

# Windows server project

Under supervision: **Eng Mohamed Abosehly**



# Project Overview

DC1 is a primary Domain Controller  
DC2 is an additional Domain Controller  
DC3 is a RODC, DC4 & DC5 are Chilled DC

[A@ITI.local](#) can only login to PC1 but  
can't login to pc1 on Fridays

[help@ITI.local](#) can login to Rodc & his  
PSWD is replicated to Rodc

[c@ITI.local](#) can't access Flash memory &  
control Panel & his wallpaper is ITI logo

[A@Ism.ITI.Local](#) can login to PC5-PC1-PC4  
(ROMING PROFILE)\*\*

**DOMAIN ADMIN** need to install **WINRAR**  
on pc2 using GPO (how)\*\*

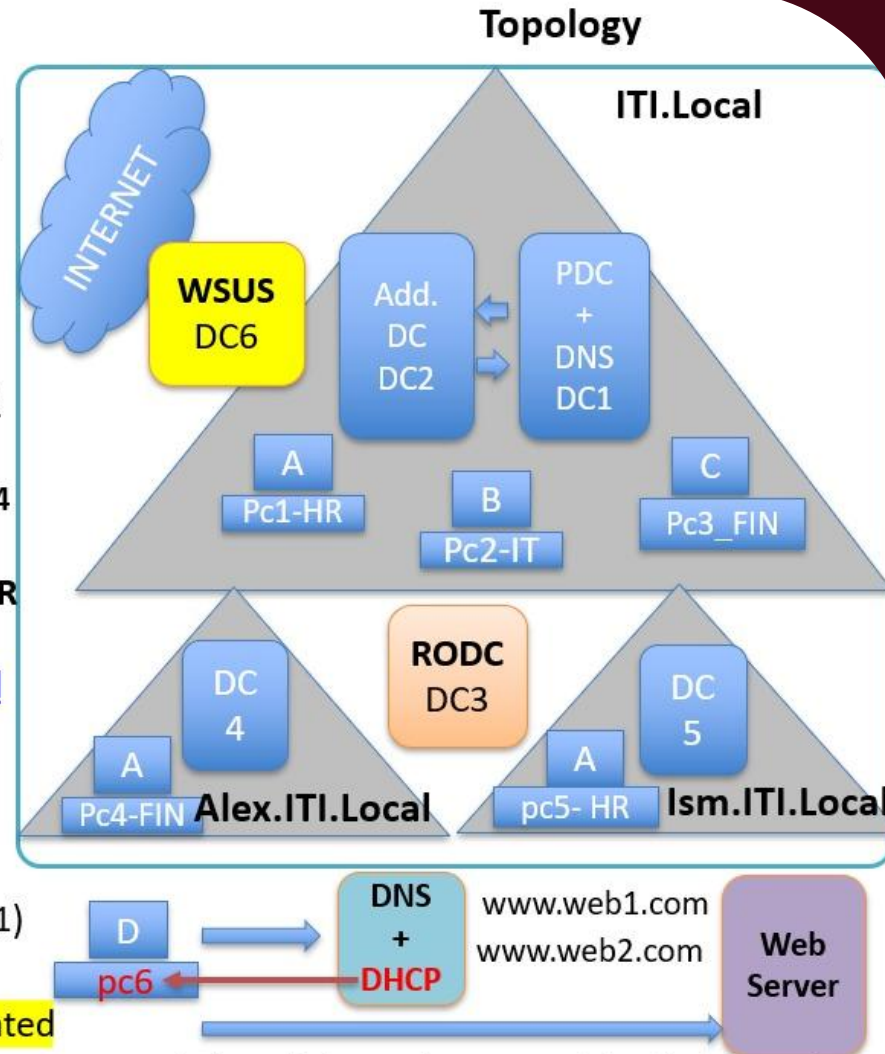
**DOMAIN ADMIN** delegate to [B@iti.local](#)  
to login remotely to DC1  
(not member of administrators) \*\*

[A@ITI.local](#) check the website

<https://www.web2.com> from pc1  
(authoritative -web2.com Second Z (DC1))

Bonus , tray to configure a WSUS  
to make sure that your topology is updated

D is a local user on **pc6** but he can manage remotely (RDP) the webserver with administrative  
privileges ,his responsibilities is to check <http://www.web1.com> and get a **copy** of it using F



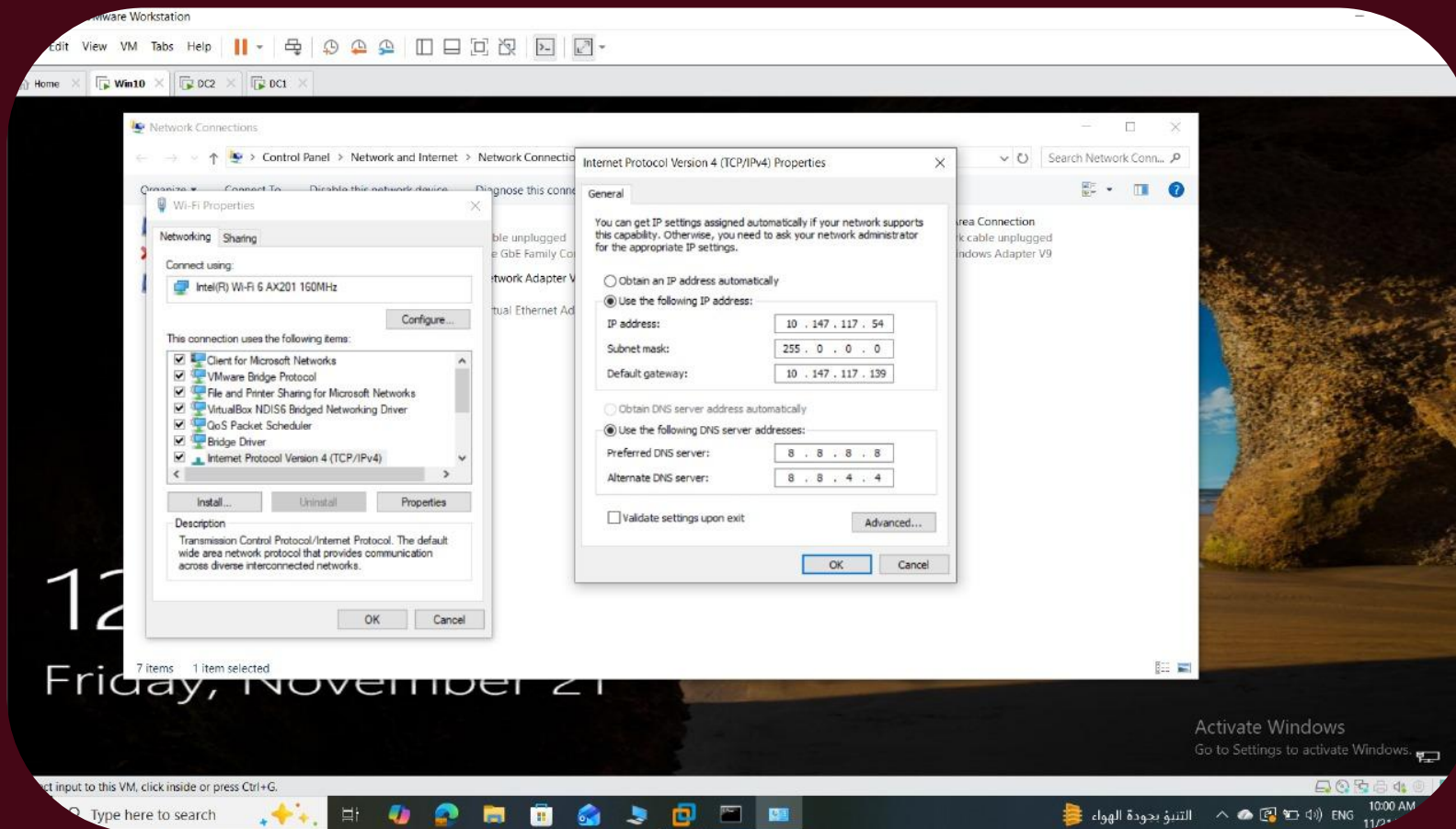
# Network Setup Overview

We connected all devices using a **unified local network** created from a mobile hotspot.

To ensure **network stability and consistent communication**, we assigned **static IP addresses** to all physical PCs and virtual machines

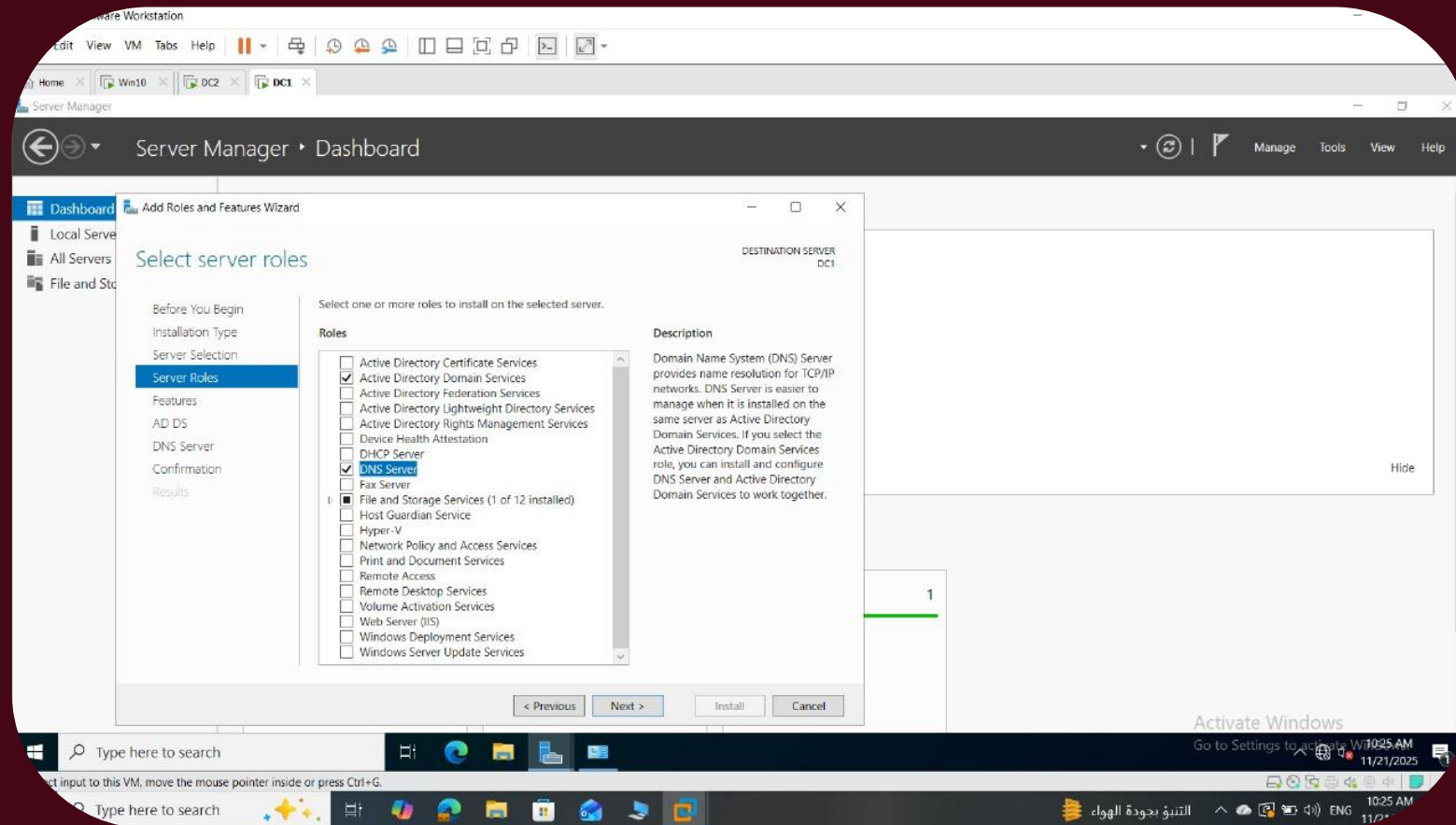
# Domain Controllers Overview

"The primary Domain Controller (DC1) was assigned a static IP address to ensure stable Active Directory and DNS services across the network."



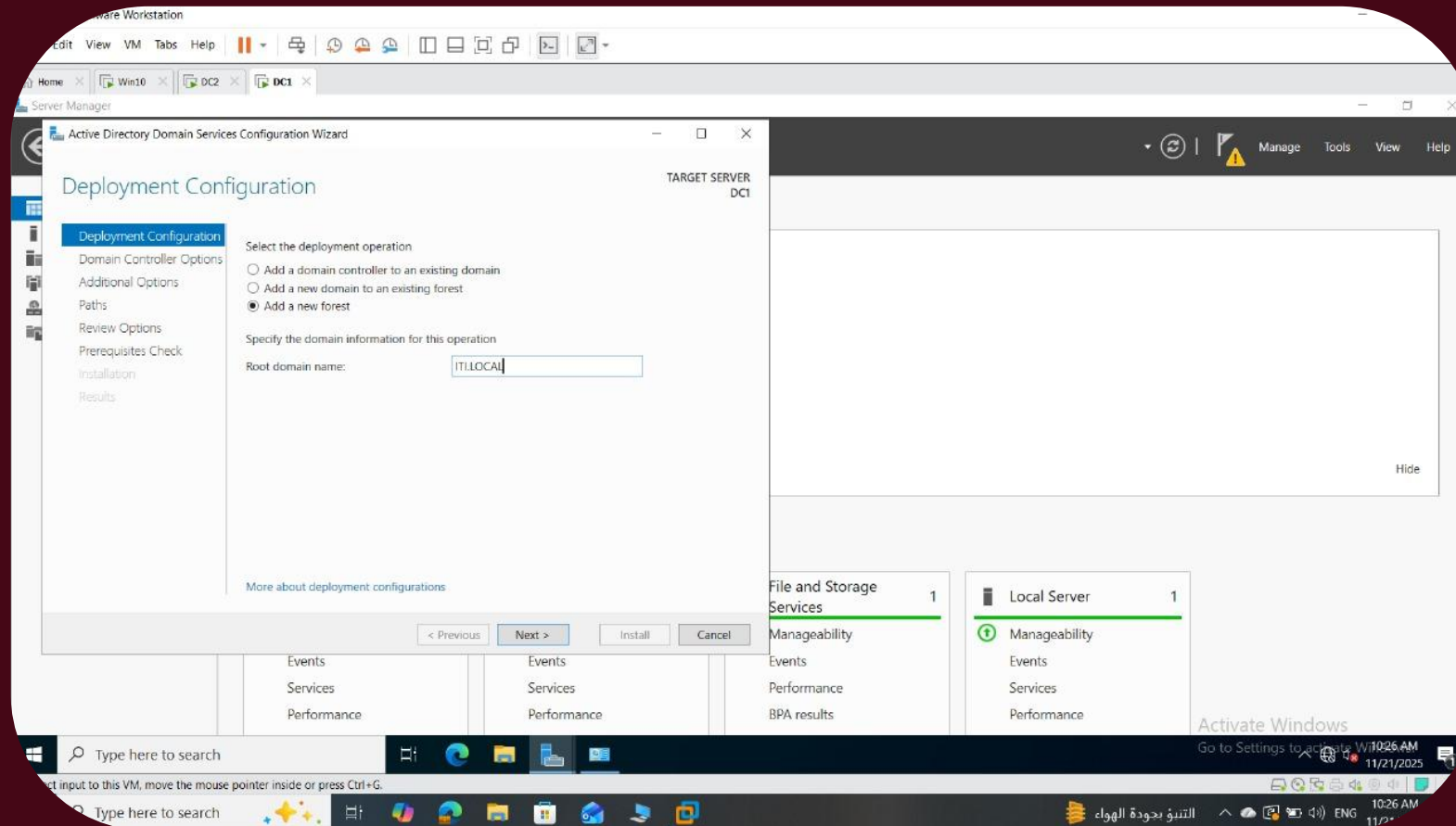
# Domain Controllers Overview

"After assigning a static IP address to DC1, we installed the Active Directory Domain Services (AD DS) role to prepare the server to function as a Domain Controller."



# Domain Controllers Overview

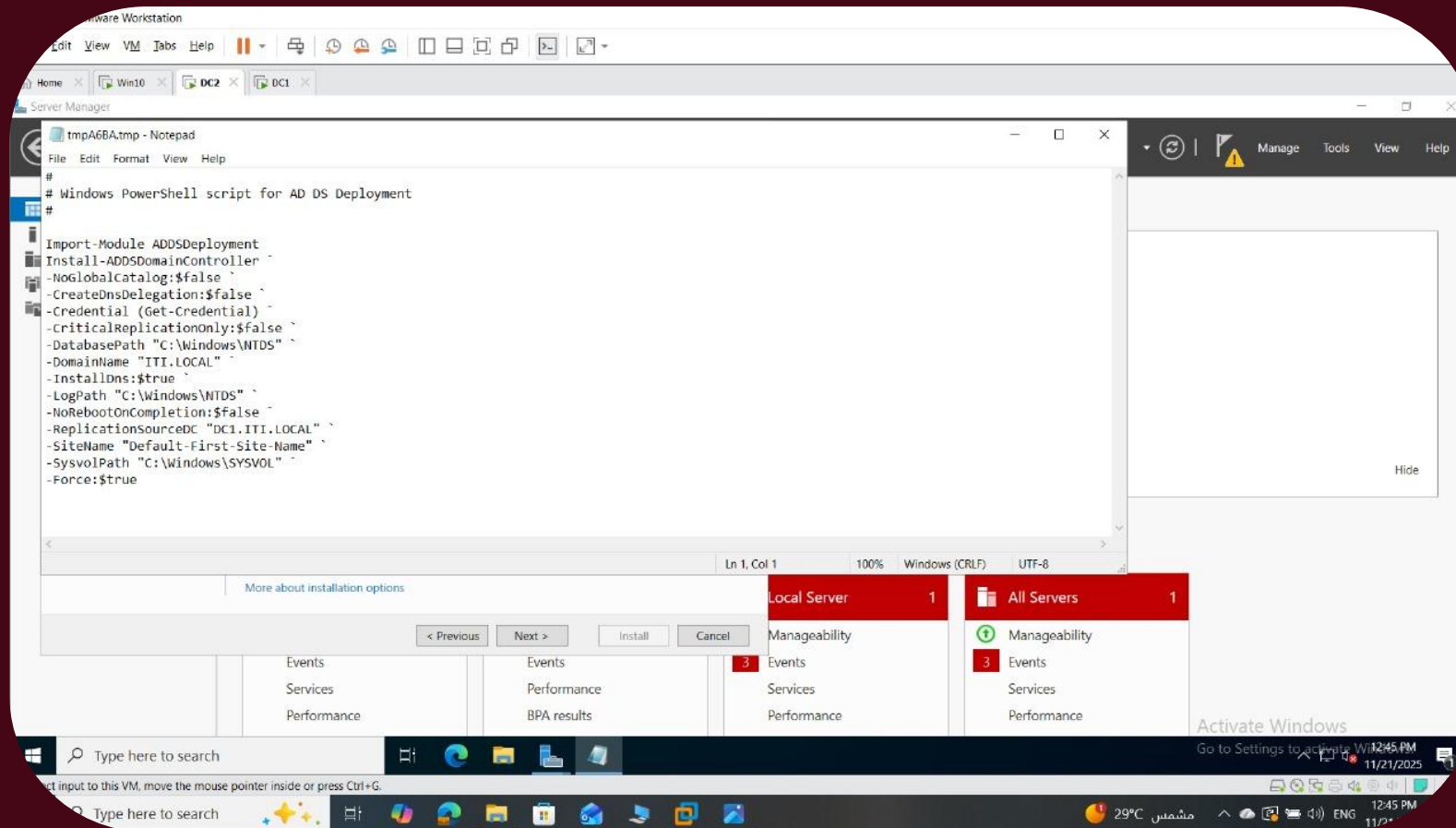
"After installing the AD DS role, we configured the new domain and named it ITI.local."





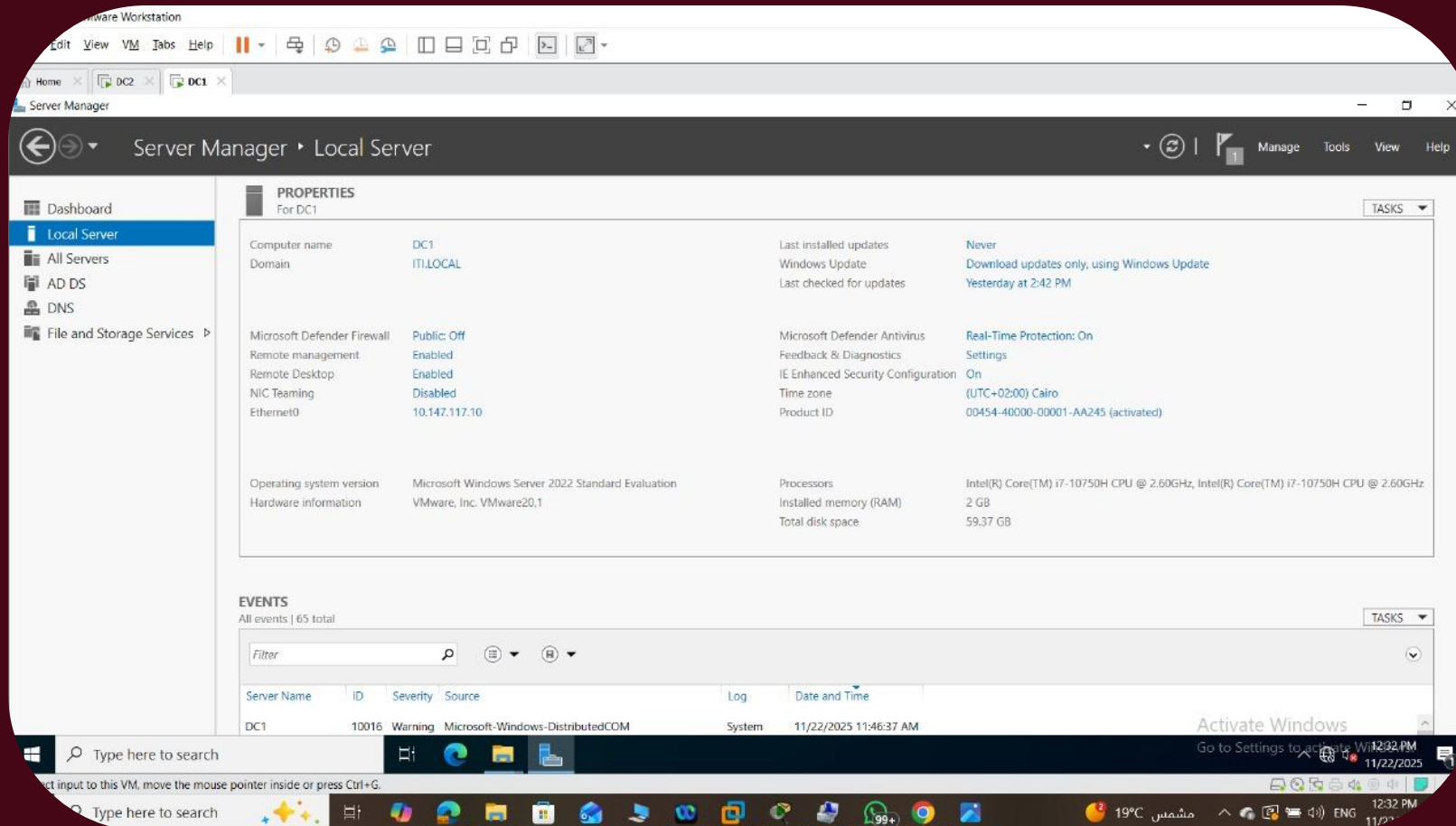
# Domain Controllers Overview

"After creating the ITI.local domain, we completed the initial configuration by disabling the firewall, adjusting the time and time zone settings, and enabling Remote Desktop access on DC1."



# Domain Controllers Overview

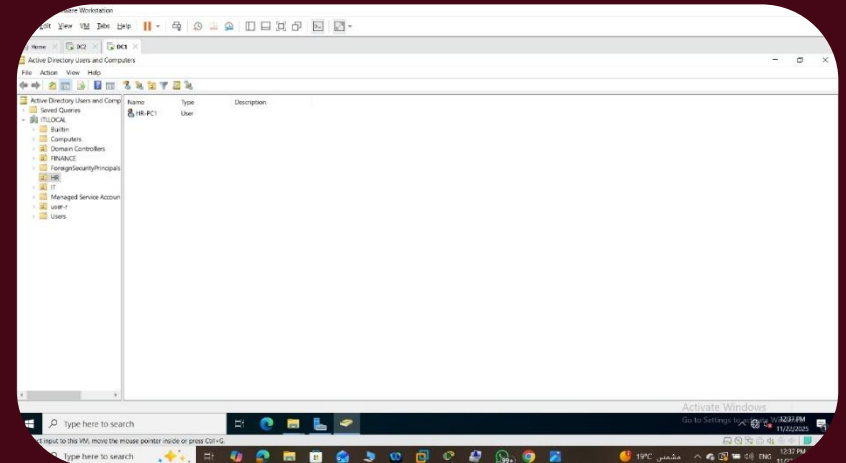
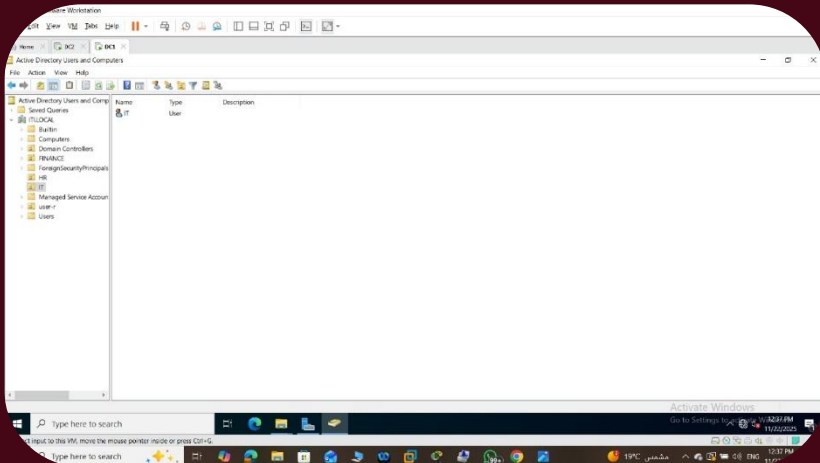
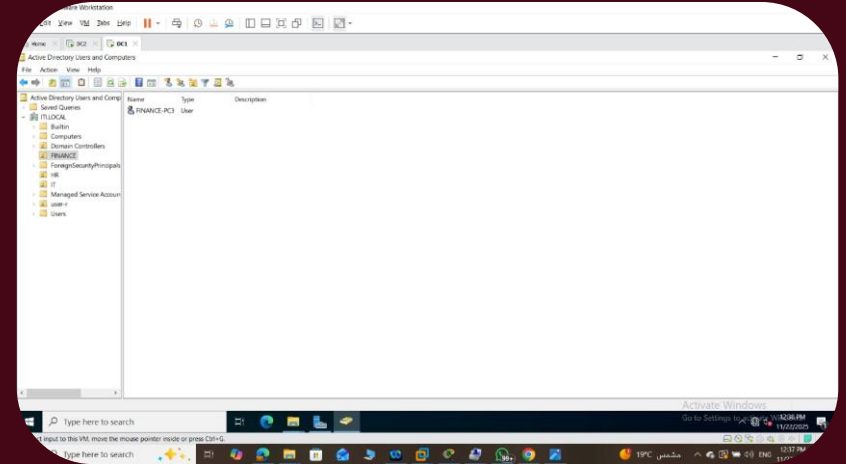
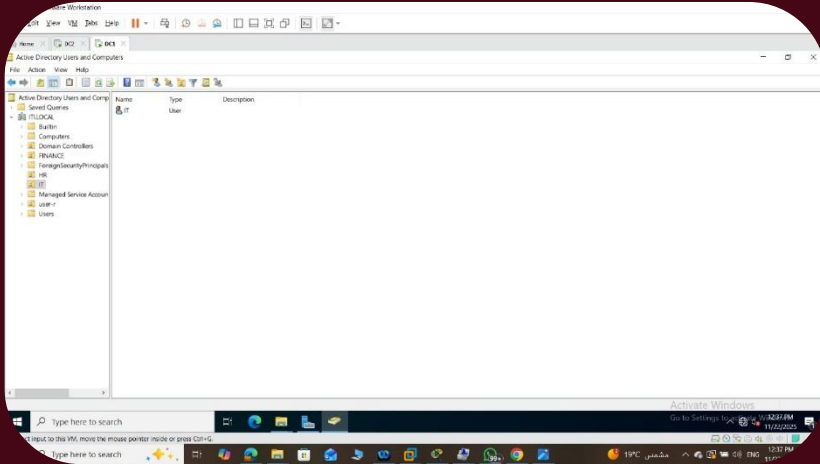
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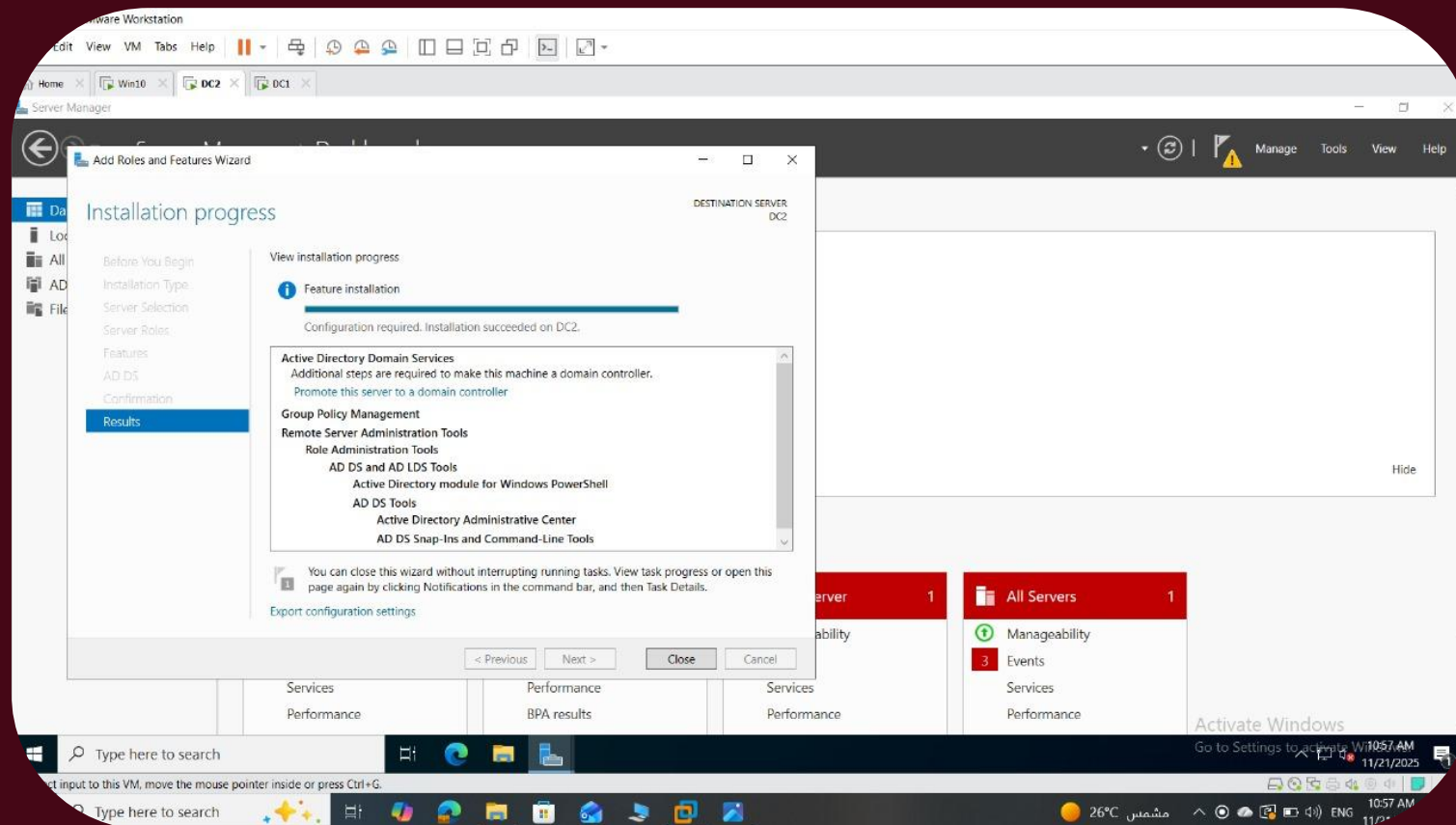
# Domain Controllers Overview

## Creating Organizational Units (OUs) and Users



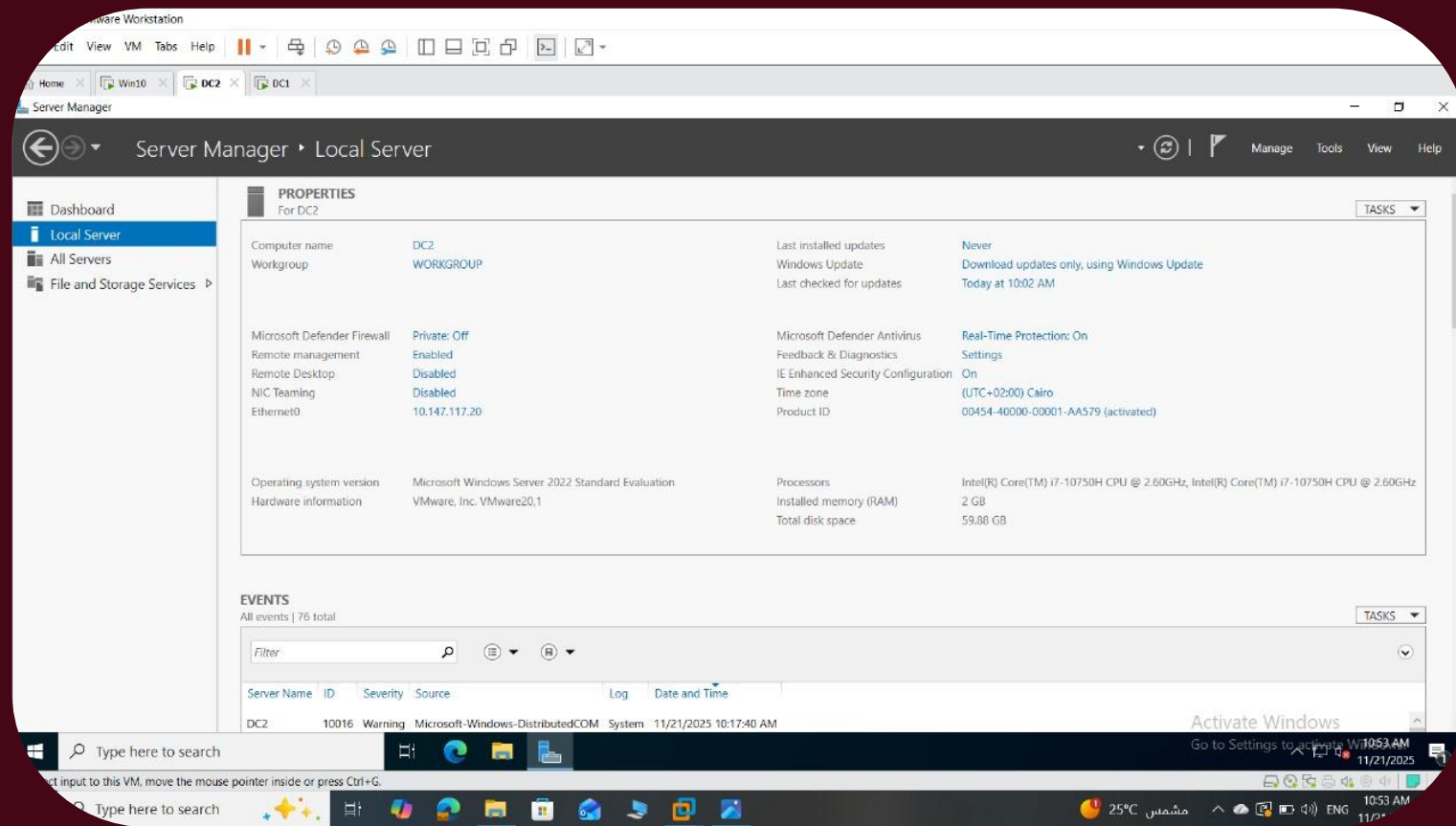
# Configuring the Additional Domain Controller (DC2)

"After preparing the primary domain controller (DC1), we promoted the second server to act as an Additional Domain Controller (DC2). This step ensures redundancy, load balancing, and increased reliability for the ITI.local domain."



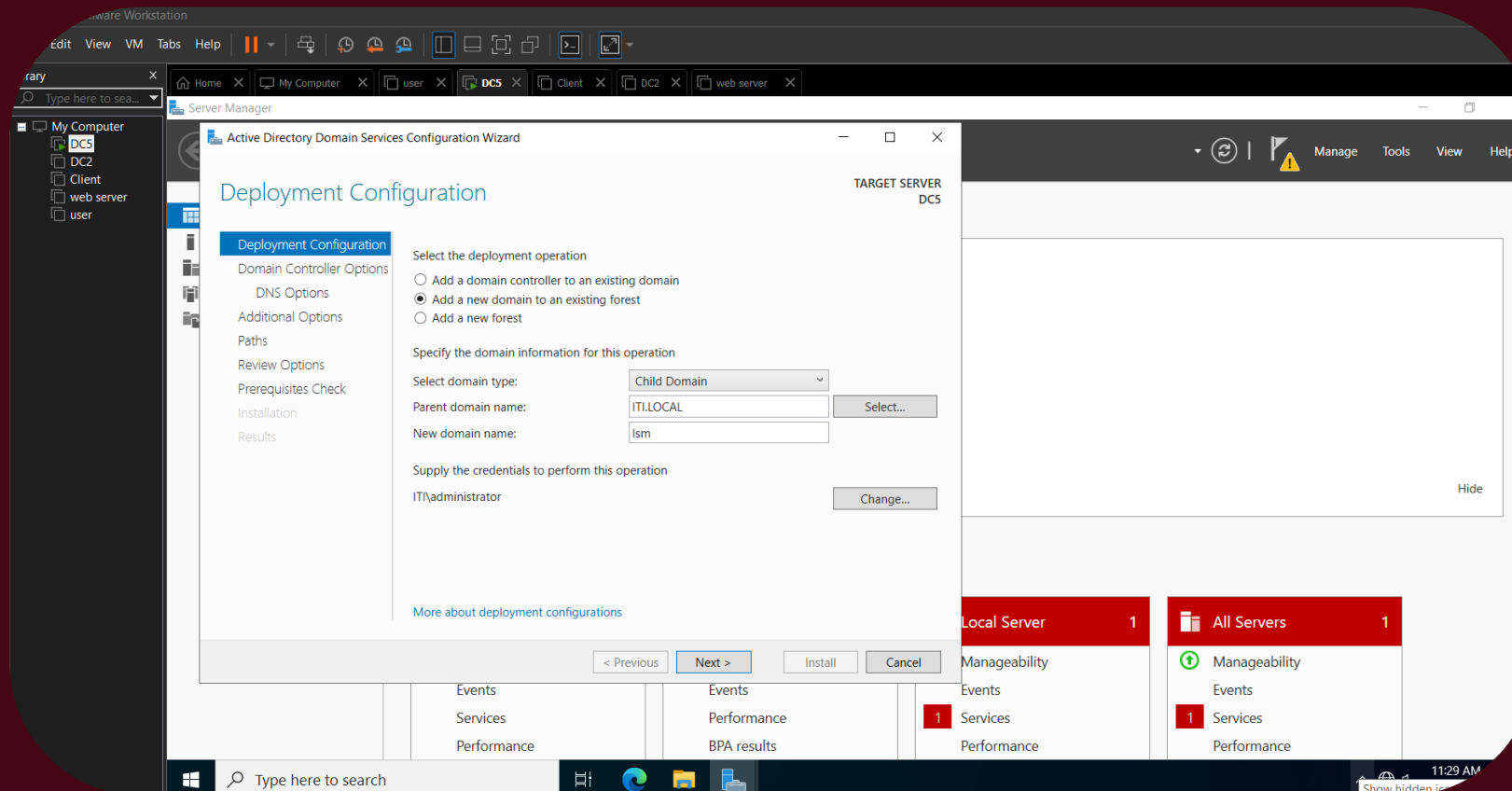
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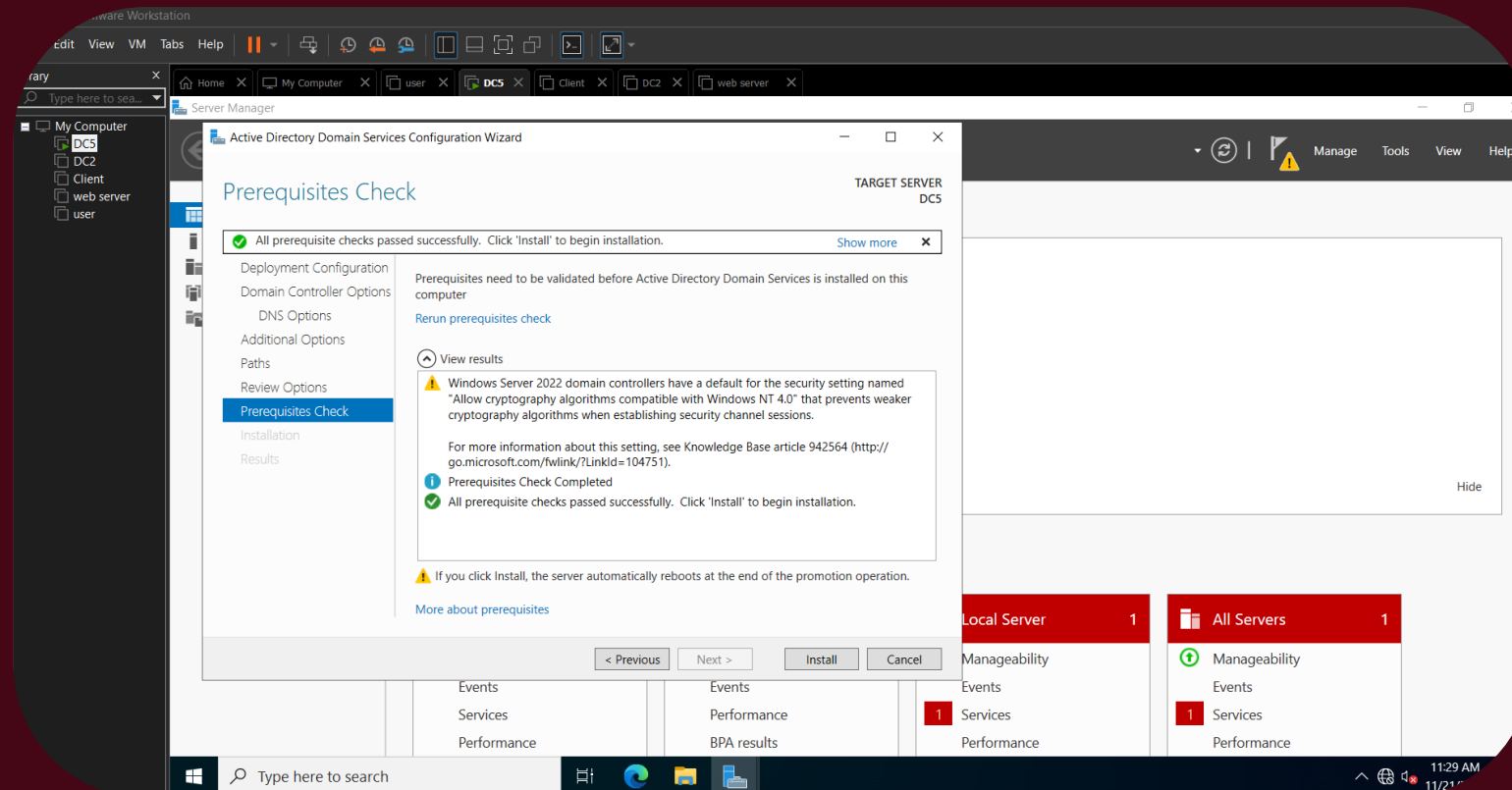
# Child Domain Controller Overview

“We created the Ismailia Child Domain (Ism.ITI.local) to extend the forest, enable local authentication, improve performance, and provide administrative separation for the Ismailia branch.”



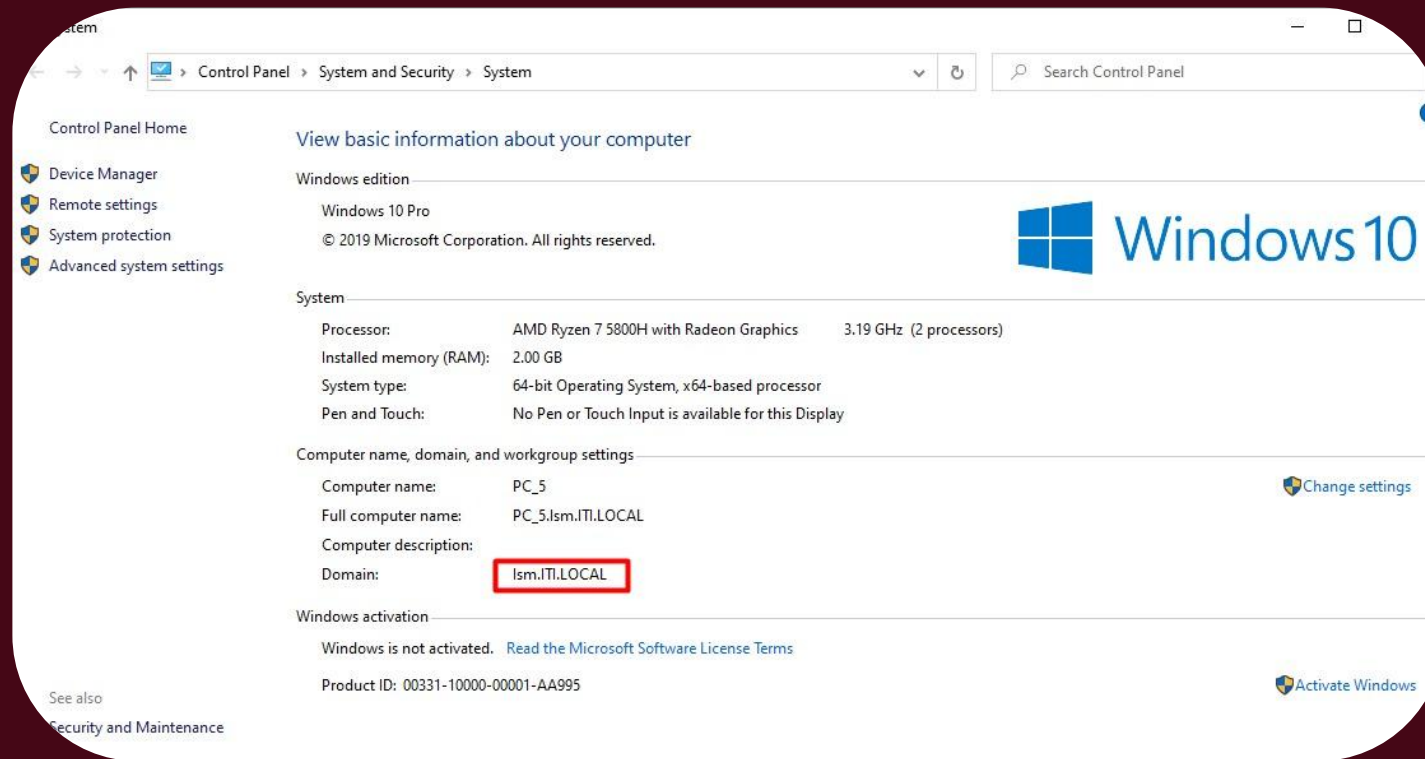
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# Child Domain Controller Overview

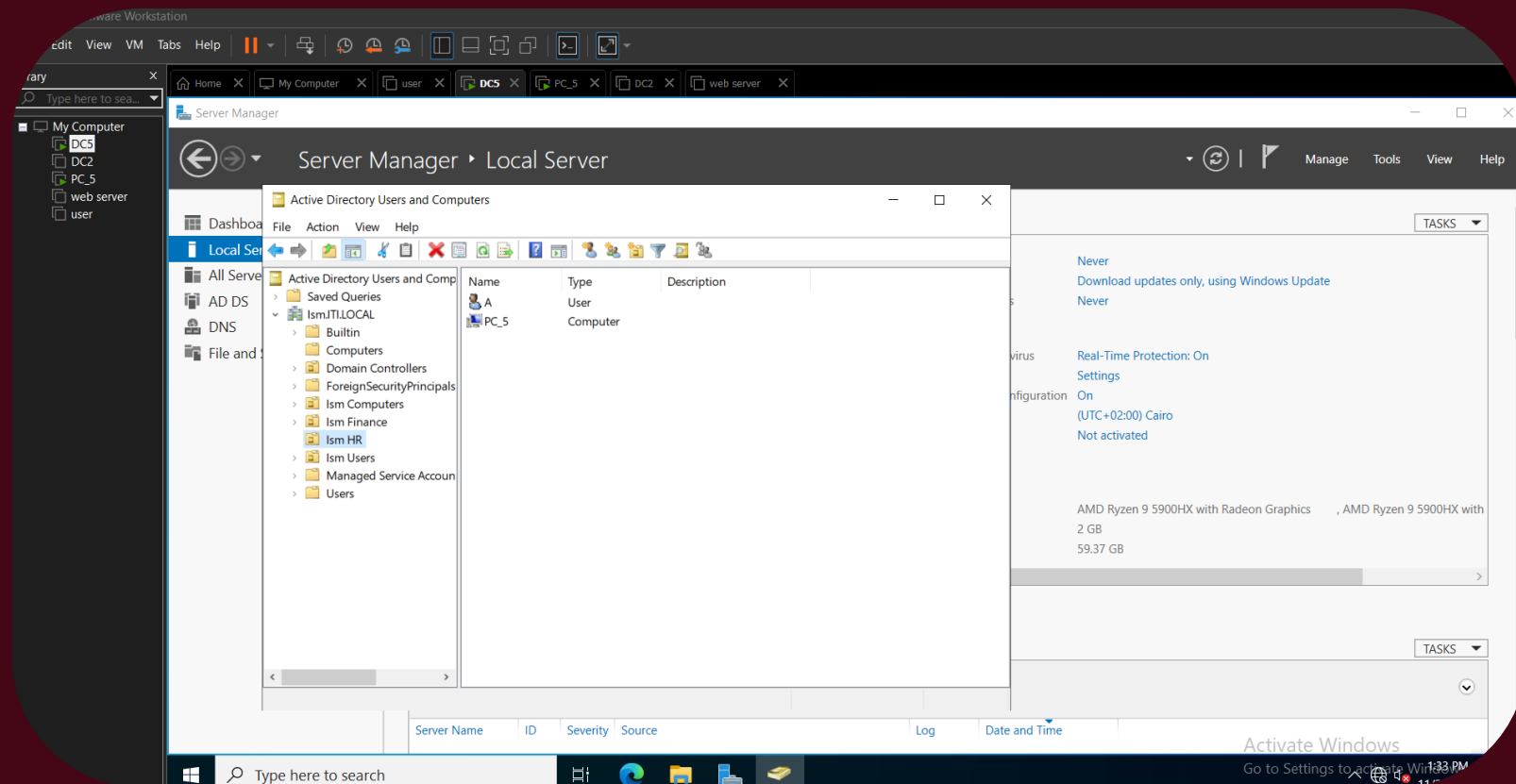
"PC5 was joined to the lsm.ITI.local child domain".





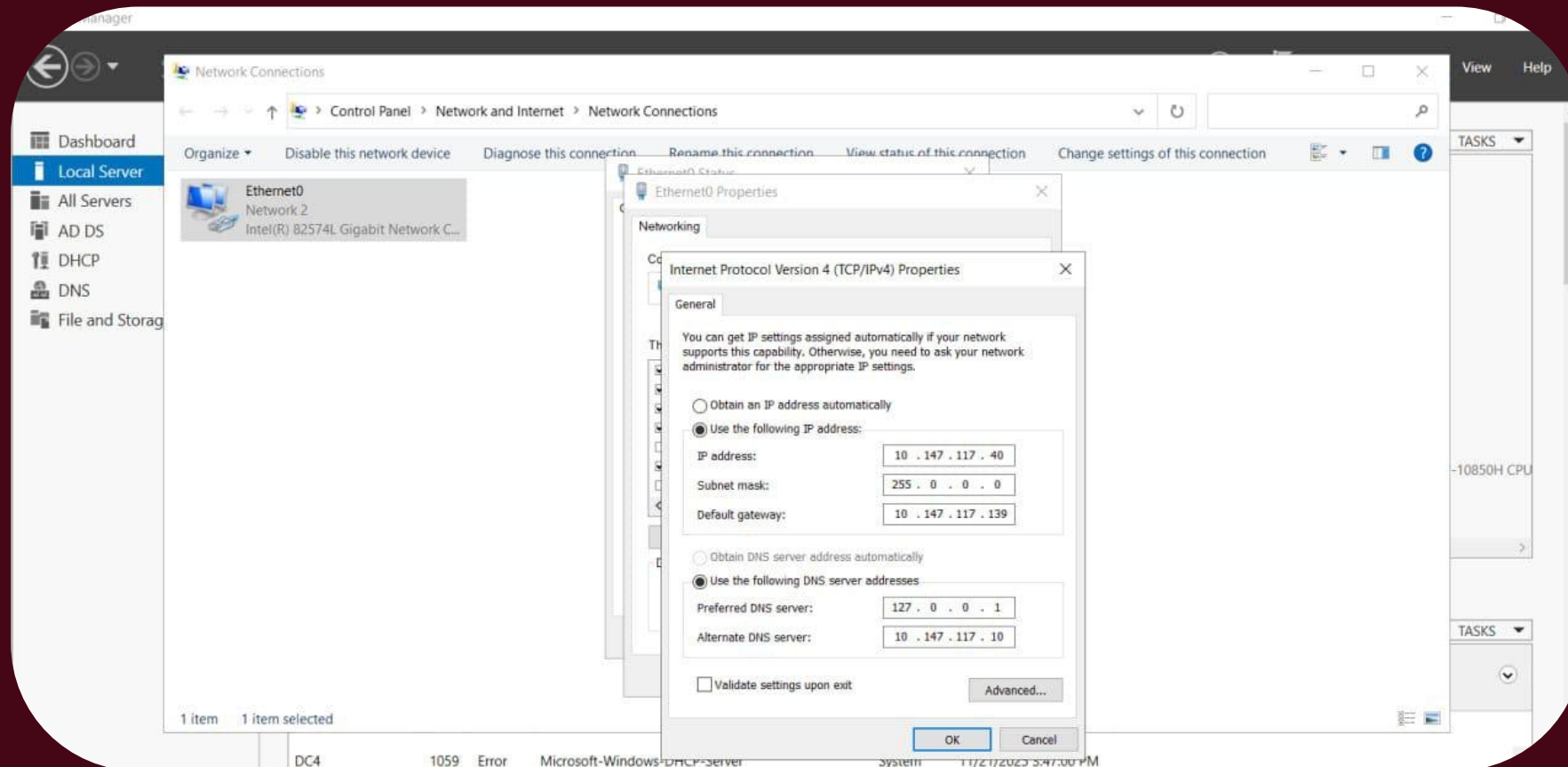
# Child Domain Controller Overview

"After configuring the Ismailia child domain, we created the necessary Organizational Units and added users and computers to structure the environment properly. PC5 was joined to the Ism.ITI.local domain and assigned to the appropriate user for login and policy application."



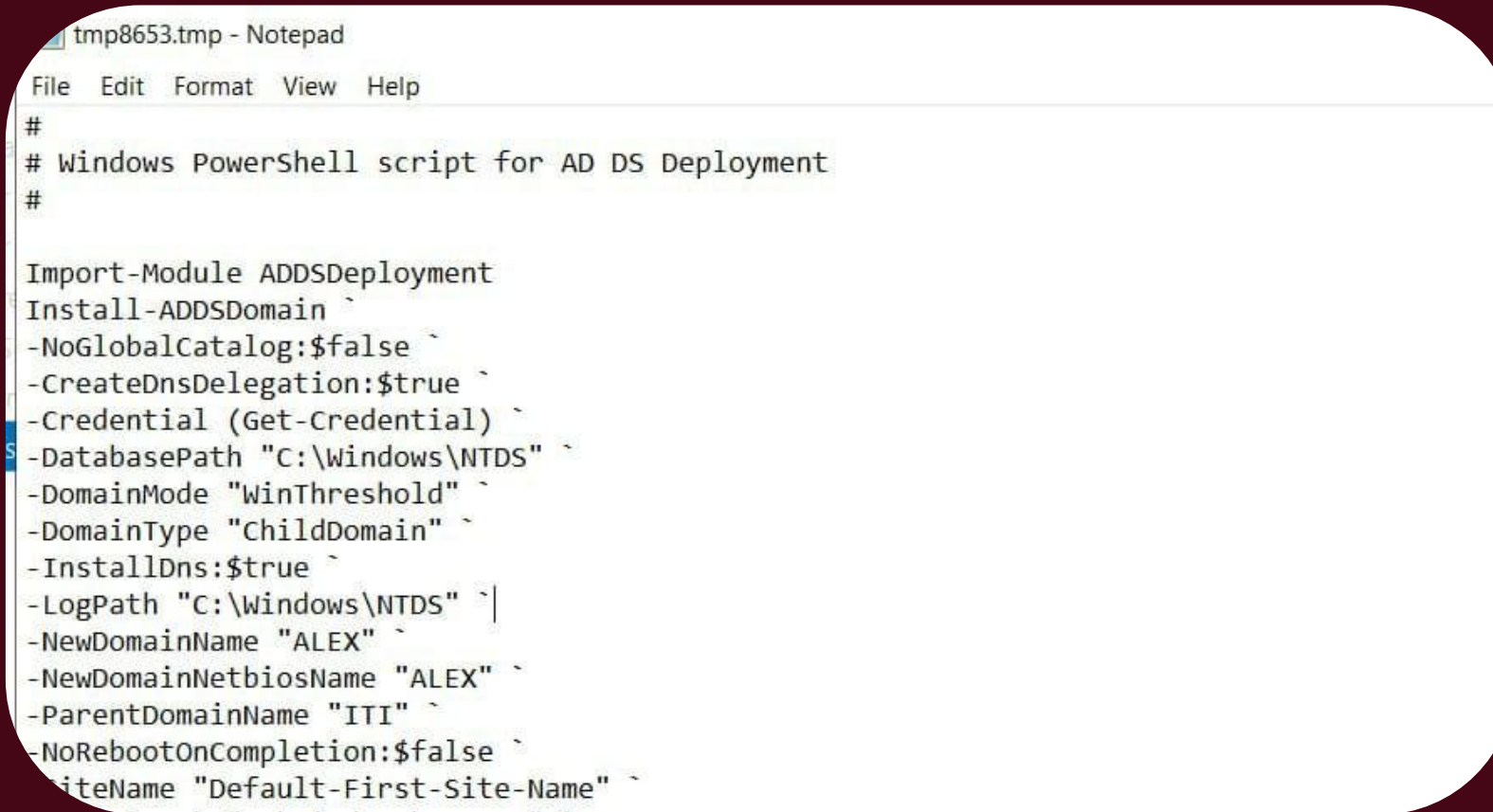
# Child Domain Controller Overview

“We created the Alexandria Child Domain (Alex.ITI.local) to extend the forest, enable local authentication, improve performance, and provide administrative separation for the Alexandria branch.”



# Child Domain Controller Overview

“We created the Alexandria Child Domain (Alex.ITI.local) to extend the forest, enable local authentication, improve performance, and provide administrative separation for the Alexandria branch.”

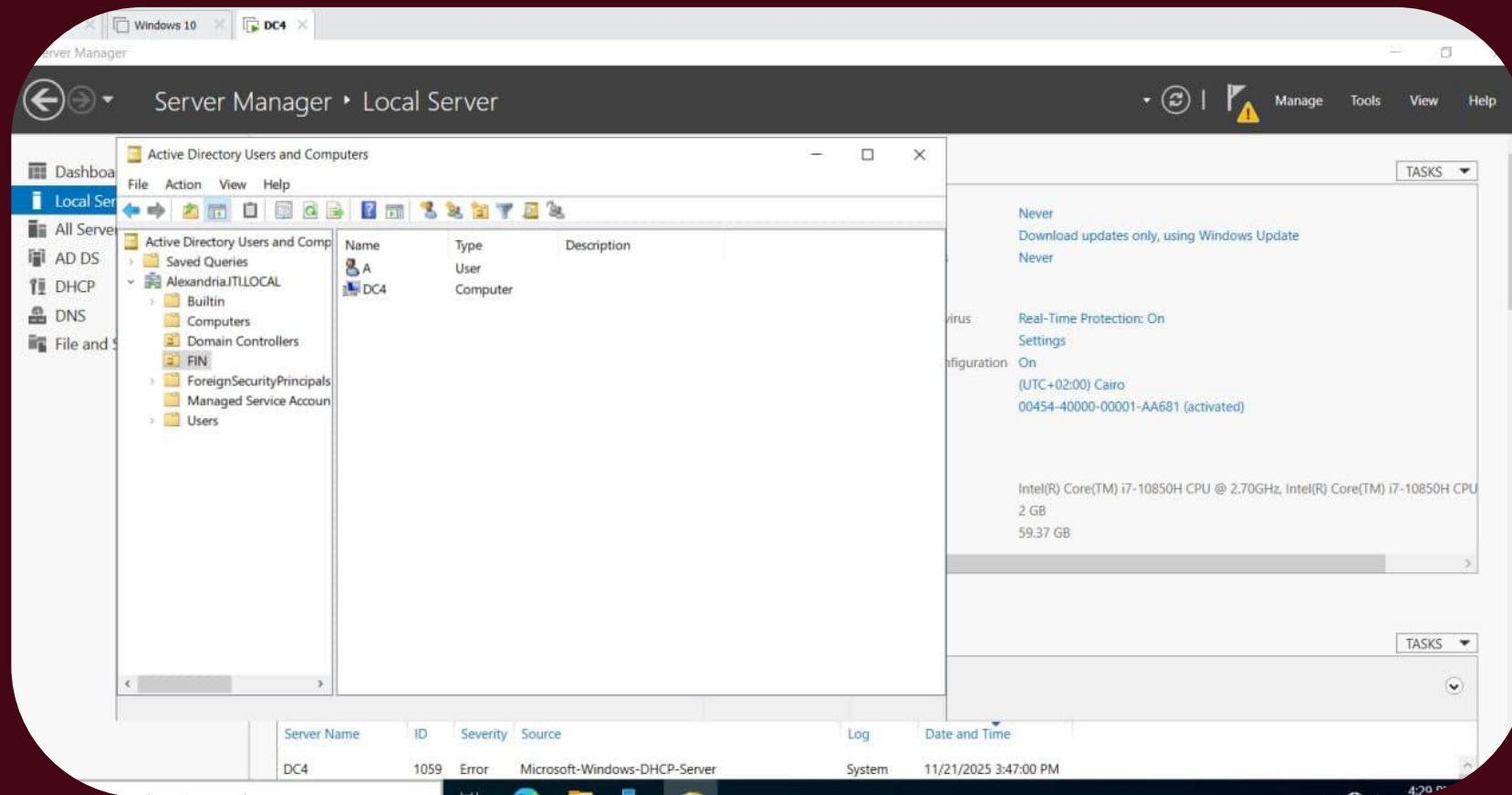
A screenshot of a Notepad window titled 'tmp8653.tmp - Notepad'. The window contains a PowerShell script for deploying an AD DS domain controller. The script starts with a comment block, followed by the 'Import-Module ADDSDeployment' command. Then, the 'Install-ADDSDomain' command is used with various parameters: '-NoGlobalCatalog:\$false', '-CreateDnsDelegation:\$true', '-Credential (Get-Credential)', '-DatabasePath "C:\Windows\NTDS"', '-DomainMode "WinThreshold"', '-DomainType "ChildDomain"', '-InstallDns:\$true', '-LogPath "C:\Windows\NTDS"', '-NewDomainName "ALEX"', '-NewDomainNetbiosName "ALEX"', '-ParentDomainName "ITI"', '-NoRebootOnCompletion:\$false', and '-SiteName "Default-First-Site-Name"'.

```
tmp8653.tmp - Notepad
File Edit Format View Help
#
# Windows PowerShell script for AD DS Deployment
#

Import-Module ADDSDeployment
Install-ADDSDomain `
  -NoGlobalCatalog:$false `
  -CreateDnsDelegation:$true `
  -Credential (Get-Credential) `
  -DatabasePath "C:\Windows\NTDS" `
  -DomainMode "WinThreshold" `
  -DomainType "ChildDomain" `
  -InstallDns:$true `
  -LogPath "C:\Windows\NTDS" `
  -NewDomainName "ALEX" `
  -NewDomainNetbiosName "ALEX" `
  -ParentDomainName "ITI" `
  -NoRebootOnCompletion:$false `
  -SiteName "Default-First-Site-Name" `
```

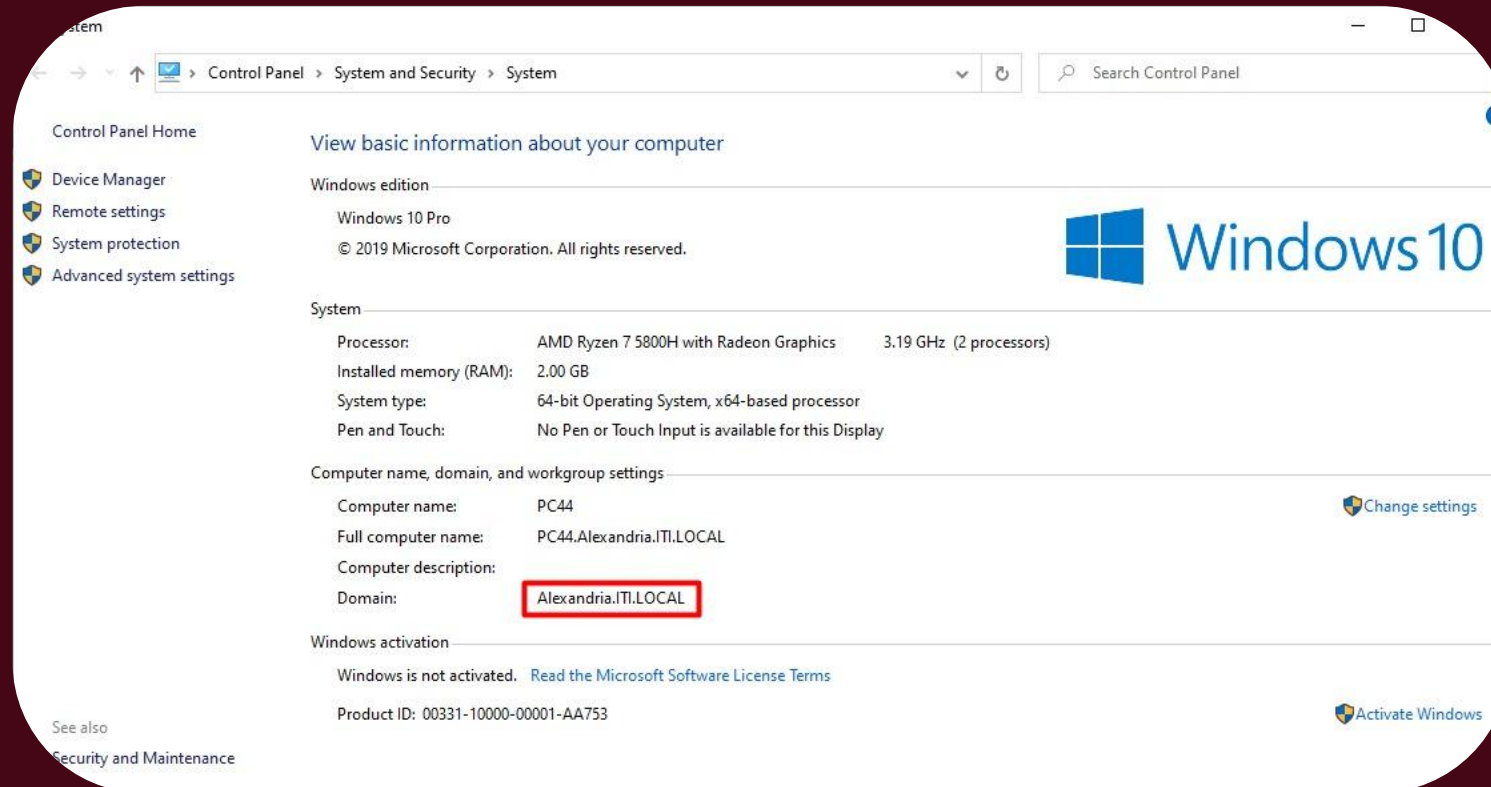
# Child Domain Controller Overview

"After configuring the Alex child domain, we created the necessary Organizational Units and added users and computers to structure the environment properly. PC5 was joined to the Alex.ITI.local domain and assigned to the appropriate user for login and policy application."



# Child Domain Controller Overview

"PC4 was successfully joined to the Alex.ITI.local child domain to allow user authentication and policy application within the Alexandria branch."



# Read-Only Domain Controller(RODC)

"The RODC (DC3) was deployed to provide secure authentication services in branch locations. It stores a read-only copy of the Active Directory database, reducing security risks while still allowing users to authenticate locally."

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar reads 'Active Directory Domain Services Configuration Wizard'. The main heading is 'Domain Controller Options'. In the top right corner, it says 'TARGET SERVER DC2'. On the left, there is a navigation pane with the following items: 'Deployment Configuration', 'Domain Controller Options' (which is highlighted with a blue bar), 'RODC Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main area of the wizard is titled 'Specify domain controller capabilities and site information'. It contains three checked checkboxes: 'Domain Name System (DNS) server', 'Global Catalog (GC)', and 'Read only domain controller (RODC)'. The 'Read only domain controller (RODC)' checkbox is highlighted with a red rectangle. Below these checkboxes, there is a 'Site name:' label and a dropdown menu showing 'Default-First-Site-Name'. Further down, there is a section titled 'Type the Directory Services Restore Mode (DSRM) password' with two password input fields labeled 'Password:' and 'Confirm password:'. At the bottom of the wizard, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. A link at the bottom left says 'More about domain controller options'.



# Read-Only Domain Controller(RODC)

"The RODC (DC3) was deployed to provide secure authentication services in branch locations. It stores a read-only copy of the Active Directory database, reducing security risks while still allowing users to authenticate locally."

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window, specifically the 'RODC Options' page. The window title is 'Active Directory Domain Services Configuration Wizard'. The page has a sidebar on the left with the following navigation links: 'Deployment Configuration', 'Domain Controller Options', 'RODC Options' (highlighted in blue), 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area is titled 'RODC Options' and includes a 'TARGET SERVER DC2' label in the top right corner. The 'Delegated administrator account' section shows '<Not provided>' with a 'Select...' button highlighted by a red rectangle. Below this, the 'Accounts that are allowed to replicate passwords to the RODC' section contains a list box with 'IT\Allowed RODC Password Replication Group' and 'Add...' and 'Remove' buttons. The 'Accounts that are denied from replicating passwords to the RODC' section contains a list box with 'BUILTIN\Administrators', 'BUILTIN\Server Operators', and 'BUILTIN\Backup Operators', along with 'Add...' and 'Remove' buttons. A note at the bottom states: 'If the same account is both allowed and denied, denied takes precedence.' A link 'More about RODC options.' is at the bottom left. The bottom of the window features navigation buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Active Directory Domain Services Configuration Wizard

RODC Options

TARGET SERVER  
DC2

Deployment Configuration  
Domain Controller Options  
RODC Options  
Additional Options  
Paths  
Review Options  
Prerequisites Check  
Installation  
Results

Delegated administrator account  
<Not provided> **Select...**

Accounts that are allowed to replicate passwords to the RODC

IT\Allowed RODC Password Replication Group **Add...**  
**Remove**

Accounts that are denied from replicating passwords to the RODC

BUILTIN\Administrators  
BUILTIN\Server Operators  
BUILTIN\Backup Operators **Add...**  
**Remove**

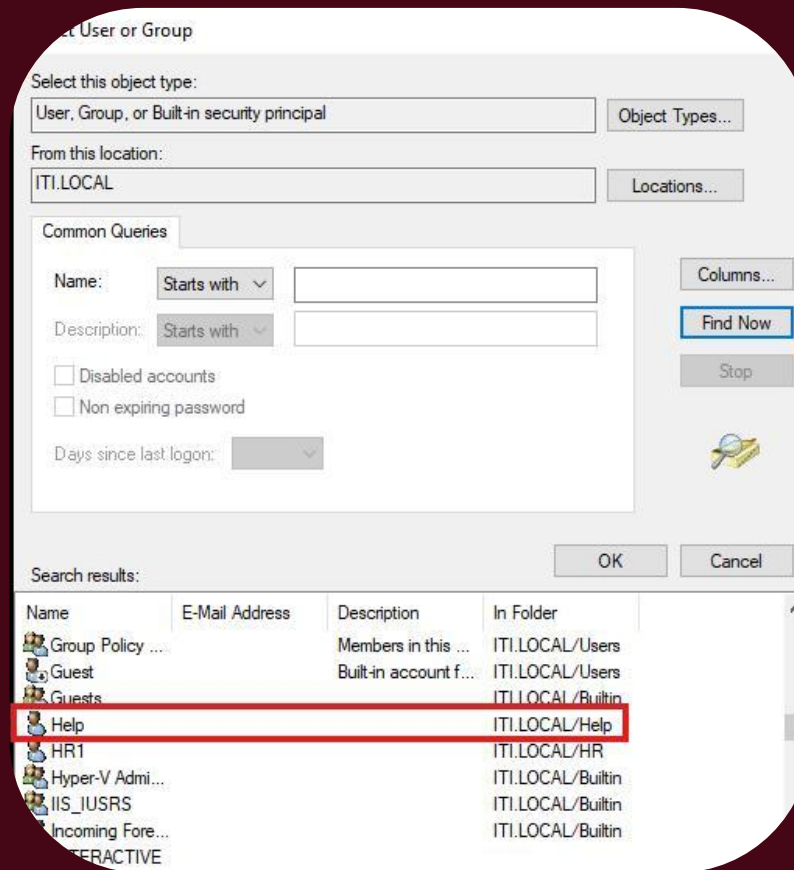
If the same account is both allowed and denied, denied takes precedence.

[More about RODC options.](#)

< Previous Next > Install Cancel

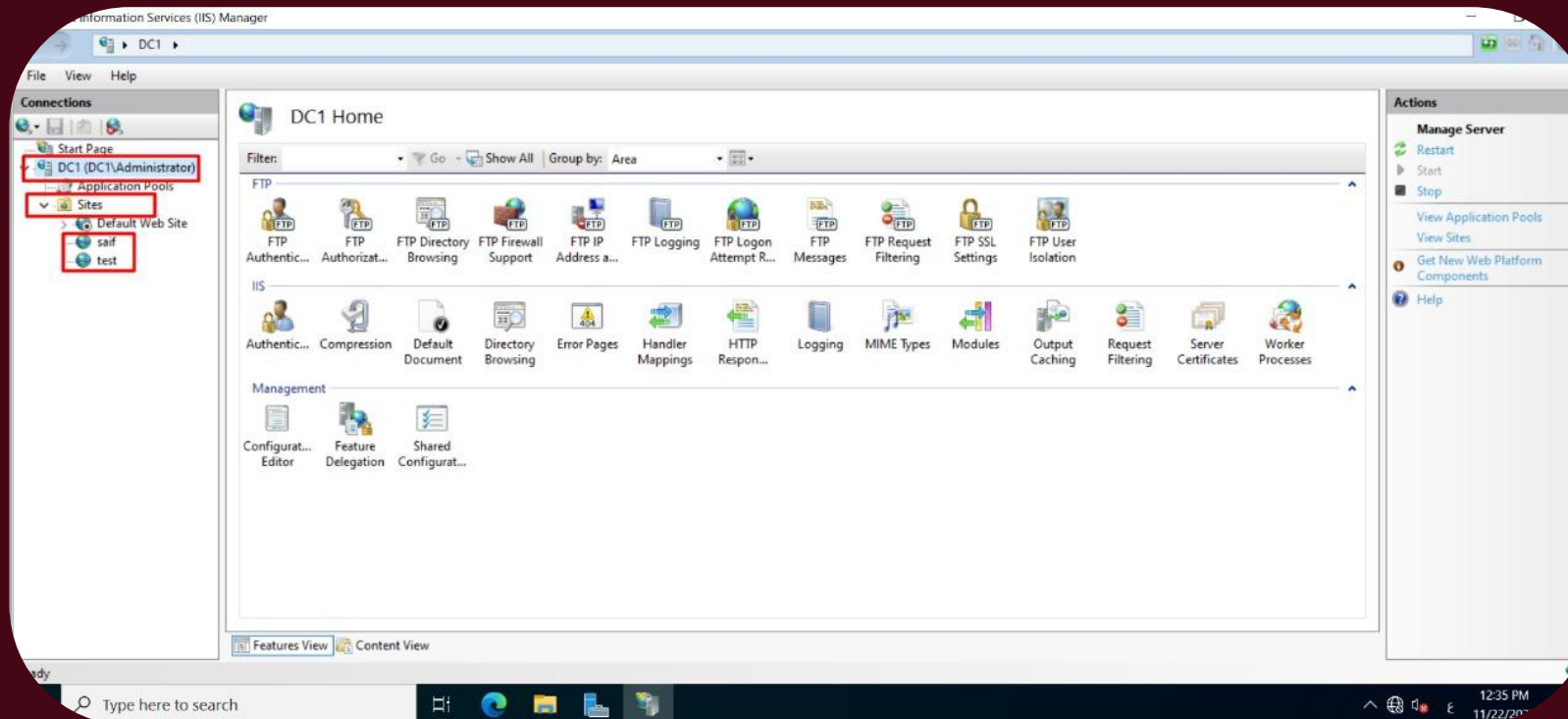
# Read-Only Domain Controller(RODC)

"After creating the *Help* user in Active Directory, we assigned its credentials in the RODC settings so that it becomes the only account authorized to manage and administer the RODC."



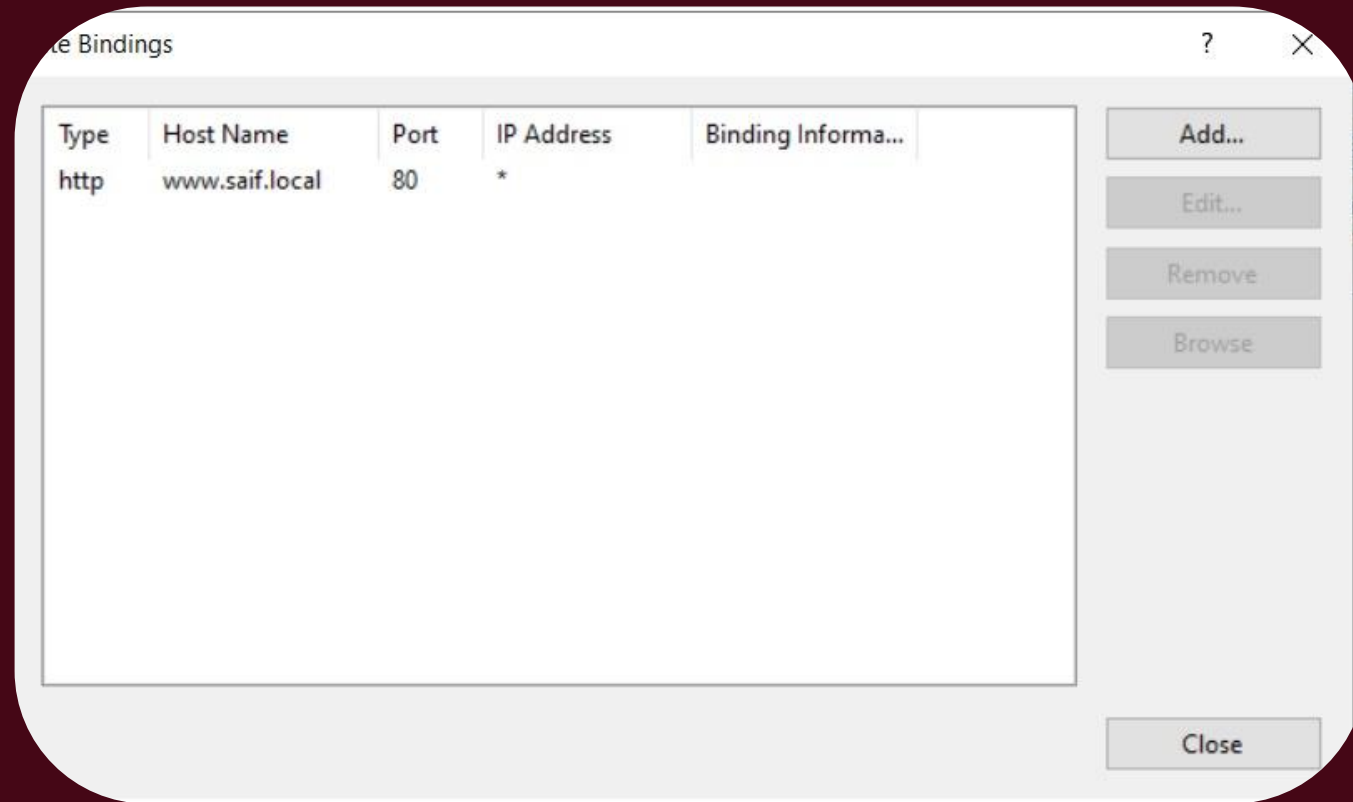
# Web Server Overview

"We configured two web servers: an HTTP server hosting [www.saif.local](http://www.saif.local) and an HTTPS server hosting [www.testing.local](https://www.testing.local)."



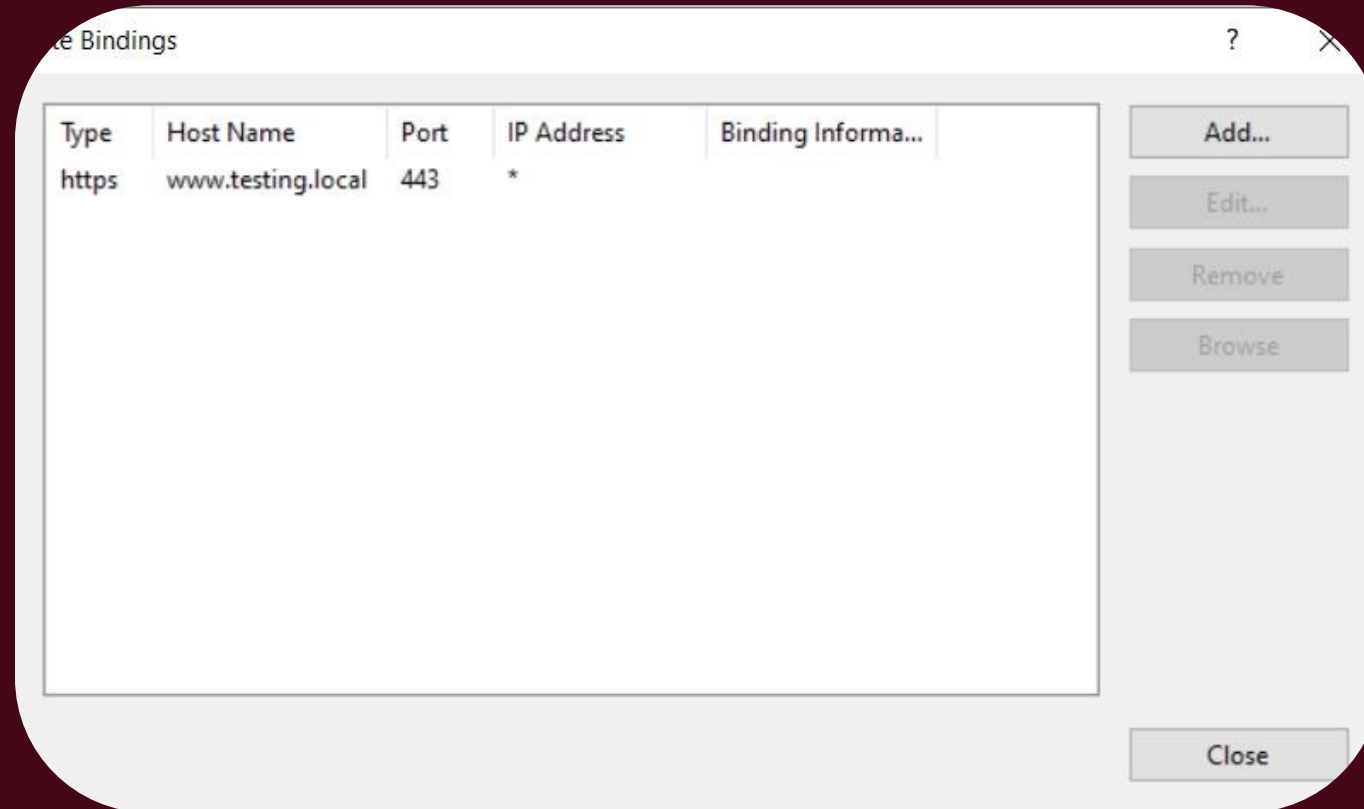
# Web Server Overview

HTTP server hosting [www.saif.local](http://www.saif.local)




# Web Server Overview

HTTPS server hosting www.testing.local



# Web Server Overview

SSL certificate for the secure website

 **Server Certificates**

Use this feature to request and manage certificates that the Web server can use with websites configured for SSL.


Filter:  Go  Group by: No Grouping

Name	Issued To	Issued By	Expiration Date	Certificate Hash	Certificate Store
SSL	DC1	DC1	11/22/2026 2:00:00...	CA6D787F9643574F6D9D051E...	WebHosting



# Web Server Overview

SSL certificate for the secure website

 **Server Certificates**

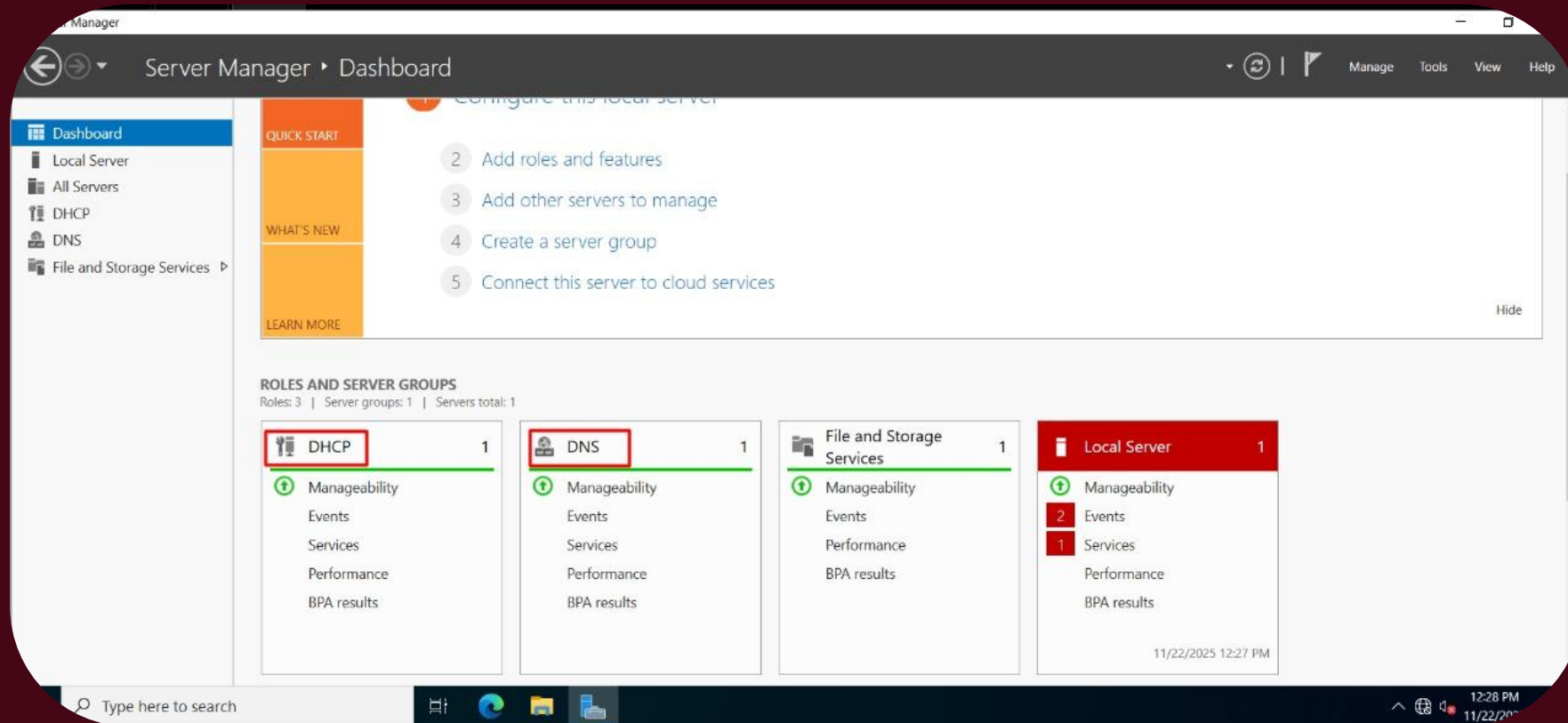
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SSL	DC1	DC1	11/22/2026 2:00:00...	CA6D787F9643574F6D9D051E...	WebHosting

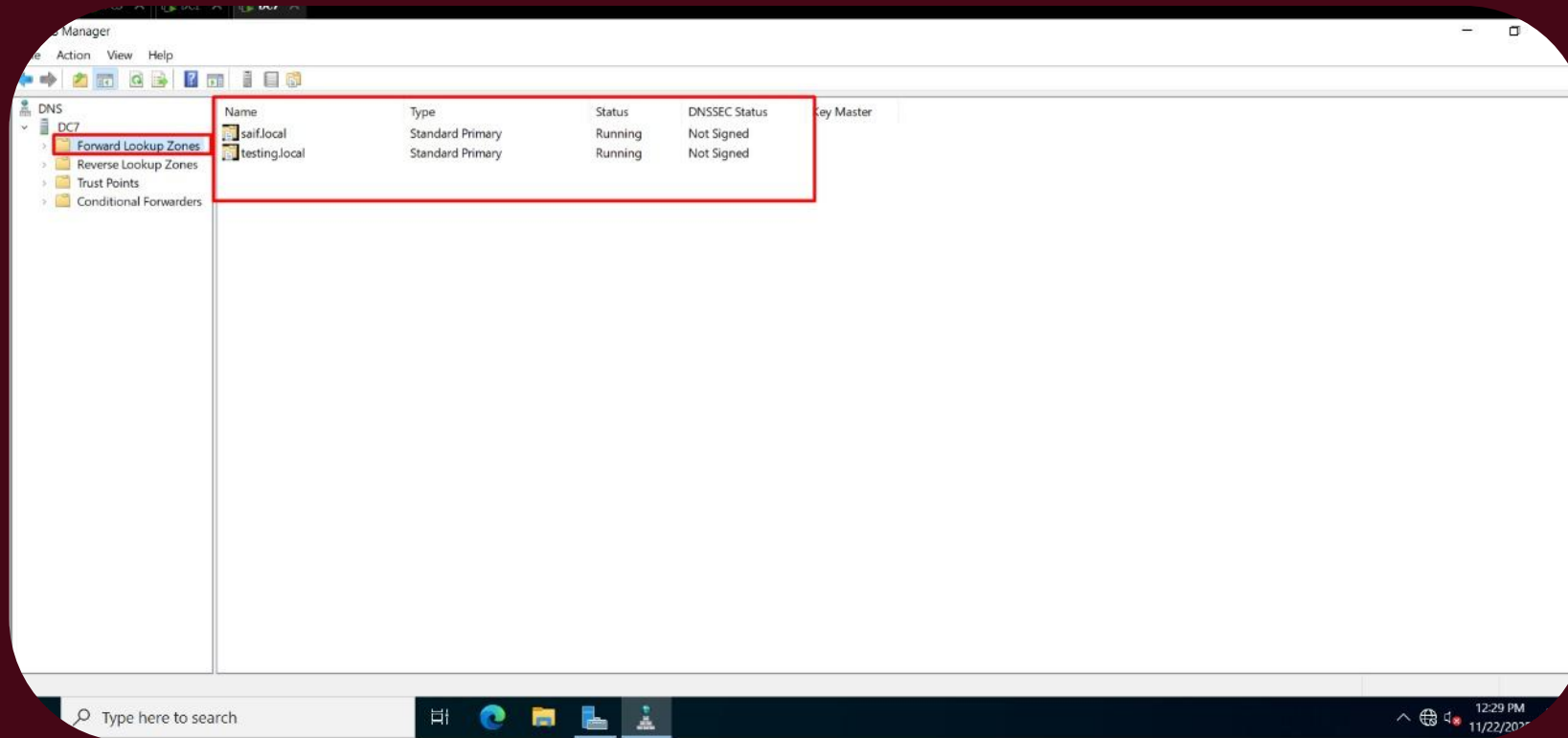
# DNS Overview

**“DNS: Translates human-readable domain names into IP addresses to enable accurate and efficient network communication.”**



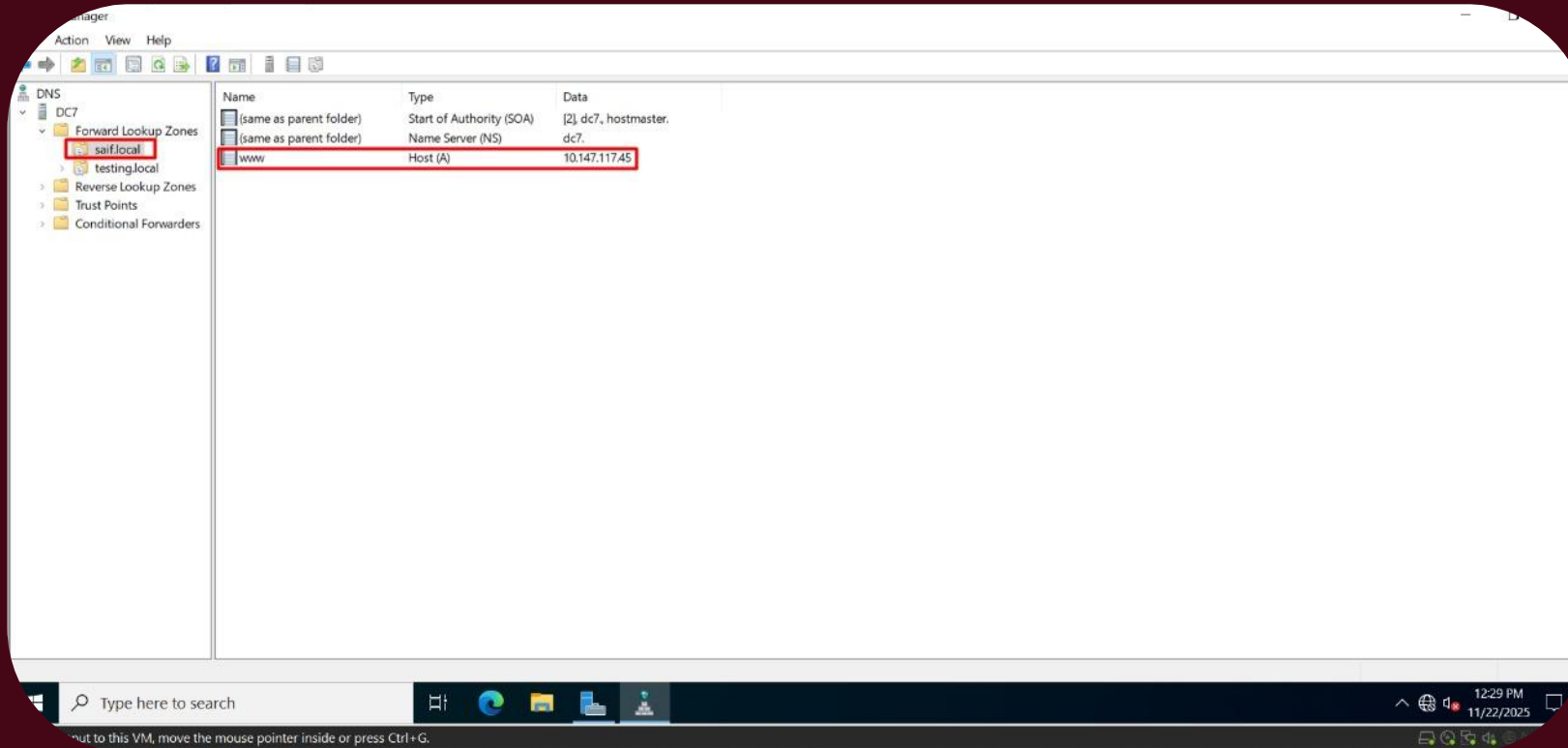
# DNS Overview

The forward lookup zones to the websites



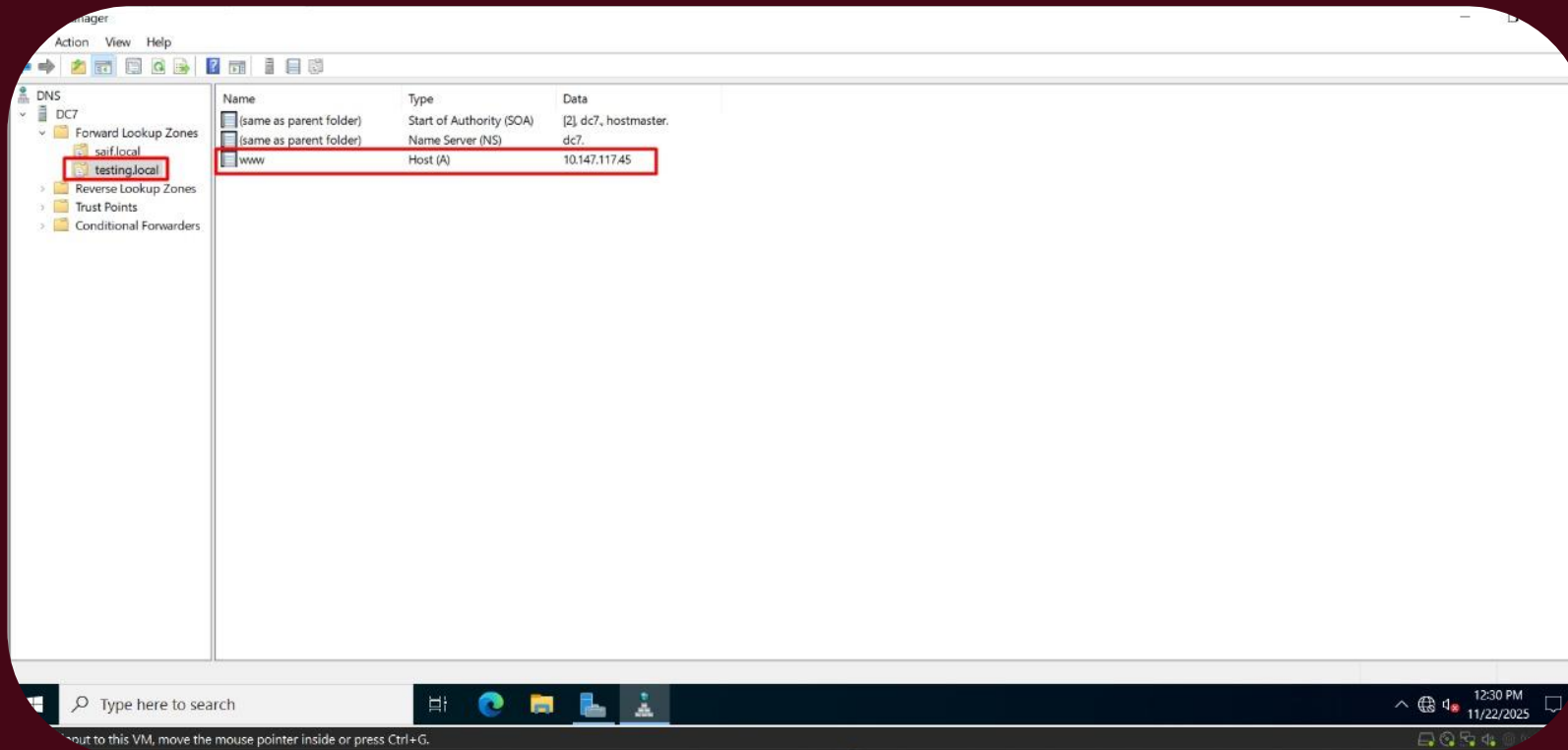
# DNS Overview

The host on the saif.local zone



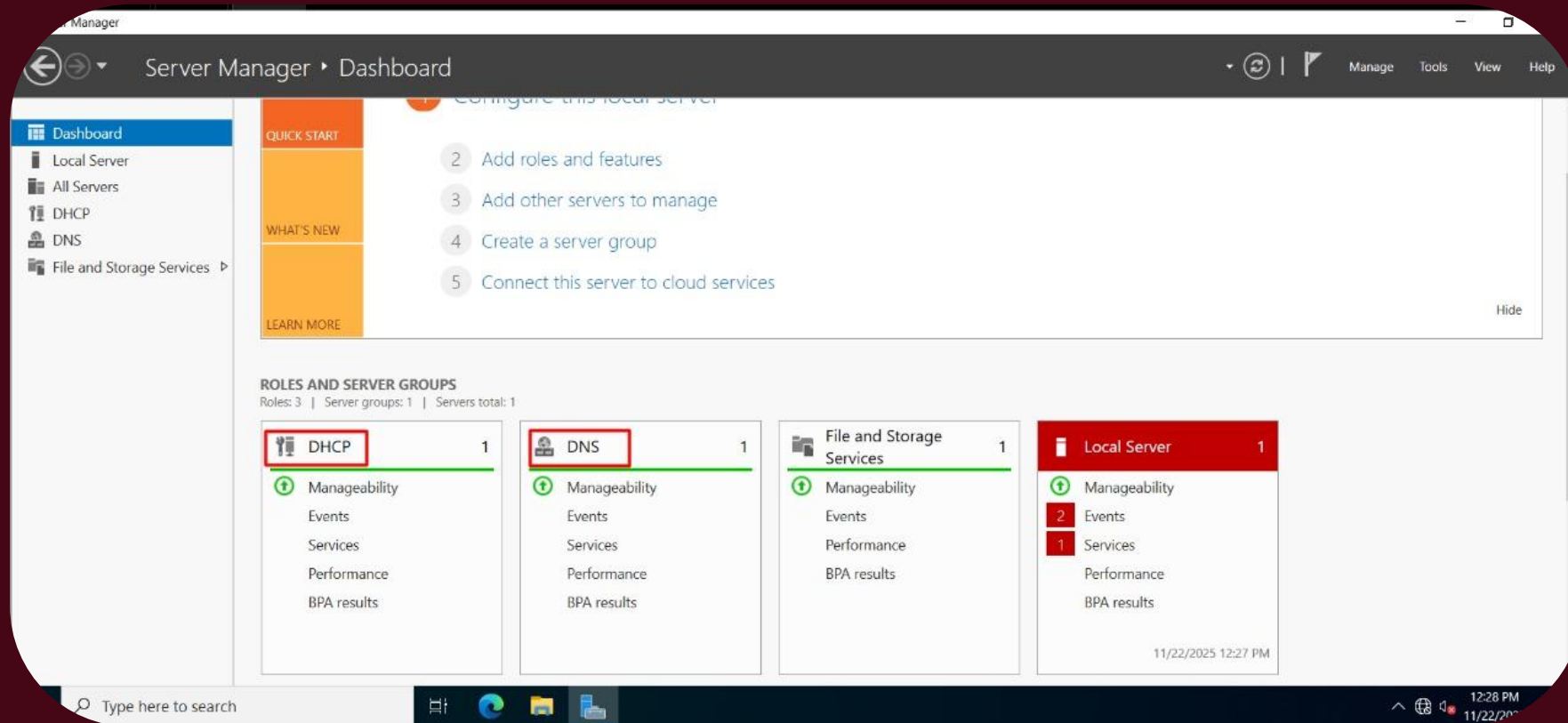
# DNS Overview

The host on the testing.local zone



# DHCP Overview

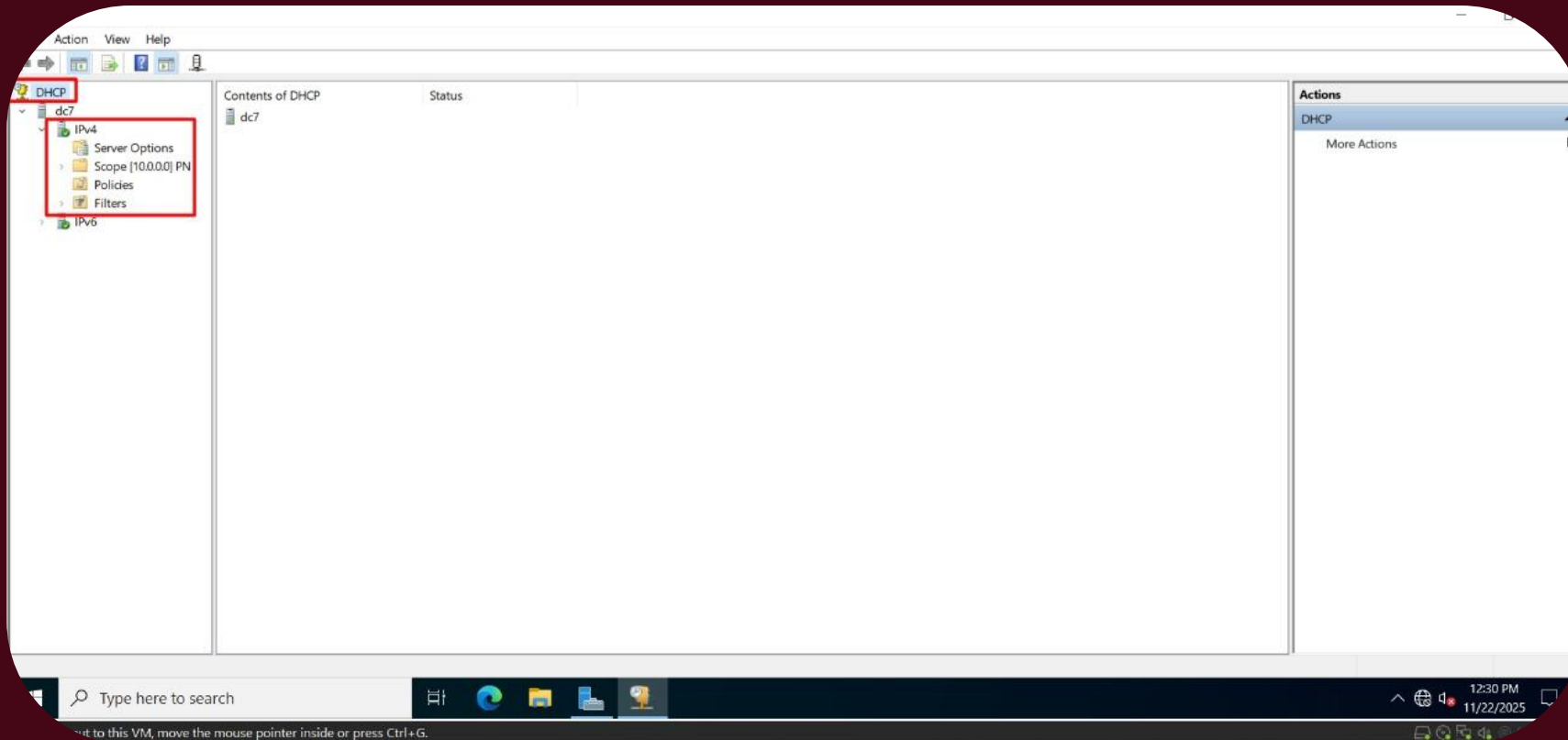
“DHCP Server: Automatically assigns IP addresses and network configuration parameters to client devices, ensuring efficient and centralized IP management.”





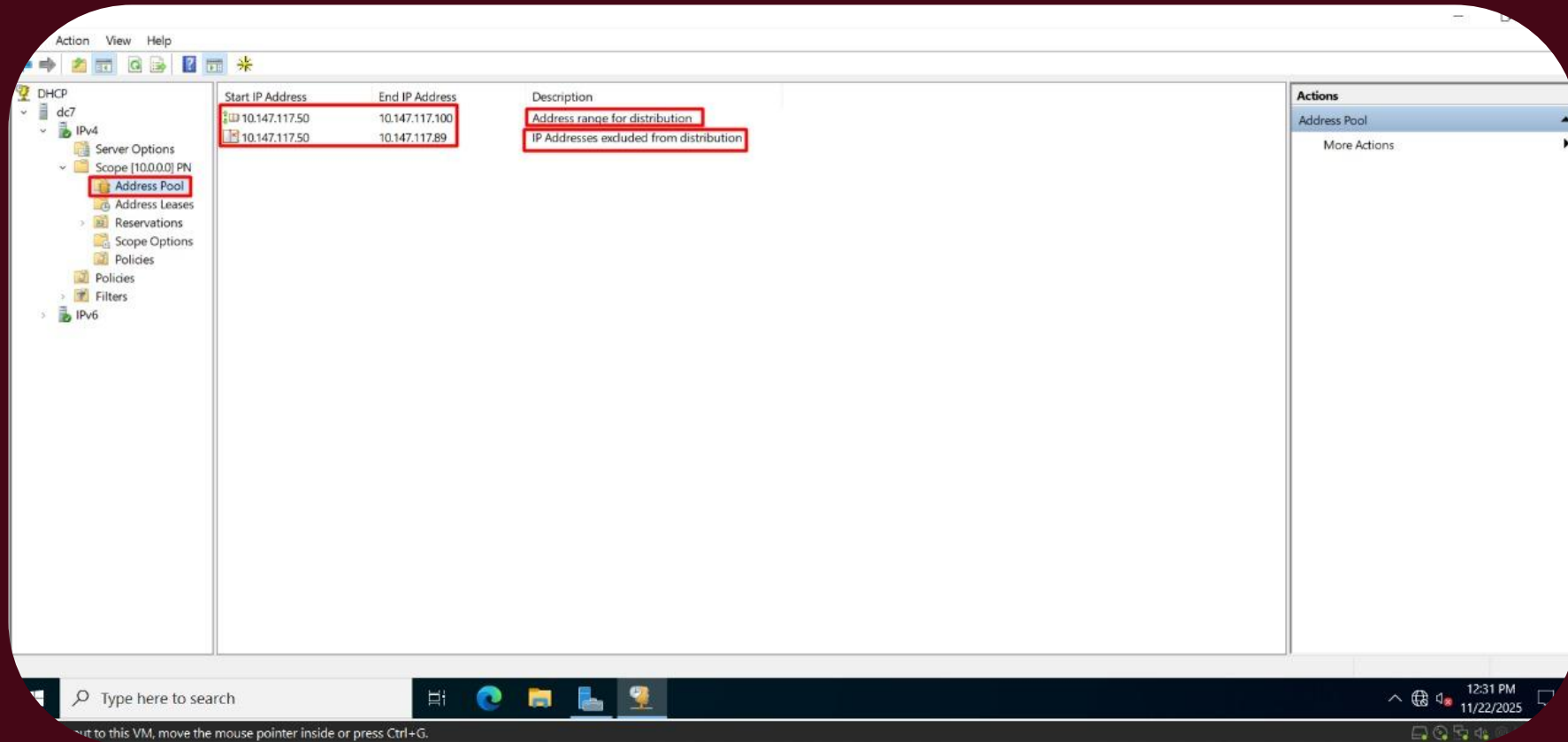
# DHCP Overview

The scope of the DHCP server



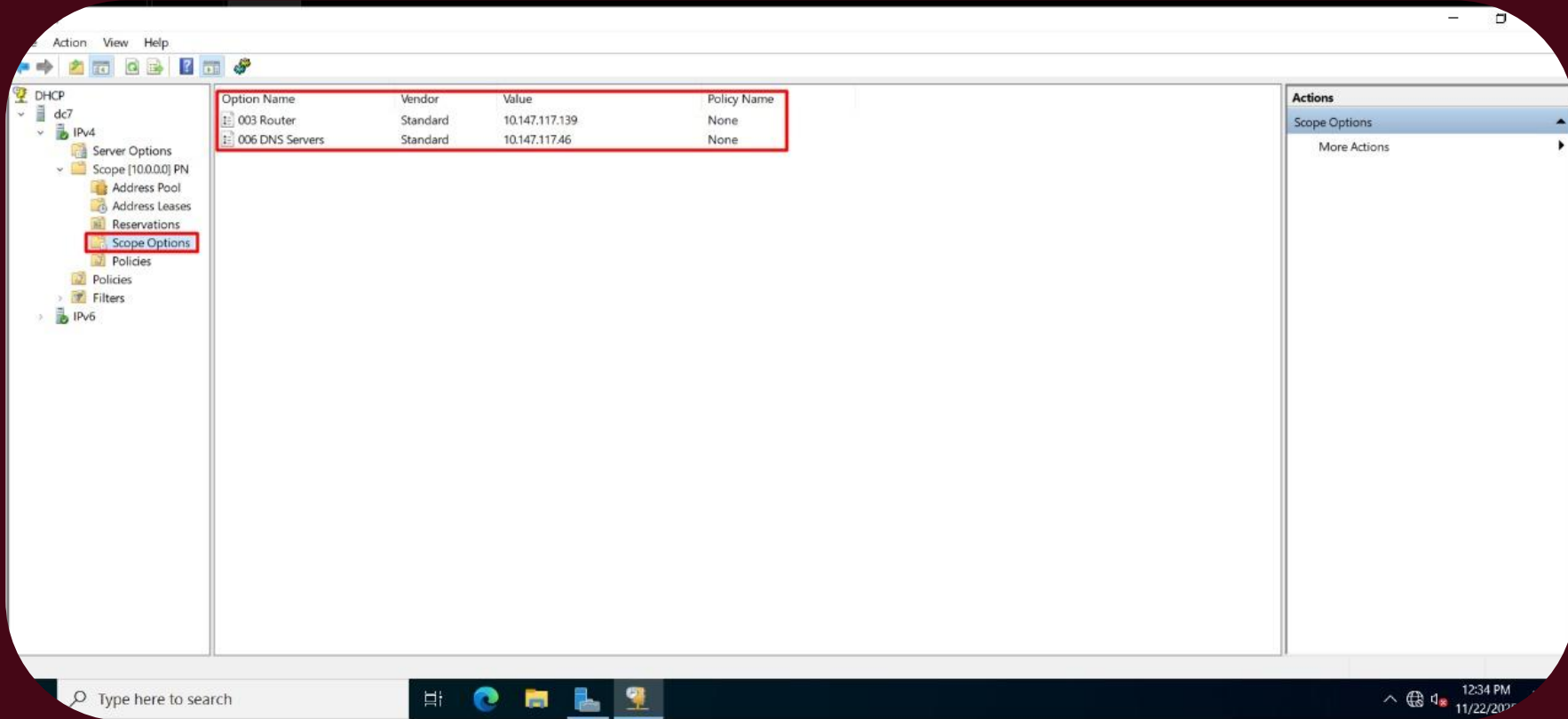
# DHCP Overview

The address pool of the scope and the excluded IPs



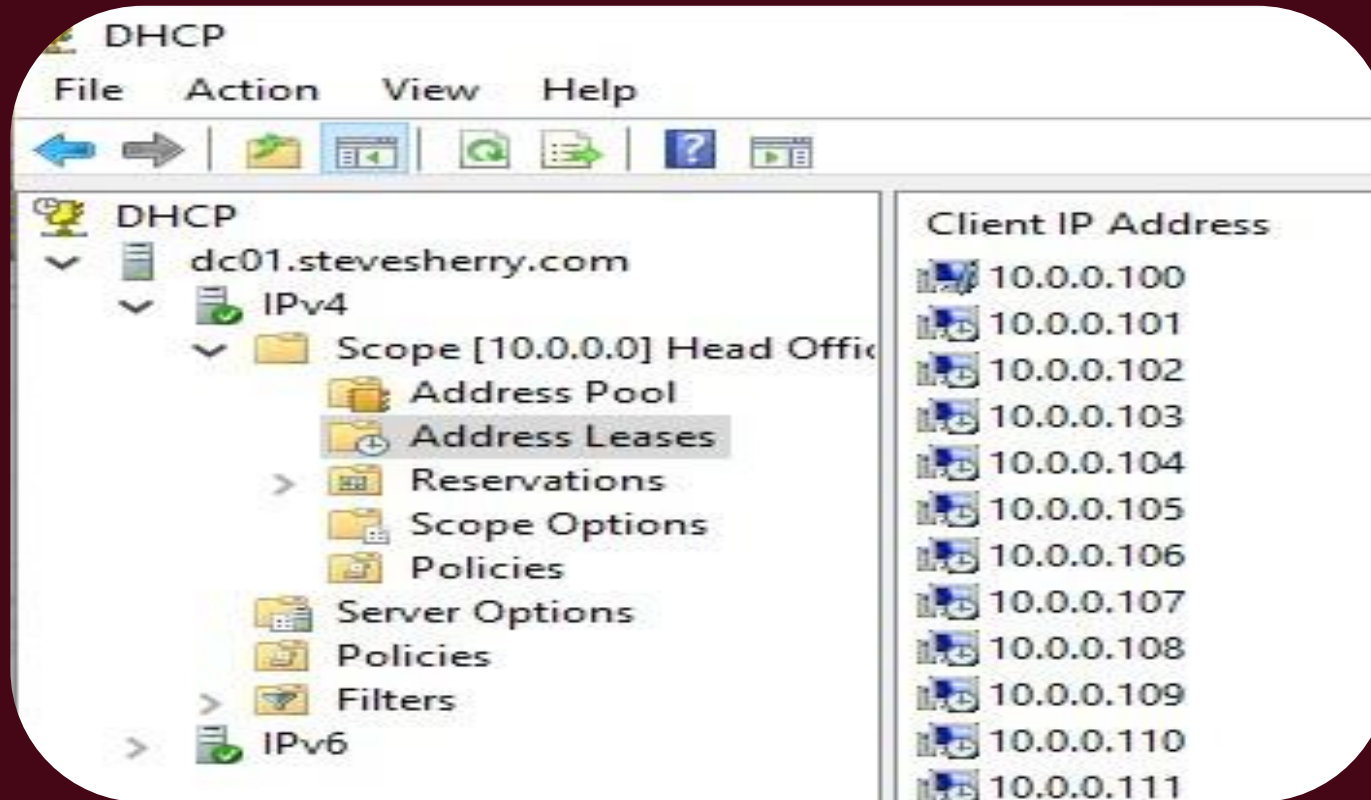
# DHCP Overview

The scope options like the default gateway and the DNS server



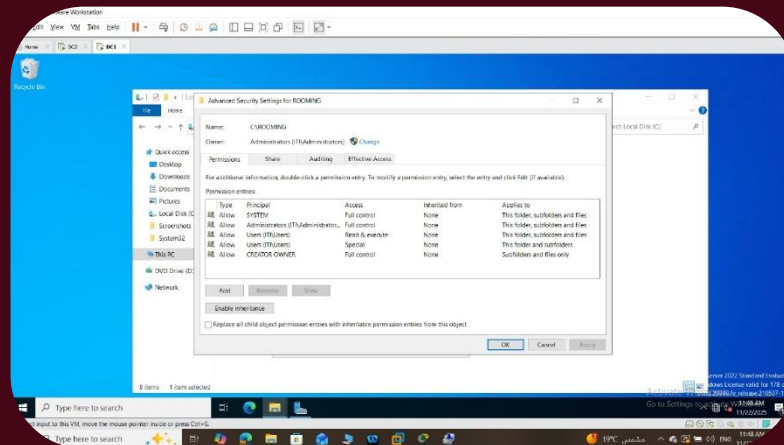
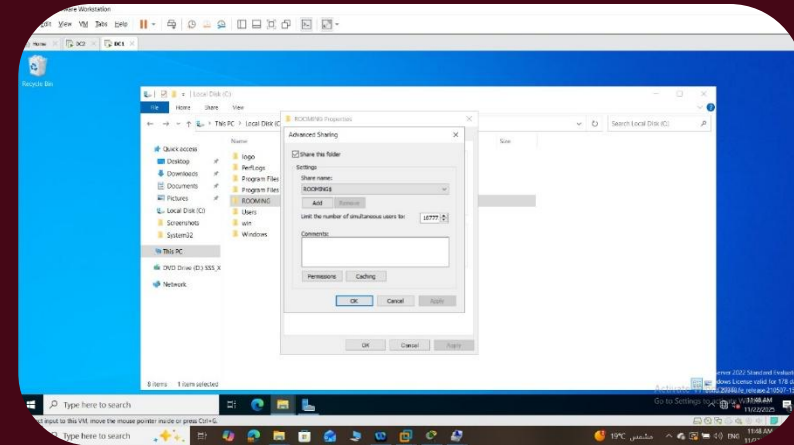
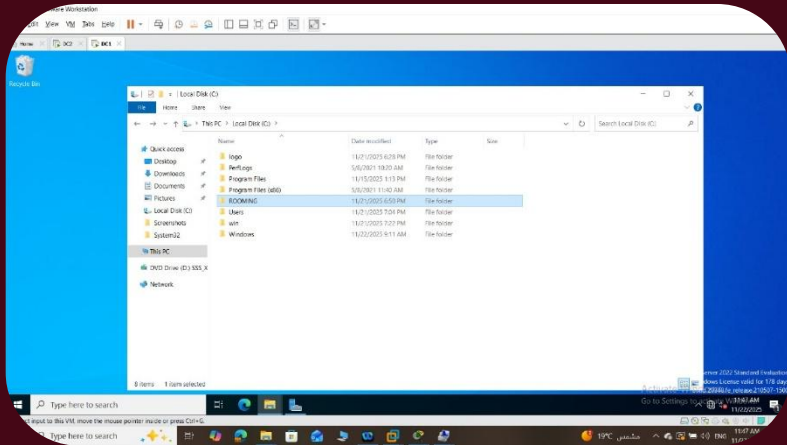
# DHCP Overview

The devices that took configuration from DHCP server



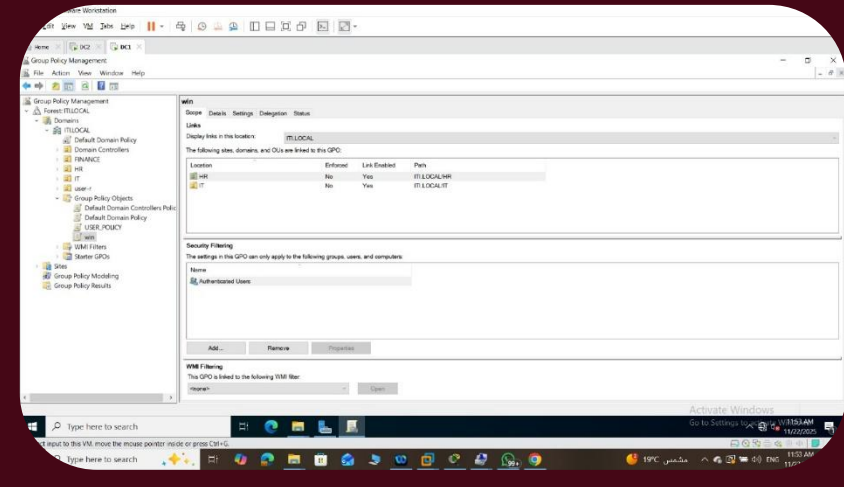
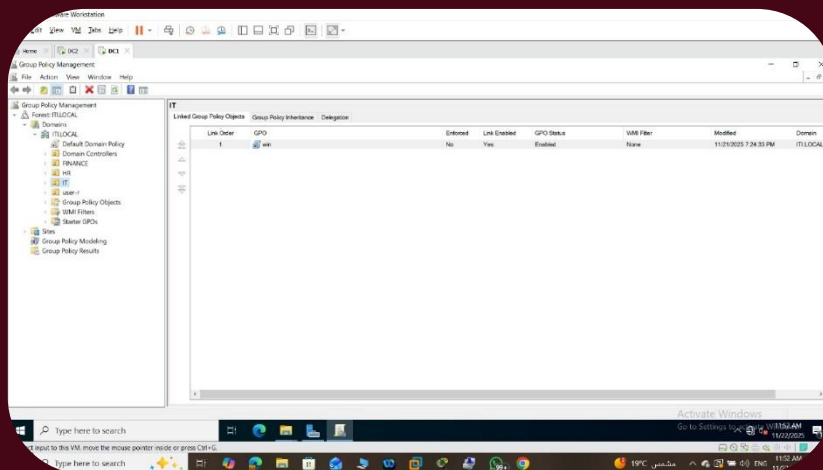
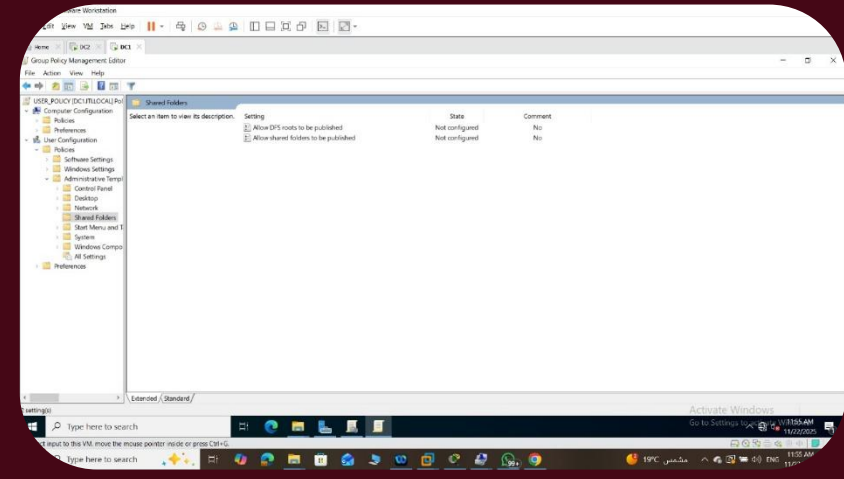
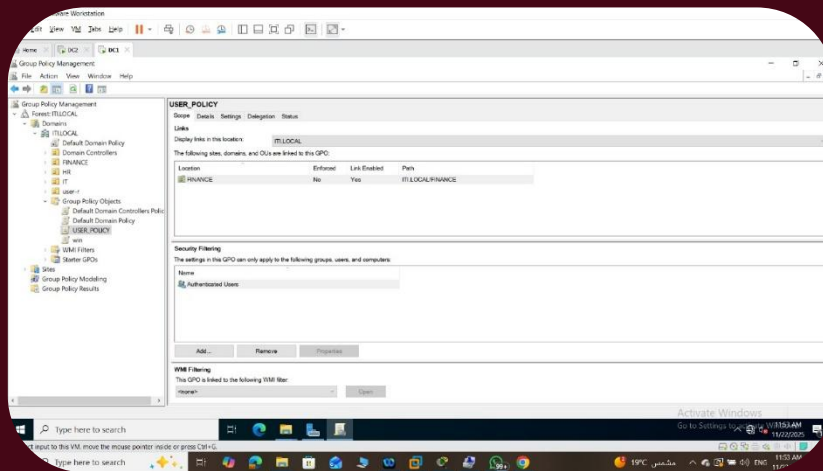
# Roaming Profile Configuration

“Roaming Profile: keeps the user’s settings consistent across all domain computers.”



# Policies Configuration

“All Group Policies were configured to control user permissions, apply security rules, customize the desktop environment, and automatically deploy required software across the domain.”



# Challenges

## **1- Network Connectivity Issues**

Connection problems between sites or domain controllers due to DNS or routing failures.

## **2- Domain Controller Failure**

Failure of PDC or RODC is causing login issues and replication problems.

## **3- Network Card Misconfiguration**

Incorrect IP/DNS settings or a disabled network adapter.

## **4- Roaming Profile Issues**

Slow or failed profile loading due to permissions or weak network links.

## **5- WSUS Configuration Problems**

Clients are not receiving updates, or GPO settings are not being applied correctly.

## **6- GPO Deployment Issues**

Slow replication, wrong security filtering, or policy conflicts.

## **7- Delegation & Permission Challenges**

Difficulty assigning limited permissions without giving full admin access.



