

Windows Server 2022 + Active Directory Infrastructure Project

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Executive Summary

This freelance project involved the design and implementation of a Windows Server 2022 environment

simulating a small company's network infrastructure. The project included configuring Active Directory, DNS,

Group Policy Objects (GPO), user management, and file sharing. All procedures were documented for future

reference and learning purposes.

Project Context and Objectives

The main objective was to simulate a real-world corporate network using Windows Server 2022. Tasks

included:

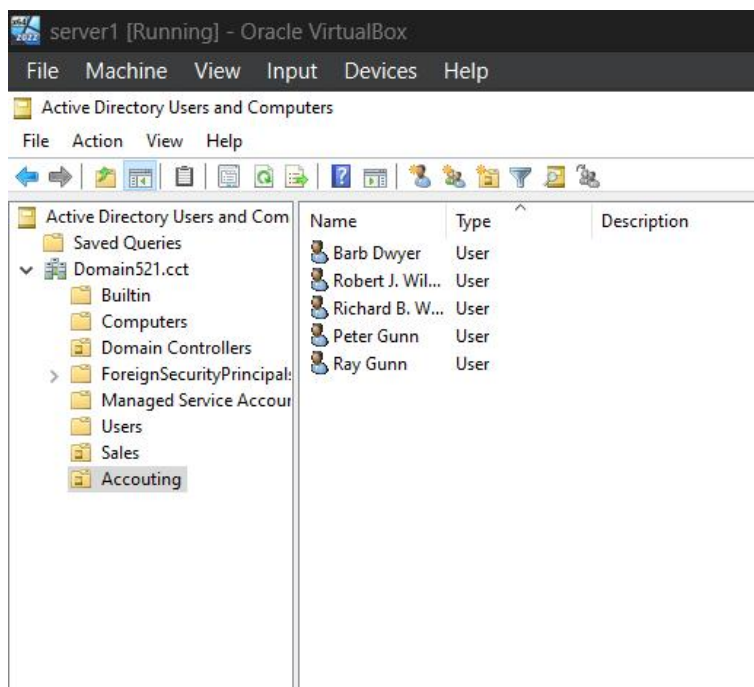
- Promoting the server to Domain Controller (DC)
- Configuring users and departments (Sales and Accounting)
- Managing Group Policies for software installation and UI customization
- Troubleshooting connectivity and name resolution issues

Infrastructure Setup

The server was installed and promoted as Domain Controller. Organizational Units (OUs) were created for

Sales and Accounting. Users were assigned accordingly, and security groups were implemented to manage

permissions and GPO applications



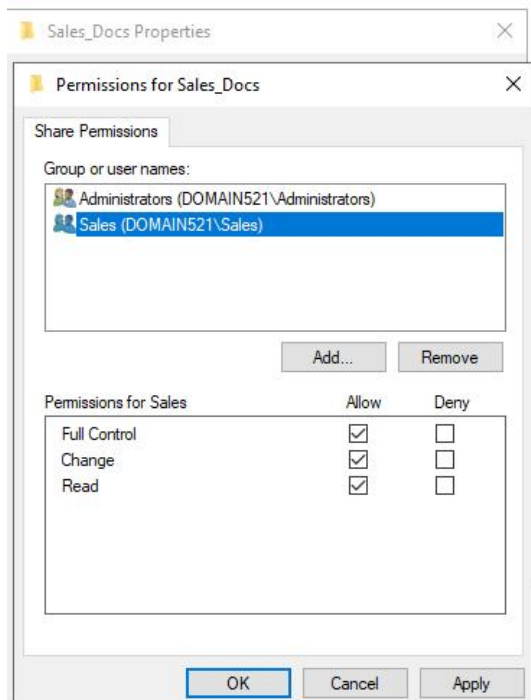
(AccountingOU + Users)

Group Policy Configuration

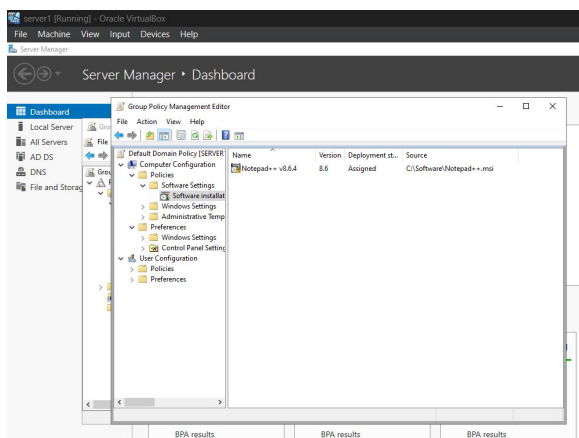
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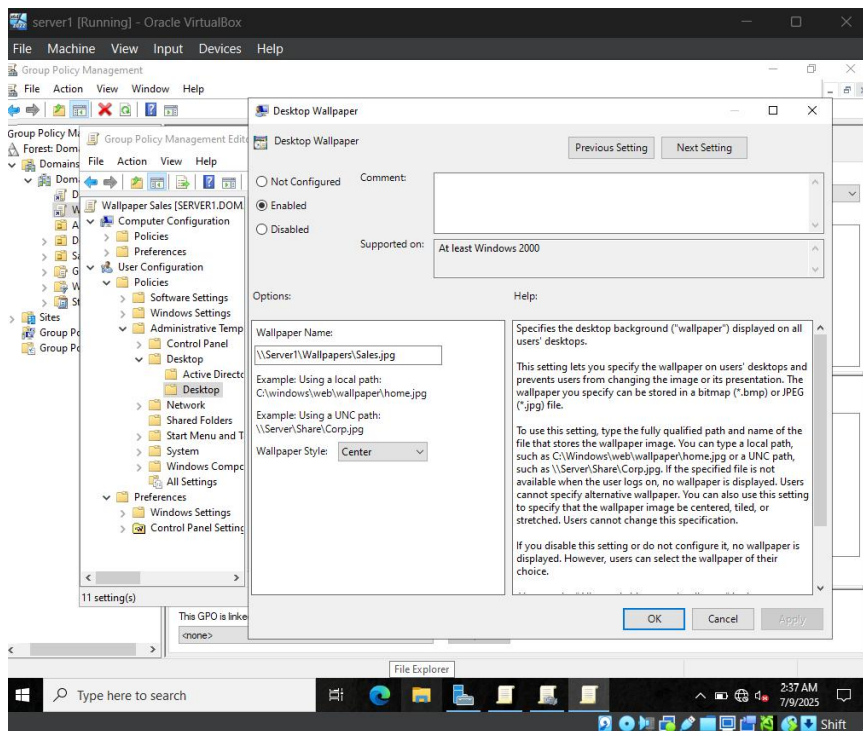
permissions and GPO applications



(Sales group full control+Everyone removed)



(Notepad++ inserted into the Domain)



(Wallpaper Configuration)

Troubleshooting

Installing Guest Additions (Performance Improvement)

VM VirtualBox Guest Additions was installed on Server1 together with Client1 virtual machines as an extra functionality. The installation process enabled better host-guest system integration through advanced features that improve virtual machine operations. The main features of the installation included automatic screen resolution resizing as well as clipboard sharing and drag-and-drop file operations between the host and virtual machine. These capabilities significantly improve productivity and make working within the virtual testing environment more efficient (Oracle, 2023).

Domain Join Problem (Duplicate SID Error)

A problem occurred because Client1 could not enter the Domain521.cct domain due to a duplicate Security Identifier (SID) conflict. Client1 received a cloned version of Server1 through direct cloning process which resulted in both virtual machines using identical system SIDs. The presence of duplicate SIDs in Active Directory environments stops machines from authenticating properly which prevents them from joining the domain. The solution involved deleting Client1 virtual machine and performing a fresh operating system installation to produce a new SID. Client1 successfully joined the domain after system reinstallation and network setup without any additional domain join failures (Neilly, 2018).

Software Installation via GPO Failed

The automatic deployment of Notepad++ through Group Policy Object (GPO) did not work properly on Client1 during domain user login. Client machines could not access the GPO installer path because it was set to a local path (C:\Software\Notepad++) instead of using a network accessible path. The shared folder permissions blocked client computers from obtaining the installation file (.msi). The installation path needed to be changed into UNC format (\Server1\Software\Notepad++) to enable remote access. The Software folder received new share and NTFS permissions that allowed Domain Computers and Authenticated Users groups to obtain read access. The installer became accessible through automated execution at the subsequent user login (Microsoft, 2025).

Results and Lessons Learned

This project reinforced practical skills in Windows Server administration, including Active Directory, GPO, and

DNS. It also demonstrated how small automations and security principles can improve IT infrastructure

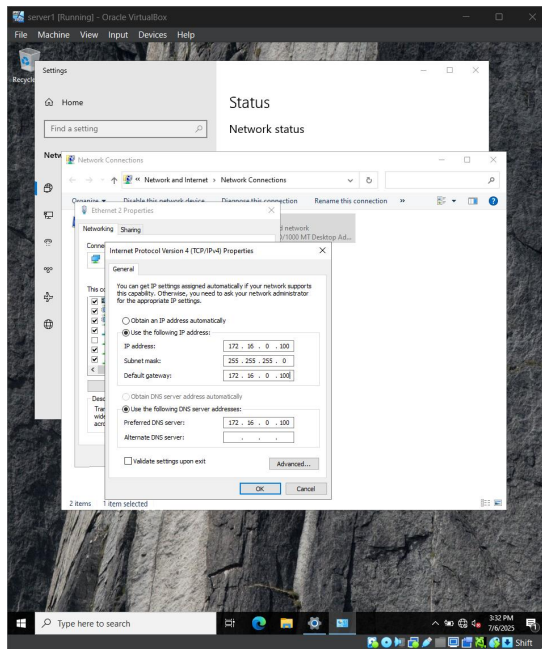
management.

Recommendations

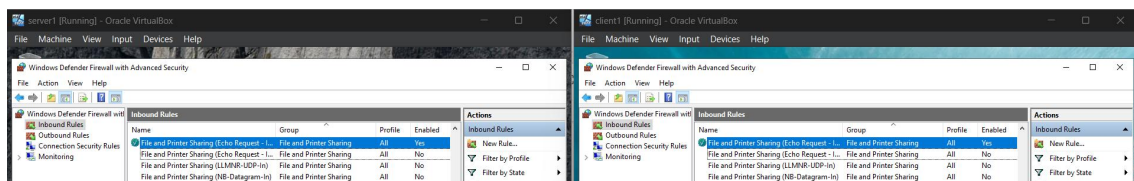
For future deployments:

- Add backup Domain Controller for redundancy
- Expand GPOs for security hardening
- Implement user login scripts for mapped drives and compliance banners

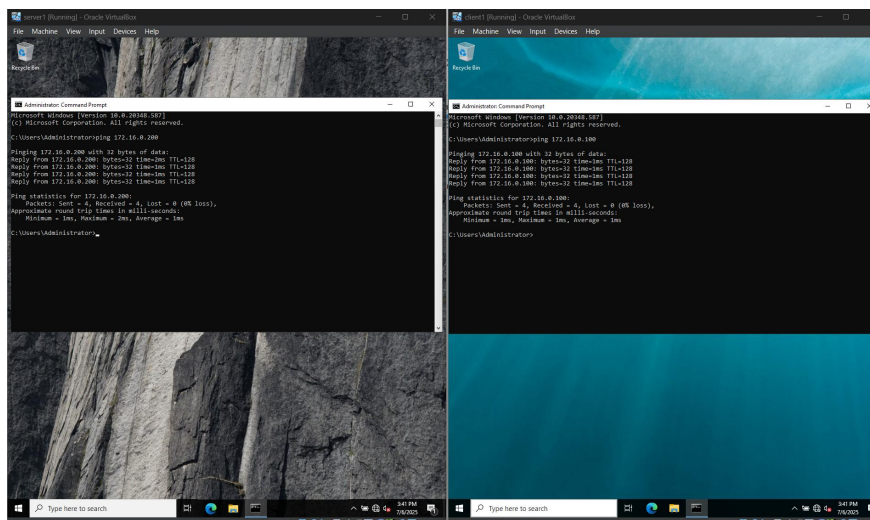
Appendix



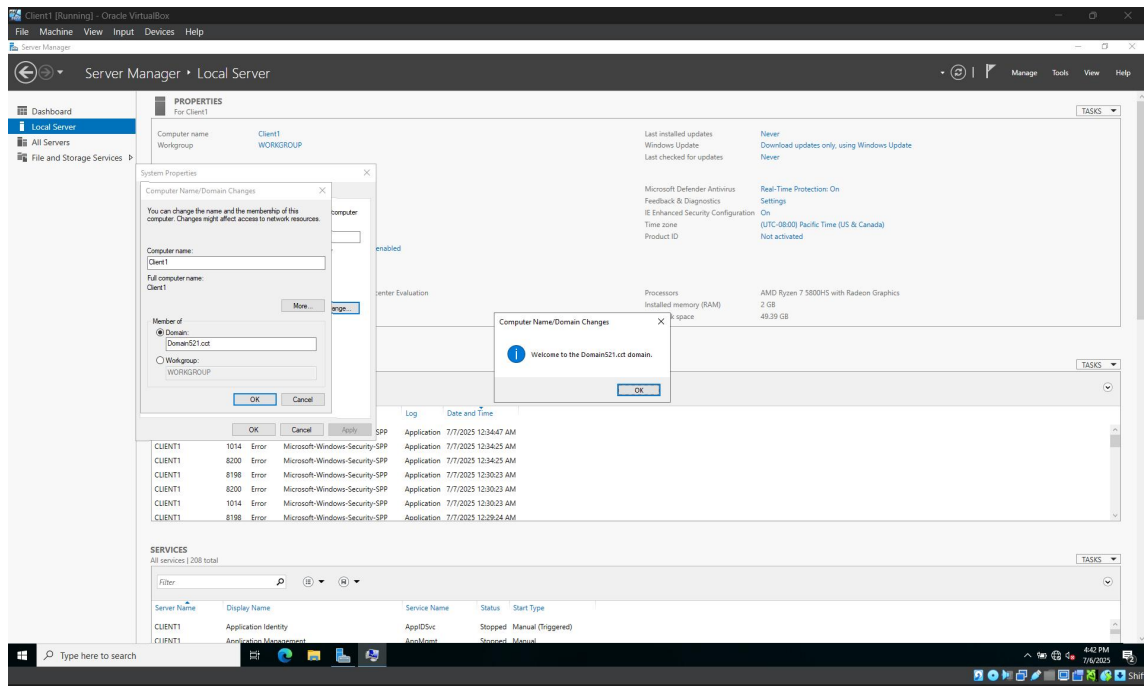
(Server1 machine IP configuration)



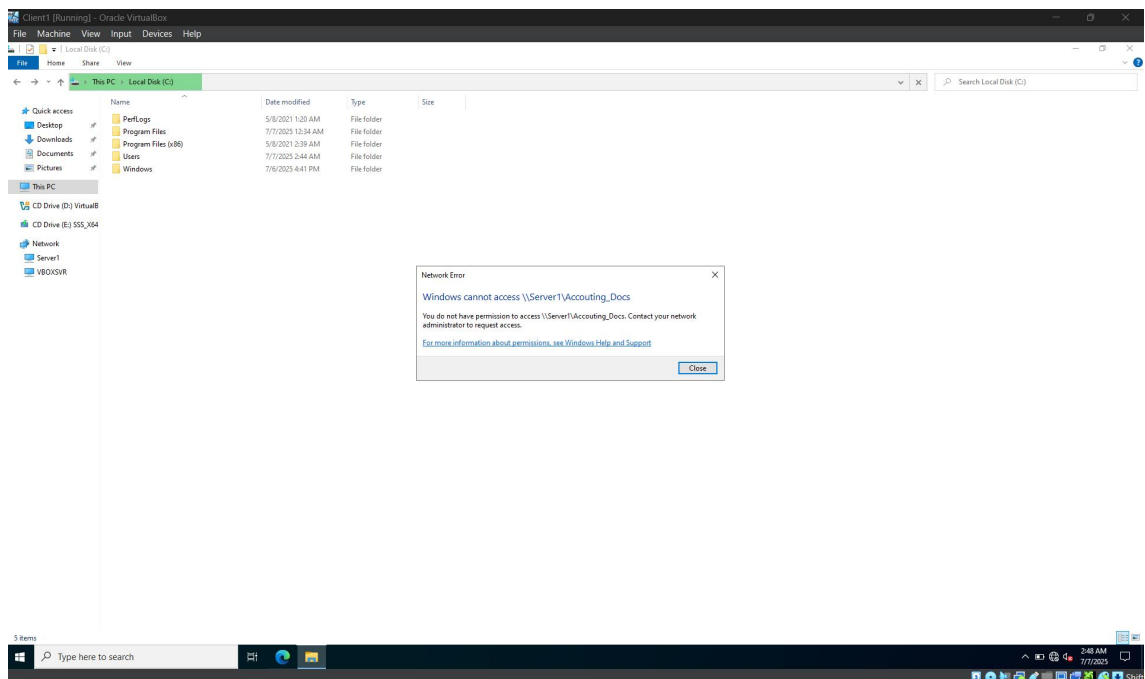
(Both rules enabled for Ping to pass through the Firewall)



(Successful ping between the two machines)



(DC connection successful)



(User with no permission)

