LONDON METROPOLITAN UNIVERSITY

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Module Code & Module Title

Level 5 – CT5052

Network Operating System

Assessment Type

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Semester 3rd

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Steps

Introduction

Windows Server is a operating system developed by Microsoft providing server level administrations with powerful tools to manage server infrastructure. Microsoft Windows Server 2022 is equipped with Graphical User interface in server management service which earlier versions like Windows server 2008 were lacking, such as configuring server settings, managing roles, and monitoring performance. Microsoft Windows Server is widely used server operating system being compatible, secure, robust support.

Microsoft Windows Server has evolved through different phases of development with growing in the IT industry and its infrastructure. (Microsoft, n.d.) Windows server has centralized management system for server management in GUI format to simplfy the task of management. The new release also provides secured connectivity that introduces several new capabilities such as faster and more secure encrypted HTTPS connections, industry standard SMB AES 256 encryption and more.

ADCD is a global catalog that contains information about every object in the directory. This allows users and administrators to find directory information regardless of which domain in the directory actually contains the data. (Microsoft, n.d.)A domain controller stores one domain directory partition consisting of information about the domain in which it is located, plus the schema and configuration directory partitions for the entire forest. A domain controller can also store one or more application directory partitions.

Active Directory Domain Control (AD DC) provides wide range of directory domain control services like Lightweight Directory Access Protocol (LDAP), Kerberos-based authentication, and DNS integration. Services enable control of data flow and security of access between users, devices, and applications with security applied in the system. Additionally, it supports features like group policy management, which helps enforce organizational standards across multiple systems and users.

Objective

The primary objective of this workshop is to make student understand the configuration process, and verification of an Active Directory Domain Controller (ADDC) feature on Windows Server 2022. Additionally, it highlights the essential functions performed by ADDC,

- Centralized authentication and authorization for users and devices.
- Enforcing all the security policies into the system.
- Managing network resource using devices such as printers and shared folders.
- Directory services for applications and system logs, configuration files and user on hirarchical system.

Required Tools and Concepts

Hardware:

- Personal Computer, windows laptop devices prefered
- 64GB storage recommended.
- 8GB ram recommended.
- 1.4Ghz 64bit processor

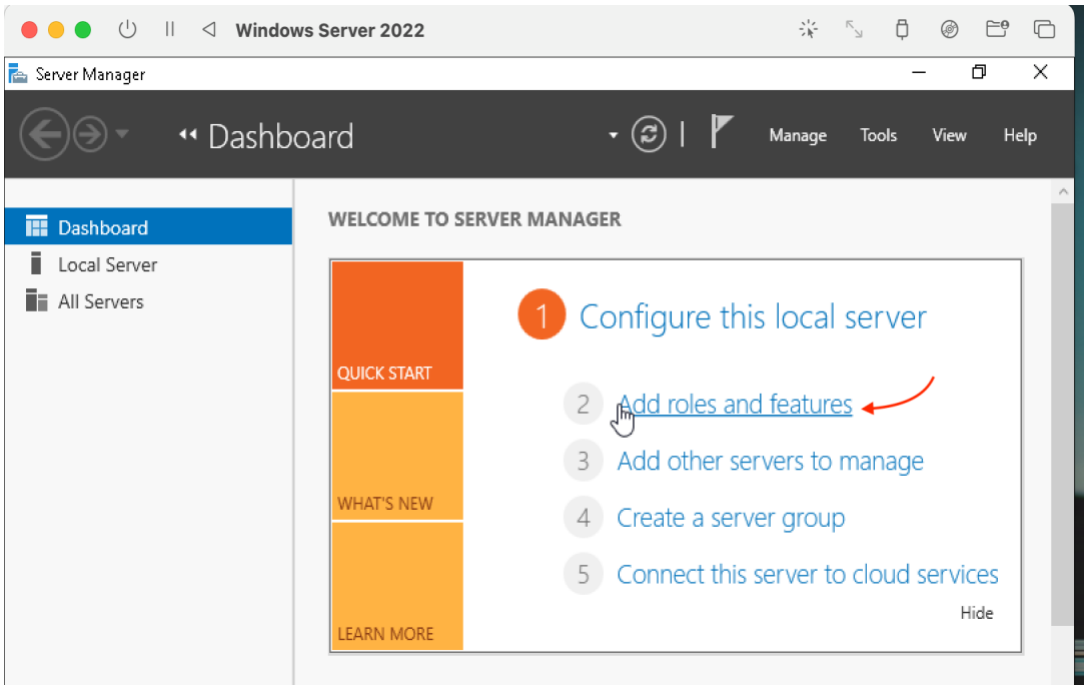
Software:

- Licensed copy of Windows Server 2022
- ISO file of windows server 2022
- Hypervisor for virtual enviroment
- Any host operating system to run server on virtual enviroment

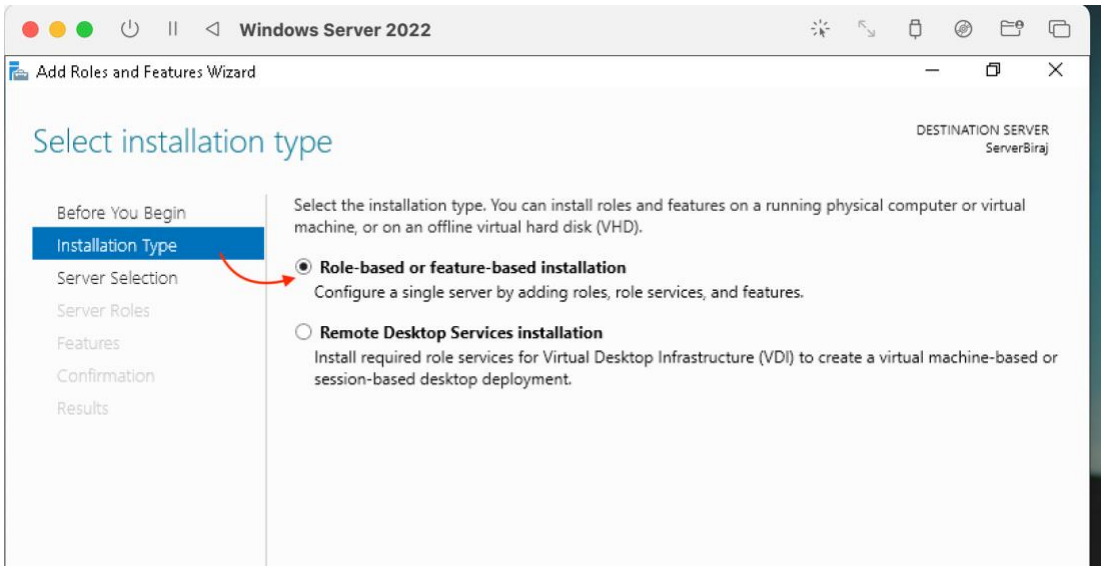
Concepts:

- Active Directory Domain Controller
- Server Management
- Power shell
- Virtualization

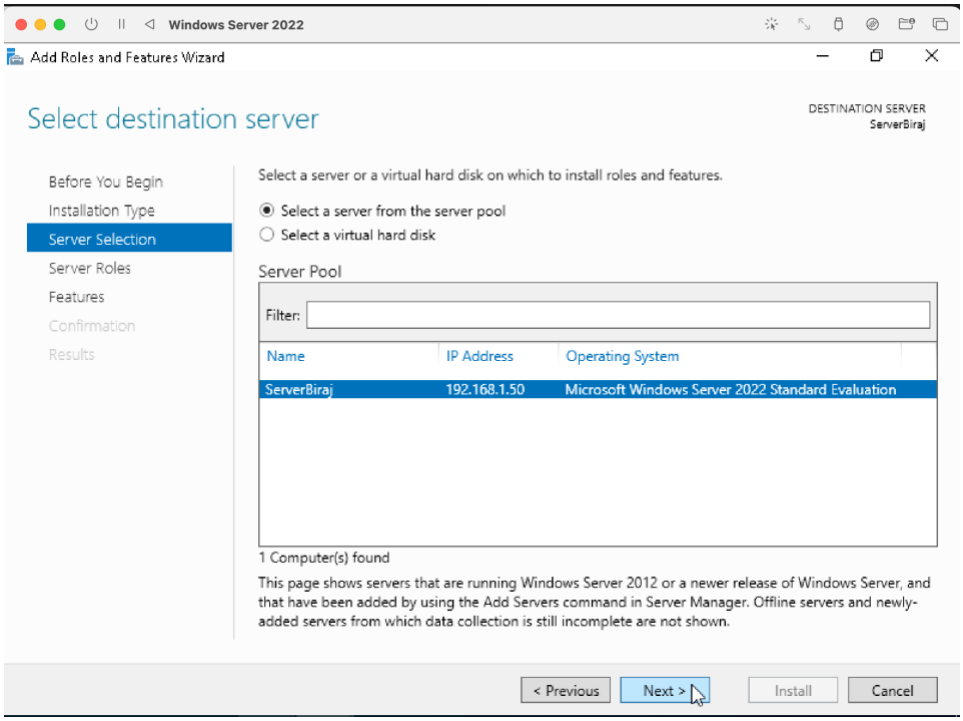
Steps to replicate



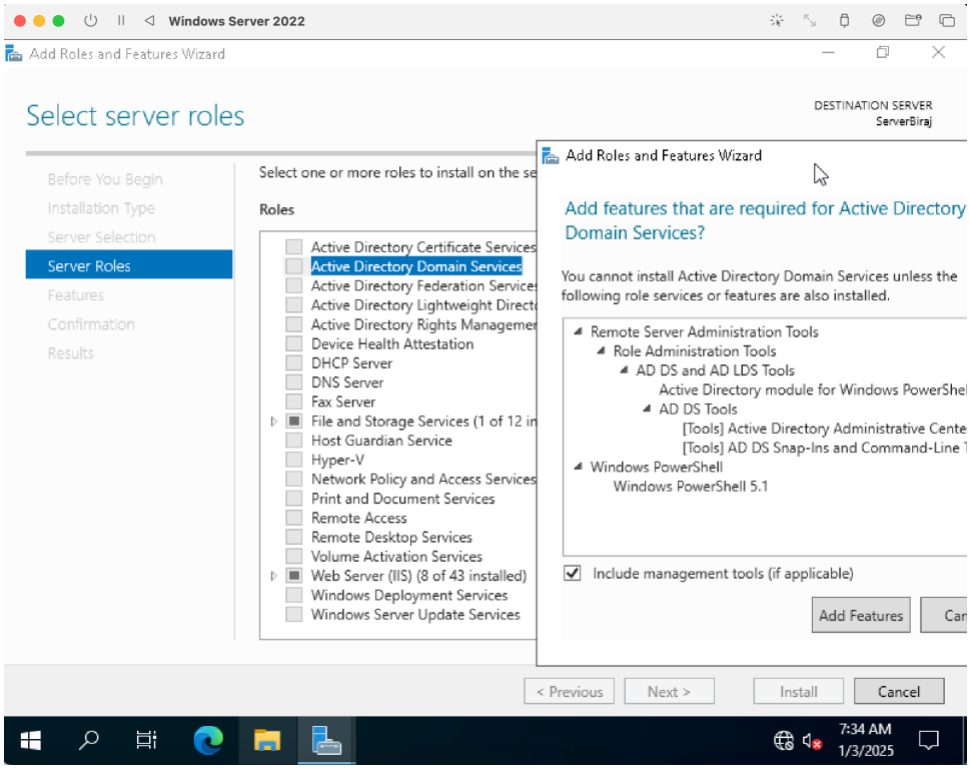
Step 2: Open dashboard management and go to add roles and features



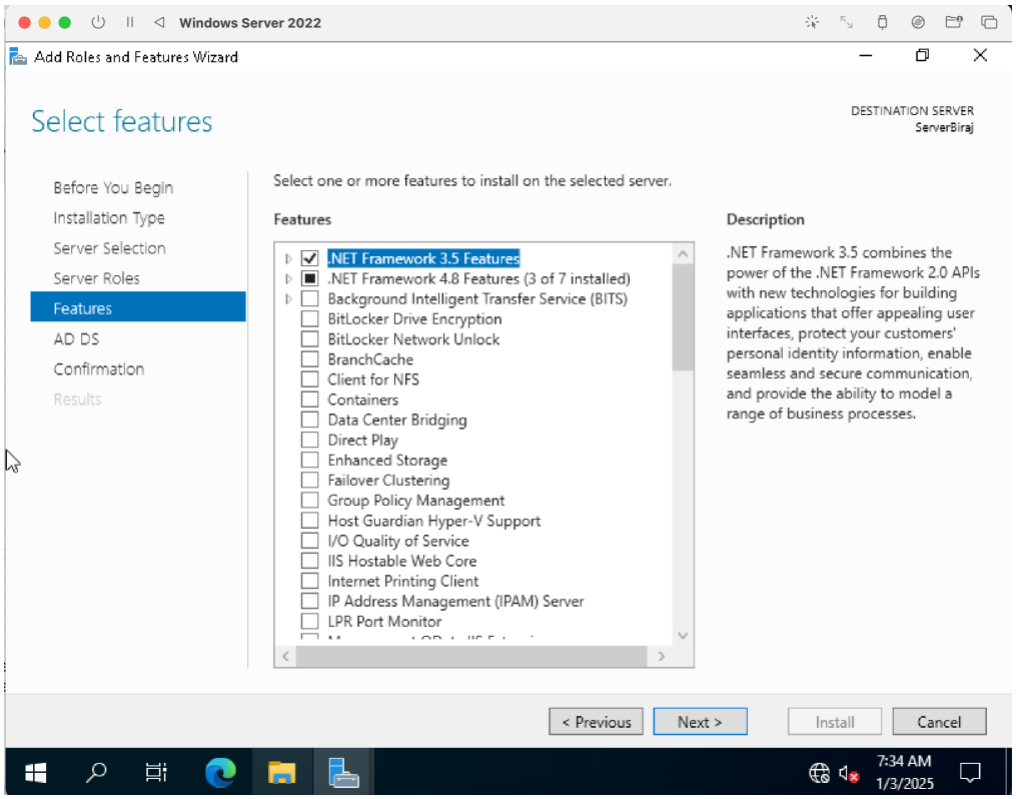
Step 1: select Role-based or feature-based installation



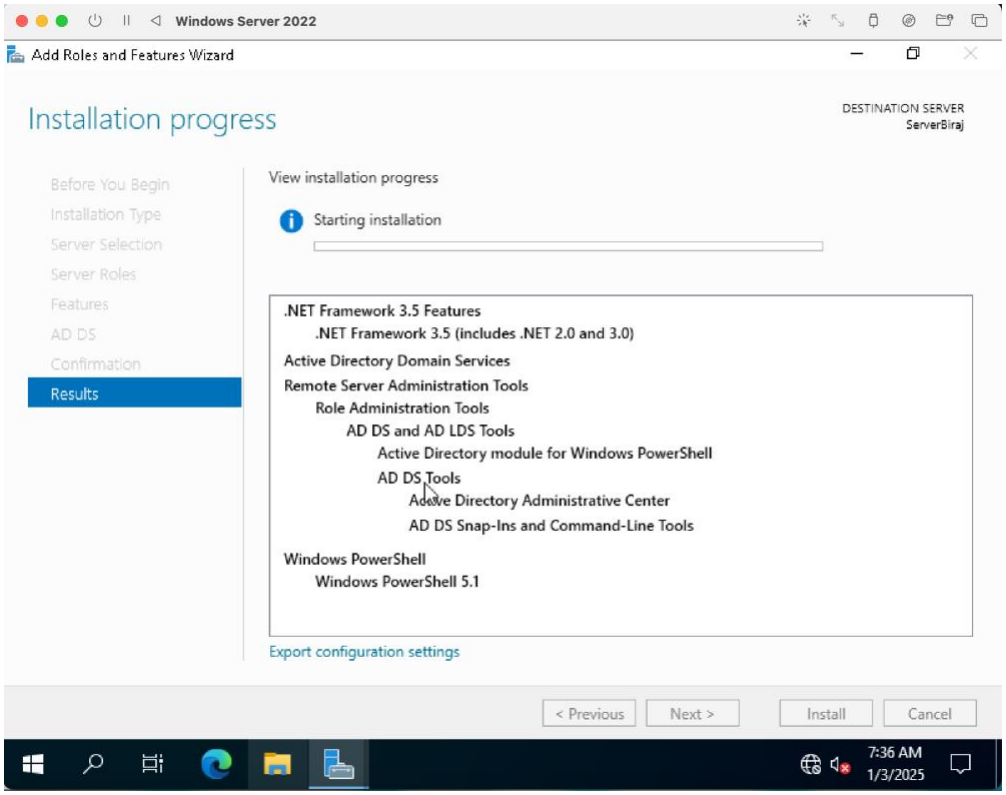
Step 3: select server



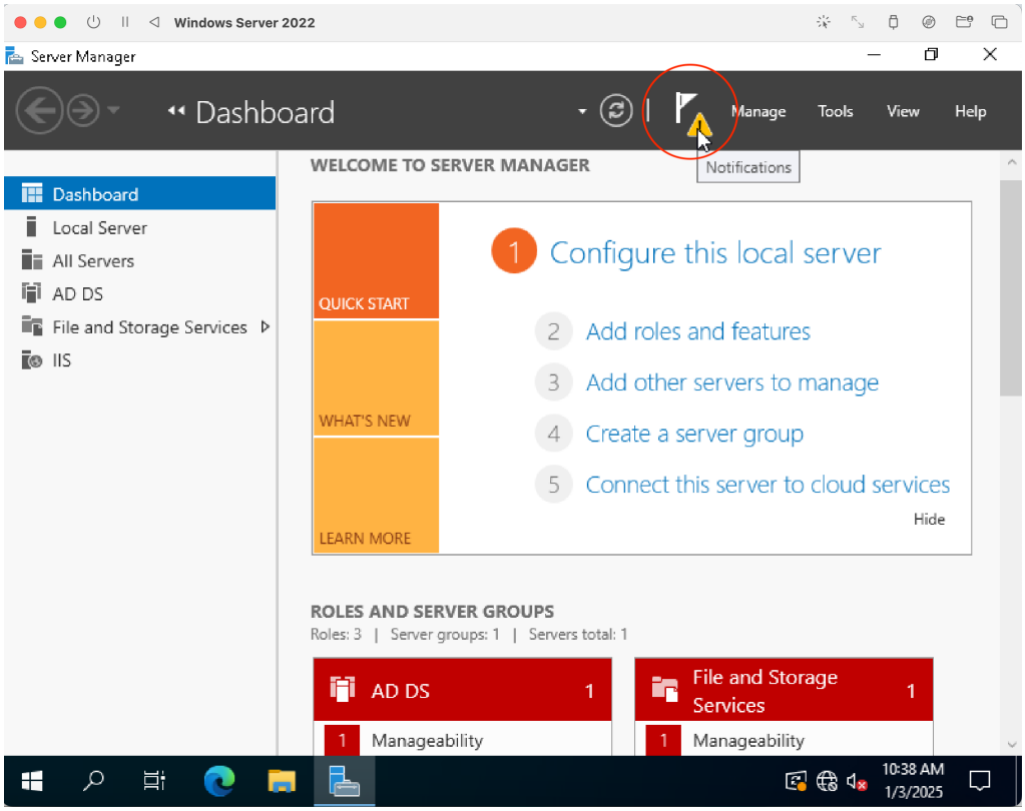
Step 4: select "Active Directory Domain Service" feature to install



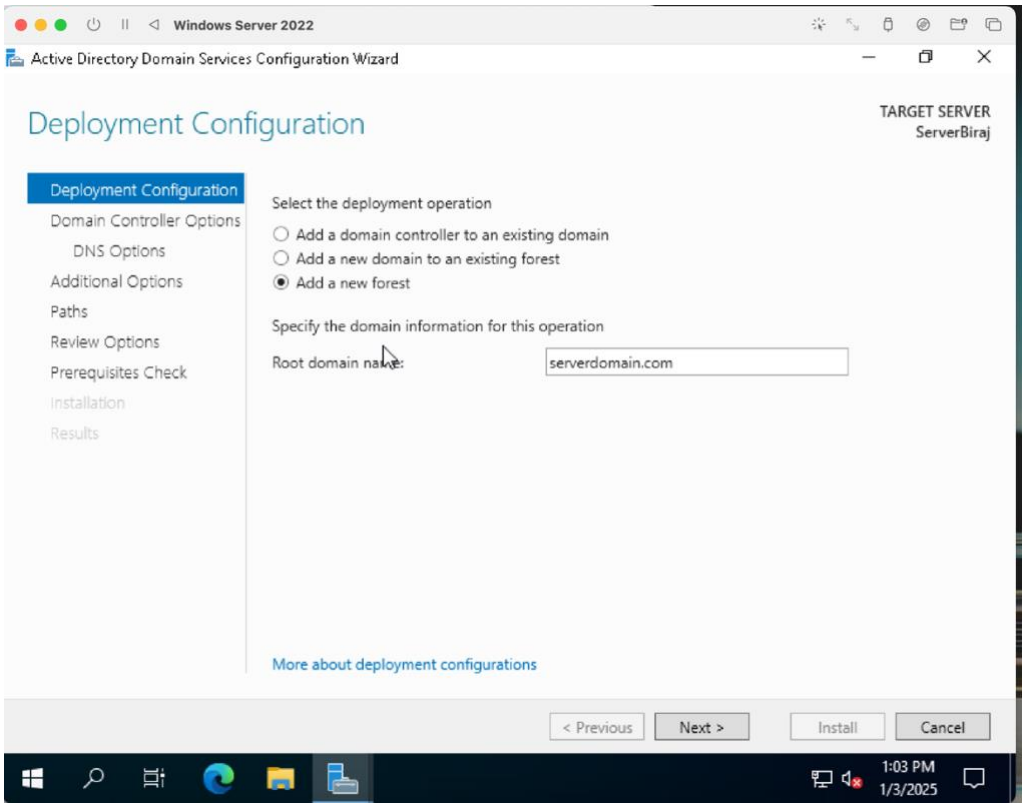
Step 5: select .NET framewok 3.5 features



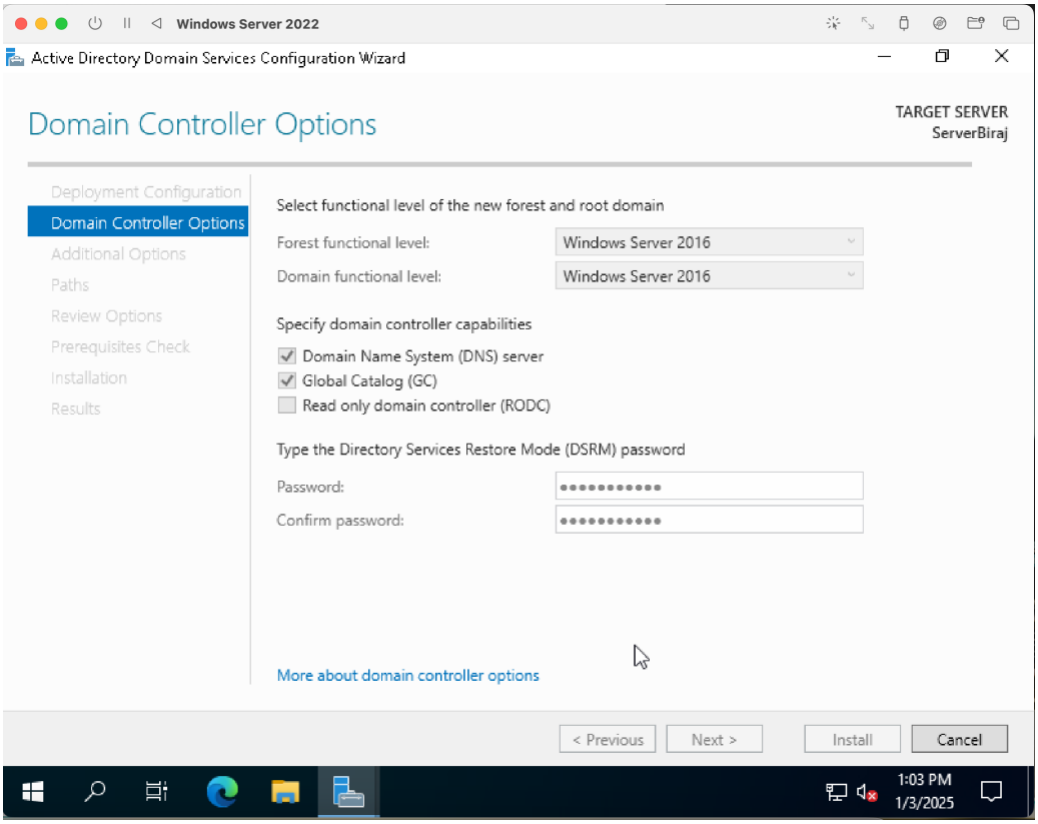
Step 6: the process completes when the progress bar is filled with blue color



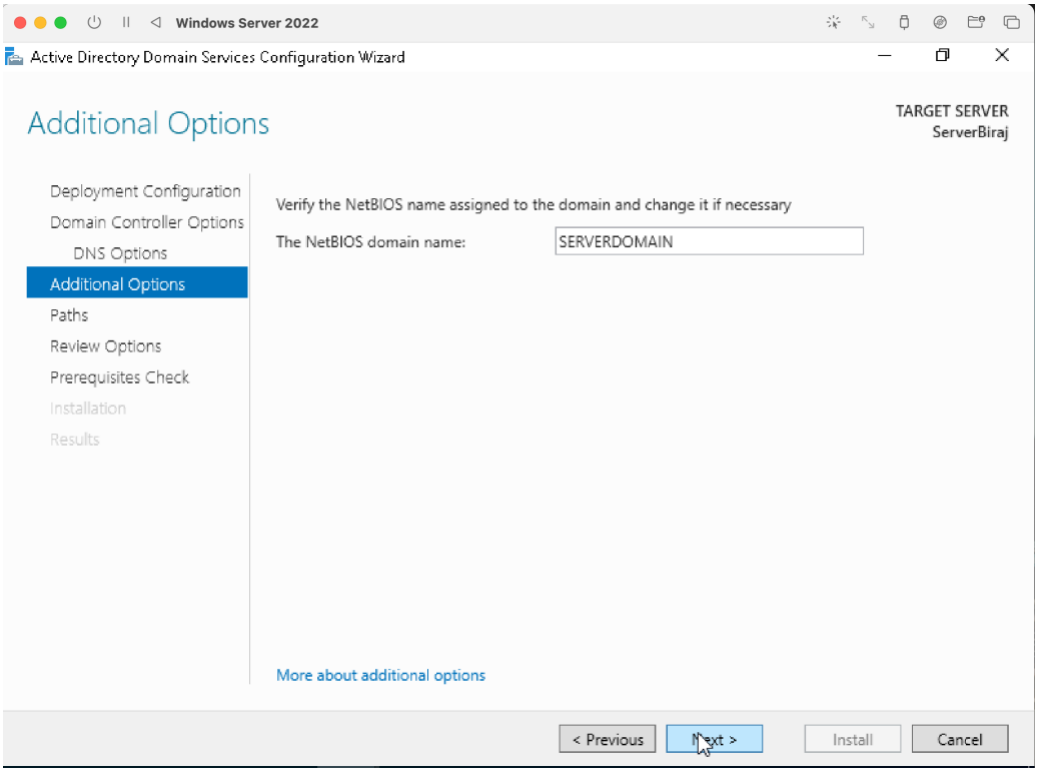
Step 7: Now, go to flag with triangle exclamation



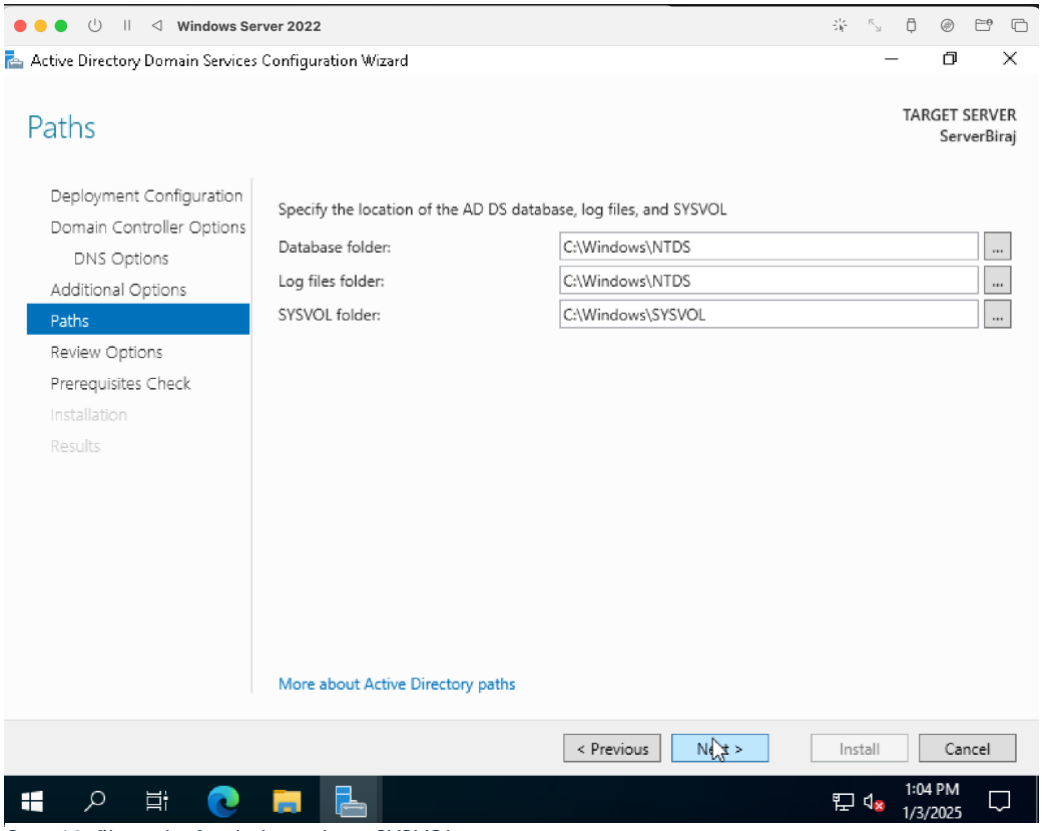
Step 8: add root for directory control



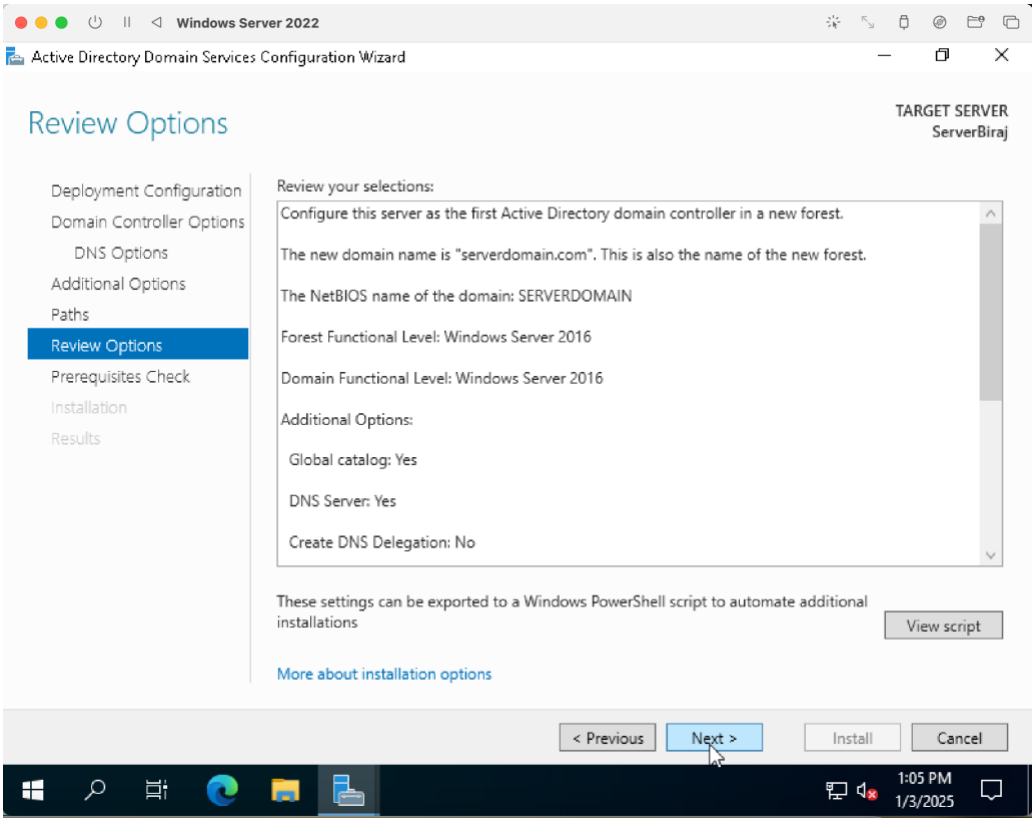
Step 9: manage domain functions



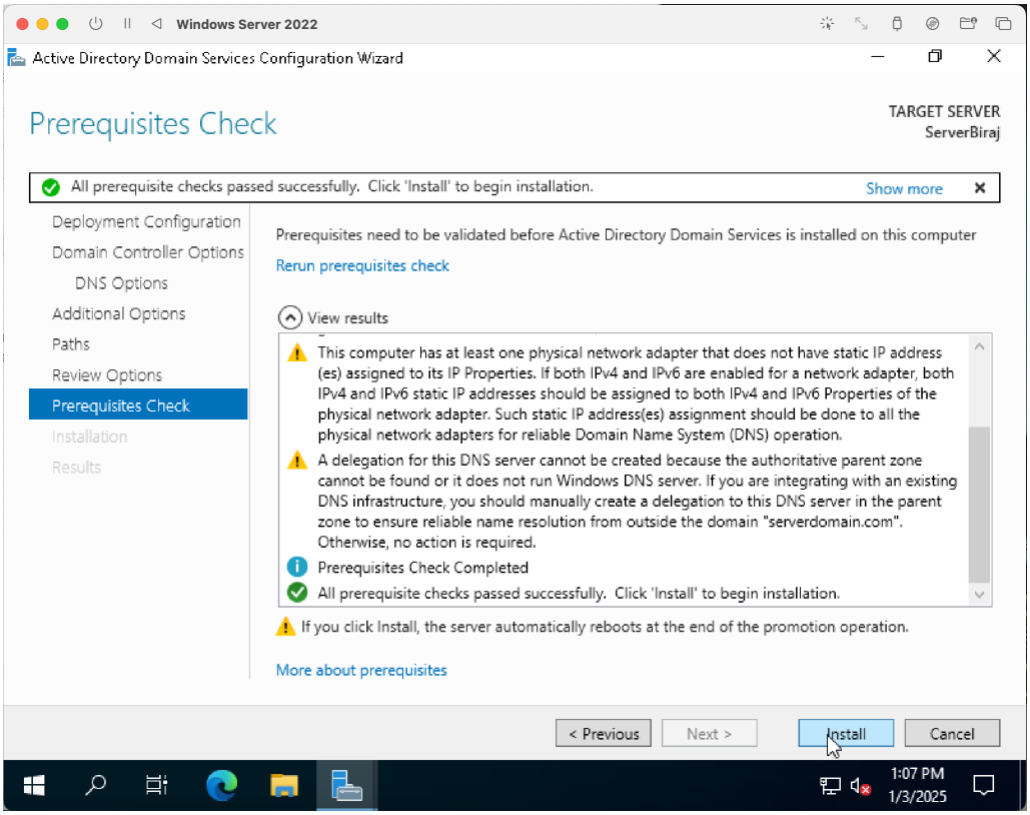
Step 10: assign the domain name



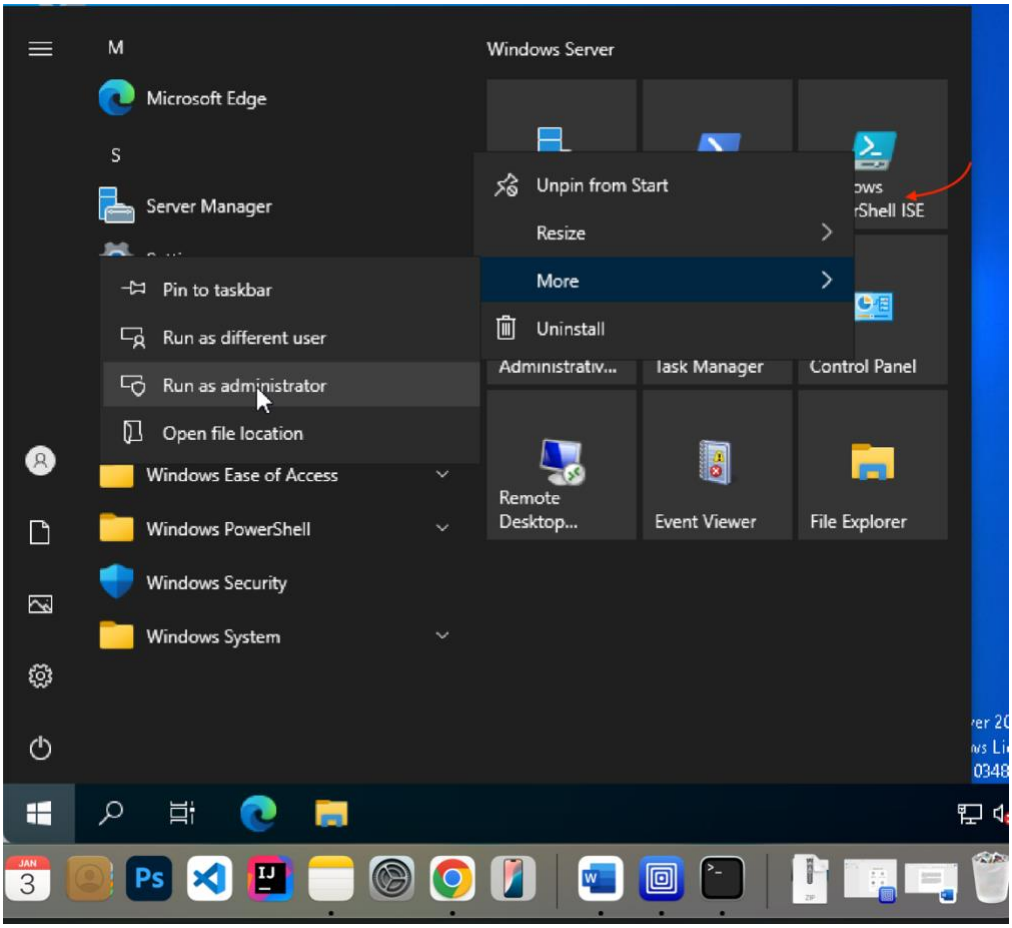
Step 12: file paths for datbase, logs, SYSVOL



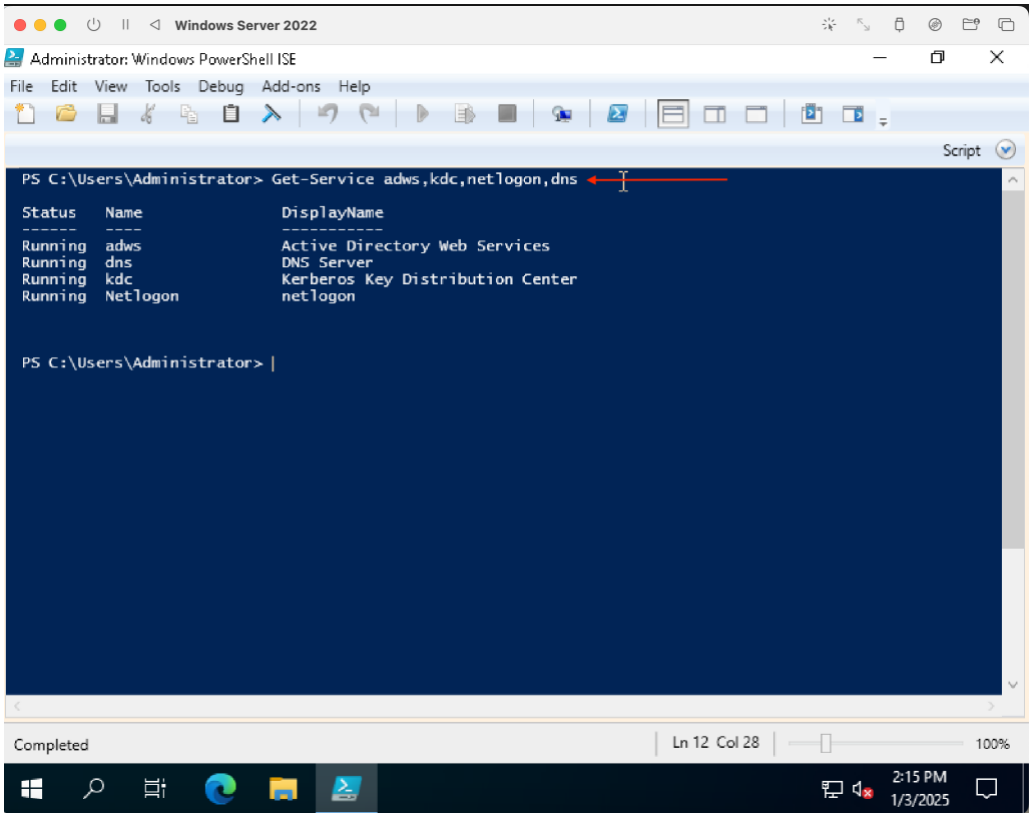
Step 11: installation process review



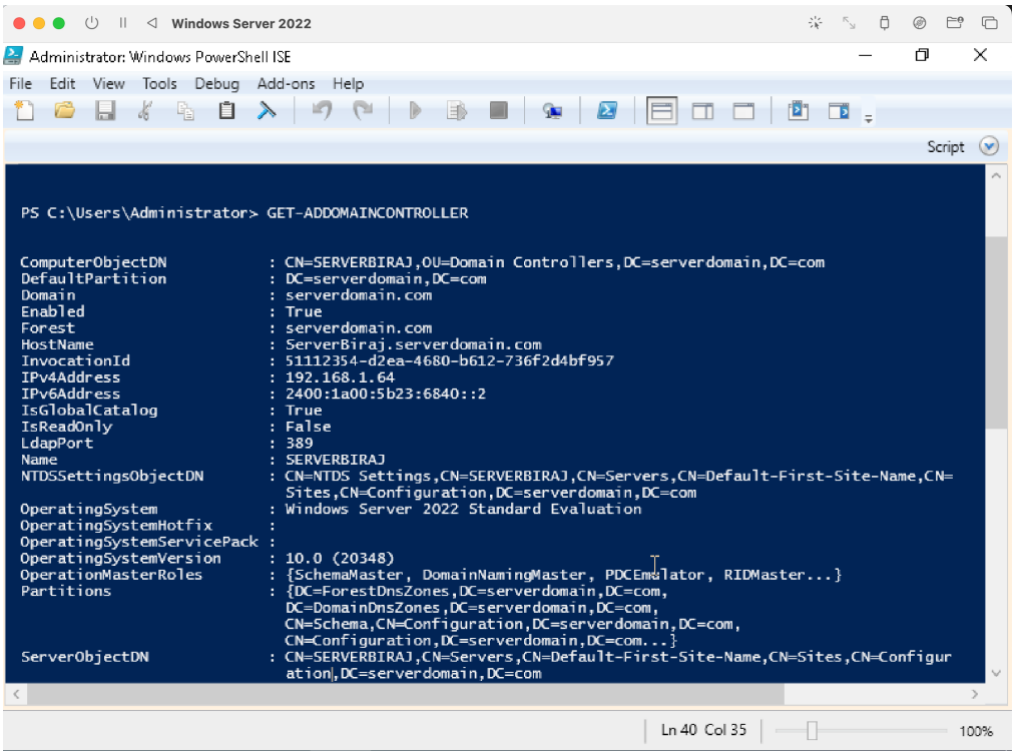
Step 13: Prerequisites check



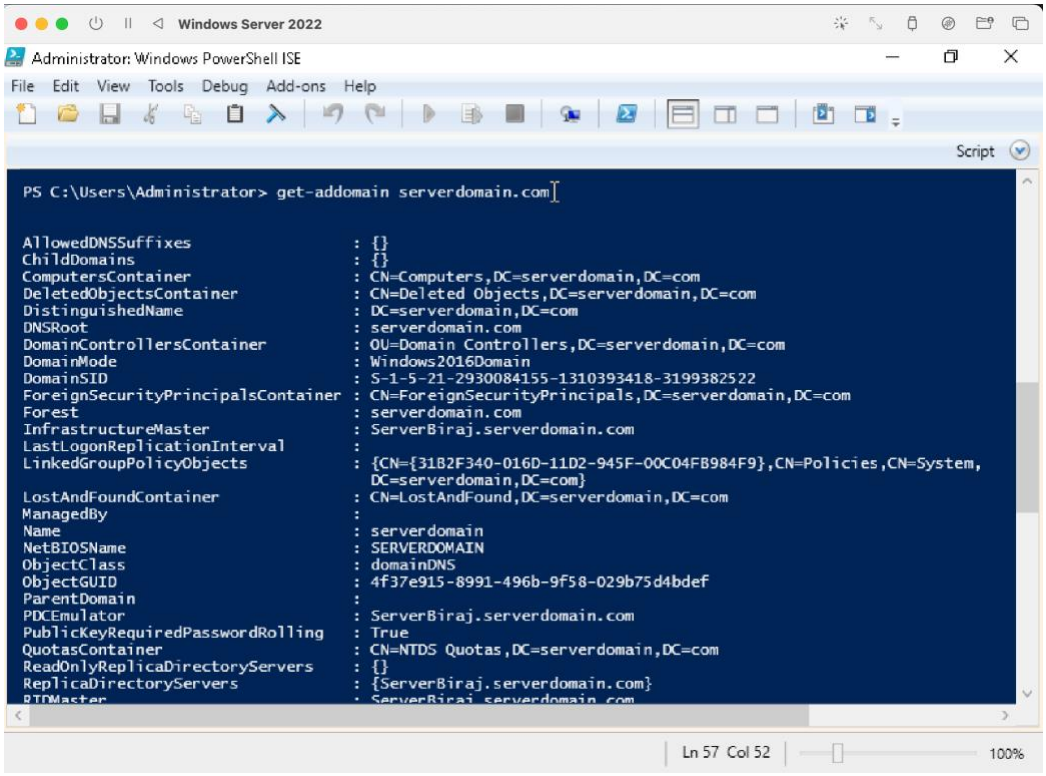
Step 14: open powershell as adminstrator to verify the process



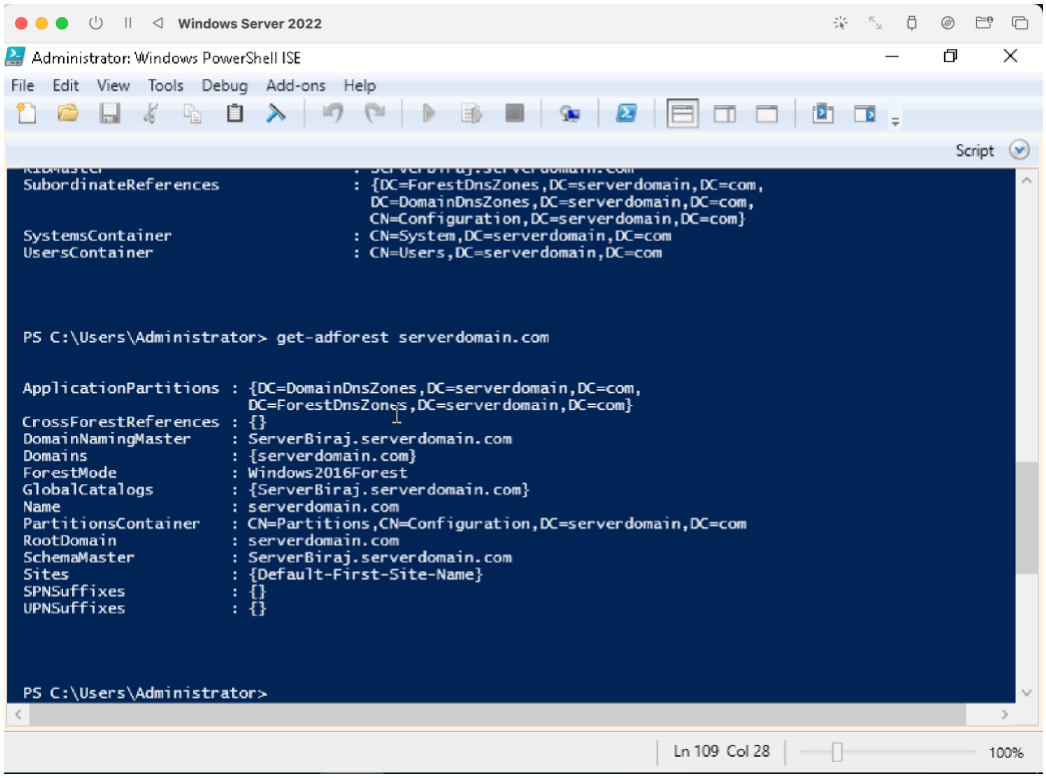
Step 16: type command "GET-SERVICE ADWS,KDC,NET LOGON,DNS"
get-service: retives service status in system, adws: refers to active directory, kdc: key distribution center, netlogon: handles authentication, dns: domain name system



Step 15: command " GET-ADDOMAINCONTROLLER"
outputs name of Domain Controllerm , IP adress



Step 18: coammand "GET-ADDOMAIN 'domainame.com'"
This outputs domain anme, function level and other configuration



Step 17: command "GET-ADFOREST 'domainname.com'"
show information about forest the highest level of active directory root.

Conclusion

After completing the workshop week 9 , I came to conclude that this lab gided us to setup an Active Directory Domain Controller on Microsoft's Windows Server 2022. Here in this workshop we successfully install Active Directory Domain Controller and verify the installation using PowerShell for system administration. This hands-on approach highlights the importance of ADDC in network operation where security and efficiency is the most prior subject. This enchanced our experience of using powershell commands and features inside Windows Server 2022.

References

Microsoft. (n.d.). *learn microsoft*. From https://learn.microsoft.com/en-us/sysinternals/resources/windows-internals

Microsoft. (n.d.). *learn Microsoft*. From Active Directory Collection: https://learn.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2003/cc780036(v=ws.10)