

Active Directory Enterprise Lab Documentation

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12-11-2025

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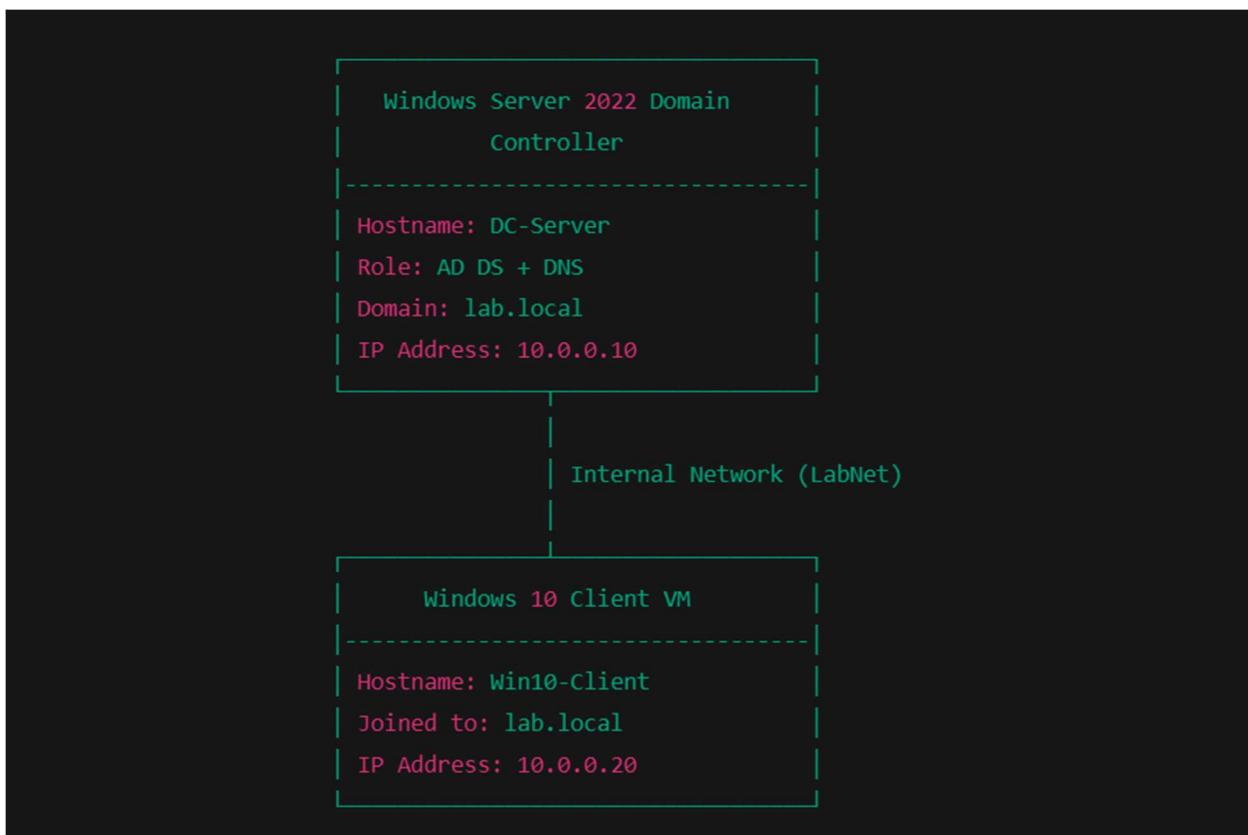
1. Project Overview

This project simulates a small enterprise Microsoft Active Directory environment using Windows Server 2022 and Windows 10. The goal is to demonstrate hands-on proficiency with:

- Domain Controller deployment
- DNS & Authentication
- Organizational Unit (OU) design
- Group Policy Objects (GPOs)
- User identity management
- Client Domain joining
- Enterprise configuration management

This lab mirrors real-world systems used in IT Supports, System Administration, and Cybersecurity operations.

2. Network Architecture



3.Virtualization Environment

- VirtualBox running on host machine
- Internal-only network (LabNet) used for server-client communication
- Dynamic disk allocation for VMs
- ISO files obtained from Microsoft Evaluation Center

4.Domain Controller Configuration

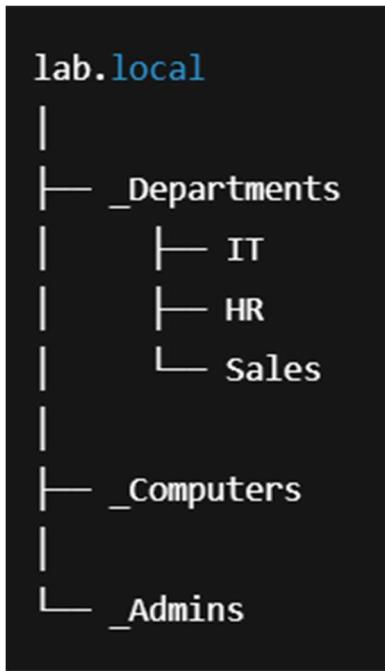
4.1 Windows Server 2022 Installation

- Installed with Desktop Experience
- Static IP: 10.0.0.10
- DNS server set to itself

4.2 Active Directory Domain Services Setup

- Installed AD DS & DNS roles
- Promoted server to DC
- Created forest and domain: lab.local
- Verified ADUC and DNS health

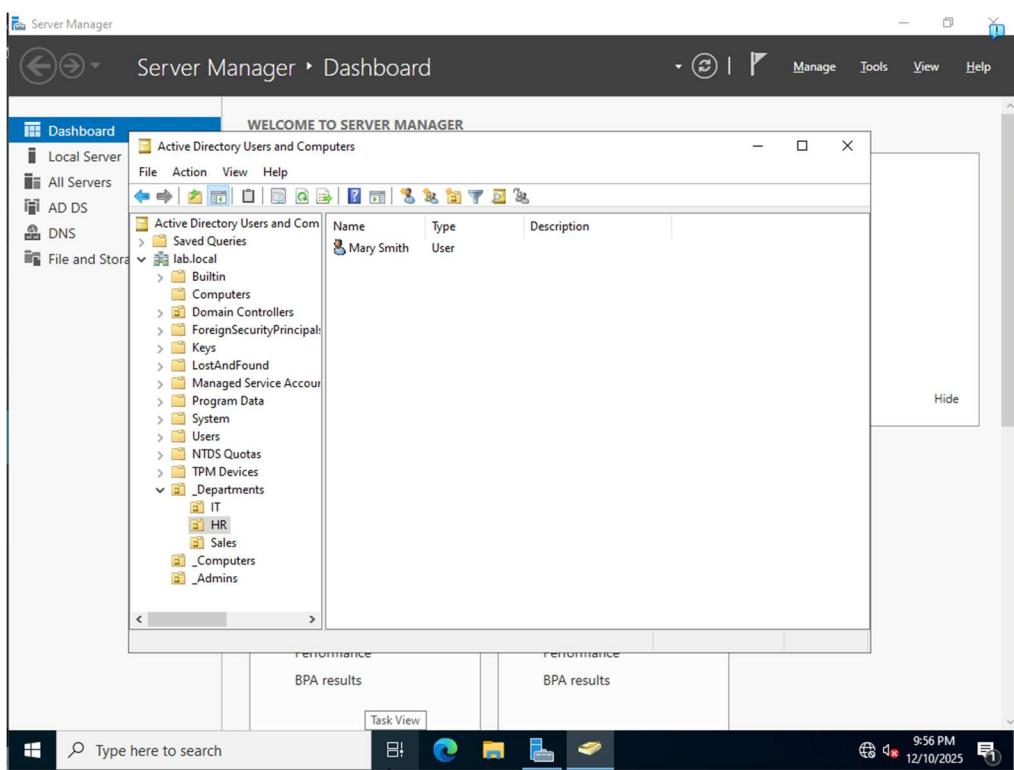
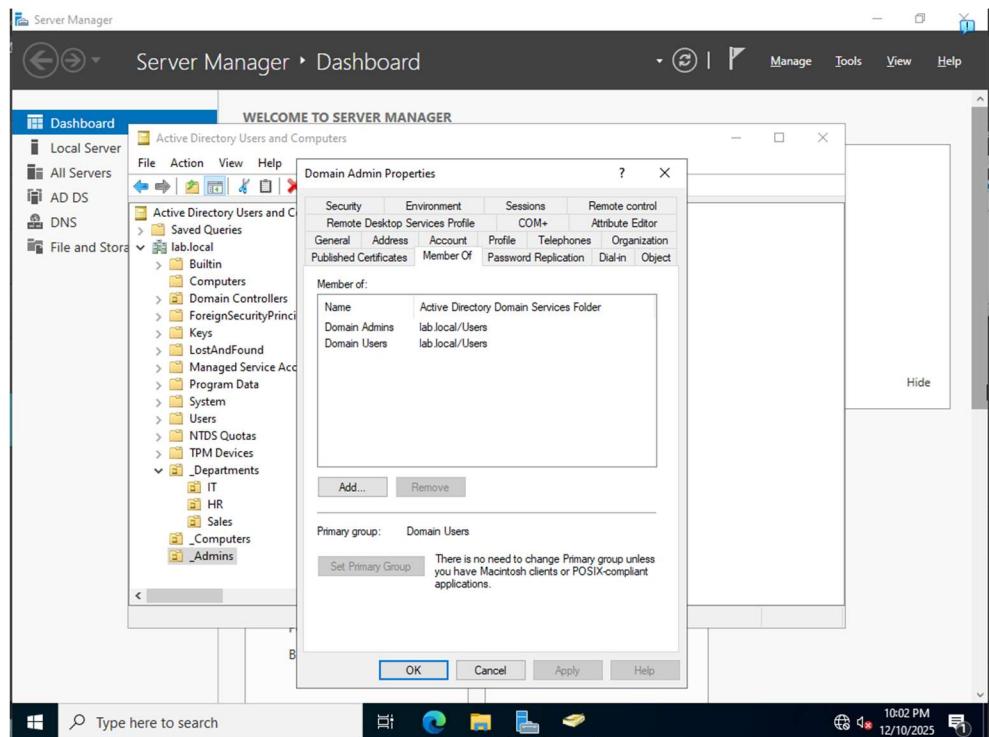
5. Organization Unit (OU) Structure

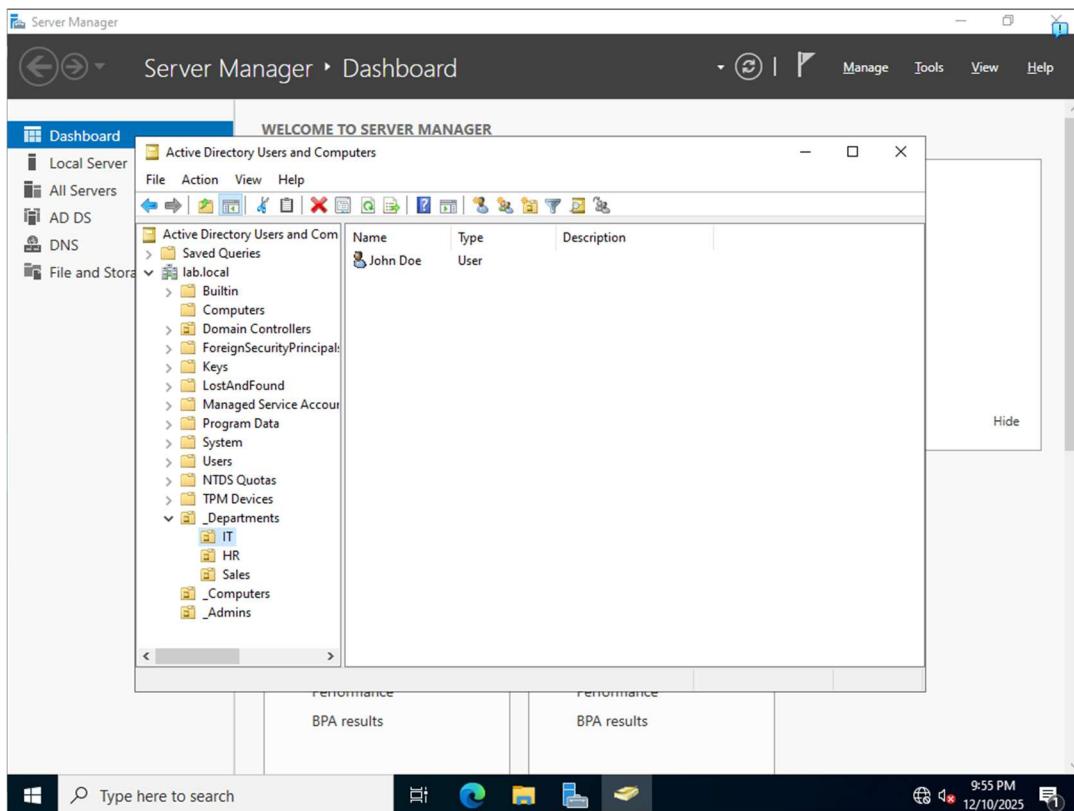
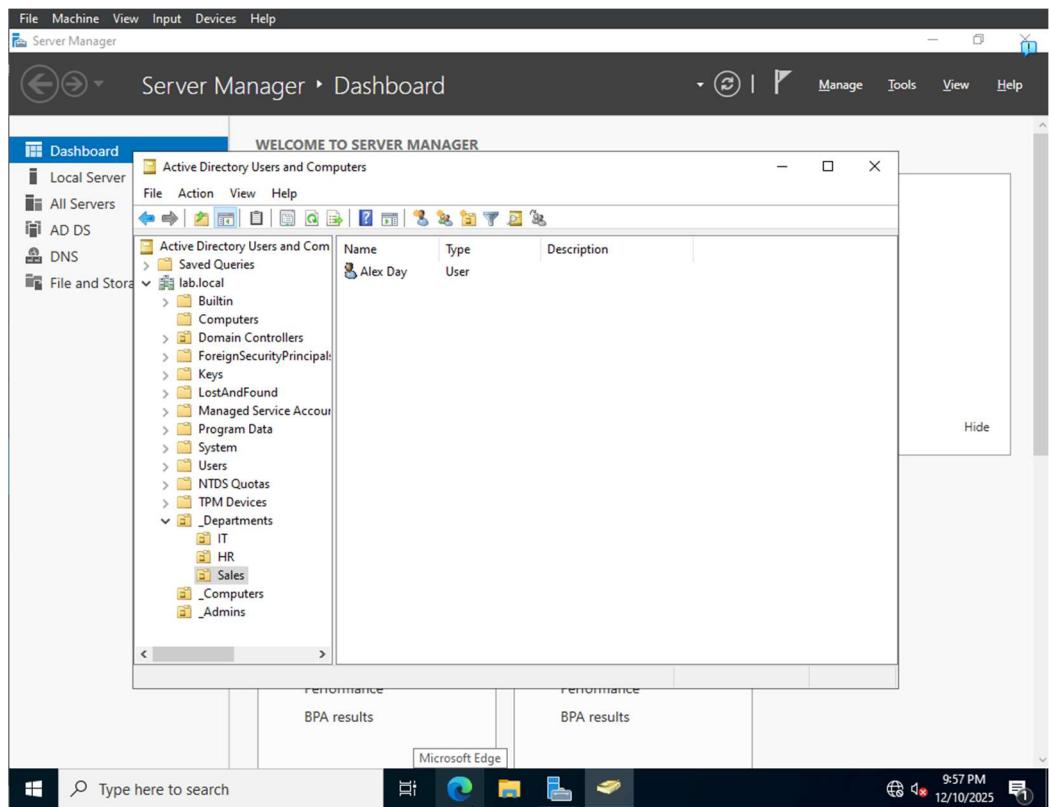


6. User & Group Administration

Created realistic user accounts:

- Lt.jdoe
- Hr.msmith
- Sales.aday
- Domain.admin (added to Domain Admins)





7. Group Policy Configuration

7.1 Password Security Policy

- Minimum length: 8
- Complexity: Enabled
- Max age: 90 days
- Password history: 5

7.2 Mapped Drive Policy

- Folder: [\\WIN-4P04GV7UI5T\DeptShare\\$](\\WIN-4P04GV7UI5T\DeptShare$)
- Drive Letter: H:
- Assigned for all authenticated users

8. Client Configuration

8.1 Windows 10 VM Setup

- Static IP: 10.0.0.20
- DNS: 10.0.0.10

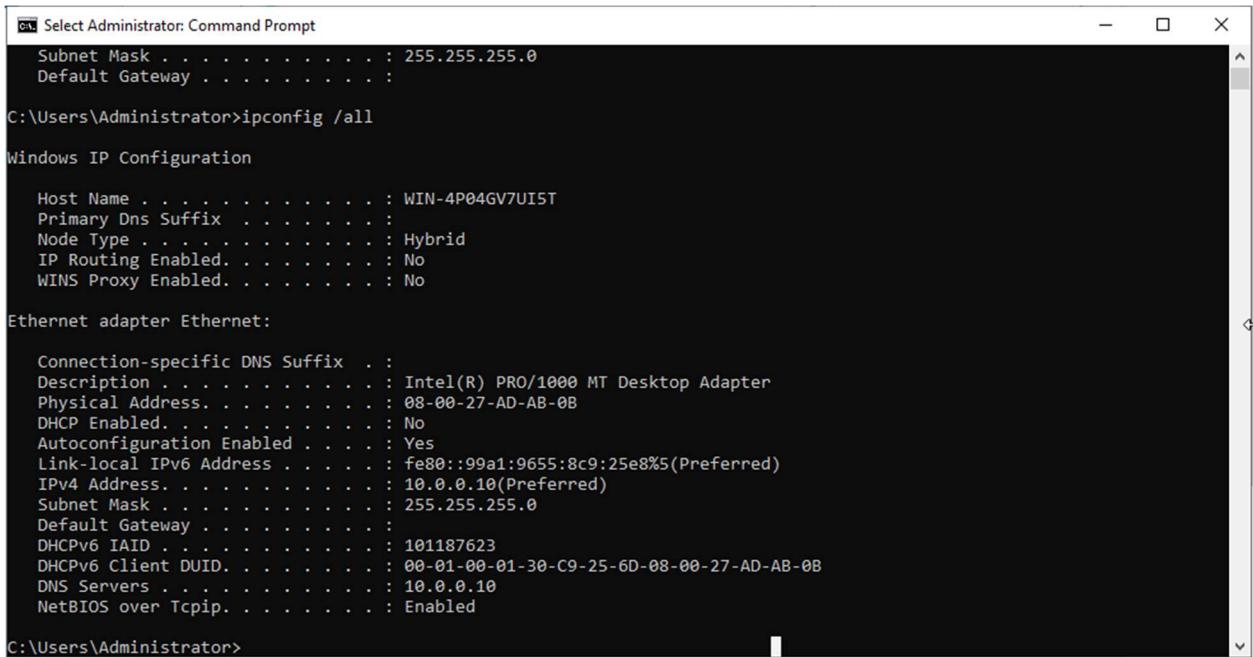
8.2 Domain Join Procedure

- Joined to lab.local
- Logged in via domain account

8.3 Policy Verification

- Mapped drive visible (H:)

9. Screenshots



```
c:\ Select Administrator: Command Prompt
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

C:\Users\Administrator>ipconfig /all

Windows IP Configuration

Host Name . . . . . : WIN-4P04GV7UIST
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . . . . . :
Description . . . . . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
Physical Address. . . . . . . . . : 08-00-27-AD-AB-0B
DHCP Enabled. . . . . . . . . : No
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::99a1:9655:8c9:25e8%5(PREFERRED)
IPv4 Address. . . . . . . . . : 10.0.0.10(Preferred)
Subnet Mask . . . . . . . . . : 255.255.255.0
Default Gateway . . . . . . . . . :
DHCPv6 IAID . . . . . . . . . : 101187623
DHCPv6 Client DUID. . . . . . . . . : 00-01-00-01-30-C9-25-6D-08-00-27-AD-AB-0B
DNS Servers . . . . . . . . . : 10.0.0.10
NetBIOS over Tcpip. . . . . . . . . : Enabled

C:\Users\Administrator>
```

Server Manager

Server Manager > Dashboard

Dashboard

ROLES AND SERVER GROUPS
Roles: 3 | Server groups: 1 | Servers total: 1

Role / Server Group	Count
AD DS	1
DNS	1
File and Storage Services	1

Local Server 1

Manageability Events Services Performance BPA results

DNS 1

Manageability Events Services Performance BPA results

File and Storage Services 1

Manageability Events Services Performance BPA results

Local Server 1

Manageability Events Services Performance BPA results

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All Servers 1

Type here to search

File Machine View Input Devices Help

Server Manager

Server Manager > Dashboard

Active Directory Users and Computers

File Action View Help

Name	Type	Description
Saved Queries	Folder	Folder to store your favo...
lab.local	Domain	

Hide

Services

Performance

BPA results

Services

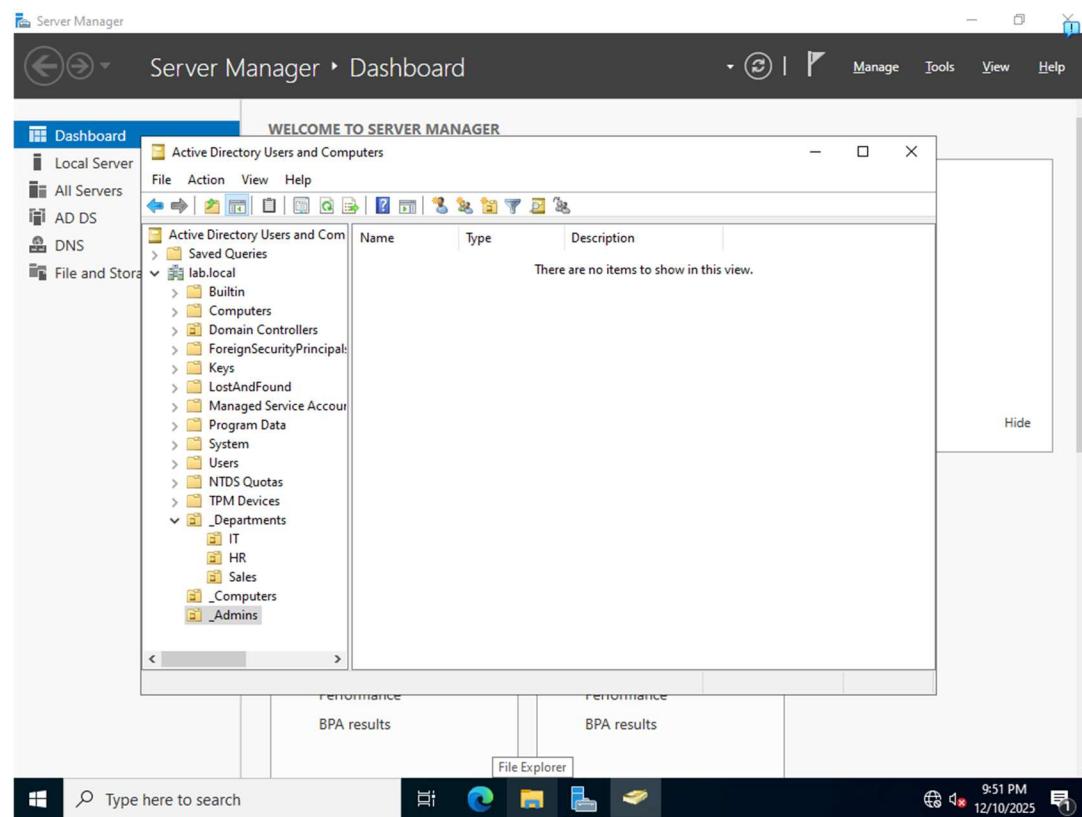
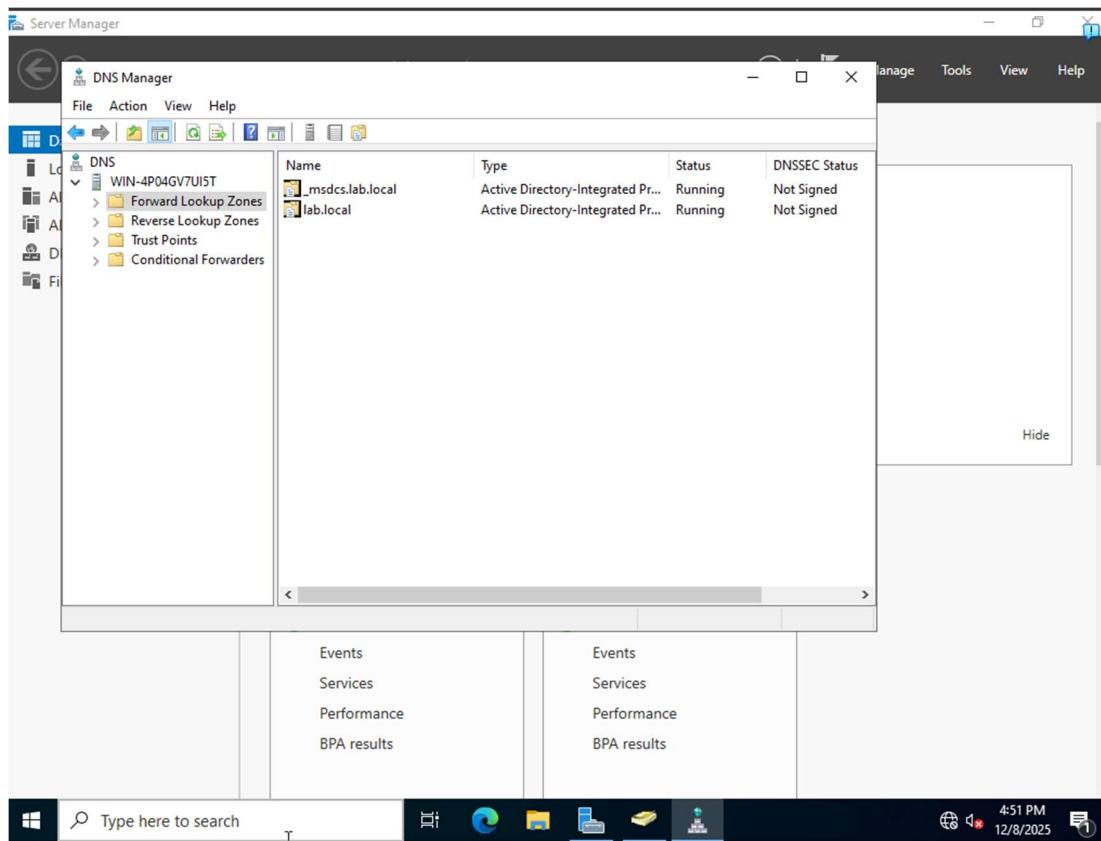
Performance

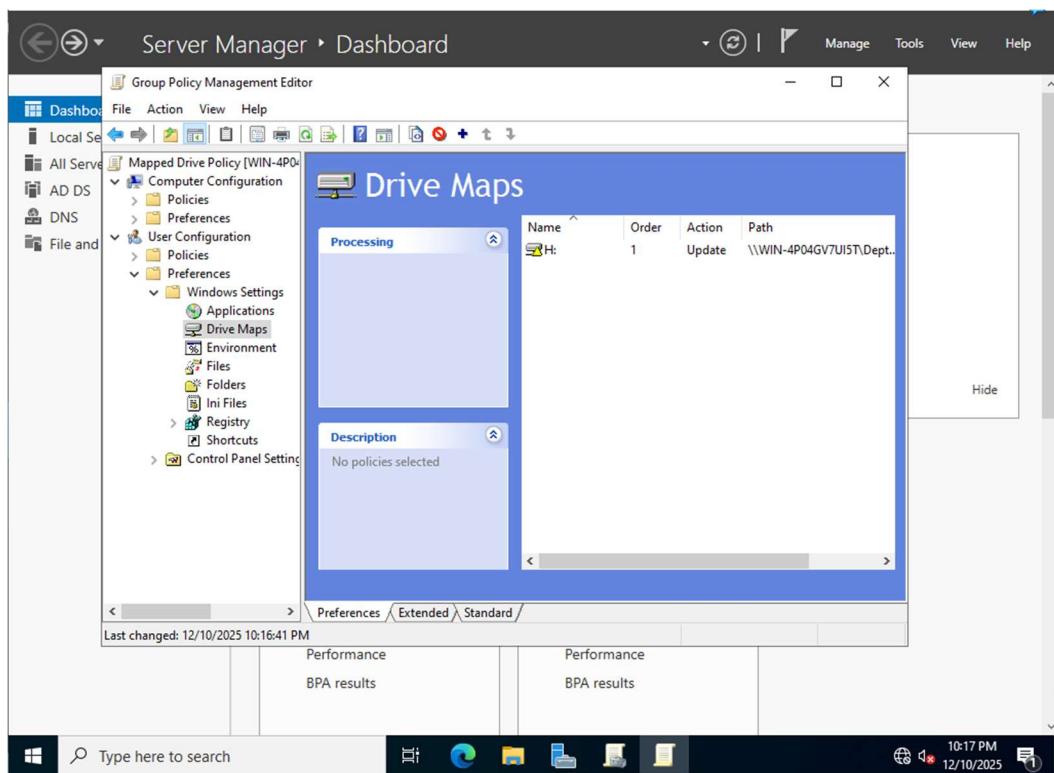
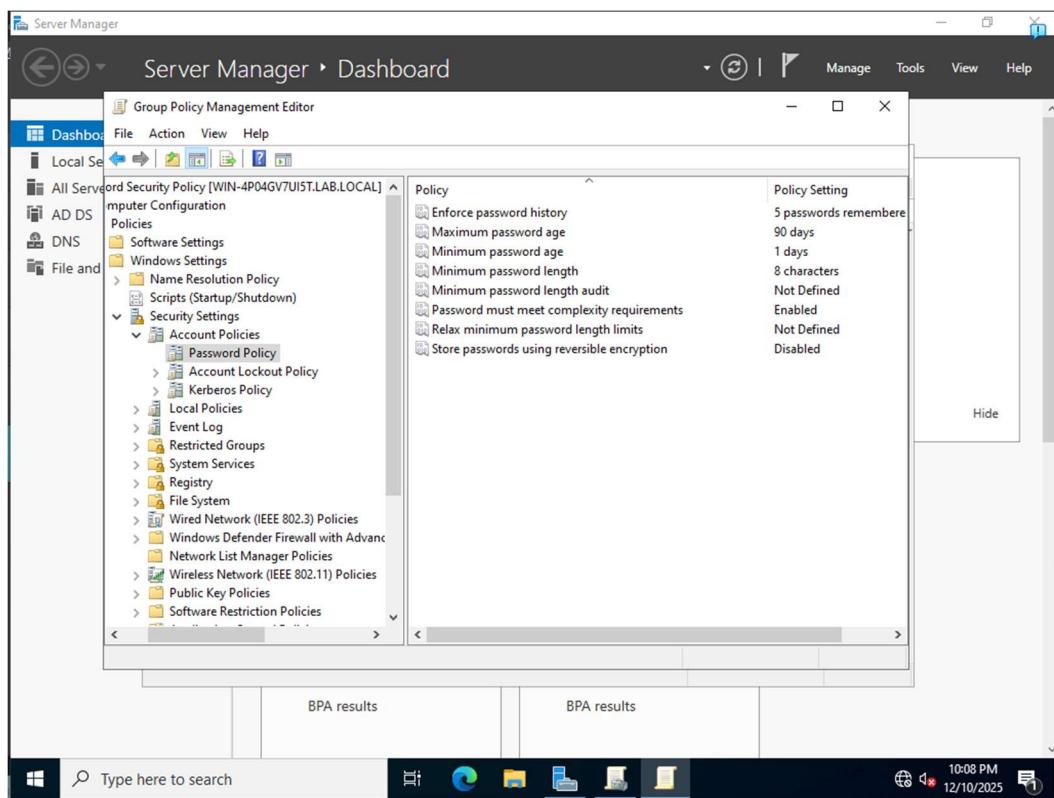
BPA results

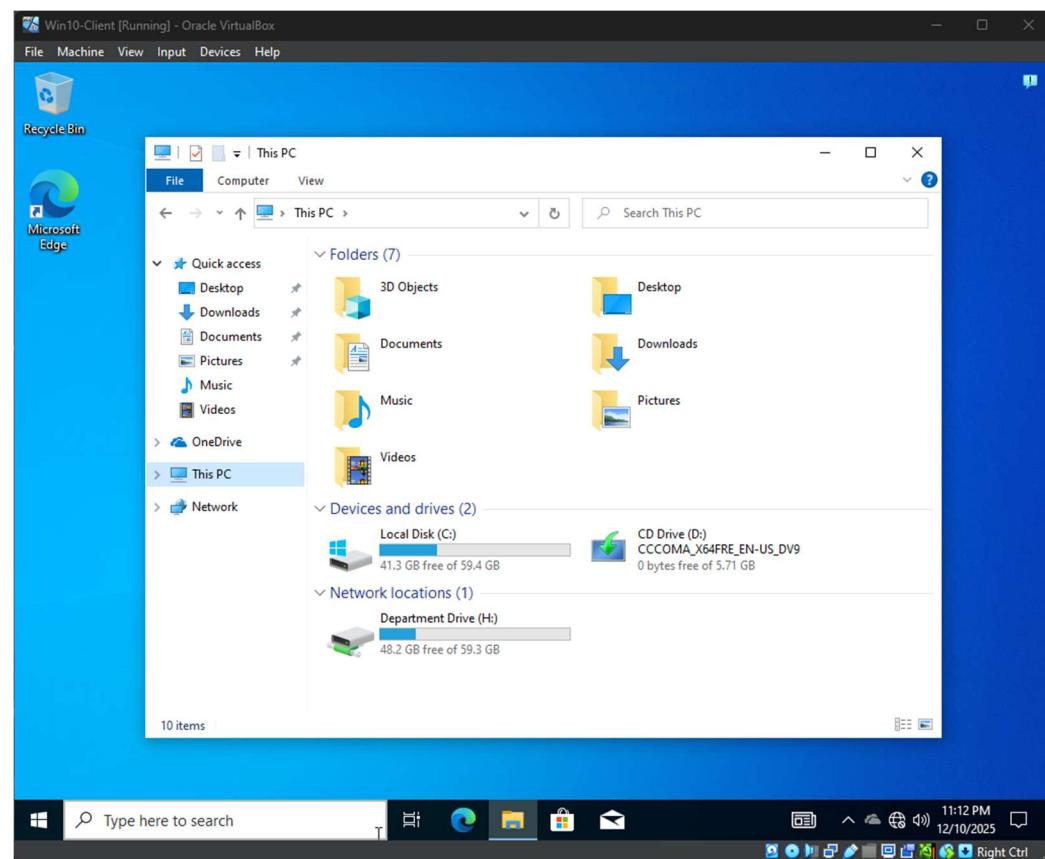
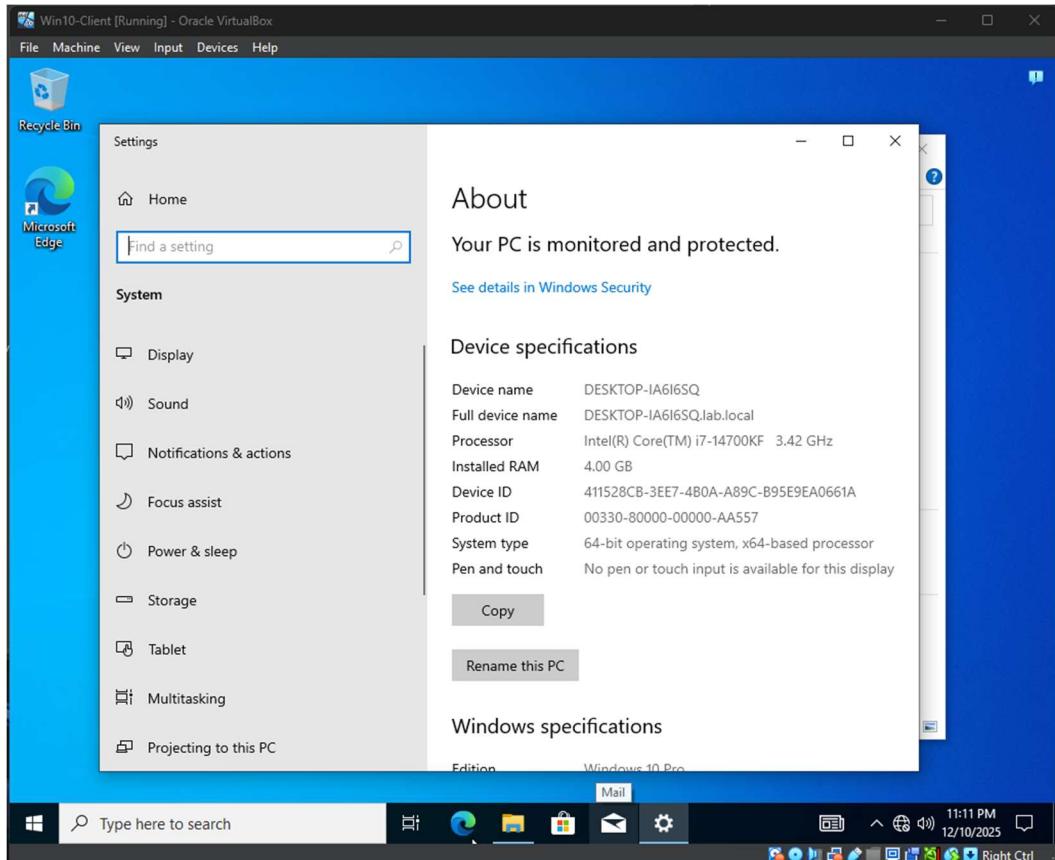
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Type here to search

File Machine View Input Devices Help







10. What I Learned

- Fundamentals of enterprise identity management
- DNS dependency in AD environments
- Troubleshooting domain joins and DNS issues
- Creating and applying Group Policy Objects
- Organizational Unit Planning
- Network Segmentation using virtual networks