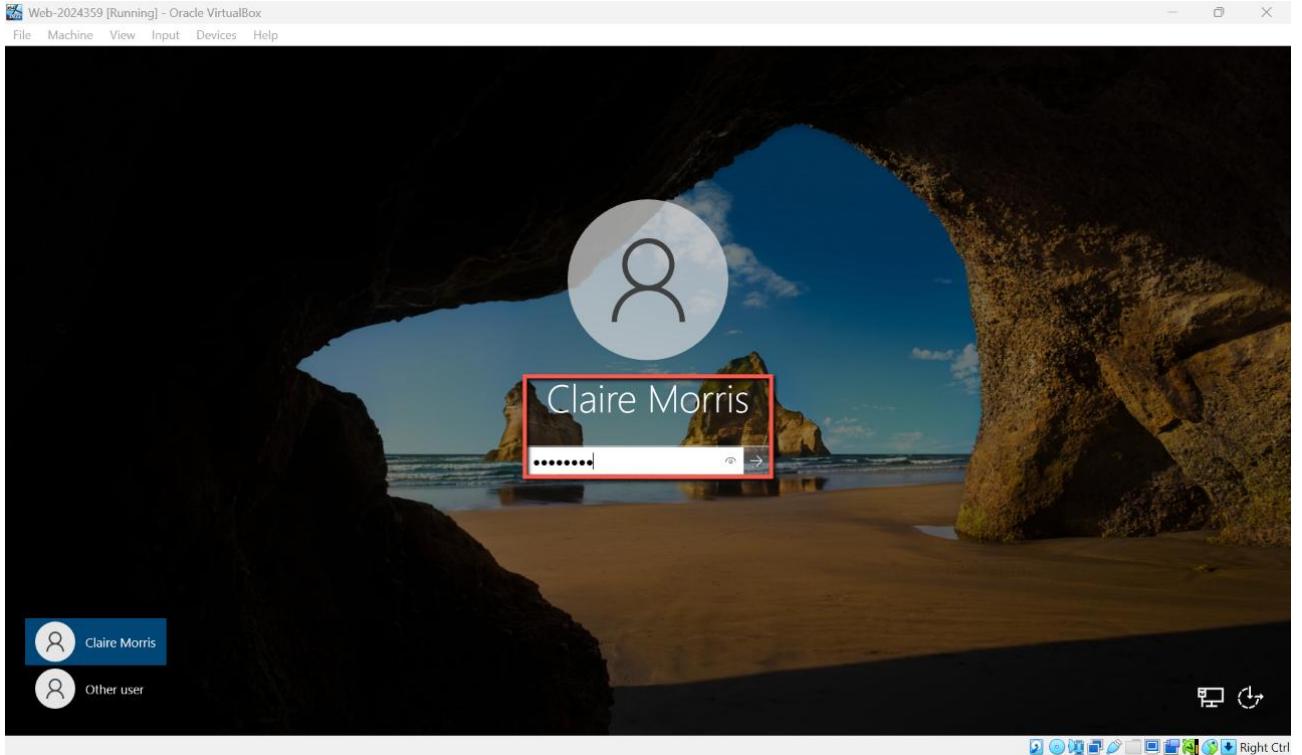


Fig. 65: Second attempt - wrong password (12345678!)

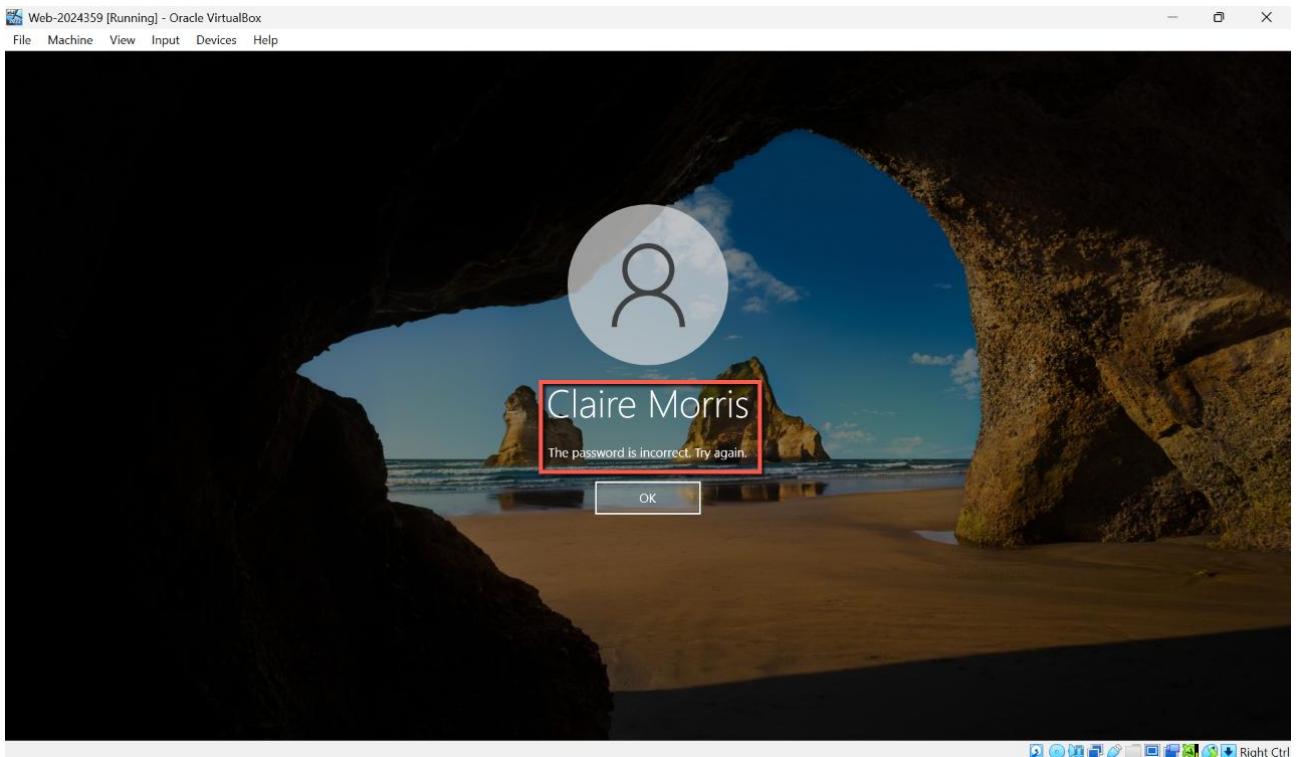


Fig. 66: Second attempt – wrong password notification

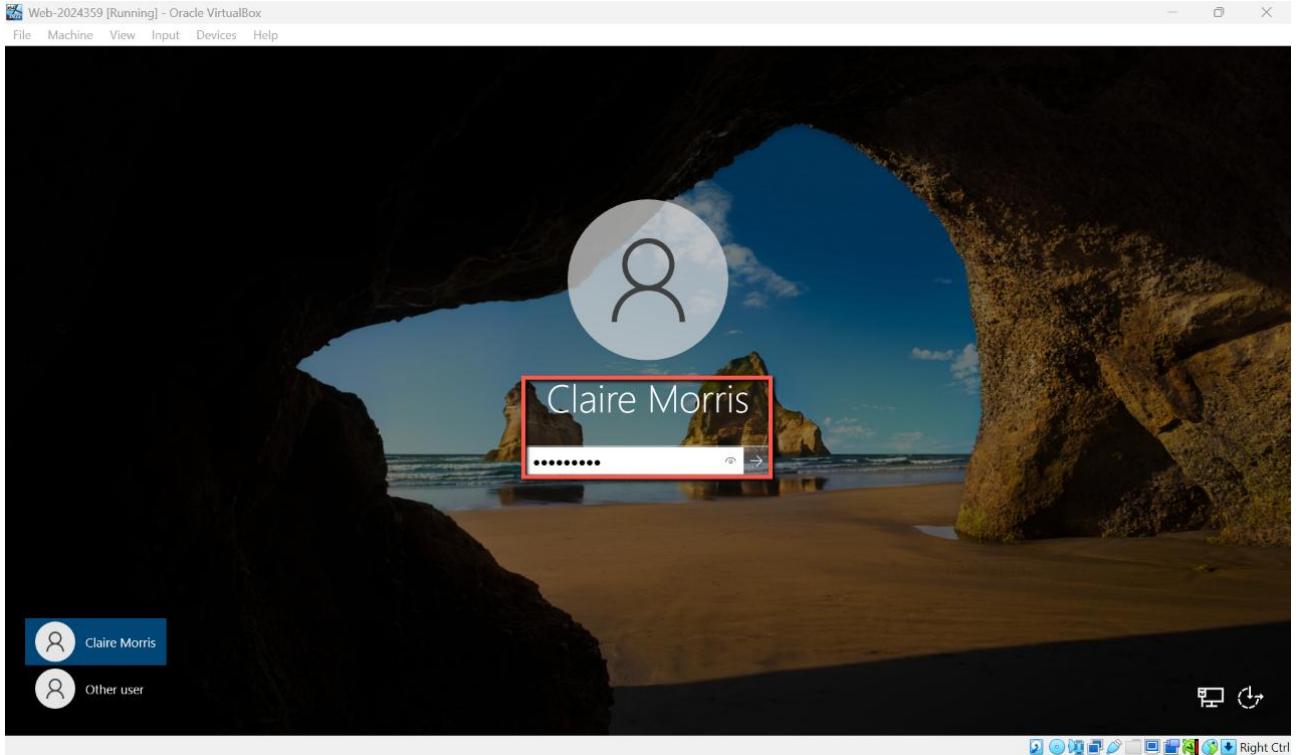


Fig. 67: Third attempt - wrong password (pass1234!)

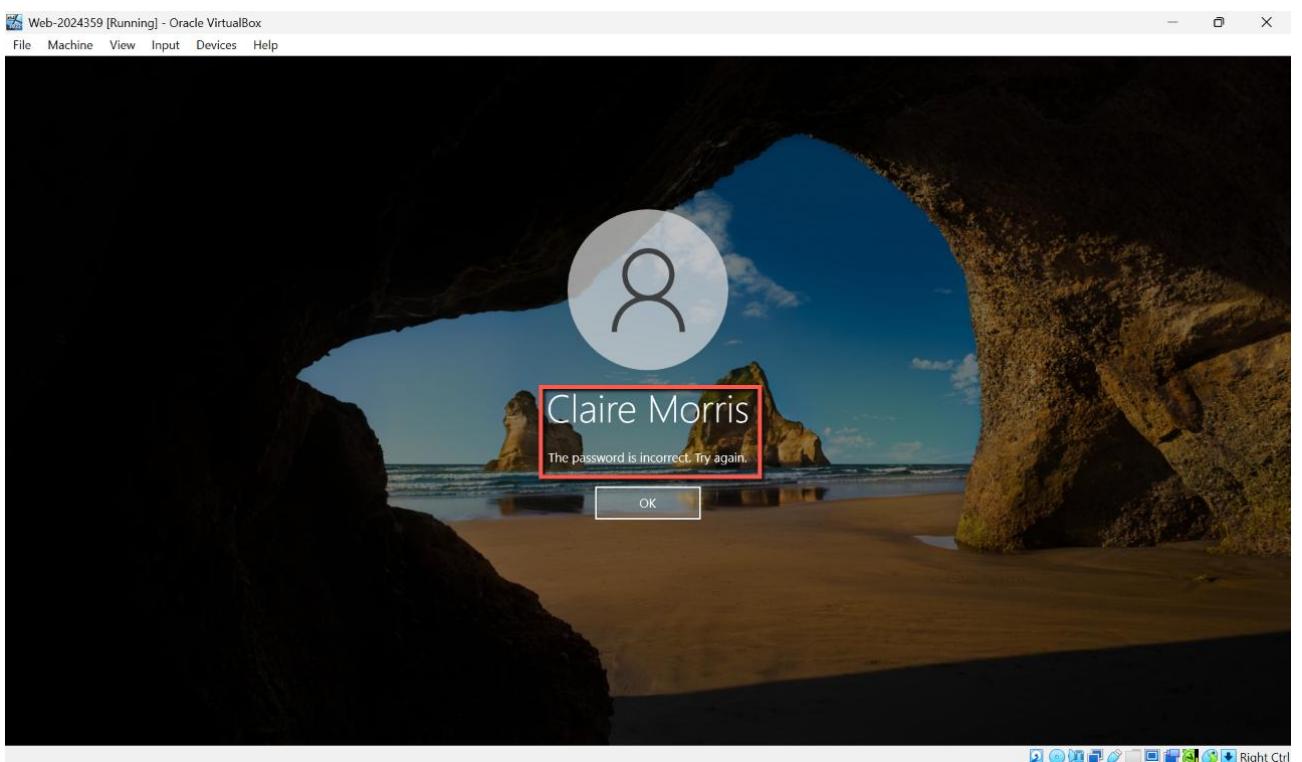


Fig. 68: Third attempt – wrong password notification

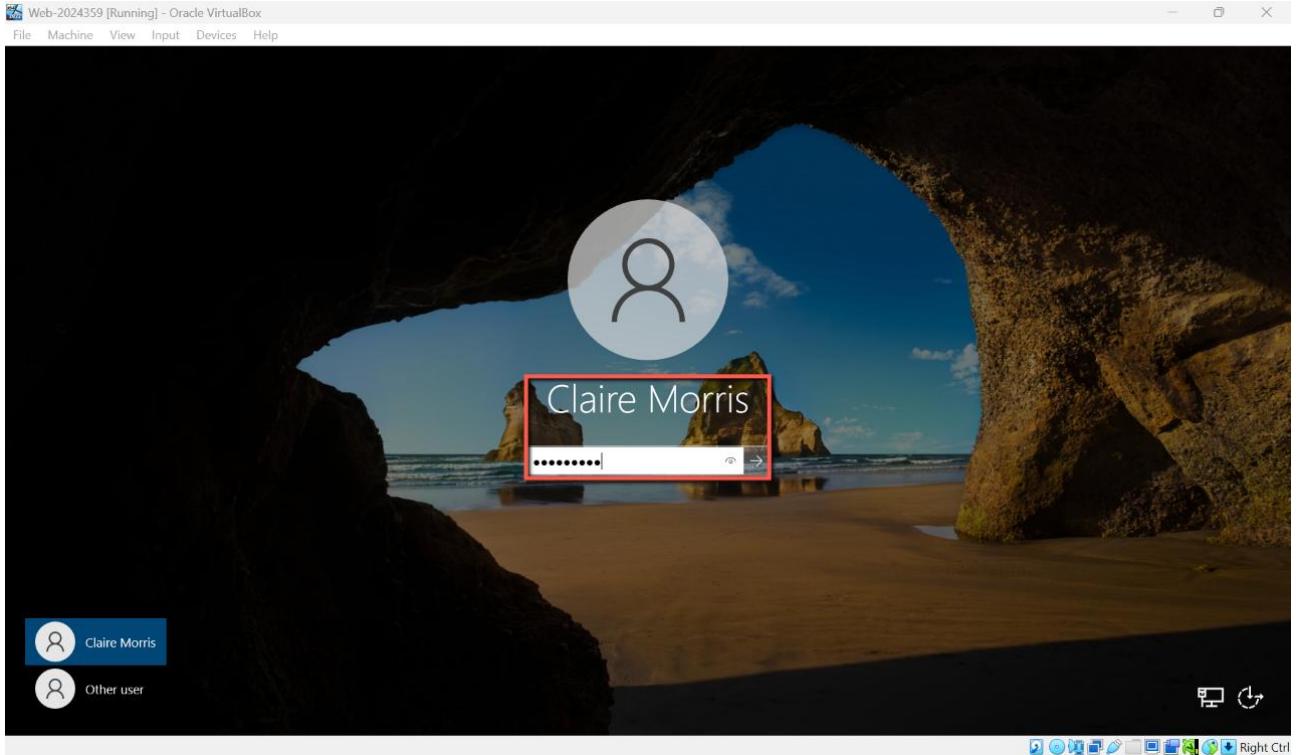


Fig. 69: Fourth attempt - wrong password

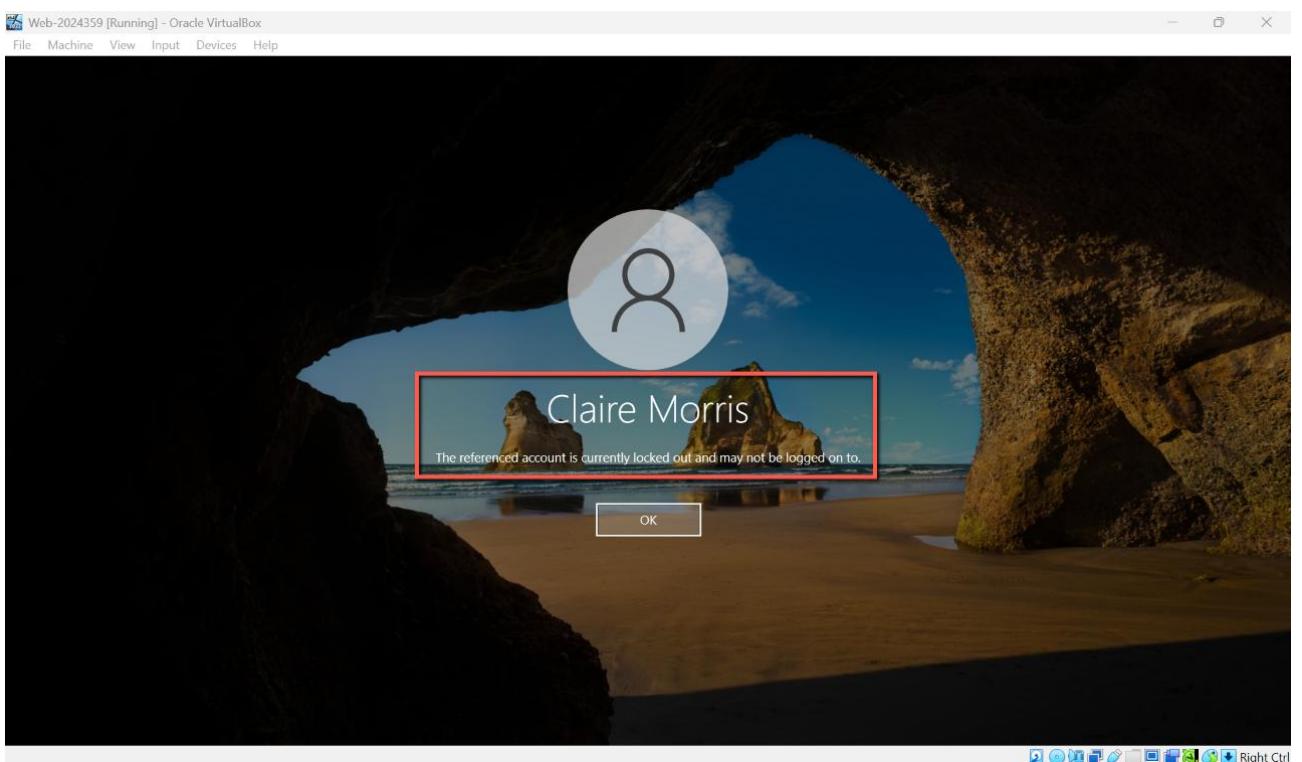


Fig. 70: Getting locked out as a result

Section 2: Setting up a DHCP Server for the Domain

2a. Configure DHCP using DHCP console in Administrative tools

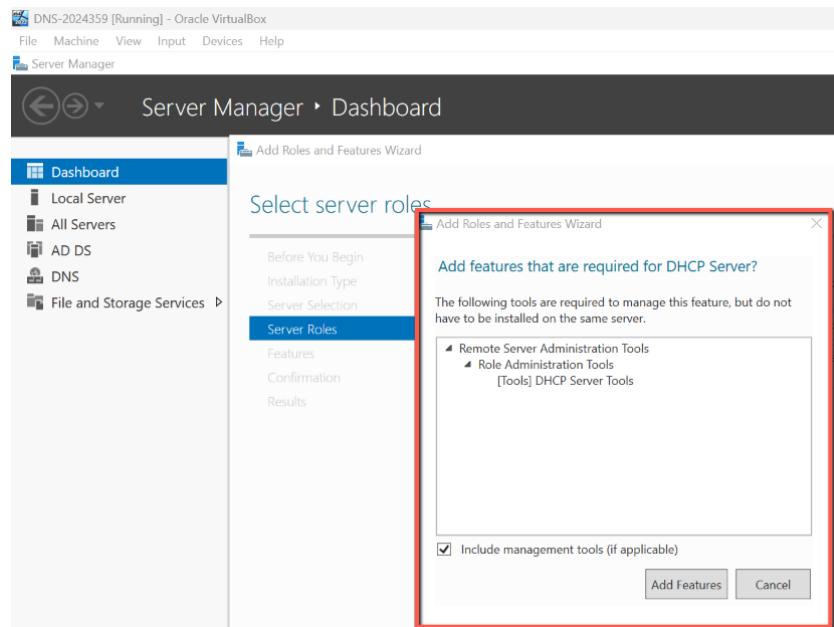


Fig. 71: Downloading DHCP Server on roles and features

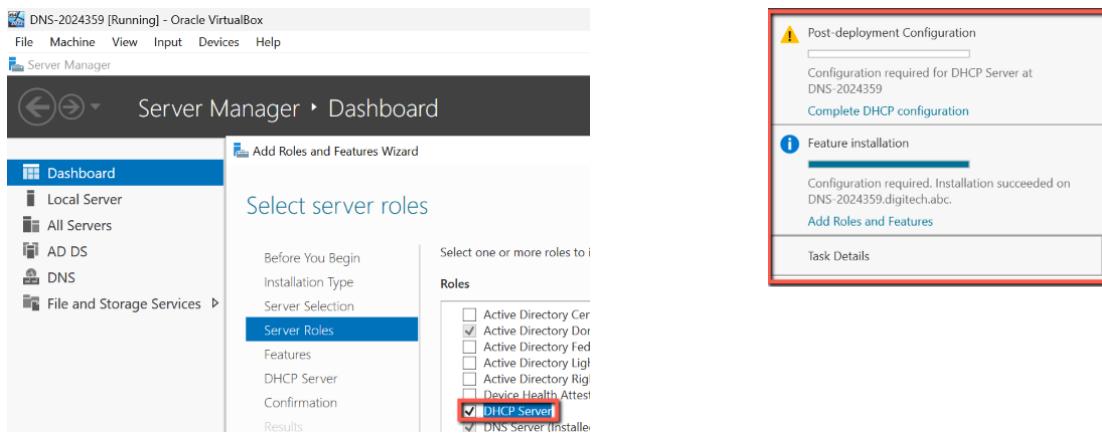
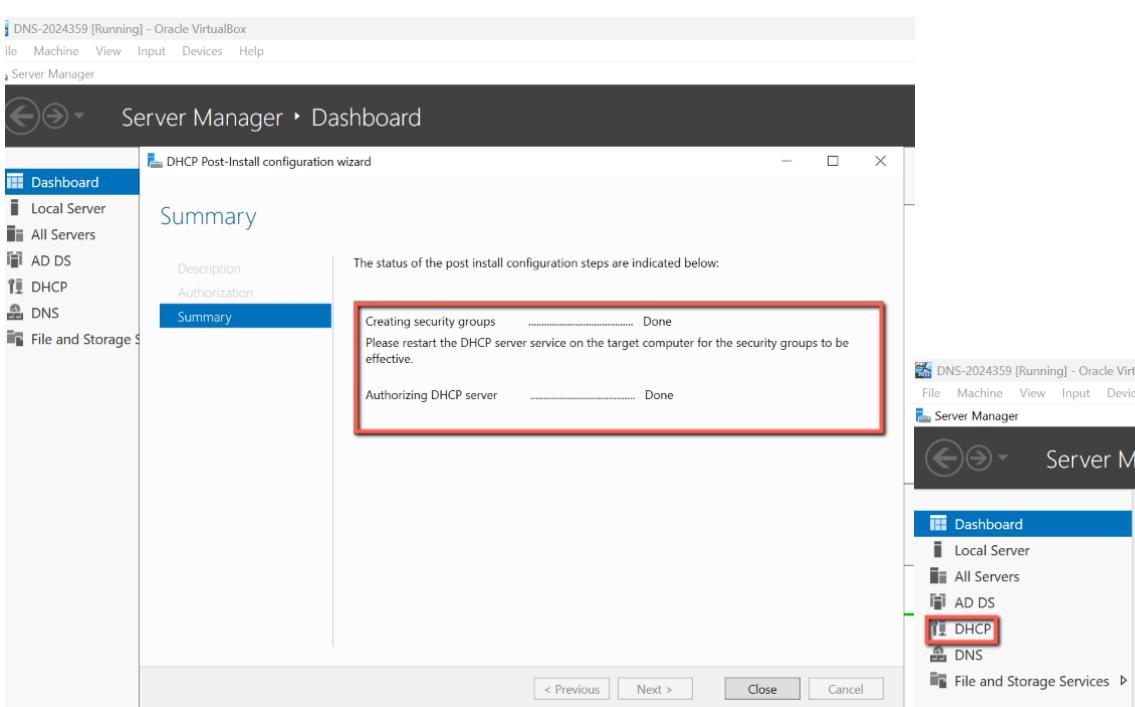
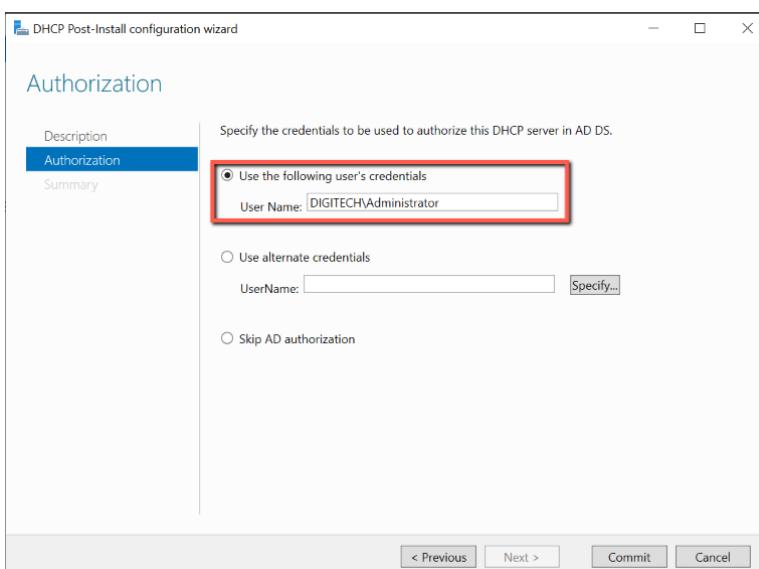
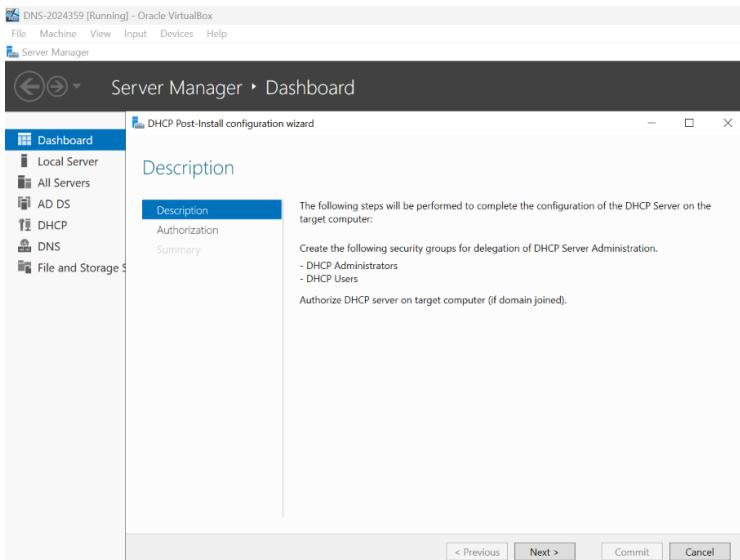
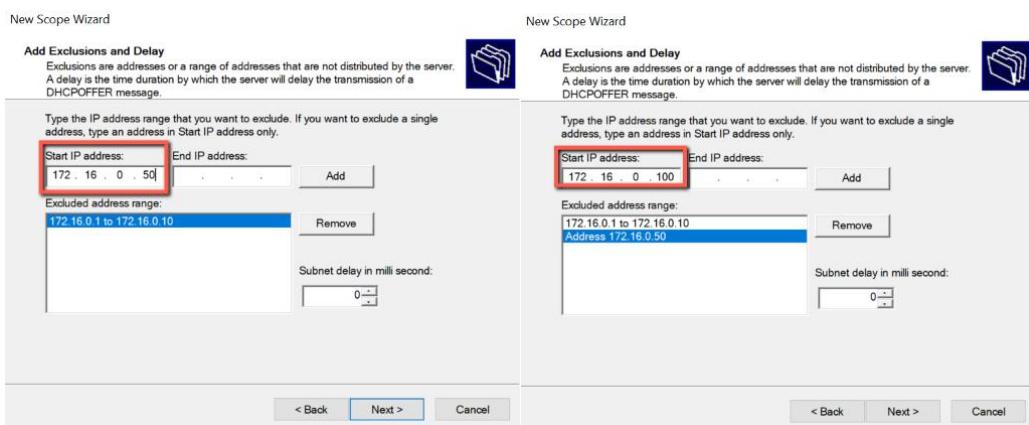
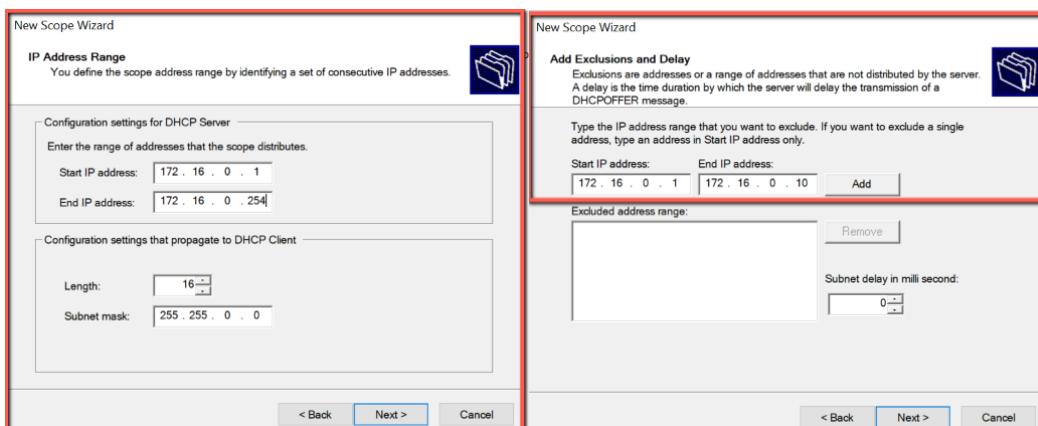
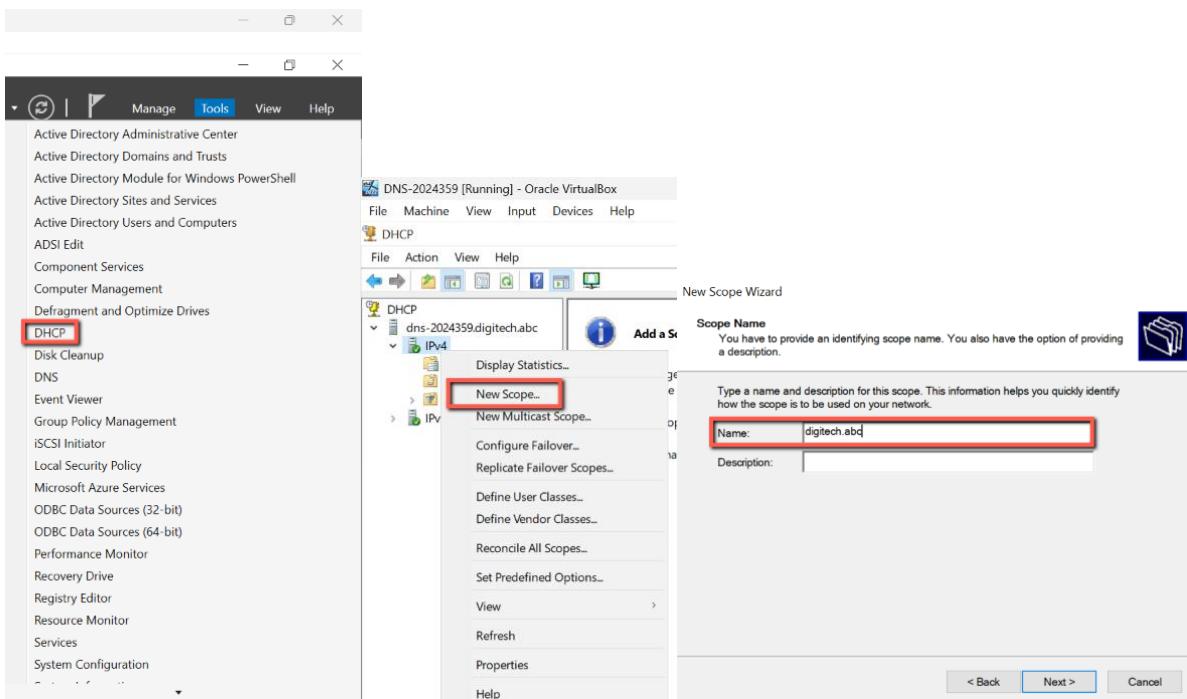


Fig. 72: DHCP Server ready to be installed

Fig. 73: Post deployment configuration for DHCP server





New Scope Wizard

Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.

Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.

Start IP address:	End IP address:	Add
172 . 16 . 0 . 200		

Excluded address range:
172.16.0.1 to 172.16.0.10
Address 172.16.0.50
Address 172.16.0.100
Address 172.16.0.200

Subnet delay in milli second:
0

New Scope Wizard

Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.

Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.

Start IP address:	End IP address:	Add
172 . 16 . 0 . 200		

Excluded address range:
172.16.0.1 to 172.16.0.10
Address 172.16.0.50
Address 172.16.0.100
Address 172.16.0.200

Subnet delay in milli second:
0

New Scope Wizard

Lease Duration

This lease duration specifies how long a client can use an IP address from this scope.

Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.

Set the duration for scope leases when distributed by this server.

Limited to:

Days:	Hours:	Minutes:
1	0	0

New Scope Wizard

Configure DHCP Options

You have to configure the most common DHCP options before clients can use the scope.

When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.

The settings you select here are for this scope and override settings configured in the Server Options folder for this server.

Do you want to configure the DHCP options for this scope now?

Yes, I want to configure these options now
 No, I will configure these options later

New Scope Wizard

Router (Default Gateway)

You can specify the routers, or default gateways, to be distributed by this scope.

To add an IP address for a router used by clients, enter the address below.

IP address:	172 . 16 . 0 . 1	Add
		Remove
		Up
		Down

New Scope Wizard

Domain Name and DNS Servers

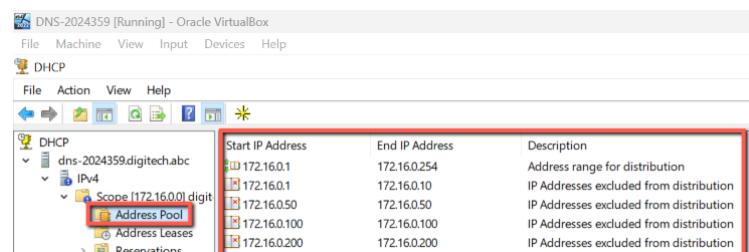
The Domain Name System (DNS) maps and translates domain names used by clients on your network.

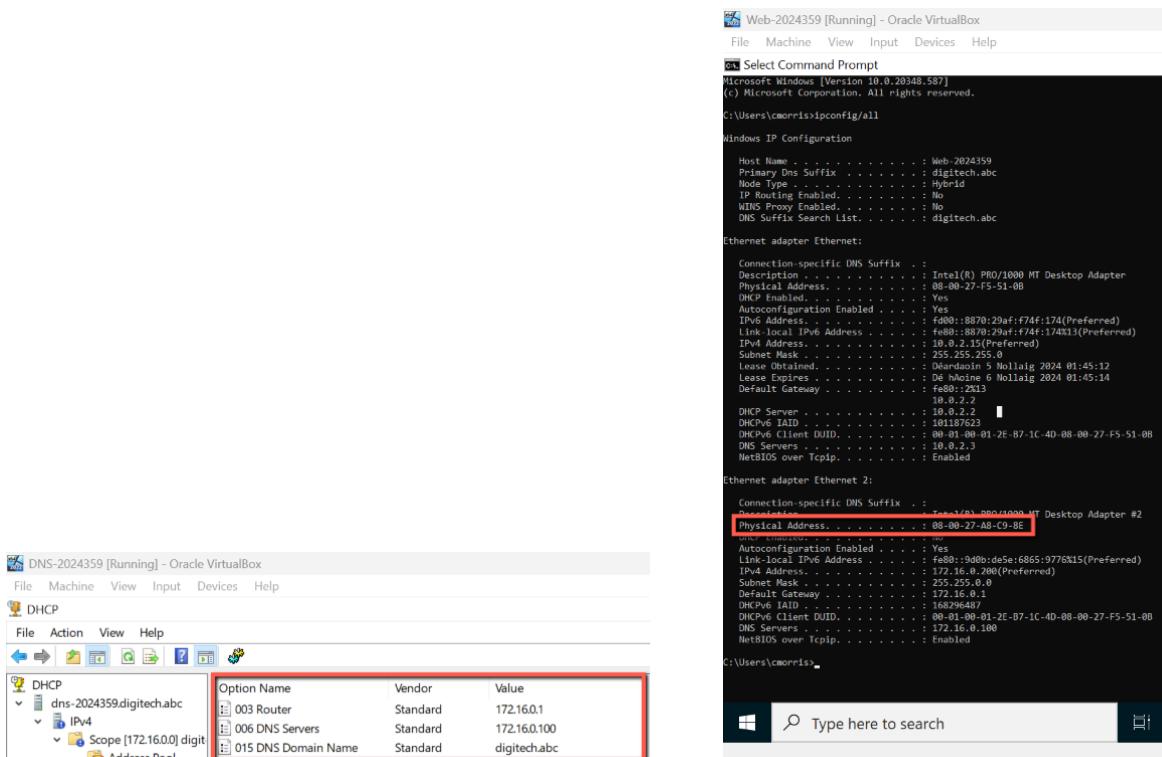
You can specify the parent domain you want the client computers on your network to use for DNS name resolution.

Parent domain: digitech.abc

To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.

Server name:	DNS-2024359	IP address:	172.16.0.100	Add
				Remove
				Up
				Down





2b. Configure the Web VM to dynamically receive the IP address from the reservation

DNS Manager

New Reservation

Provide information for a reserved client.

Reservation name: Web-2024359

IP address: 172.16.0.50

MAC address: 08-00-27-A8-C9-8E

Description:

Supported types:

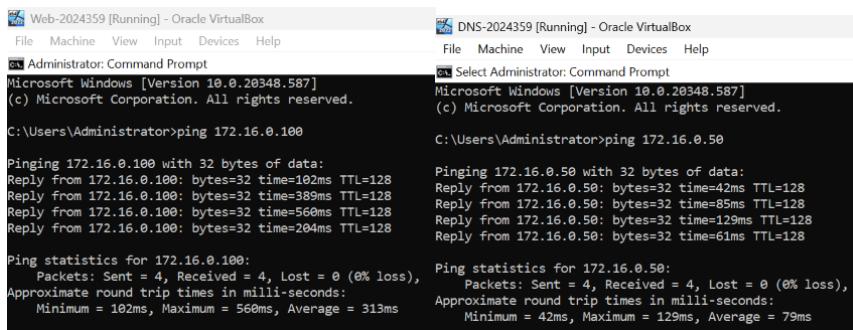
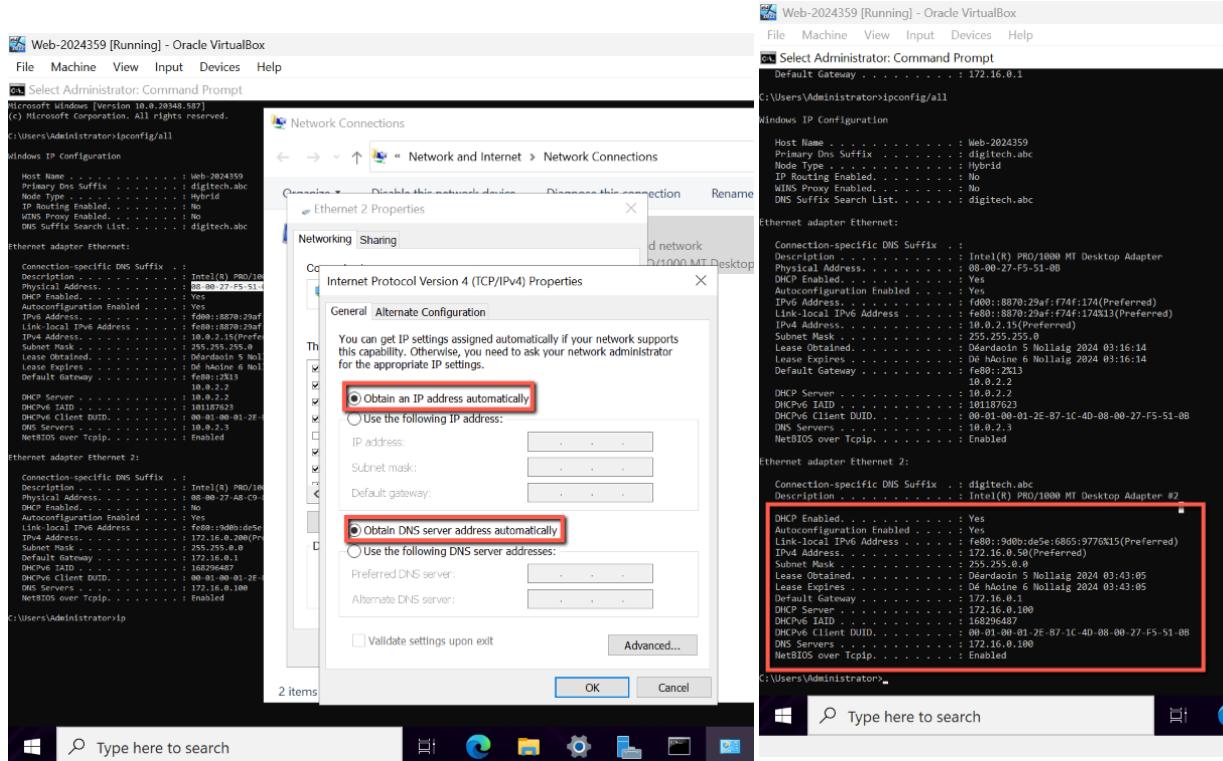
- Both
- DHCP
- BOOTP

Add Close

DNS Manager

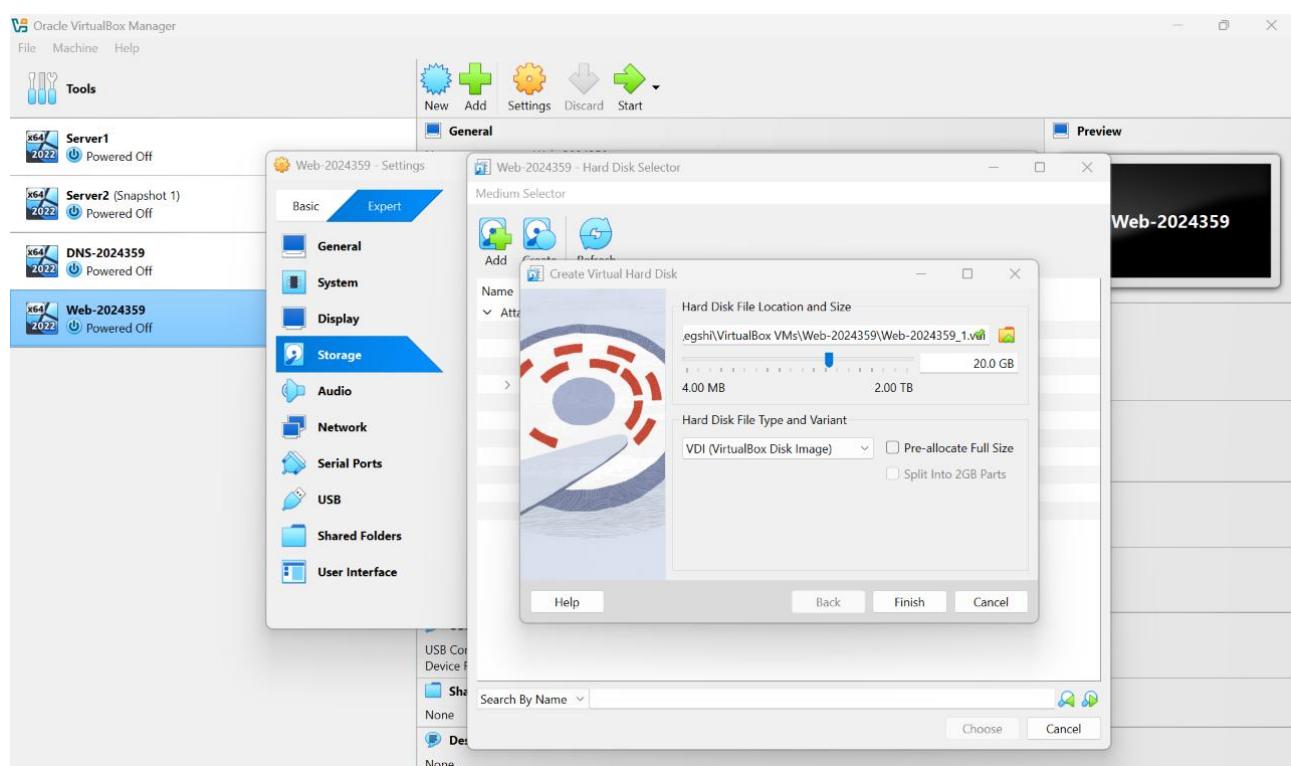
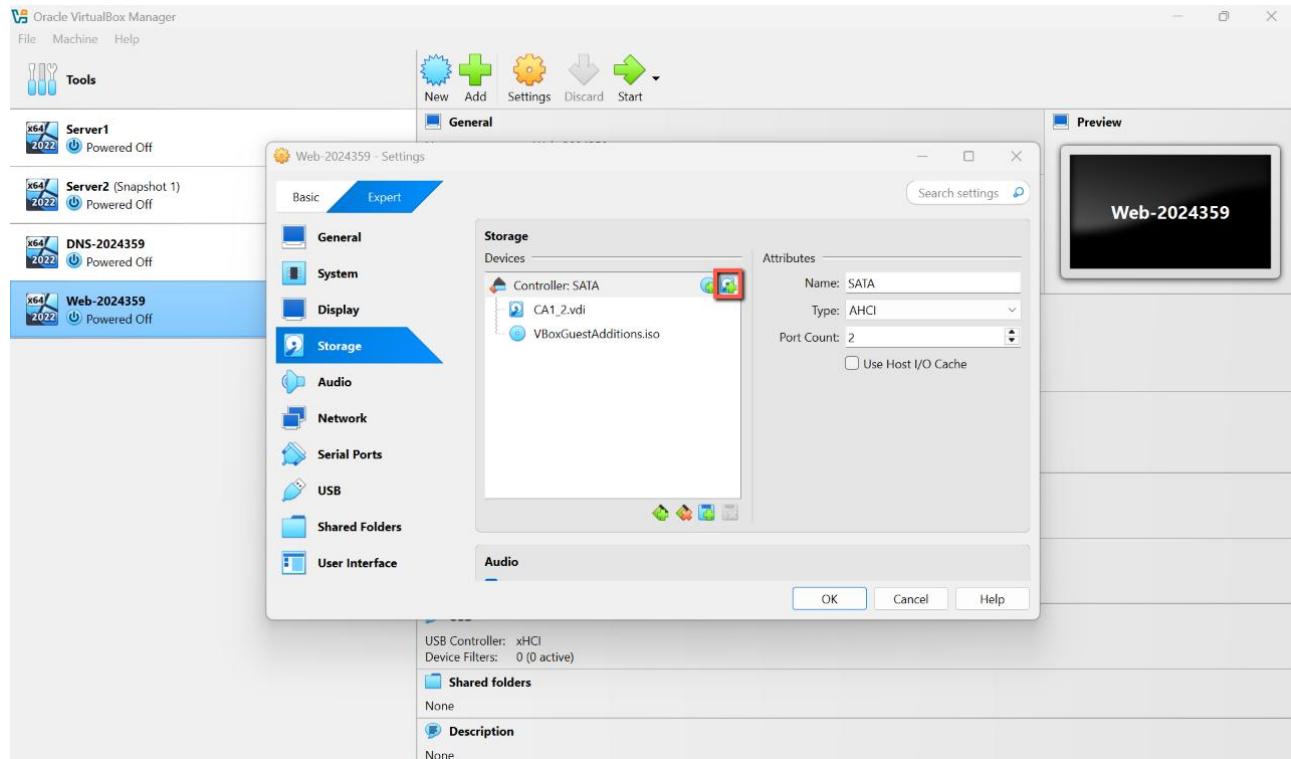
[172.16.0.50] Web-2024359

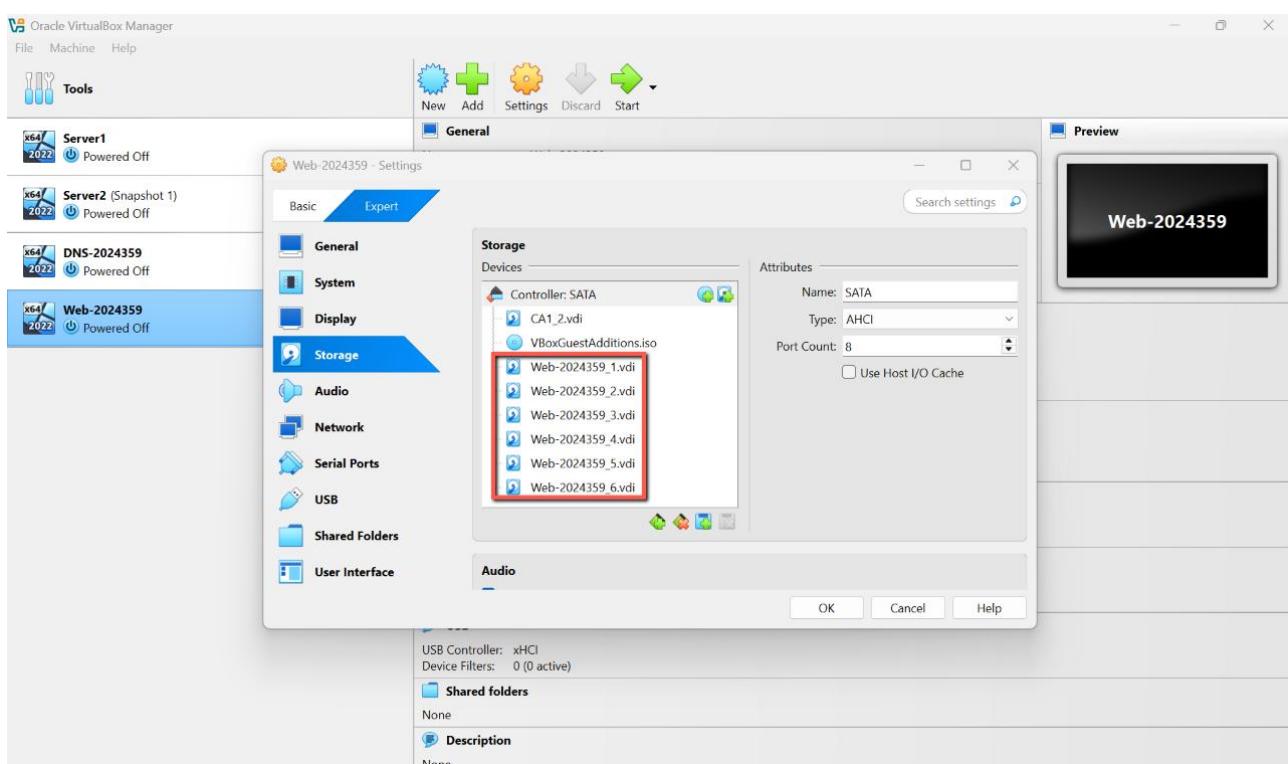
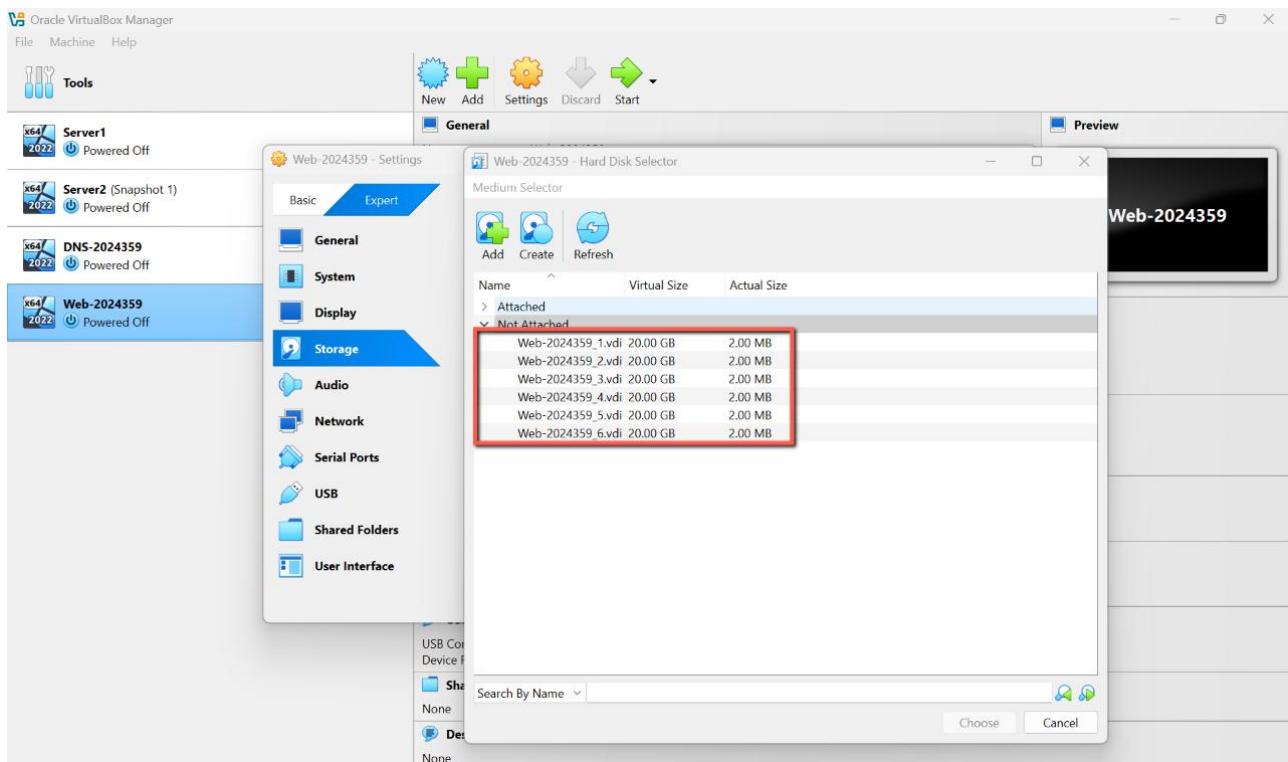
More Actions

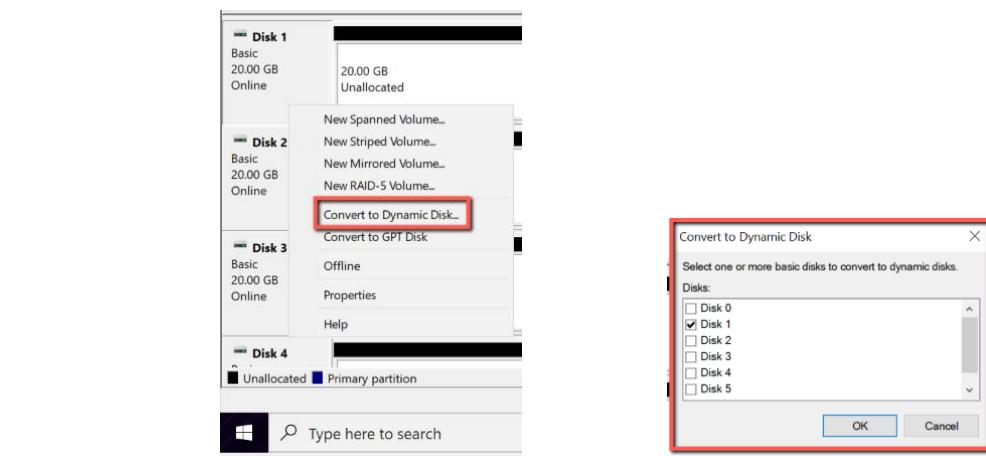
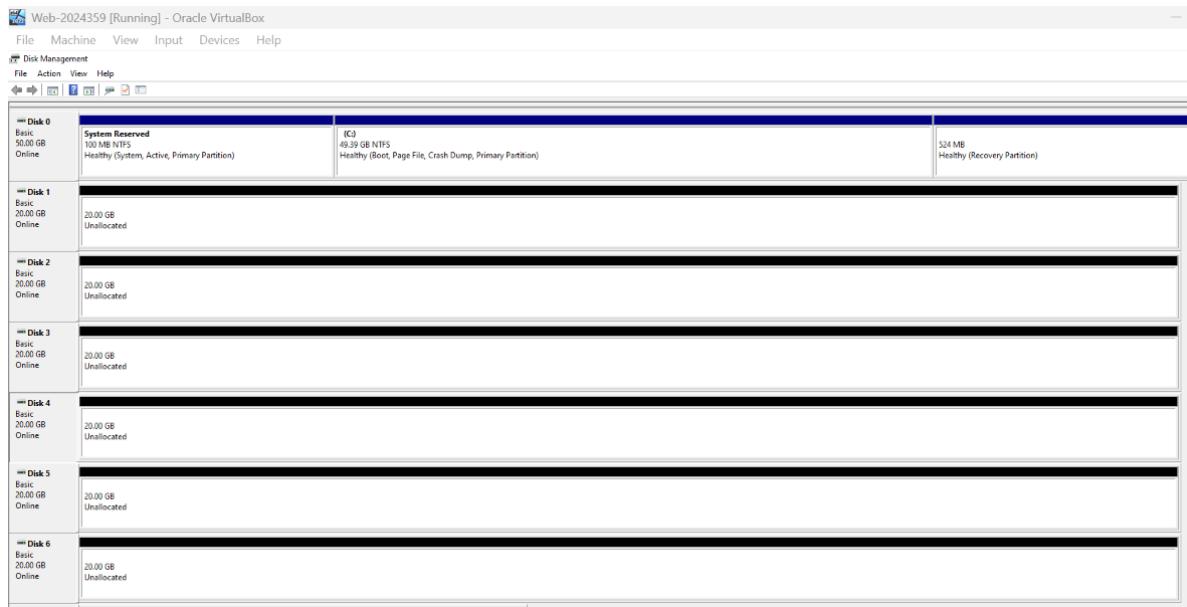
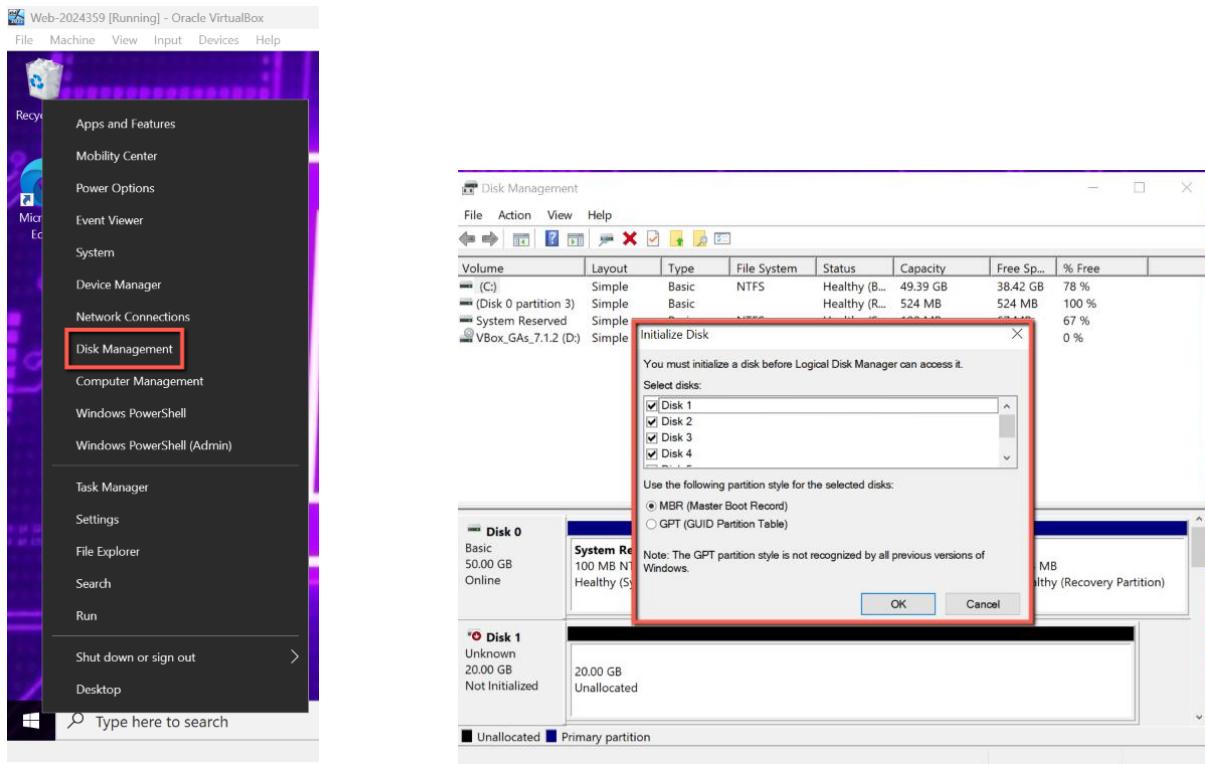


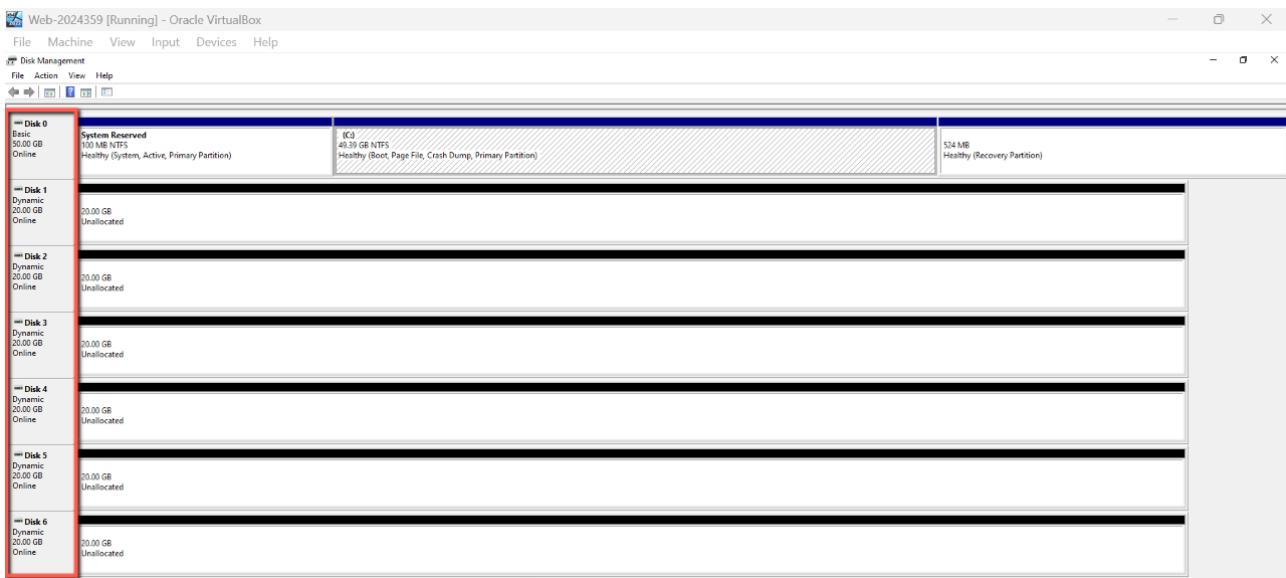
Note: In the Adding and configuring DHCP section, first I user server manager's add roles and features for DHCP role. After the installation, the configuration of the DHCP scope has been done as the assigned addresses and given the lease duration to 1 day. After that the pool exclusions has been made to reserve some addresses. And the reservation for the 172.16.0.50 address has been reserved and on the web VM, the mac address has been used and the ip address automatically updated to 172.16.0.50. But when I first tried to change the ip address for the web VM it was 172.16.0.11 and the confusion was in the mac address. After that I collected the correct mac address of Web VM and fixed the issue. Now both machines ping each other and works as expected.

Section 3 : Configuring RAID on the Web Server

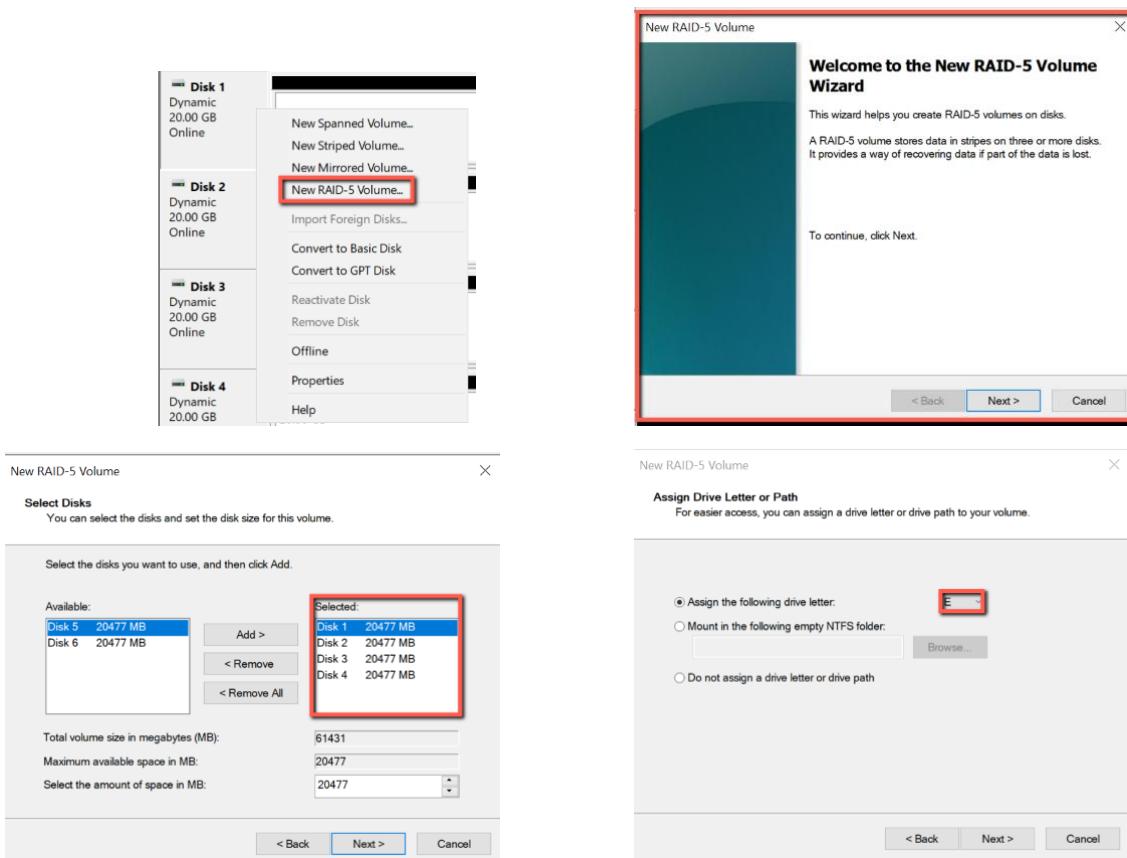


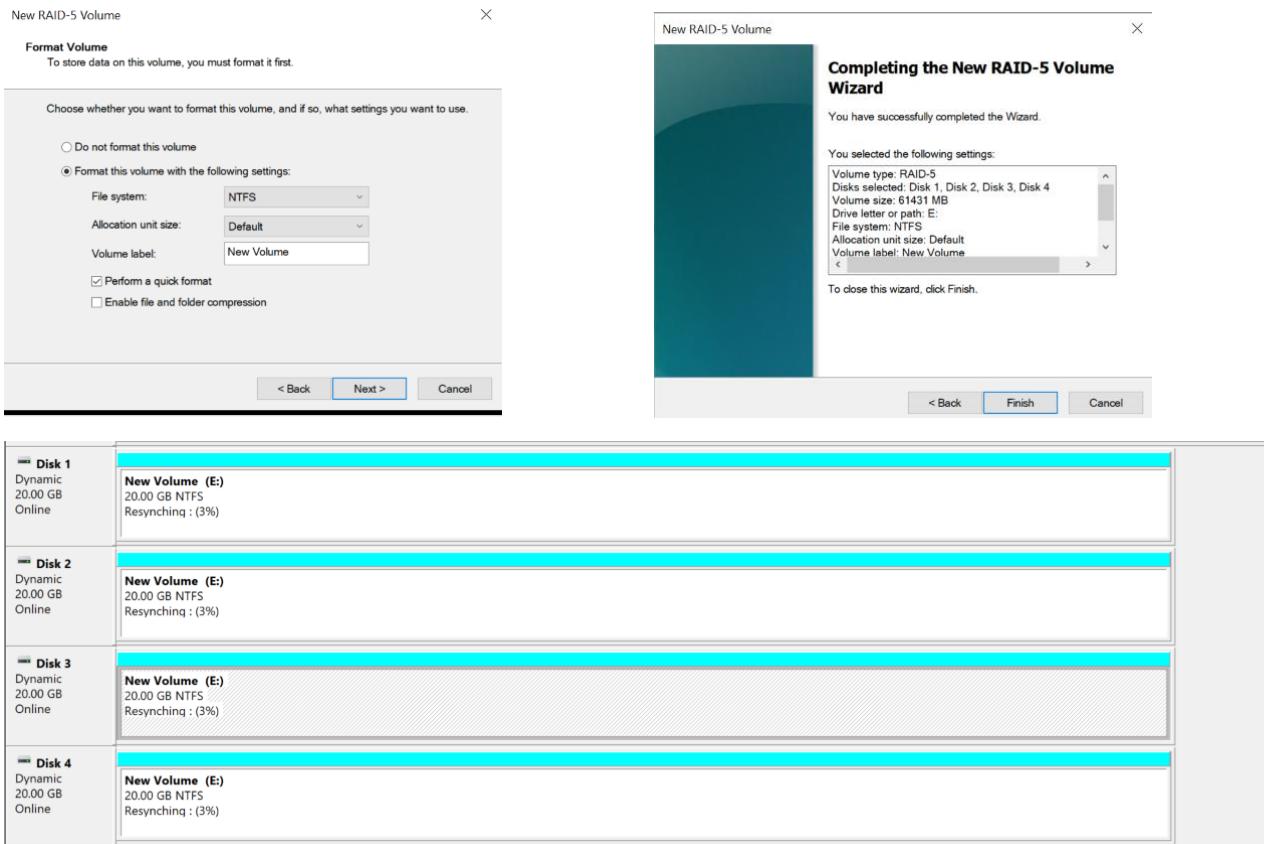




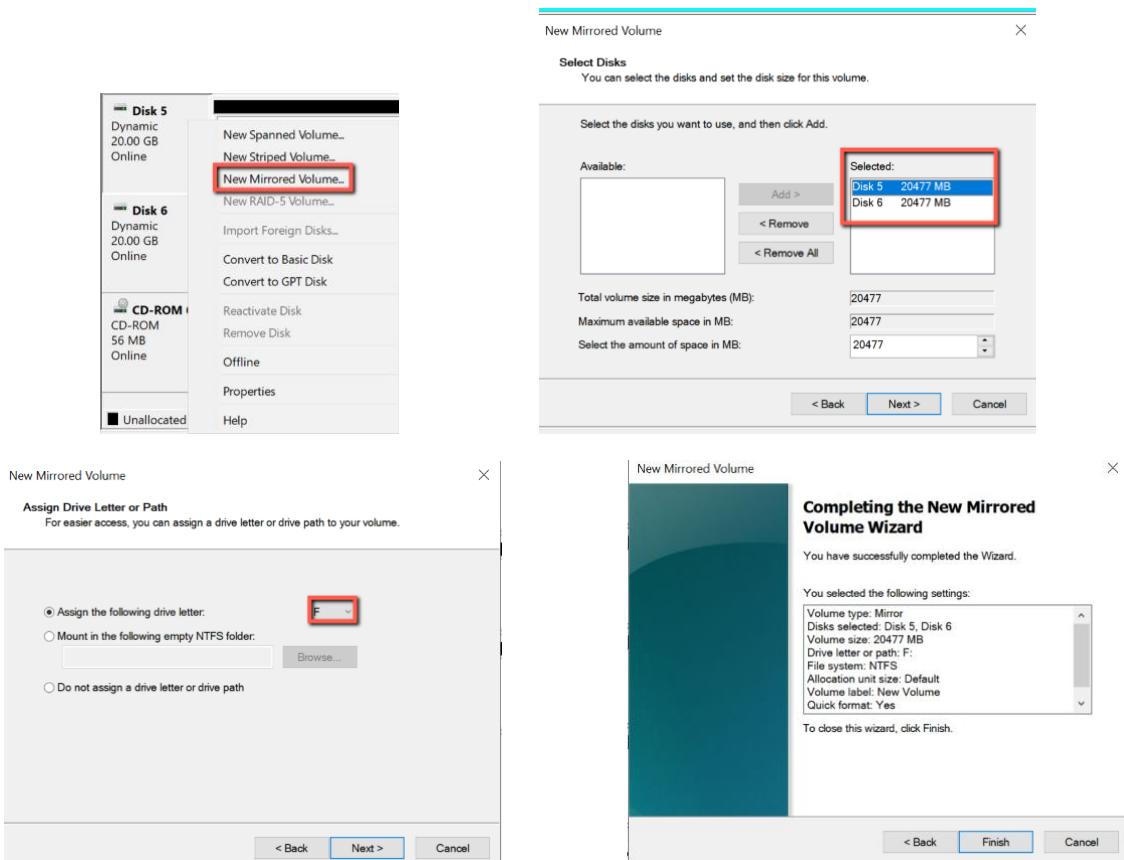


3a. Use four of disks to create RAID 5 volume which will be Drive E:

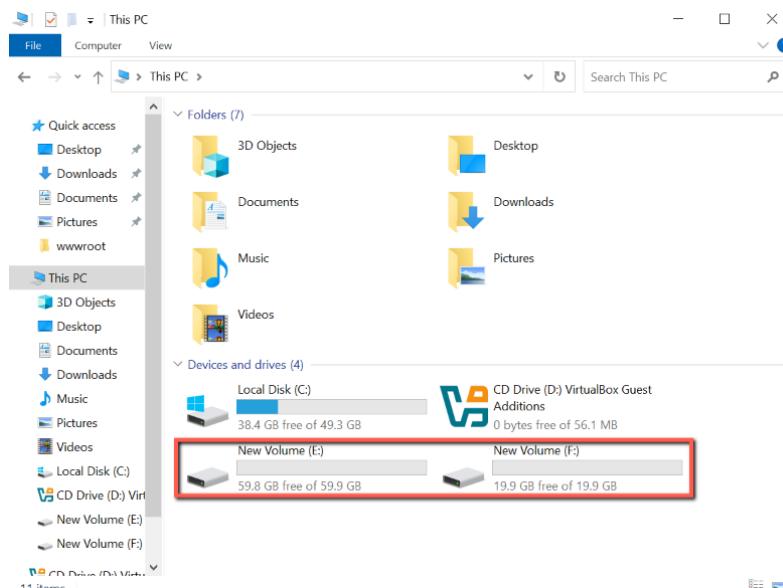




3b. Use two of the hard disks to create a RAID 1 Mirrored which will be drive F:

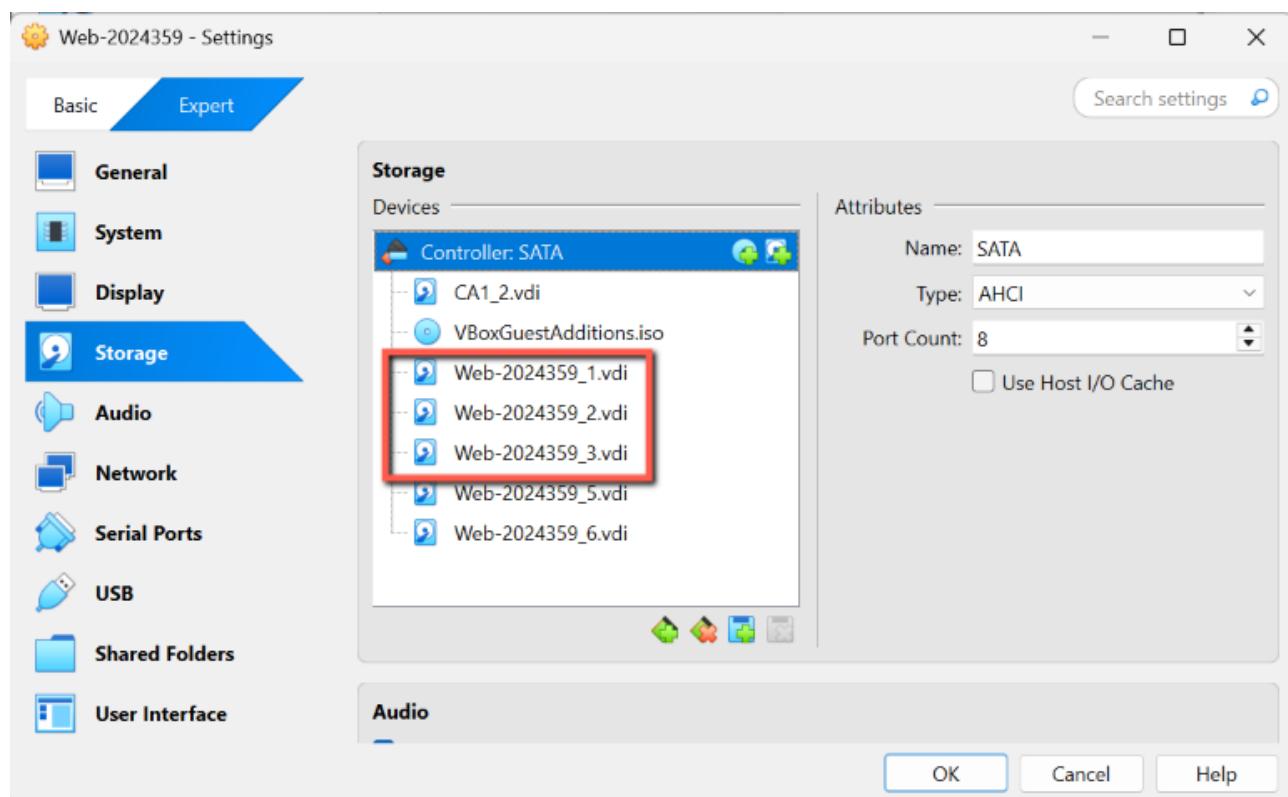
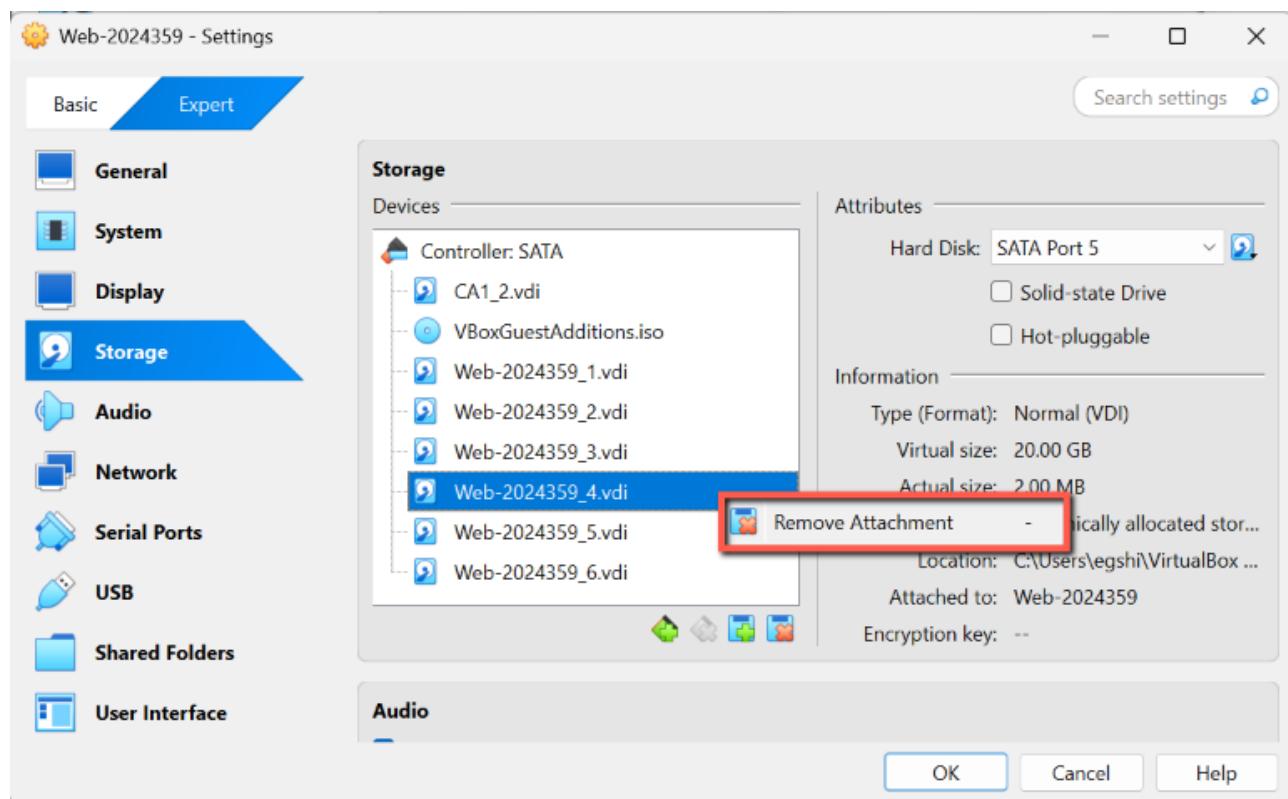


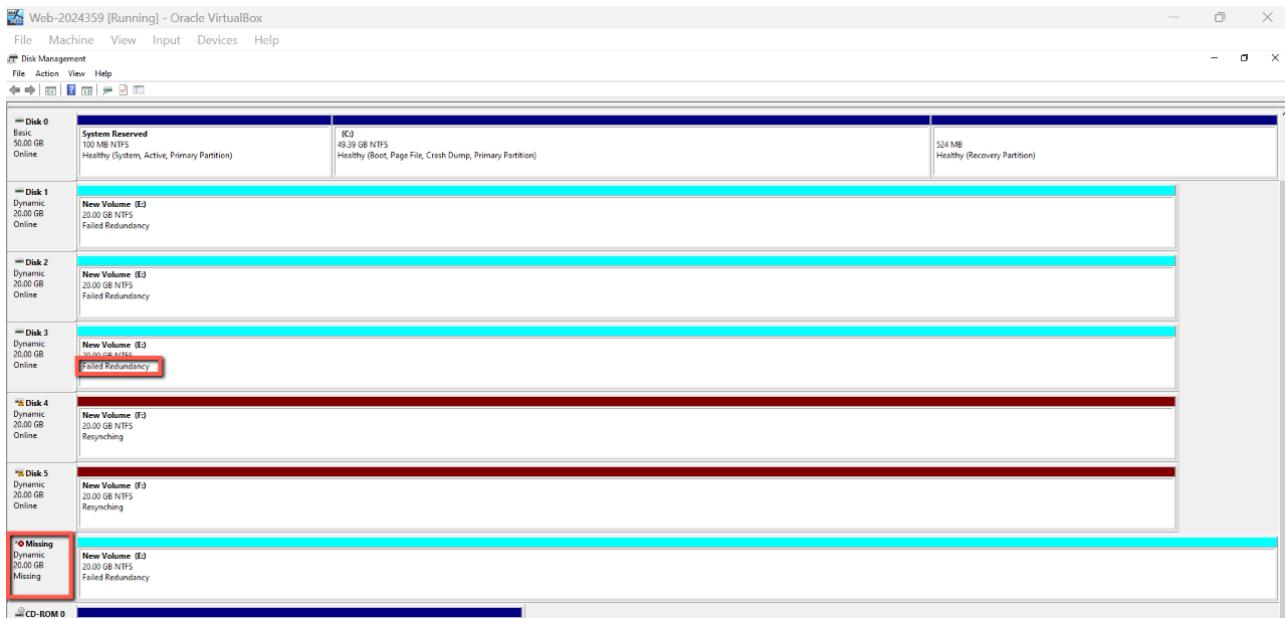
Disk 5	New Volume (F:) 20.00 GB NTFS Healthy
Disk 6	New Volume (F:) 20.00 GB NTFS Healthy



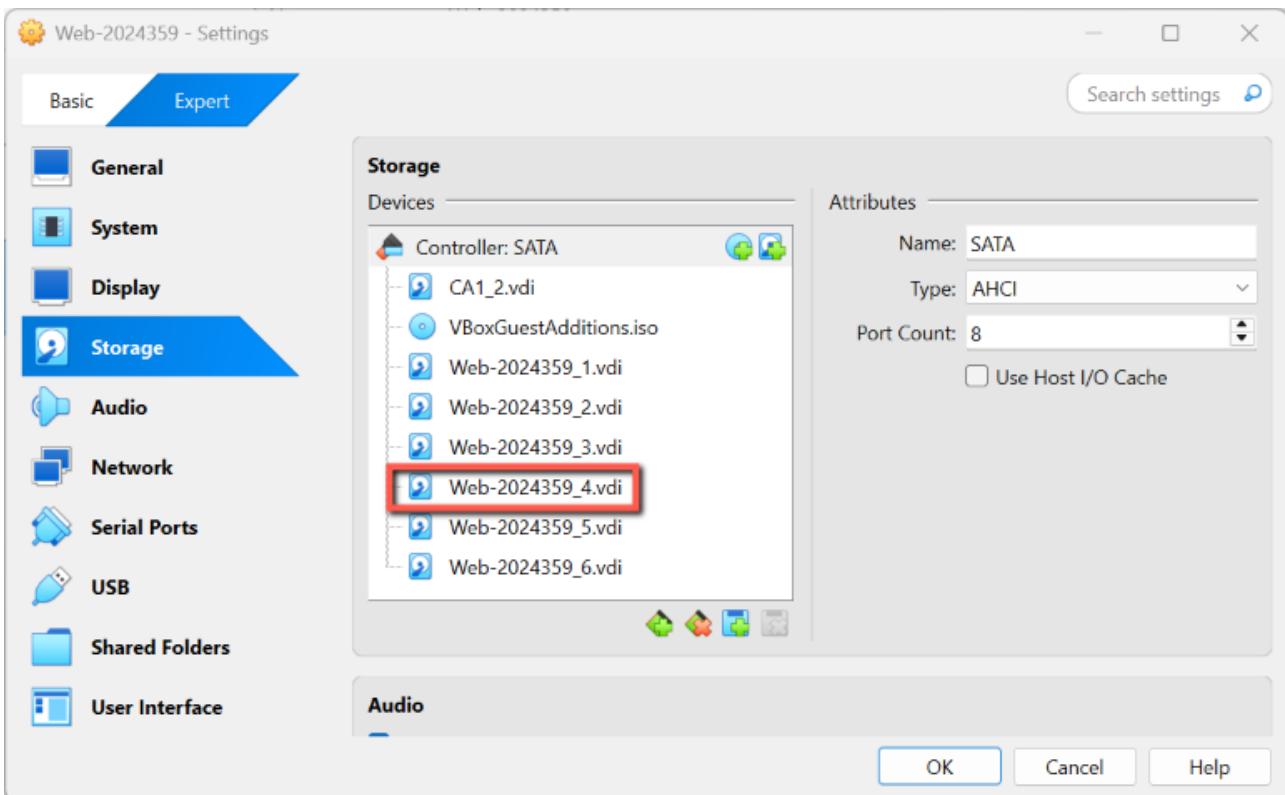
3c. Testing the fault tolerance for the raid volumes

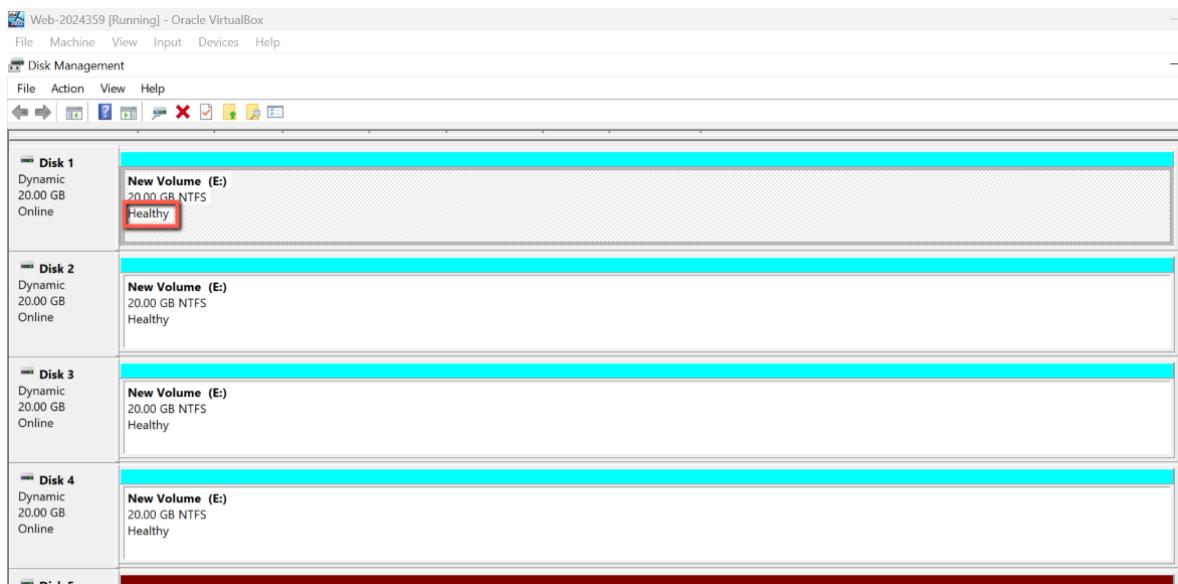
Removing one of the disks:



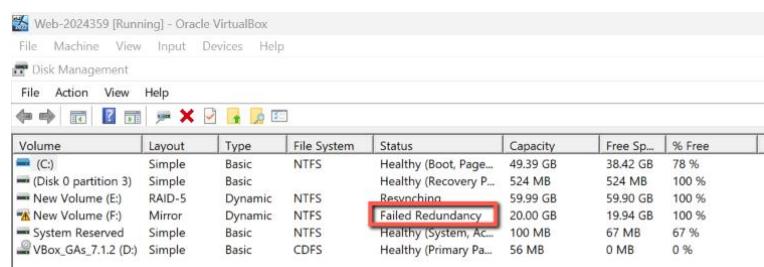
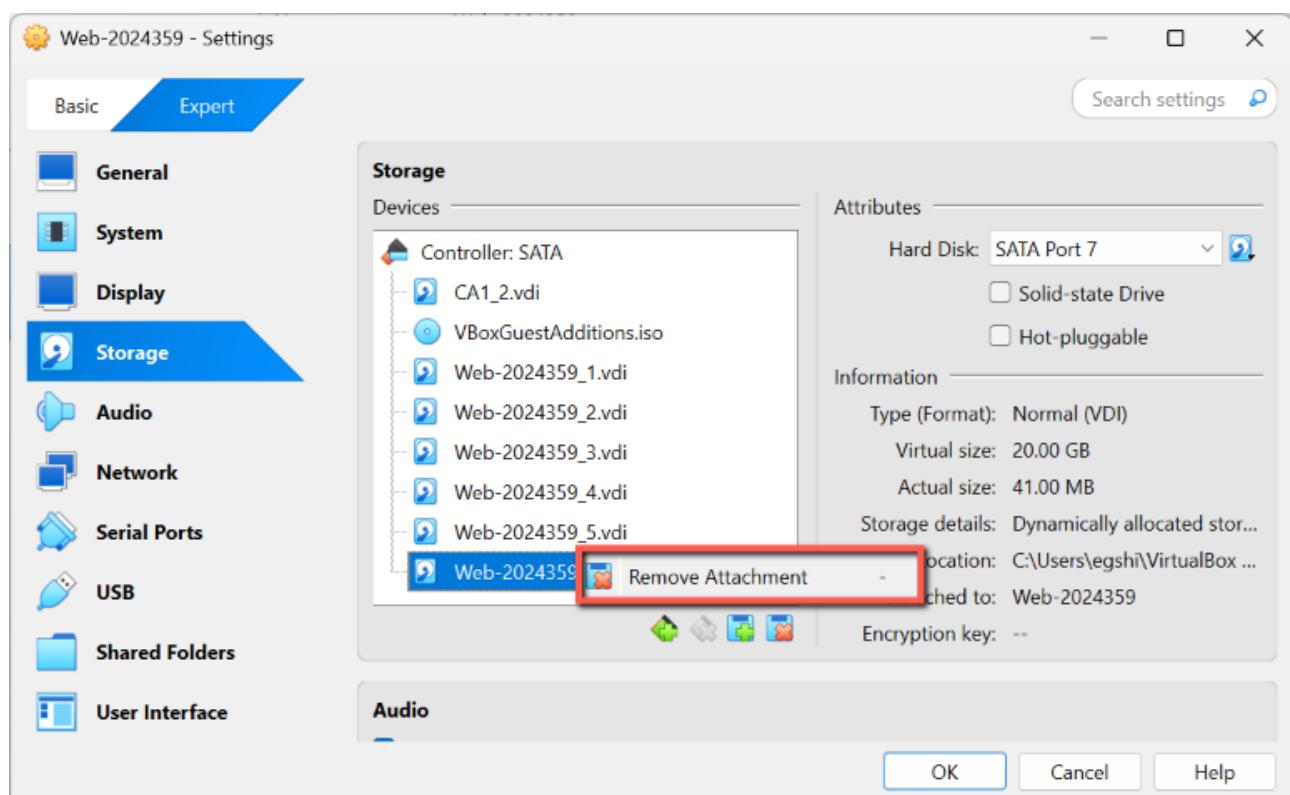


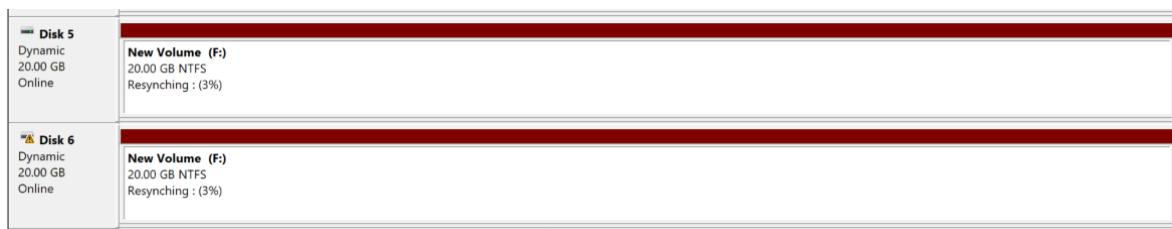
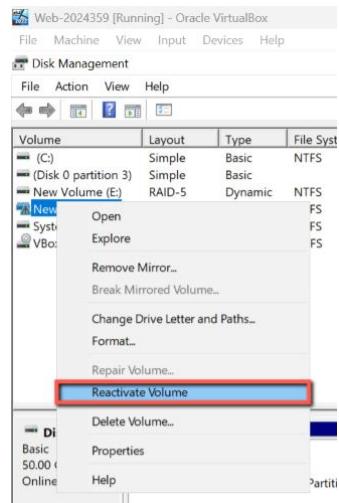
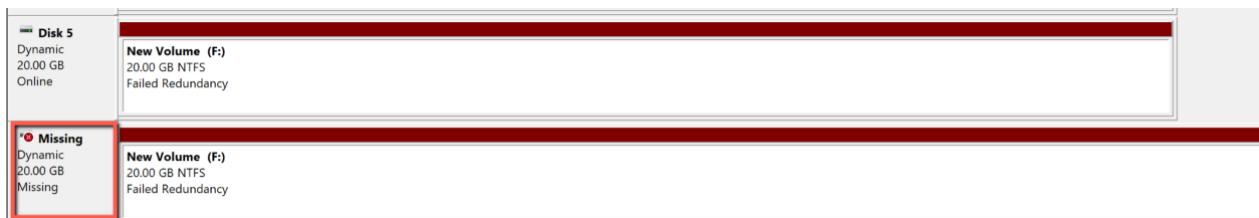
Adding disk 4:





Removing disk 6:





Section 4 : Challenge Task 1

4a. Custom-Wallpaper

DNS-2024359 [Running] - Oracle VirtualBox

cct Log in to the site | CCT

https://moodle.cct.ie/login/index.php

cct | College Dublin
Computing • IT • Business

Start a capture

Invalid login, please try again

Already have an account?

2024359

.....

Log in

DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

cct Course: Operating Systems & Arc

https://moodle.cct.ie/course/view.php?id=1716

cct | College Dublin Computing • IT • Business My courses

My courses ▾

Course: Operating Systems & Arc

MLO - Compare and contrast Operating Systems (OS) for providing a foundation of IT services (linked to MIPLO 1)

MLO - Relate the theory and practice needed for operating systems, hardware, software, and networks to work (linked to MIPLO 1)

File

DigiTech-Acceptable-Use-Policy PDF ✓ Done

Sales-Department JPG ✓ Done

Accounting-Department JPG ✓ Done

Password for Virtual Machines - pass1234! PDF ✓ Done

Notepadpp v8.6.4 (Software Application) PDF ✓ Done

CCT Hub

Go to the CCT Hub

The Hub contains links to your other student resources

Key Academic Dates

Library Website

Assistive Technology Resources (from AHEAD)

ARC (CCT Institutional Repository)

DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

cct Course: Operating Systems & Arc

https://moodle.cct.ie/course/view.php?id=1716

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Course: Operating Systems & Arc

MLO - Compare and contrast Operating Systems (OS) for providing a foundation of IT services (linked to MIPLO 1)

MLO - Relate the theory and practice needed for operating systems, hardware, software, and networks to work (linked to MIPLO 1)

File

DigiTech-Acceptable-Use-Policy PDF

Sales-Department JPG

Accounting-Department.jpg Open file

59e4f0ae-25c6-416d-b2a4-bda80bc223e2.jpg Removed

Downloads

NotePadpp v8.6.4.msi Open file

Password for Virtual Machines - pass1234!.txt Removed

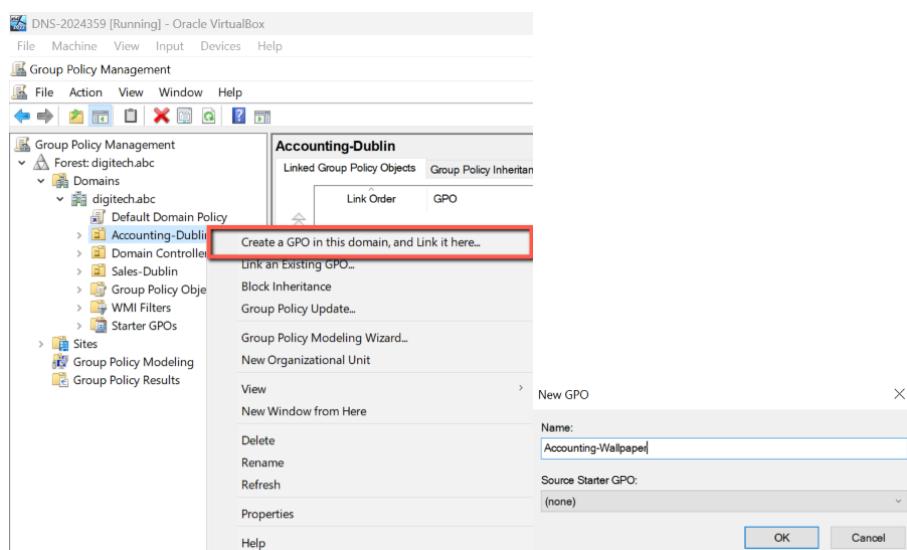
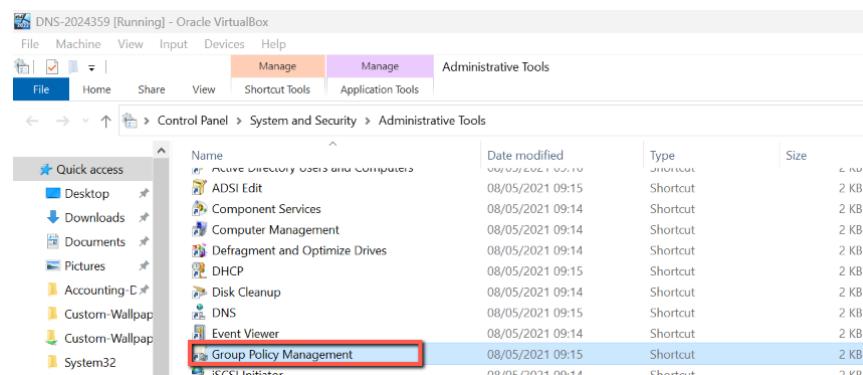
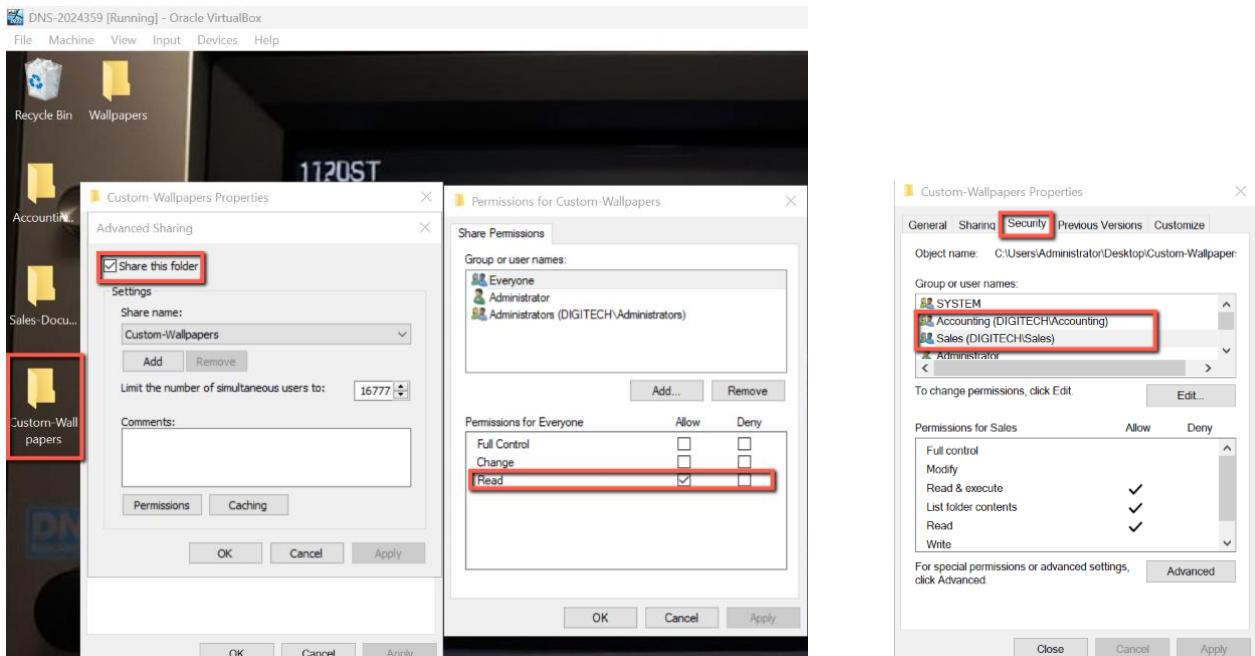
Accounting-Department.jpg Open file

Sales-Department.jpg Open file

DigiTech-Acceptable-Use-Policy.pdf Open file

59e4f0ae-25c6-416d-b2a4-bda80bc223e2.jpg Removed

Key Academic Dates



The screenshots illustrate the configuration of desktop wallpaper settings across three Group Policy Objects (GPOs): Accounting-Wallpaper, Sales-Wallpaper, and Desktop.

Accounting-Wallpaper GPO Configuration:

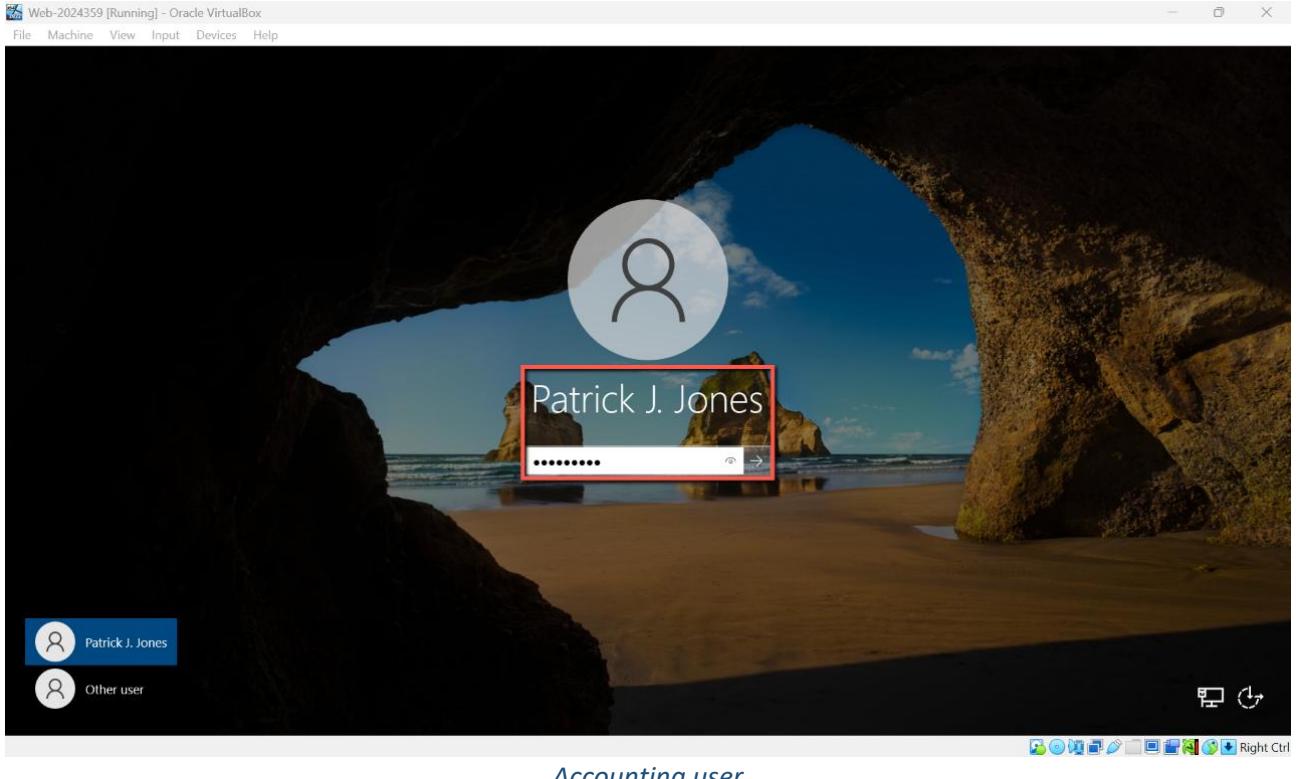
- Group Policy Management Editor:** Shows the GPO structure under "Forest: digitechabc". The "Accounting-Dublin" GPO is selected, and its context menu is open with "Edit..." highlighted.
- Group Policy Management Editor (Details View):** Displays the "Desktop" policy settings. The "Desktop Wallpaper" setting is selected, and its context menu is open with "Edit" highlighted.
- Desktop Wallpaper Configuration:** A dialog box showing the "Enabled" radio button selected. The "Wallpaper Name" field contains the path "\Wallpapers\Accounting-Department.jpg", which is highlighted with a red box.
- Help Text:** Describes the "Desktop Wallpaper" setting, stating it specifies the desktop background displayed on all users' desktops and prevents users from changing it.

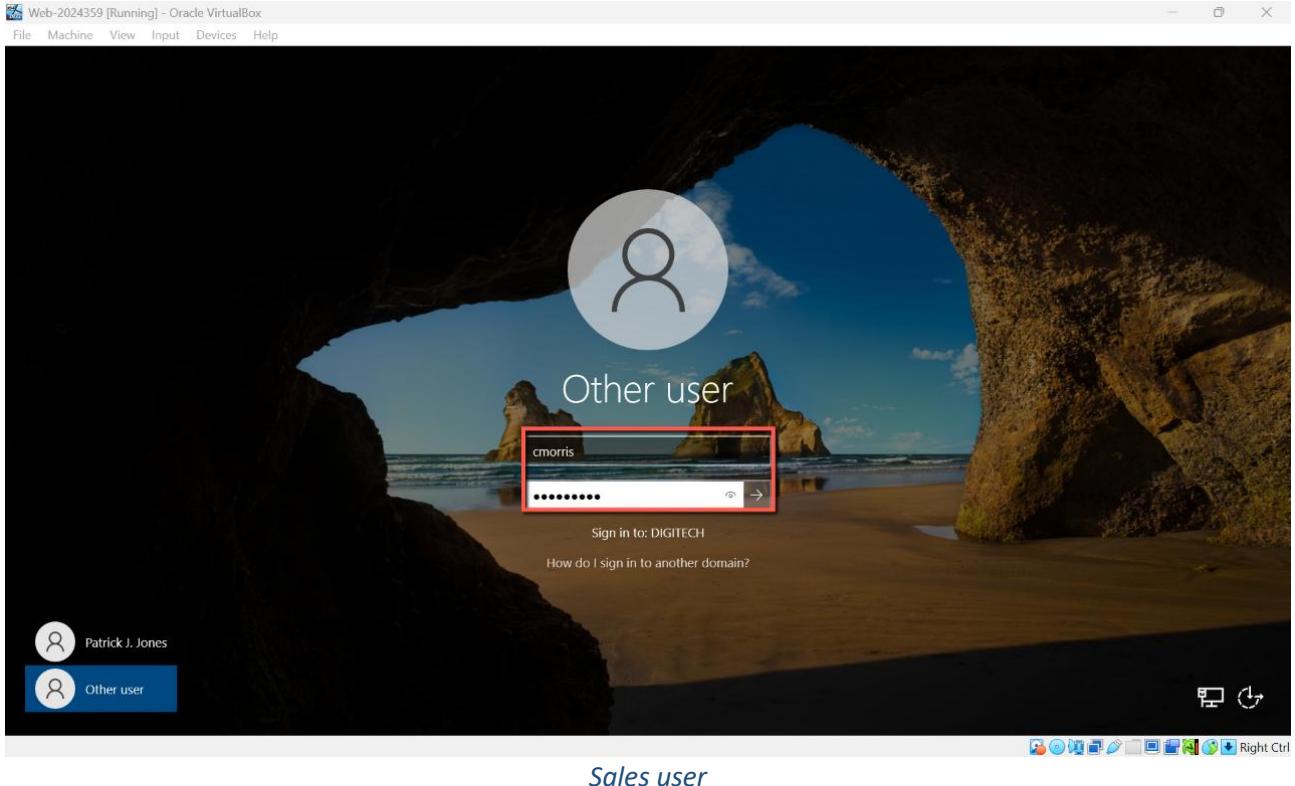
Sales-Wallpaper GPO Configuration:

- Group Policy Management Editor (Details View):** Shows the "Desktop" policy settings. The "Desktop Wallpaper" setting is selected, and its context menu is open with "Edit" highlighted.
- Desktop Wallpaper Configuration:** A dialog box showing the "Enabled" radio button selected. The "Wallpaper Name" field contains the path "\Custom-Wallpapers\Sales-Department.jpg", which is highlighted with a red box.
- Help Text:** Describes the "Desktop Wallpaper" setting, stating it specifies the desktop background displayed on all users' desktops and prevents users from changing it.

Desktop GPO Configuration:

- Group Policy Management Editor (Details View):** Shows the "Desktop" policy settings. The "Desktop Wallpaper" setting is selected, and its context menu is open with "Edit" highlighted.
- Help Text:** Describes the "Desktop Wallpaper" setting, stating it specifies the desktop background ("wallpaper") displayed on all users' desktops and prevents users from changing the image or its presentation.





Note: In this wallpaper task, I used Server Academy's tutorial. First time I used the wrong path and it didn't work. But after I realized that I changed the path to the correct UNC path. And It worked out great.

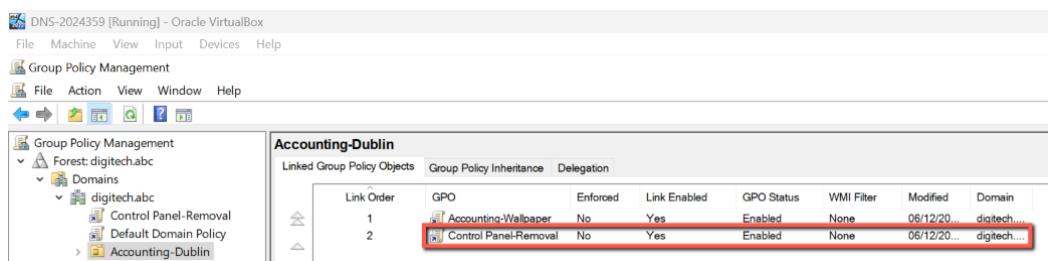
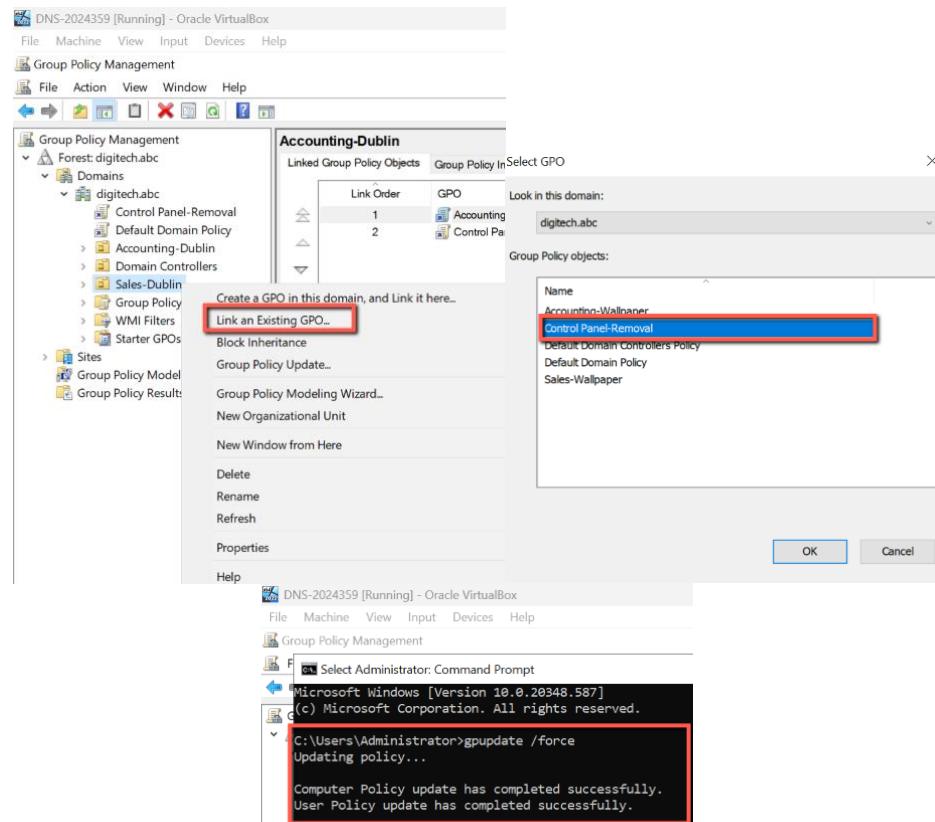
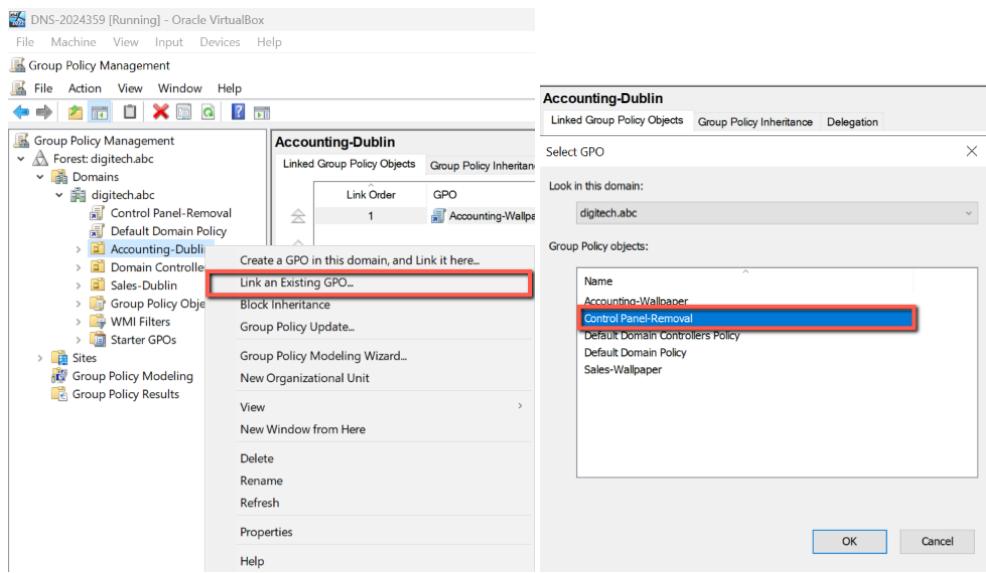
4b. Control panel - Removal

The screenshot shows the 'Group Policy Management' interface. In the left navigation pane, under 'Forest: digitech.abc > Domains > digitech.abc', there is a context menu with the option 'Create a GPO in this domain, and Link it here...'. A red box highlights this option. Below it, the 'New GPO' dialog is open, showing the name 'Control Panel-Removal' and the source 'Starter GPO: (none)'. The 'OK' button is visible at the bottom right.

The screenshot shows the 'Group Policy Management' interface again. The 'Control Panel-Removal' GPO has been linked to the 'Control Panel-Removal' domain. A red box highlights the 'Edit...' link next to the GPO entry in the list.

The screenshot shows the 'Group Policy Management Editor' interface. It displays the 'Control Panel-Removal [DNS-2024359.DIGITECH]' GPO. Under 'User Configuration > Policies > Administrative Templates: Policy definition > Control Panel', there is a policy named 'Prohibit access to Control Panel and PC settings'. A red box highlights the 'Edit policy setting...' link. The policy description states: 'Disables all Control Panel programs and the PC settings app. This setting prevents Control.exe and SystemSettings.exe, the program files for Control Panel and PC settings, from starting. As a result, users cannot start Control Panel or PC settings, or run any of their items.' The 'Edit' option in the context menu for this policy is also highlighted with a red box.

The screenshot shows the 'Prohibit access to Control Panel and PC settings' policy configuration dialog. The 'Enabled' radio button is selected, highlighted with a red box. Other options include 'Not Configured' and 'Disabled'. The 'Comment' field is empty, and the 'Supported on:' field specifies 'At least Windows 2000'.



DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

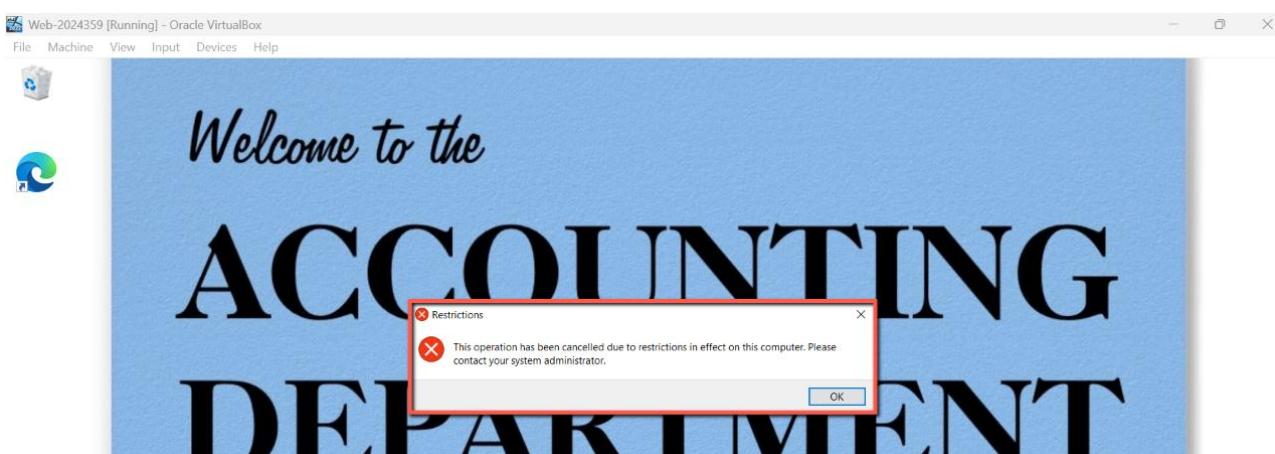
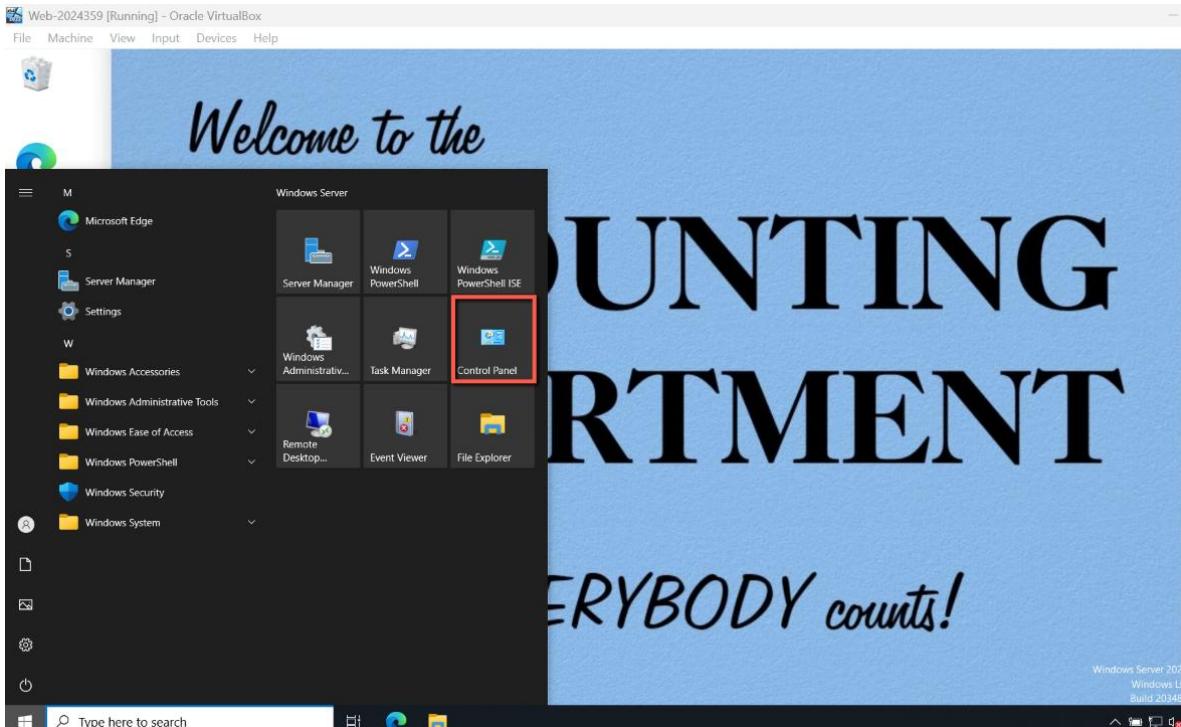
Group Policy Management

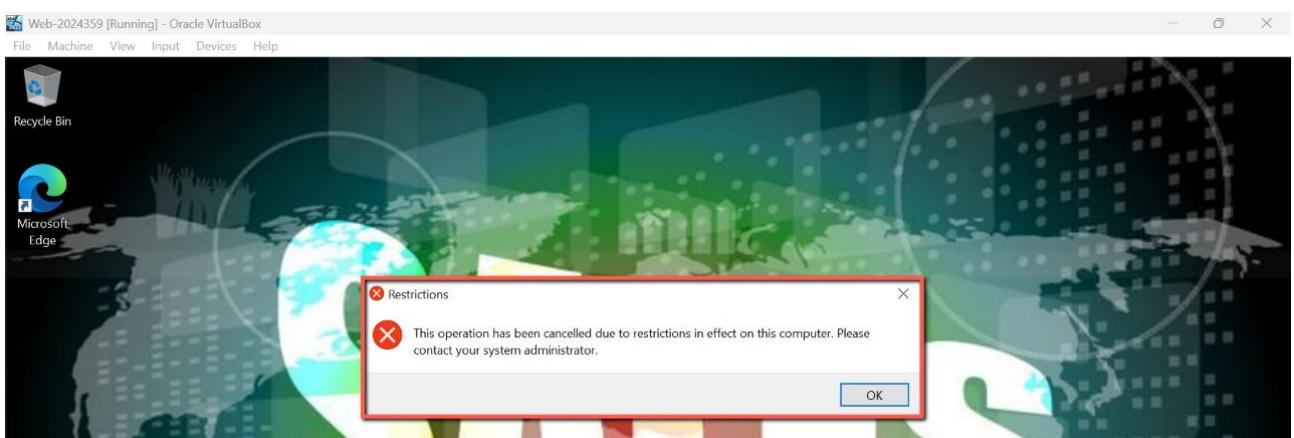
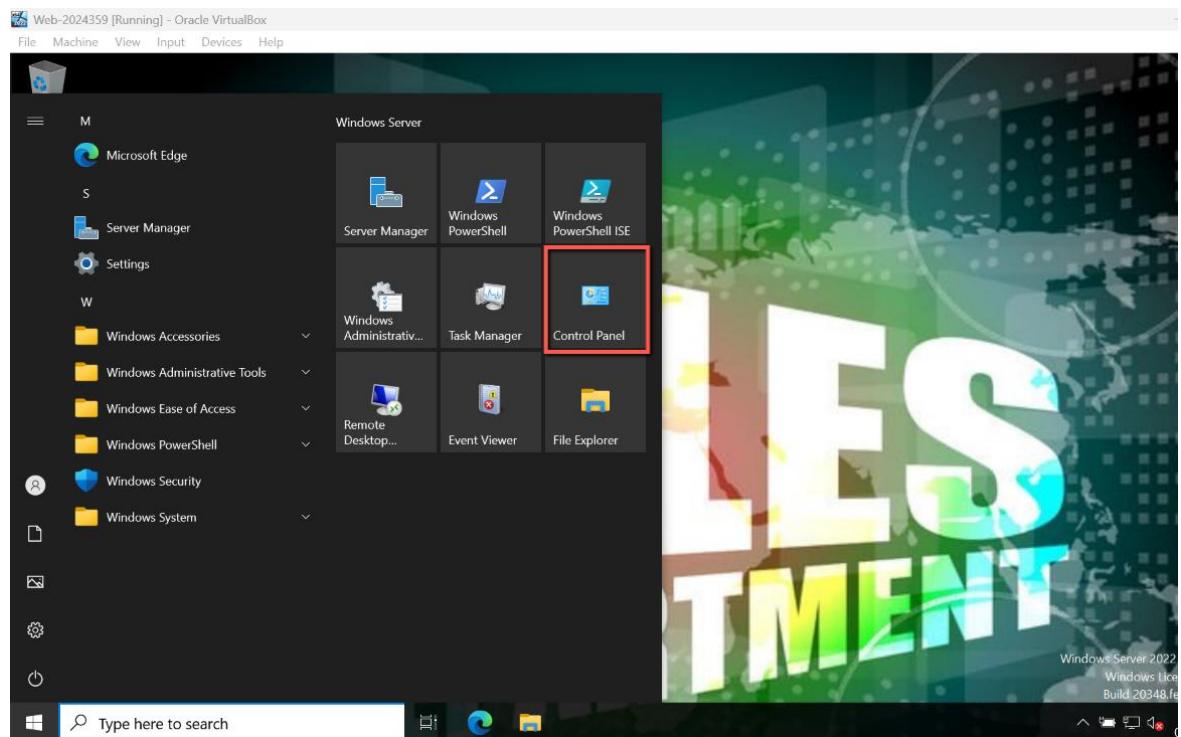
File Action View Window Help

Group Policy Management

Sales-Dublin

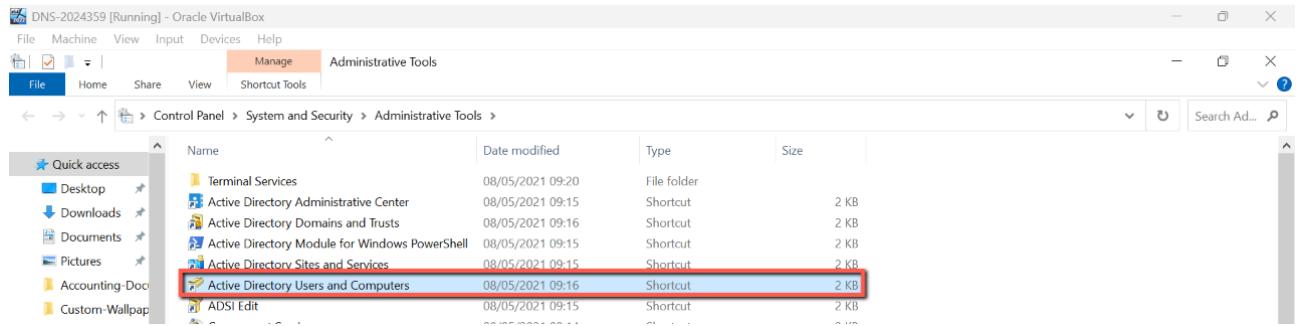
Link Order	GPO	Enforced	Link Enabled	GPO Status	WMI Filter	Modified	Domain
1	Sales-Wallpaper	No	Yes	Enabled	None	06/12/20...	digitech...
2	Control Panel-Removal	No	Yes	Enabled	None	06/12/20...	digitech...





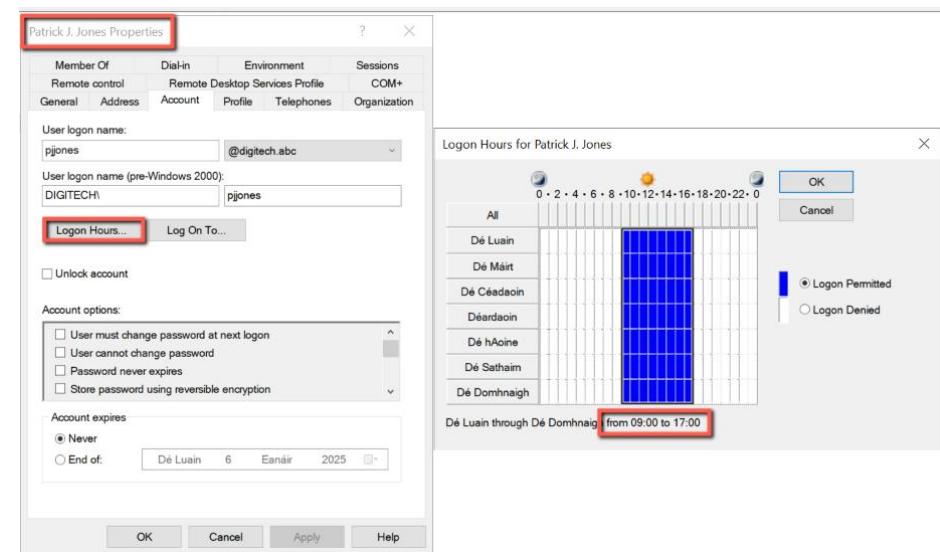
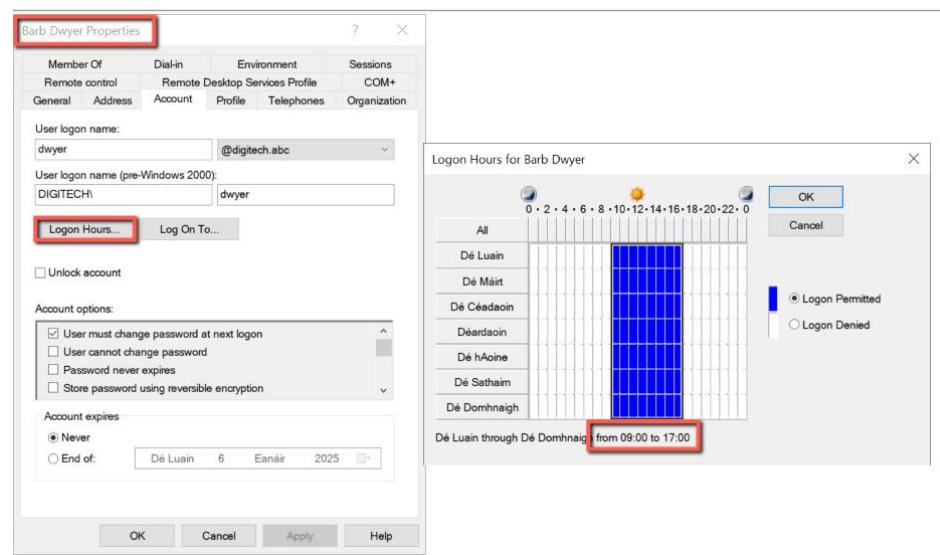
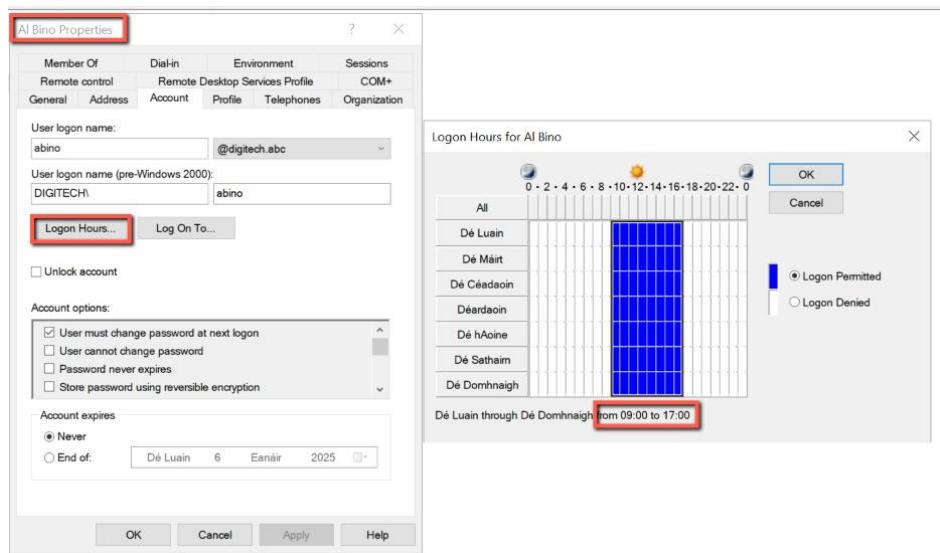
Note: To disable control panel, the Lepide's tutorial had been a great help. However, I couldn't find the settings for only control panel removal so I had to deny all the settings and control panel access to every department users. And when I was creating the GPO, I created 2 separate GPOs for each department but I realized that I can use only one and link to the Departments later. Additionally, it was way easier and saved time.

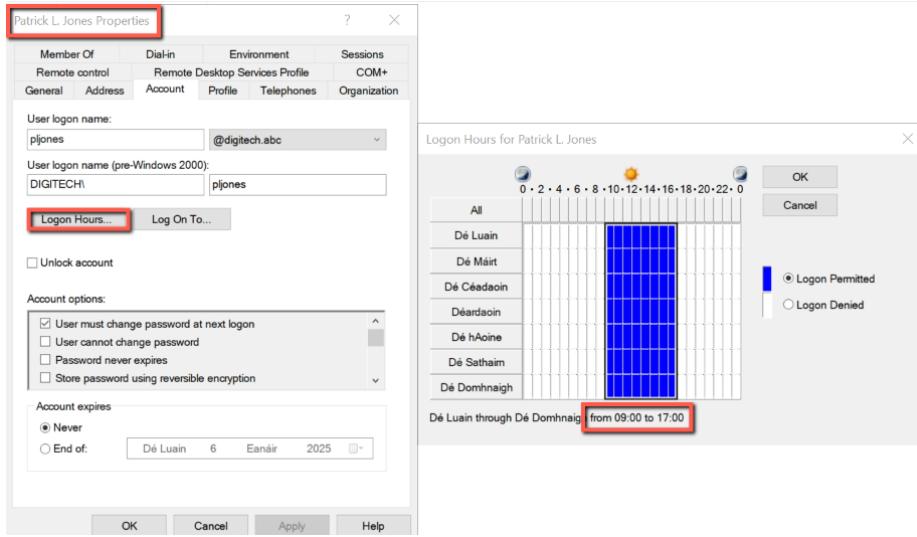
4c. Logon hours



Accounting Department 9-5pm:

The screenshot shows the 'Active Directory Users and Computers' interface. A context menu is open for the user 'Adam Baum'. The 'Properties' option is highlighted with a red box. Below it, the 'Logon Hours...' button is also highlighted with a red box. A separate window titled 'Logon Hours for Adam Baum' is displayed, showing a grid of logon times from 0 to 22, with the entire column for Monday through Friday highlighted in blue, indicating 'Logon Permitted'.





Sales Department 8-6pm

DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Active Directory Users and Computers

File Action View Help

Active Directory Users and Computers

Name Type Description

Anna Conda User Properties

Copy... Add to a group... Disable Account Reset Password... Move... Open Home Page Send Mail All Tasks Cut Delete Rename

Properties

Help

Anna Conda Properties

Member Of: Dial-in: Environment: Sessions: COM+
Remote control: Remote Desktop Services Profile: Profile: Telephones: Organization:
General Address Account

User logon name: drdoran @digitech.abc
User logon name (pre-Windows 2000): DIGITECH\drdoran

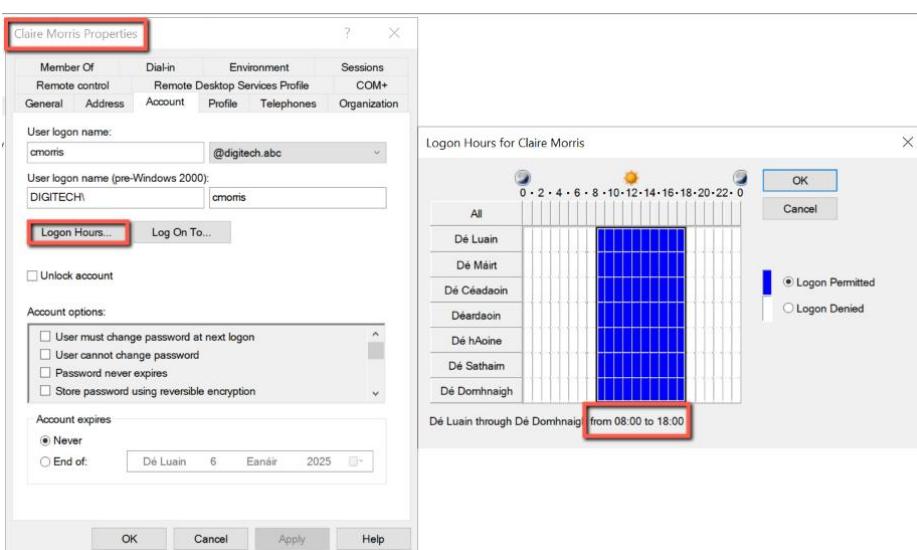
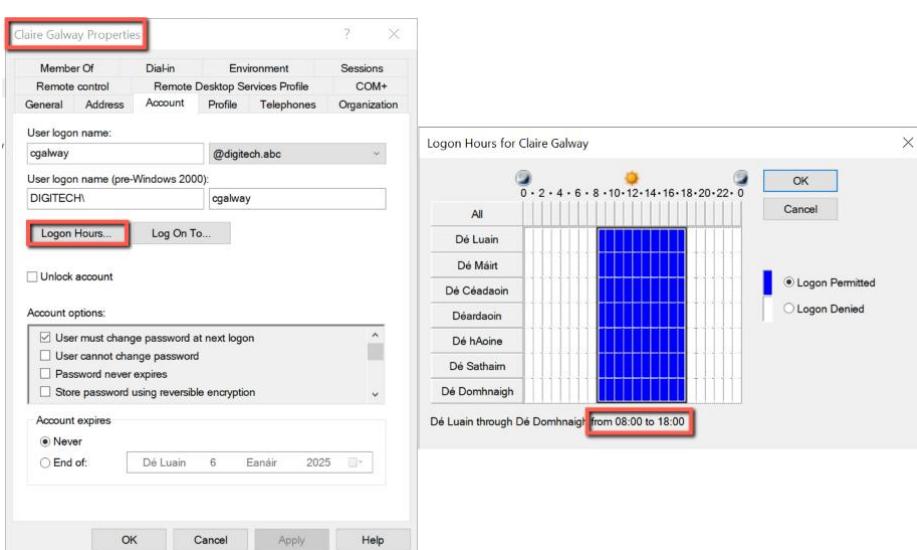
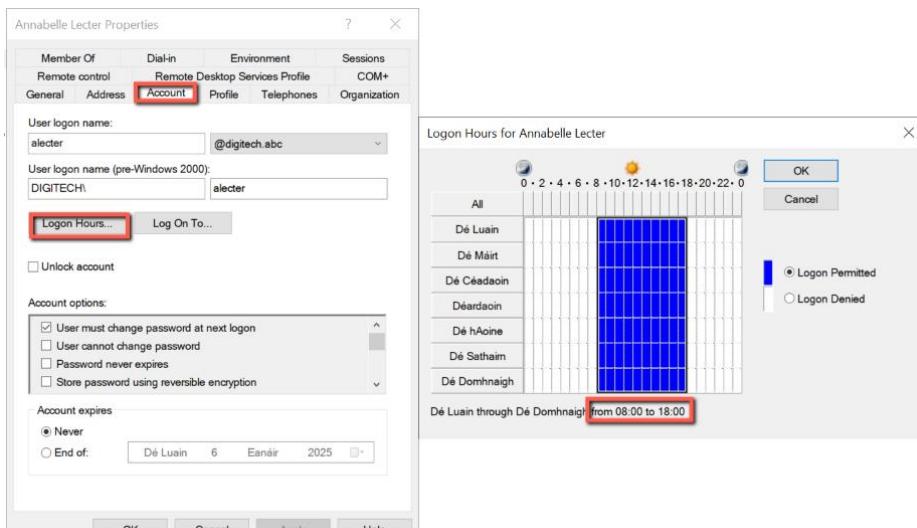
Logon Hours... Log On To...

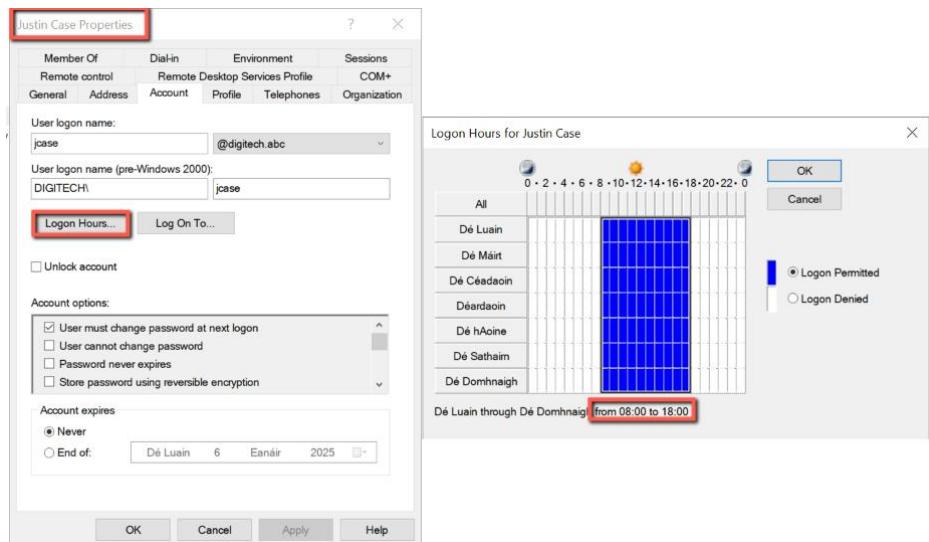
Unlock account

Account options:
 User must change password at next logon
 User cannot change password
 Password never expires
 Store password using reversible encryption

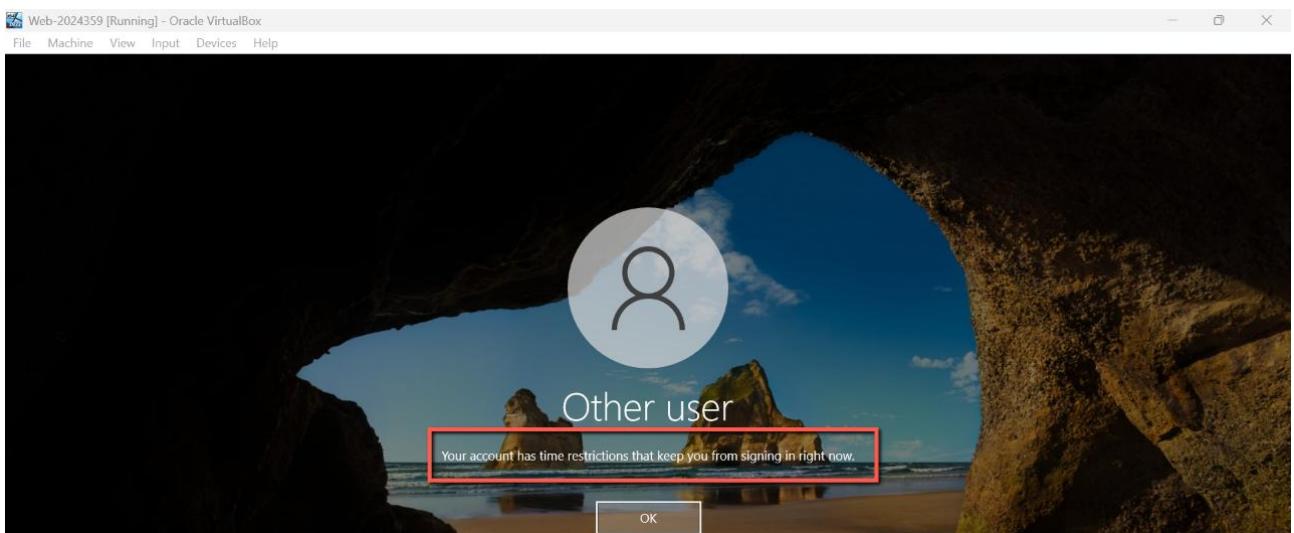
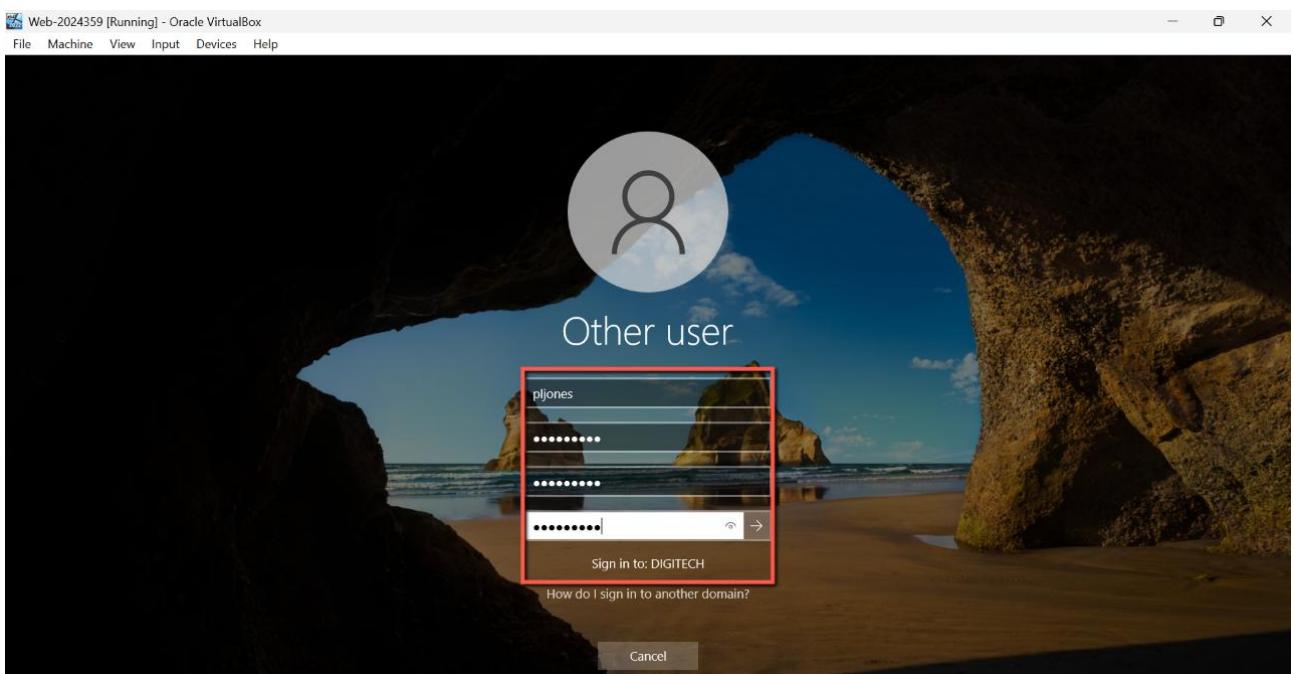
Account expires:
 Never
 End of: Dé Luain 6 Eanáir 2025

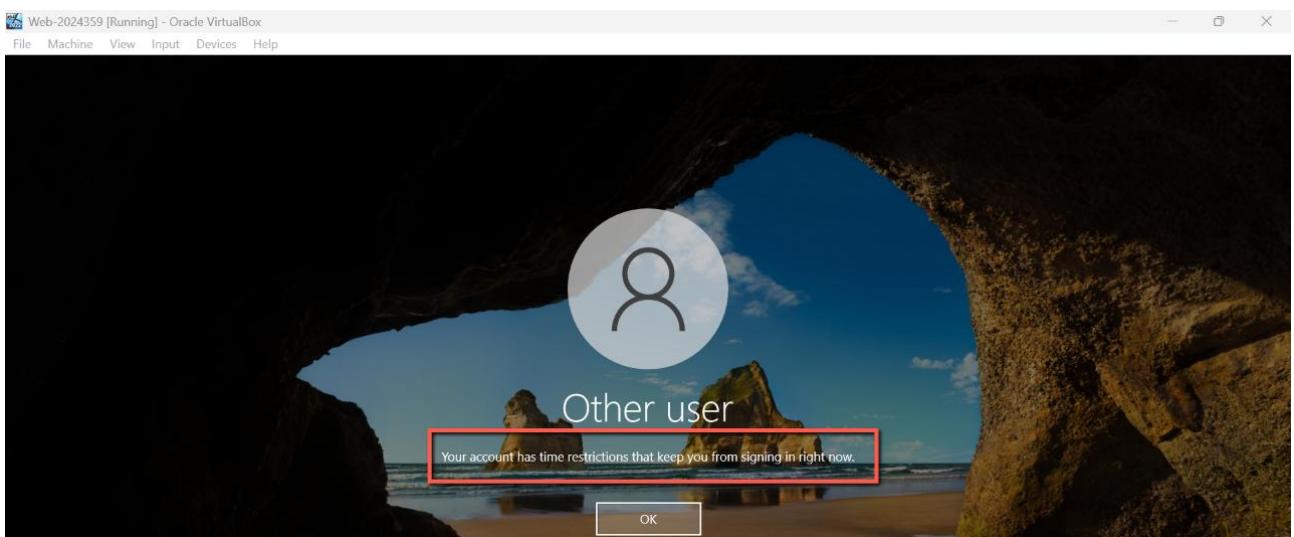
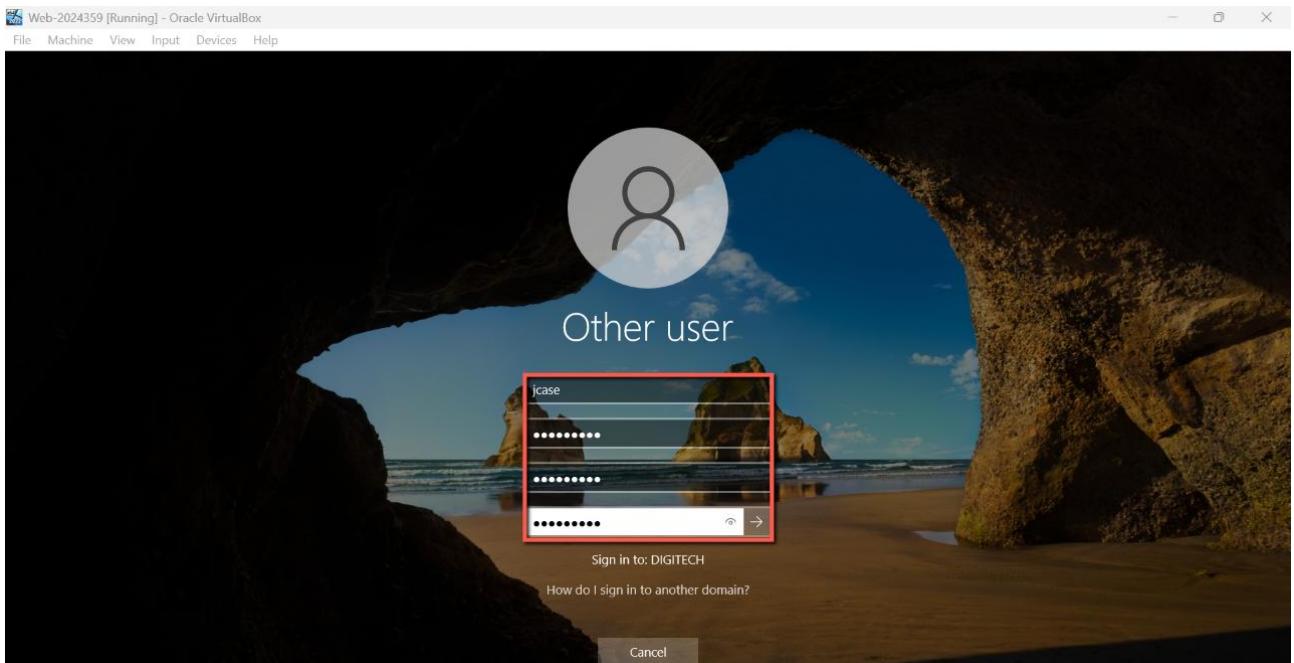
Dé Luain through Dé Domhnaigh from 08:00 to 18:00





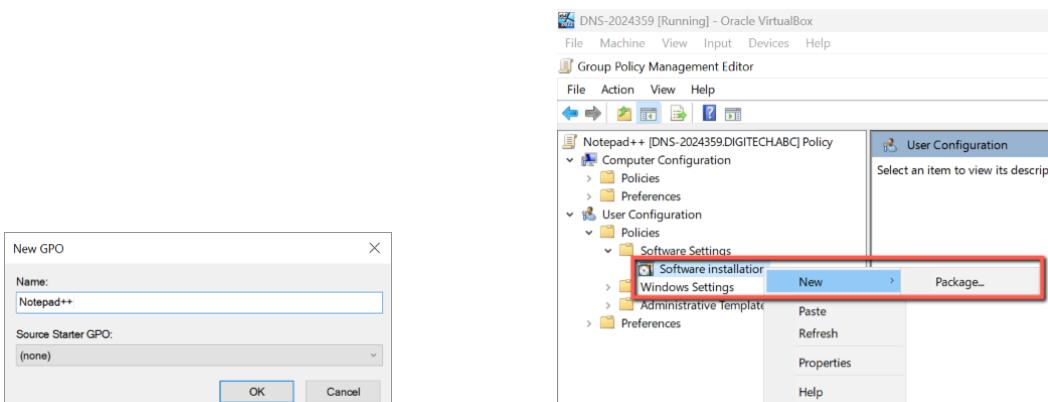
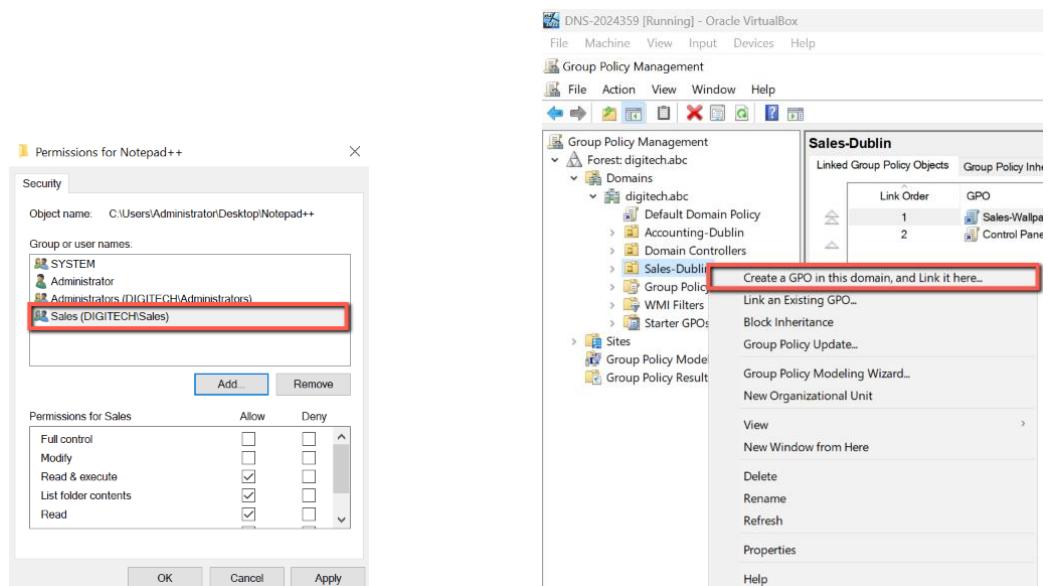
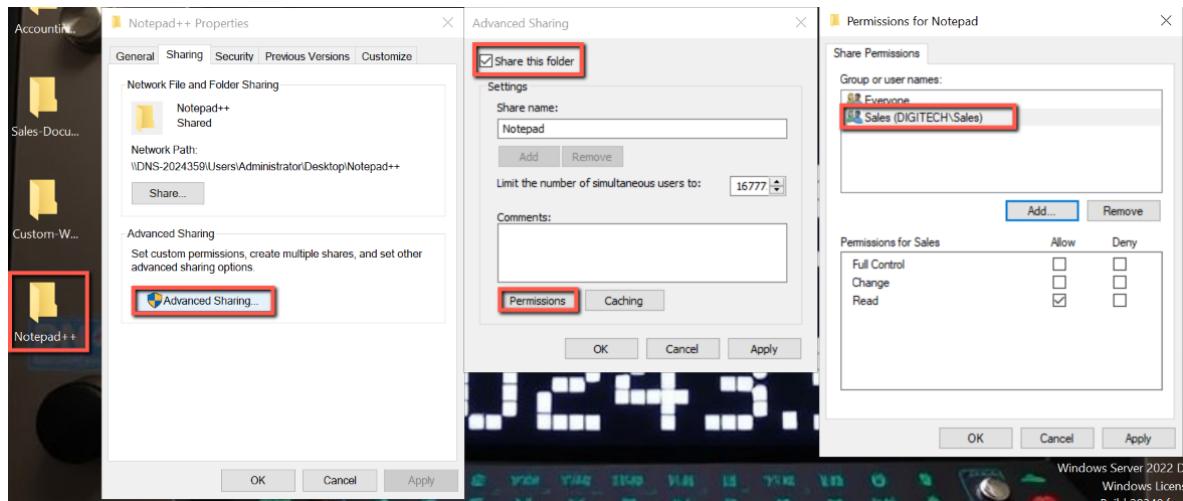
Testing:

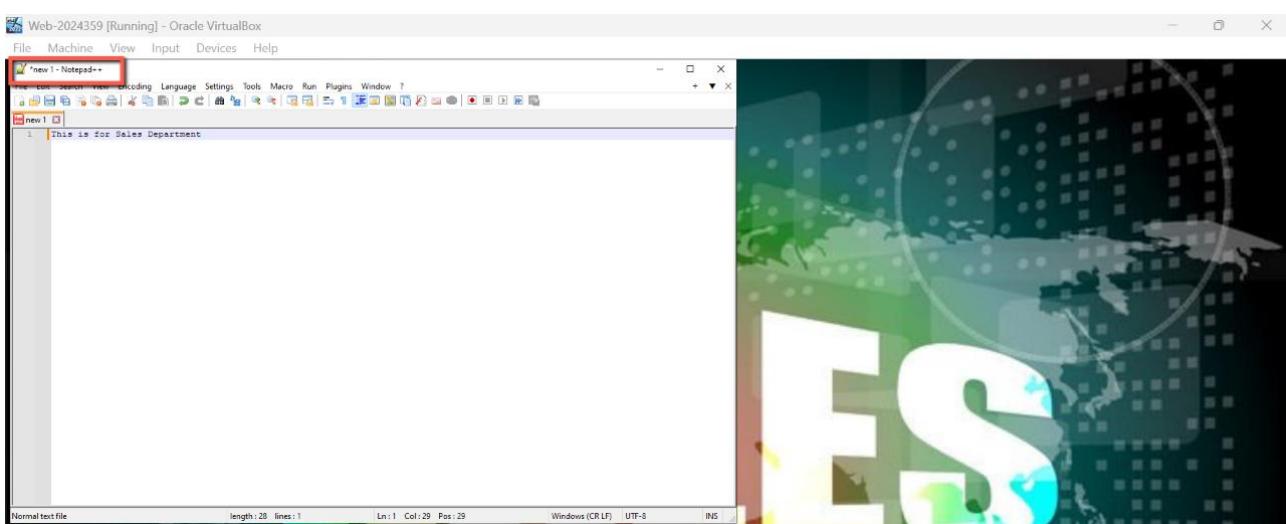
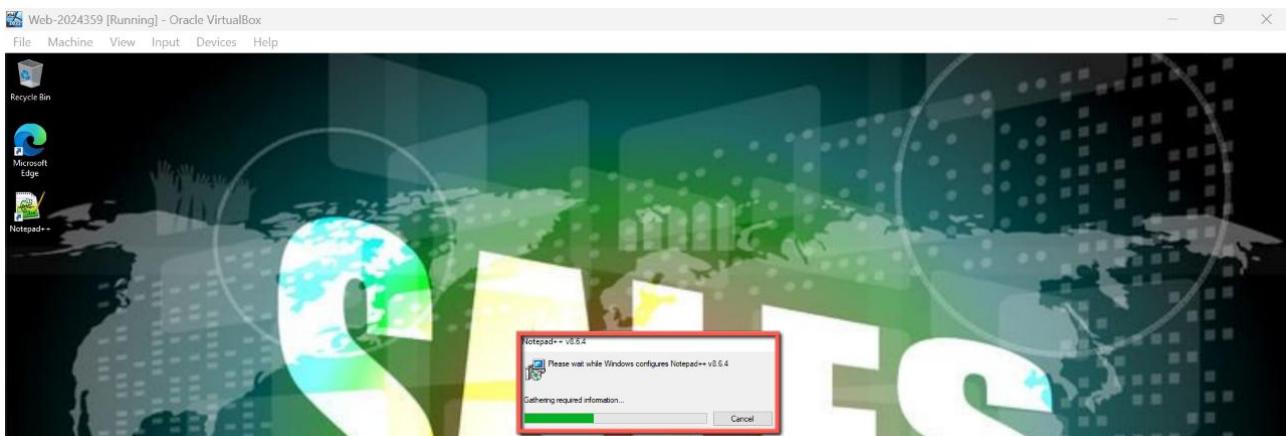
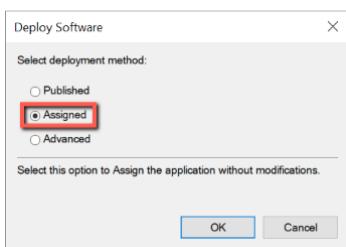
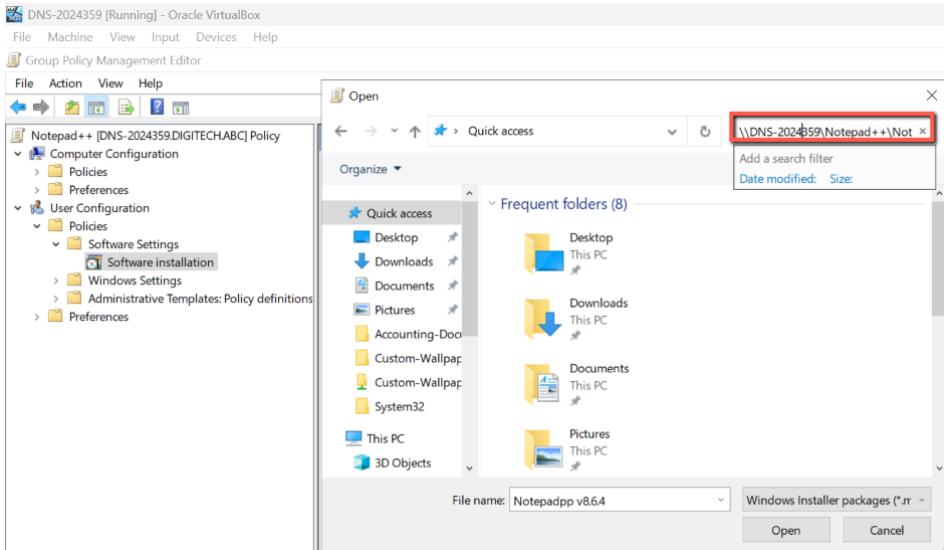




Note: For the logon hour restrictions, ManageEngine(n.d.) was my source. And It helped me to change the logon hour settings from administrator control. One struggle was that it had to be done for each users and not the whole group. I tried to change the hours for only the groups but there's no option for logon hours in groups. So for 10 times, I had to change the logon hour settings. This type of configuration will give the digitech employees the work-life balance and boundaries. And maybe make them do their jobs during work hours because they have only limited time and can't overwork.

4d. Automated software installation for Sales





4e. Automated software installation for Accounting

DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

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crippling feature - except, all evaluation products will place a stamp/watermark on all generated pages indicating they have been made with a trial version - and this is the only limitation.

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MSI Files for Network Installation

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EditorV10x64.msi
2.6 MB/s - 10.3 MB of 342 MB, 2 mins left

LibreOffice-24.0.3-Win-x86-64.msi
Removed

FileOpenEditor_2024.3.0.26795.msi
Removed

FileOpen_2024.3.0.26795.fzip
Open file

See more

DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Group Policy Management

File Action View Window Help

Group Policy Management

Forest: digitelabc

Domains

digitelabc

- Default Domain Policy
- Accounting-Dublin
- Domain GPOs
- Sales-Dublin
- Group Policies
- WMI Filters
- Starter GPOs

Create a GPO in this domain, and Link it here...

Link an Existing GPO...

Block Inheritance

Group Policy Update...

Group Policy Modeling Wizard...

New Organizational Unit

View

New Window from Here

Delete

Rename

Refresh

Properties

Help

New GPO

Name: PDF

Source Starter GPO: (none)

OK Cancel

DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Group Policy Management Editor

File Action View Help

PDF [DNS-2024359.DIGITECHABC]

Computer Configuration

- Policies
- Preferences

User Configuration

- Policies
- Software Settings
- Software Installer
- Windows Settings

Name	Version	Deployment state	Source
PDF-XChange Editor	104	Assigned	\\\dns-2024359\pdf\EditorV10x64.msi

PDF-XChange Editor Properties

General Deployment Upgrades Categories Modifications Security

Deployment type

Published

Assigned

Deployment options

Auto-install this application by file extension activation

Uninstall this application when it falls out of the scope of management

Do not display this package in the Add/Remove Programs control panel

Install this application at logon

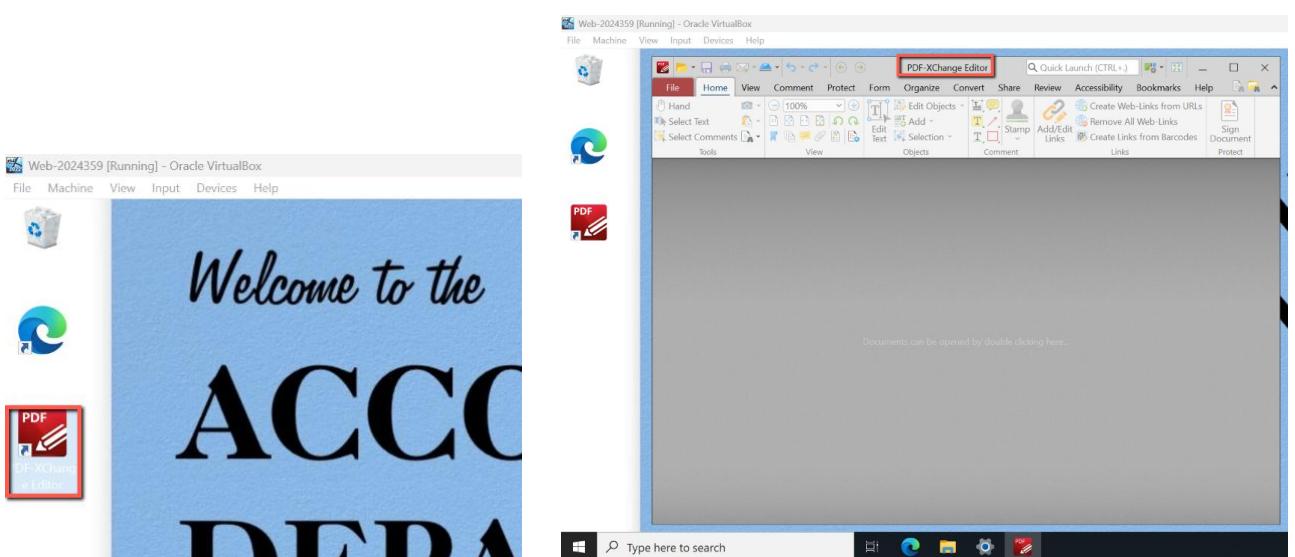
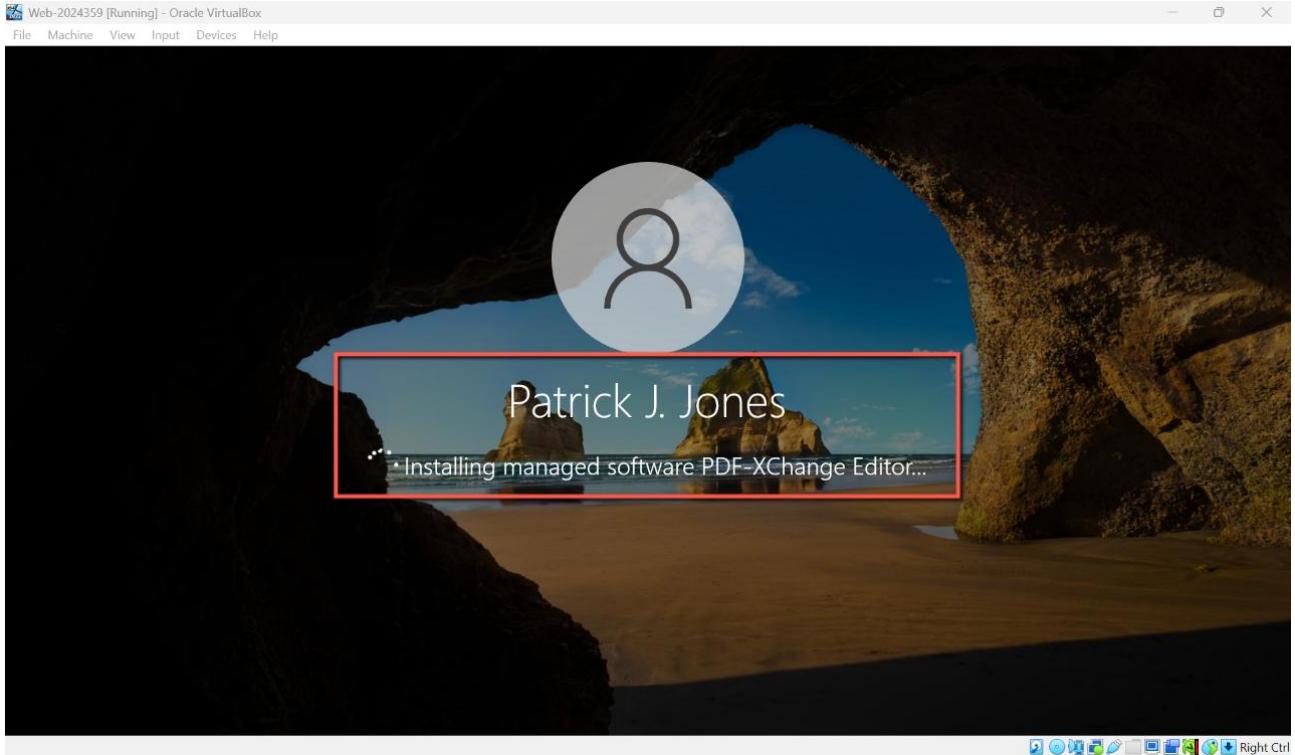
Installation user interface options

Basic

Maximum

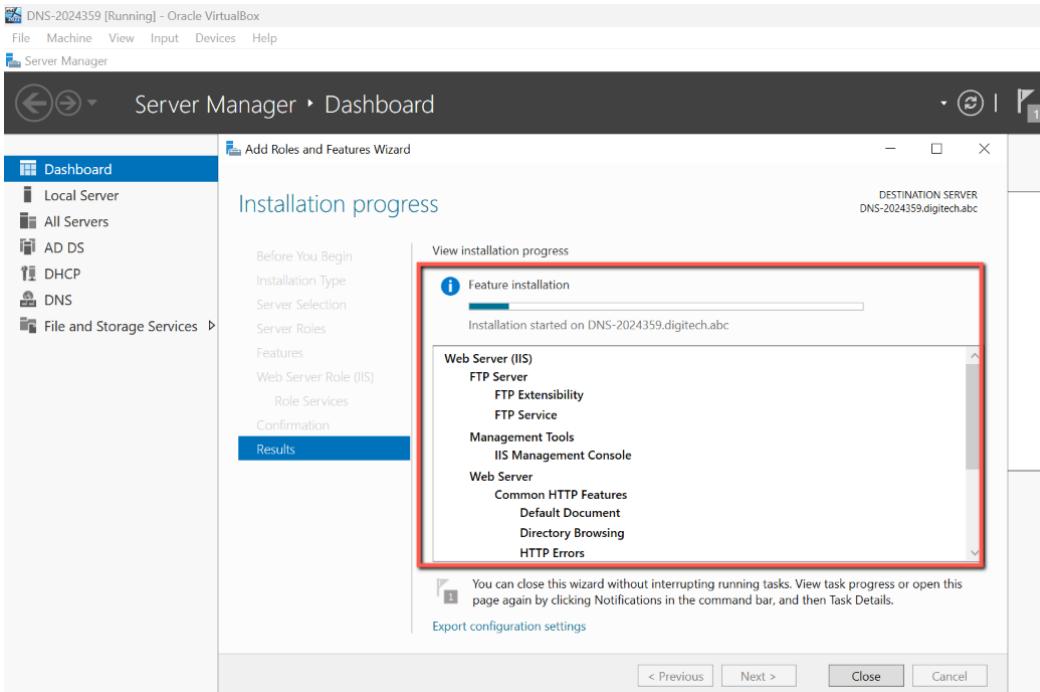
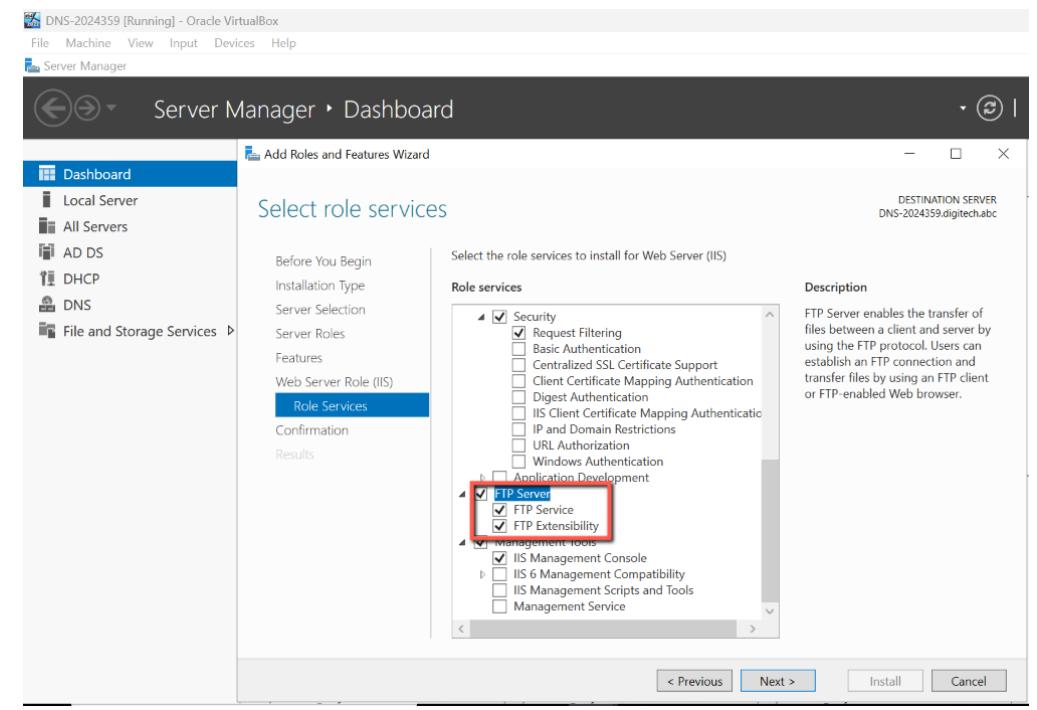
Advanced...

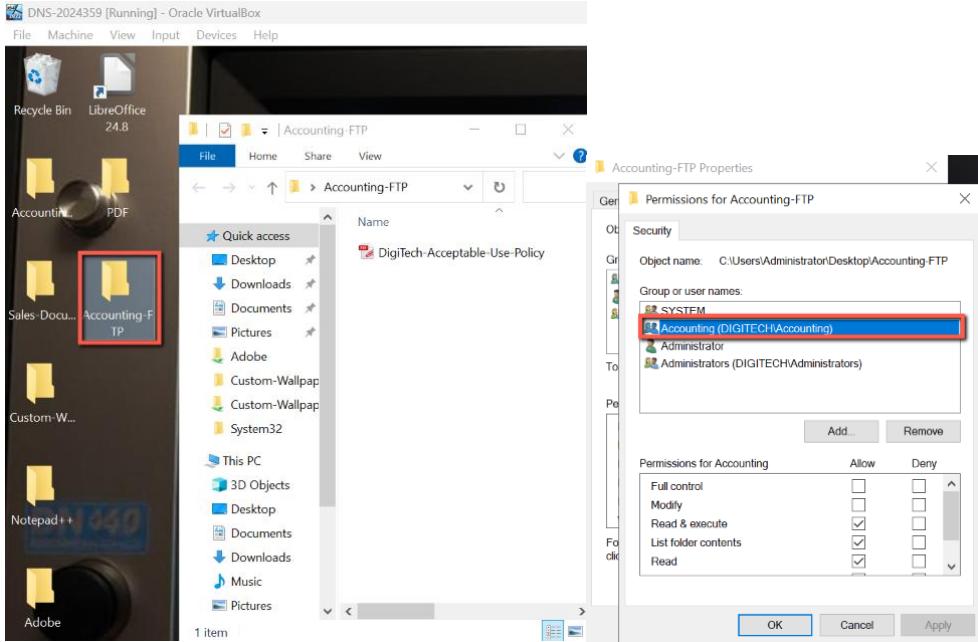
OK Cancel Apply



Note: To set up an automated software installation on both departments, my main resource was from Microsoft's official website. The first installation of Notepadd++ for sales department was successful. But the second installation for Accounting had lots of failures. It was because of the msi file for the pdf reader installation. I tried 4 different msi files from different pdf readers. And only one was working fine. So I chose that one to be installed automatically on first logon. Another problem was that the software weren't being installed on the first logon, therefore I had to check the box on the GPO configuration to install on first logon.

4f. FTP Server





DNS-2024359 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Server Manager

Dashboard Local Server All Servers AD DS DHCP DNS File and Storage Services IIS

Servers All servers | 1 total

Filter

Server Name IPv4 Address Manageability Last Update Windows Activation

DNS-2024359 10.0.2.15,172.16.0.100 Online - Performance counters not started 07/12/2024 15:55:29 00455-50000-00001

Add FTP Site ? X

Site Information

FTP site name: AccountingFTP

Content Directory

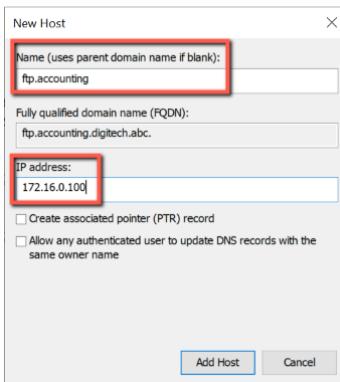
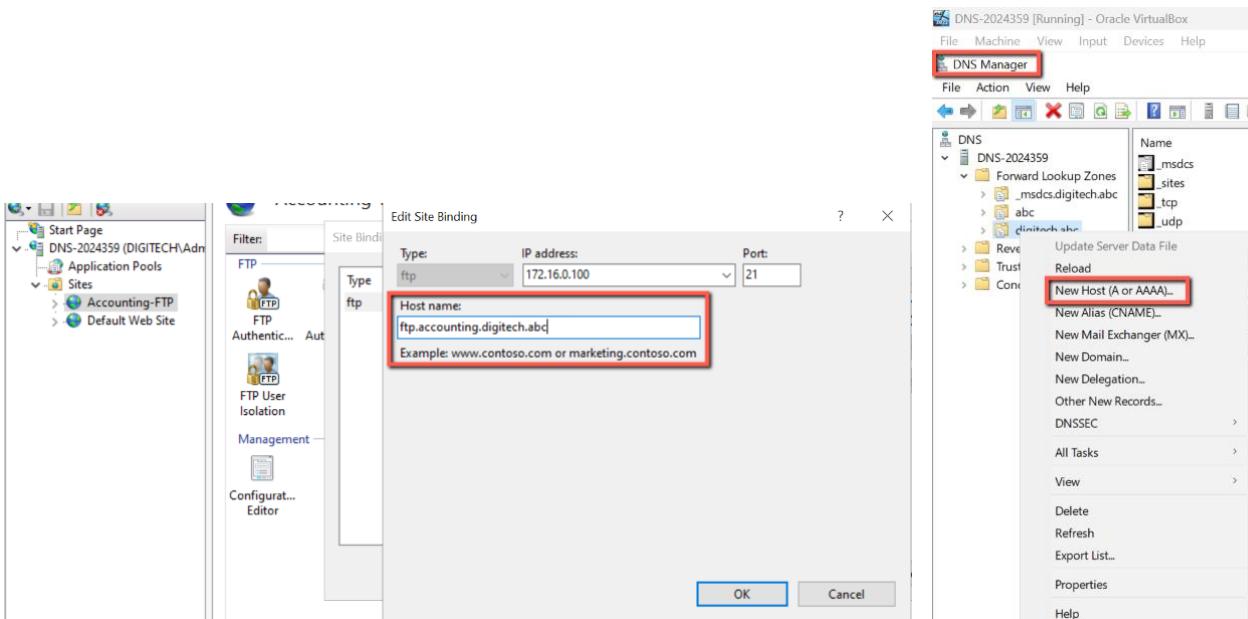
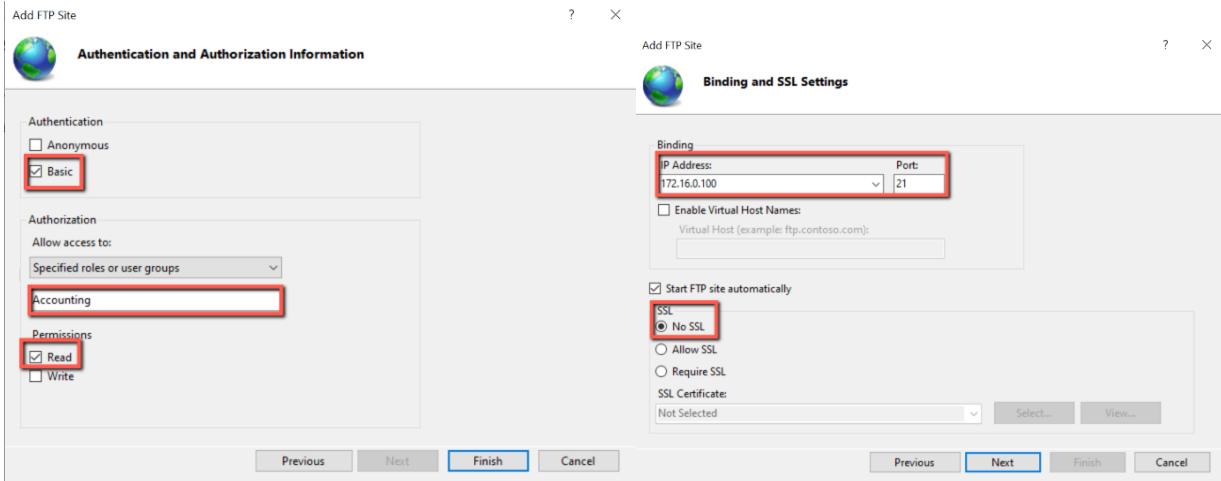
Physical path: C:\Users\Administrator\Desktop\Accounting-FTP ...

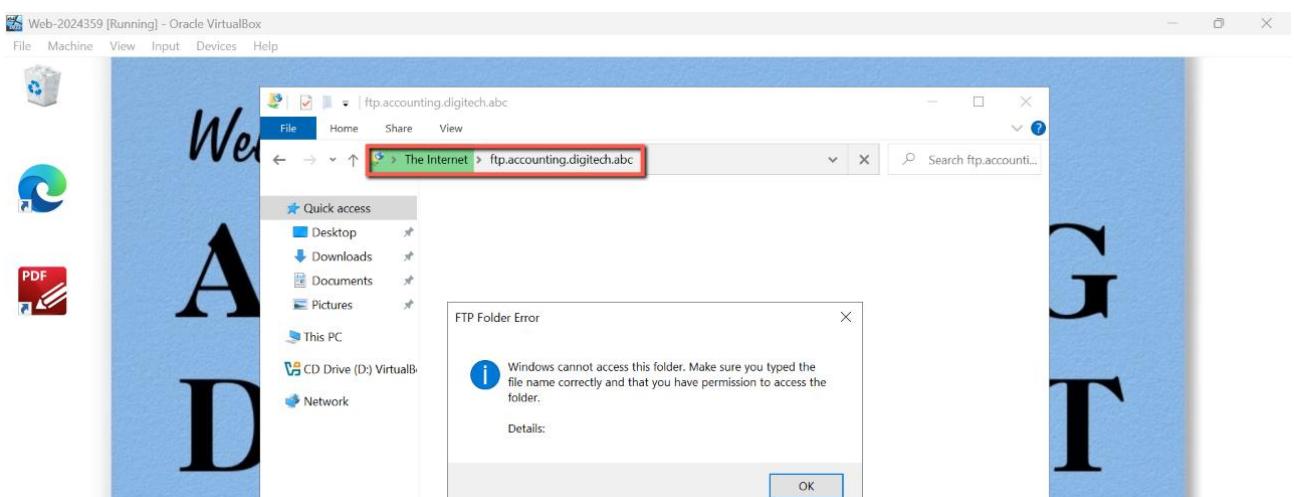
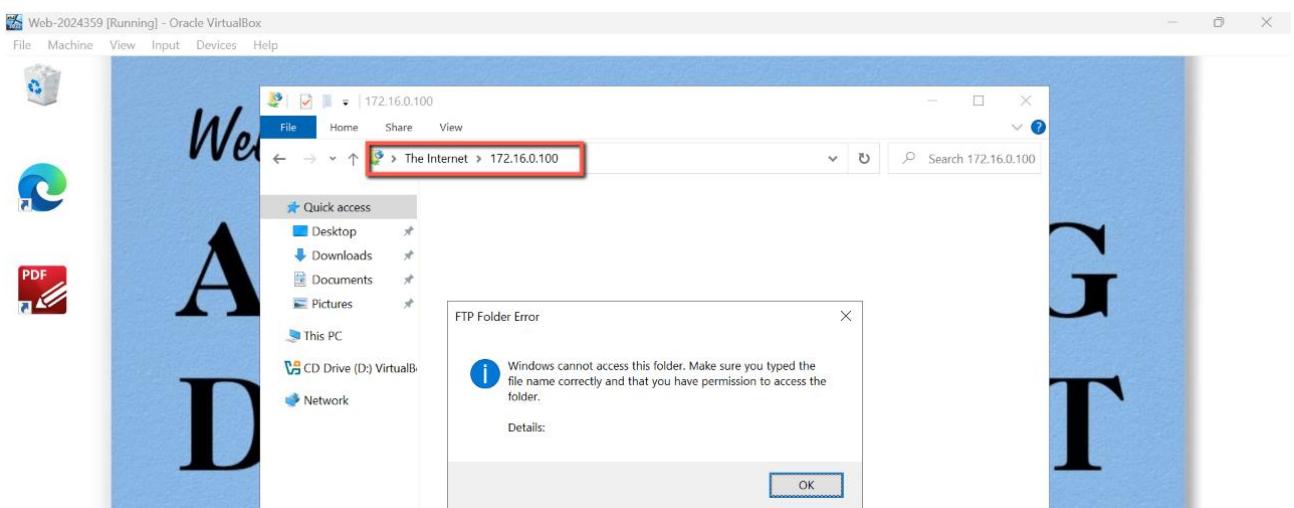
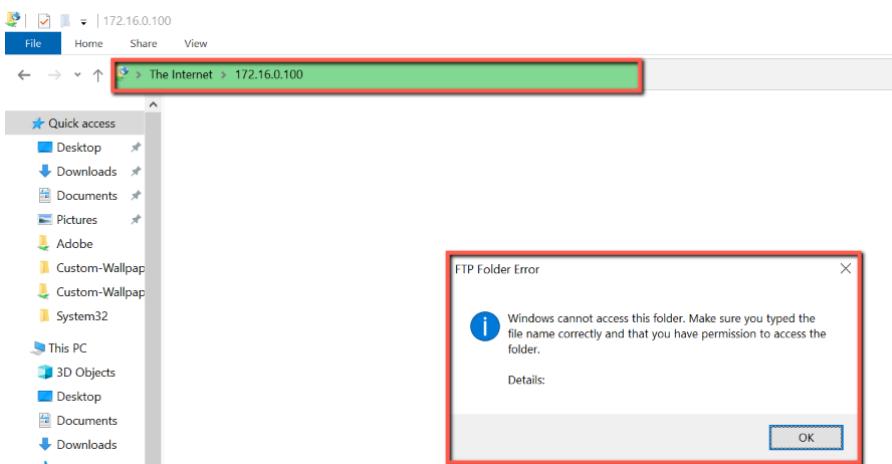
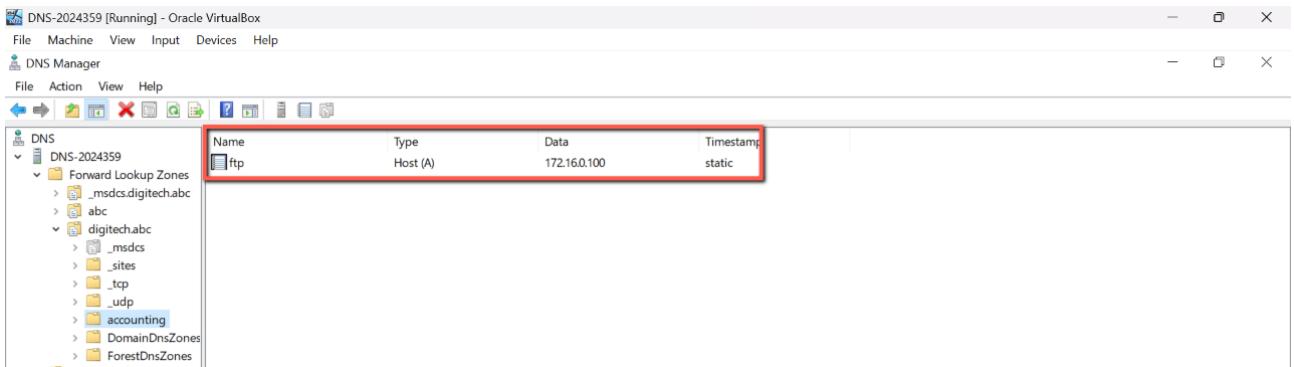
Connections Start Page DNS-2024359 (DIGITECH\Administrators) Application Pools Recent connections

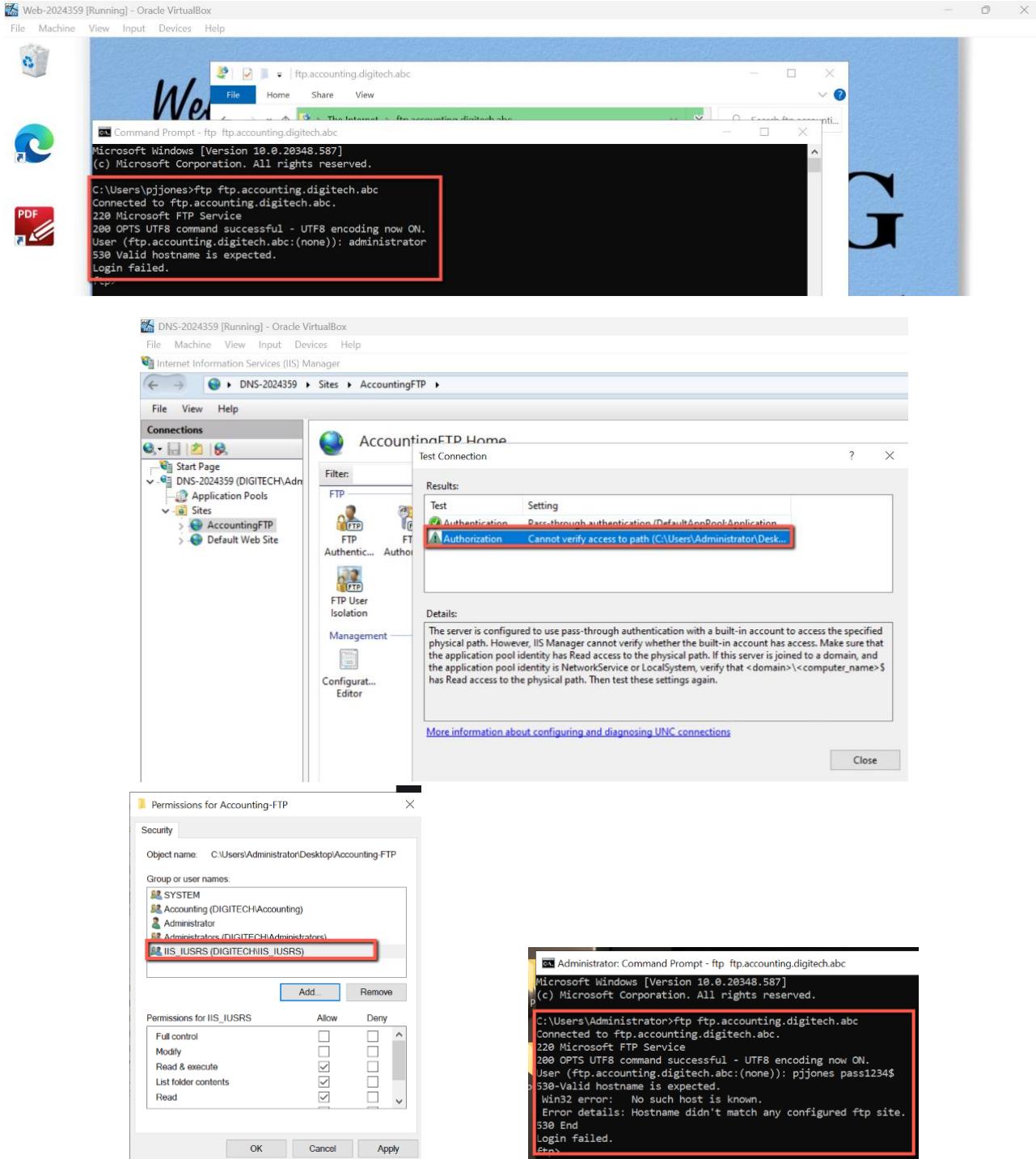
Add Website... Refresh Add FTP Site... Switch to Content View

Microsoft Internet Application Services

Defragment and Optimize Drives
DHCP
Disk Cleanup
DNS
Event Viewer
Group Policy Management
Internet Information Services (IIS) Manager (highlighted)
iSCSI Initiator
Local Security Policy
Microsoft Azure Services



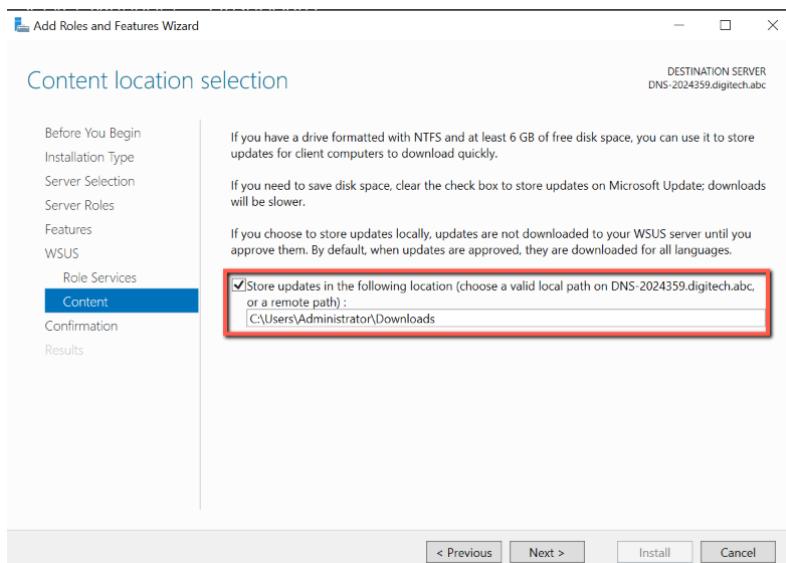
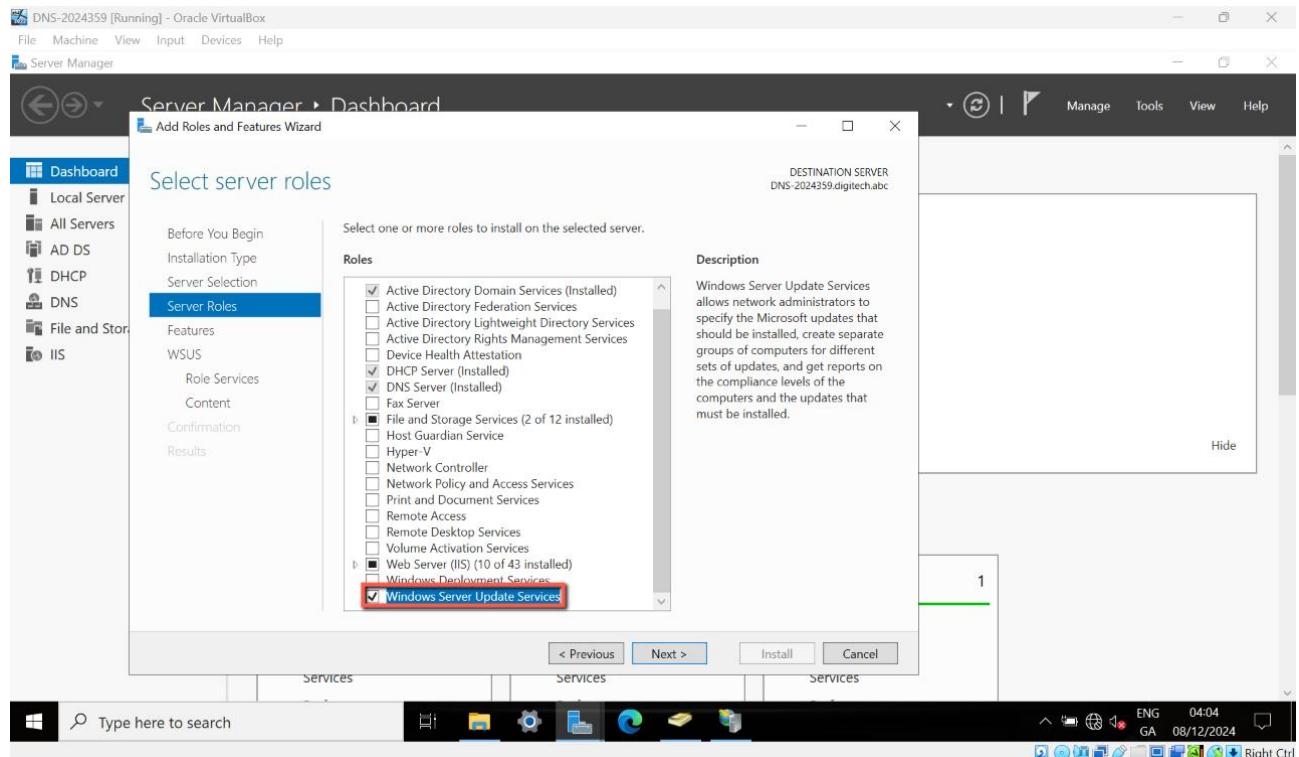


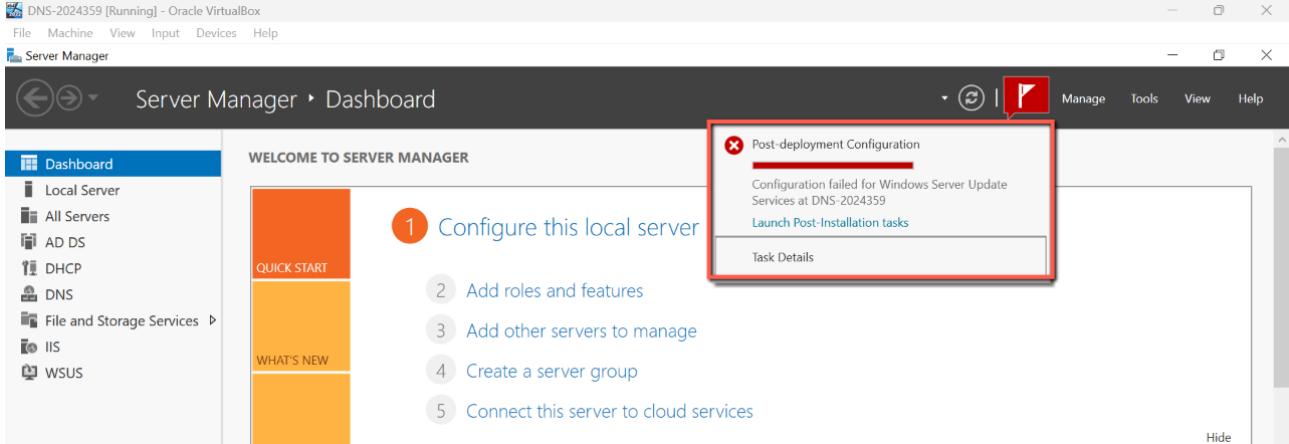
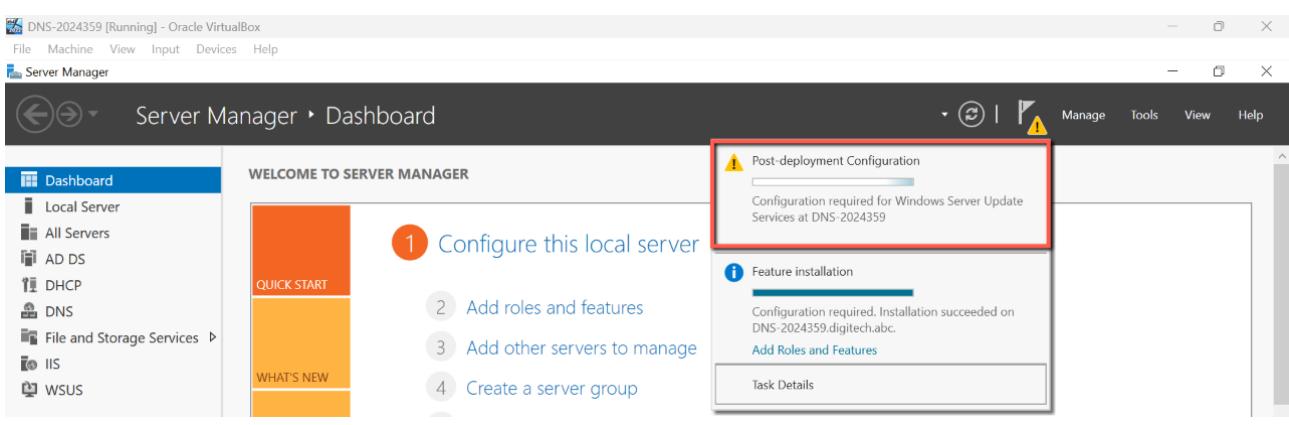
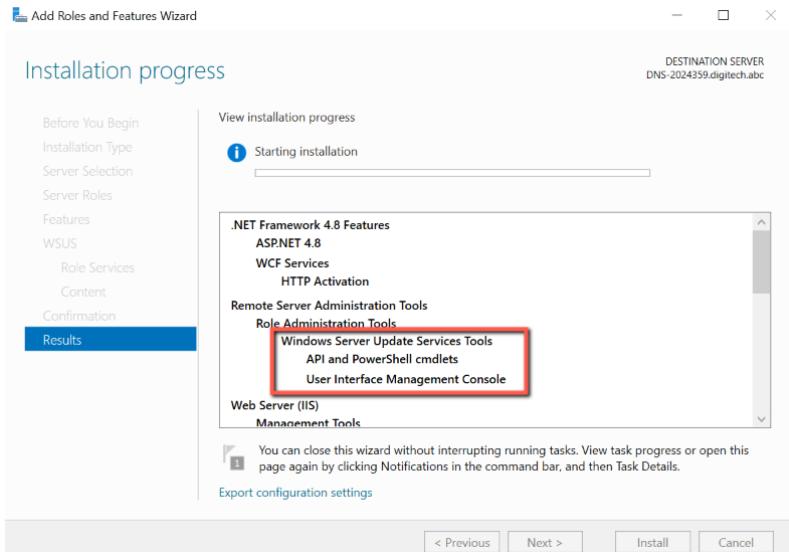


Note: For the FTP website, the main source was Alibaba Cloud (n.d.) and the installation of FTP server was great. But the FTP site configuration didn't work out because there was a problem with the access or filename. Also the testing showed that the authorization part wasn't correct. Hence, I created a new ftp host on the domain but it didn't work out. I tried to change the permissions for other users, add permissions to accounting users. It didn't work. I can go to the path by ftp, but there's a problem.

Section 5 : Patch management

5a. Windows Software Update Server





Note: The WSUS setup is from Microsoft (n.d.). I'm stuck on the first step because the post deployment configuration is failing whenever I try to configure.

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Table of Figures

Fig. 1: Oracle VirtualBox example.....	4
Fig. 2: Running the DNS-2024359 machine	6
Fig. 3: Running the Web-2024359 Machine	6
Fig. 4: Adding roles and features for AD DS	7
Fig. 5: Checking AD DS for DNS machine	7
Fig. 6: Post-deployment Configuration for AD DS on DNS machine	8
Fig. 7: Adding a new forest called digitech.abc	8
Fig. 8: Setting a password as pass1234!	8
Fig. 9: Setting the domain name as digitech	9
Fig.10: Getting ready to install the AD DS	9
Fig. 11: Logging in as Web machine and opening workgroup	10
Fig. 12: Setting the domain as digitech.abc	10
Fig. 13: Logging as an admin.....	10
Fig. 14: Setting the domain as digitech.abc.....	10
Fig. 15: Domain: digitech.abc on Web machine	10
Fig. 16: Creating the OU for the Accounting Department.....	11
Fig. 17: Creating the OU for the Sales Department.....	11
Fig. 18: After creating the OUs on DNS machine.....	11
Fig. 19: Creating the Global Security Group for Accounting department	12
Fig. 20: Accounting group.....	12
Fig. 21: Creating the Global Security Group for Sales Department.....	12
Fig. 22: Sales Group	13
Fig. 23: Creating user account on Accounting-Dublin/Assigning names.....	14
Fig. 24: Creating user account on Accounting-Dublin/Assigning password – pass1234!.....	14
Fig. 25: New user account on Accounting Department	15
Fig. 26: All the user accounts on Accounting Department	15
Fig. 27: Creating user account on Sales-Dublin/Assigning names.....	15
Fig. 28: Creating user account on Sales-Dublin/Assigning password – pass1234!.....	16
Fig. 29: New user account on Sales Department	16
Fig. 30: All the user accounts on Sales Department	16
Fig. 31: <i>Adding Accounting Members to the Accounting group.</i>	17
Fig. 32: All the members on the Accounting group	17
Fig. 33: Adding Sales Members to the Sales group	17
Fig. 34: All the members on the Sales group	17
Fig. 35: Creating 2 new folders for Accounting and Sales departments	18
Fig. 36: Sharing the folder with the accounting group	18
Fig. 37: Applying NTFS permissions to the Accounting group	18
Fig. 38: Sharing the folder with the Sales group	18
Fig. 39: Applying NTFS permissions to the Sales group	18
Fig. 40: Logging in as Accounting user (pjjones, pass1234!) on Web VM	19
Fig. 41: Accounting user must change the password on first logon.....	19
Fig. 42: Changing the Accounting user password to pass1234\$	20
Fig. 43: Changing the password for Accounting User Patrick J. Jones.....	20
Fig. 44: Applying user settings for Patrick J. Jones	21
Fig. 45: Running UNC path for Accounting-Documents and accessing the folder/Accounting User on WebVM	21
Fig. 46: Running the UNC path for Sales-Documents and getting rejected to access/Accounting User-WebVM	22

Fig. 47: Logging in as Sales user (cmorris, pass1234!) on Web VM.....	22
Fig. 48: Sales user must change the password on first logon.....	23
Fig. 49: Running UNC path for Sales-Documents and accessing the folder/Sales User on WebVM.....	23
Fig. 50: Running the UNC path for Accounting-Documents and getting rejected to access/Sales User-WebVM.....	24
Fig. 51: Opening the Group Policy Management on Active Directory	25
Fig. 52: Finding the default domain policy	25
<i>Fig. 53: Editing the Default domain policy.....</i>	25
Fig. 54: Password policy.....	25
Fig. 55: Before the settings / password policy	25
Fig. 56: Changing the password age to 30 days	25
Fig. 57: After the password settings / password policy.....	25
Fig. 58: Before the settings / account lockout policy	26
Fig. 59: Changing the account lockout to 5 mins	26
Fig. 60: Changing the invalid login attempts to 3	26
Fig. 61: Account lockout policy after the settings	26
Fig. 62: Updating group policy on command prompts using force	26
Fig. 63: First attempt – wrong password (1234) / Web VM.....	27
Fig. 64: First attempt – wrong password notification	27
Fig. 65: Second attempt - wrong password (12345678!).....	28
Fig. 66: Second attempt – wrong password notification.....	28
Fig. 67: Third attempt - wrong password (pass1234!)	29
Fig. 68: Third attempt – wrong password notification	29
Fig. 69: Fourth attempt - wrong password.....	30
Fig. 70: Getting locked out as a result	30
Fig. 71: Downloading DHCP Server on roles and features	31
Fig. 72: DHCP Server ready to be installed	31
Fig. 73:Post deployment configuration for DHCP server.....	31