

*Module 12: Installation, Storage, and  
Compute with Windows Server*

1. What two options are provided in the type of installation window during Windows Server 2016 installation?

ANS: During the installation of Windows Server 2016, you are given two installation options:

- Windows Server 2016 with Desktop Experience: This option provides a full graphical user interface (GUI), including tools like Server Manager and other administrative utilities.
- Windows Server 2016 Server Core: A minimal installation that lacks a GUI and only provides a command-line interface (CLI) with PowerShell, reducing resource usage and attack surface.

2. How to configure a server step by step? Step 1: Install Windows Server

- Boot from installation media.
- Select language, time, and keyboard input.

- Choose installation type (Desktop Experience or Server Core).
- Partition the disk and install Windows Server.

#### Step 2: Initial Configuration

- Log in using an administrator account.
- Configure basic settings (time zone, keyboard, language).

#### Step 3: Configure Network Settings

- Open Network and Sharing Center.
- Assign a static IP address.
- Configure DNS settings.

#### Step 4: Rename the Server

- Open Server Manager > Local Server.
- Click Computer Name, rename it, and restart.

#### Step 5: Activate Windows Server

- Go to Settings > Activation.
- Enter a valid product key.

#### Step 6: Configure Windows Updates

- Open Windows Update settings.
- Install security updates and patches.

### Step 7: Install Roles and Features

- Open Server Manager.
- Click Manage > Add Roles and Features.
- Select required roles (e.g., Active Directory, DNS, DHCP).

### Step 8: Configure Active Directory (if needed)

- Install the Active Directory Domain Services (AD DS) role.
- Promote the server to a domain controller.

### Step 9: Configure Security Policies

- Set up user roles and permissions.
- Configure Windows Firewall and Antivirus.

### Step 10: Backup Configuration

- Install and configure Windows Server Backup.
- Create a backup schedule.

### 3. What are the Pre-installation tasks?

ANS: Verify System Requirements (CPU, RAM, Storage).

- Check Hardware Compatibility with Windows Server 2016.
- Plan the Server Role (AD, DNS, File Server, etc.).
- Backup Important Data to prevent data loss.
- Obtain Installation Media (ISO or USB).
- Check Network Configuration (IP, Subnet, Gateway).
- Decide Installation Type (GUI or Server Core).
- Ensure Licensing Compliance for Windows Server.

4. What are the post-installation tasks? ANS: Install Windows Updates.

- Configure Network Settings.
  - Activate Windows License.
  - Rename Server & Assign Static IP.
  - Install Server Roles and Features.
  - Configure Security Settings (Firewall, Antivirus).
  - Create and Test Backup Plan.
  - Monitor Performance Logs & Events.
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5. What is the standard upgrade path for Windows Server?

ANS: The standard upgrade path ensures that you can upgrade Windows Server versions without losing data:

- Windows Server 2012 → Windows Server 2016
- Windows Server 2016 → Windows Server 2019
- Windows Server 2019 → Windows Server 2022

You cannot directly upgrade from Windows Server 2008 to 2016. Instead, you must first upgrade to 2012, then proceed to 2016.

6. What is the Physical Structure of Active Directory?

ANS: The Physical Structure of Active Directory (AD) refers to the hardware and network configuration that supports AD services. It consists of:

- Domain Controllers (DCs) – Servers that store and manage the AD database.
- Sites – A collection of subnets to optimize replication.
- Subnets – Define physical network boundaries.

- Replication Links – Ensure data synchronization between DCs.

## 7. What are the Logical Components of Active Directory?

ANS: The Logical Components of AD help organize users, computers, and resources within a network:


- Forest – The highest-level container that includes multiple domains.
- Domain – A group of objects (users, computers, printers) under a single administration.
- Organizational Unit (OU) – A subdivision of a domain used for better management.
- Tree – A collection of domains sharing a common namespace.
- Objects – Individual items in AD like users, computers, and groups.
- Schema – Defines object attributes (e.g., name, email).

8. What is the Full Form of LDAP?

ANS: LDAP (Lightweight Directory Access Protocol) is a protocol used to access and manage directory information, including authentication and authorization.

9. What is the location of the AD database?

ANS: The Active Directory database file is stored at:

 C:\Windows\NTDS\ntds.dit

10. What is a Child Domain Controller (Child DC)?

ANS: A Child Domain Controller is a sub-domain under a parent domain in a hierarchical AD structure.

- Example: If the parent domain is corp.com, a child domain could be sales.corp.com.
- It allows for distributed management and better security segmentation.

11. Explain the term Forest in AD?

ANS: A Forest in Active Directory is the topmost logical structure that contains one or more domains. It

provides a security boundary and allows different domains to communicate while maintaining separate identities.

- Example: A company may have corp.com and hr.corp.com in the same forest, enabling shared resources and authentication across domains

12. What is Active Directory? Check all that apply.

ANS: Active Directory (AD) is a directory service developed by Microsoft for Windows Server environments. It is used to store,

manage, and organize information about users, computers, and other network resources within a domain. AD enables centralized

authentication, authorization, and administration of resources in an enterprise network.

- ☐ A Windows-only implementation of a directory server
- ☐ Microsoft's implementation of a directory server
- ☐ An LDAP-compatible directory server



Explanation:

Active Directory (AD) is a Microsoft-specific directory service that is not open-source but follows the LDAP (Lightweight Directory Access Protocol) standard for authentication and directory management.

13. When you create an Active Directory domain, what's the name of the default user account?

ANS:  Administrator Explanation:

When an AD domain is created, the default built-in user account with administrative privileges is called Administrator.

- + "Superuser" and "Root" are terms used in Unix/Linux systems.
- + "Username" is a generic term and not an actual default account name.

14. AD domain provides which of the following advantages?  
Check all that apply.

ANS: ☒ Centralized authentication

☒ More detailed logging

☒ Centralized management with GPOs

Explanation:

- Centralized Authentication: AD allows users to log in once and access multiple resources via Single Sign-On (SSO).
- More Detailed Logging: AD provides security logs that track user activities, logins, and administrative changes.
- Centralized Management with GPOs (Group Policy Objects): GPOs enable administrators to apply consistent security and configuration settings across all devices.
- + Better Performance is NOT a primary AD feature. In some cases, centralized authentication may even add overhead compared to local authentication.

## 15. Minimum Hardware Requirements for Windows Server 2016

ANS: To install Windows Server 2016, your system must meet the following minimum requirements:

Component	Minimum Requirement
Processor	1.4 GHz 64-bit processor (x64)
RAM	512 MB (Server Core), 2 GB (Desktop Experience)
Disk Space	32 GB or more
Network	Ethernet adapter (1 Gbps recommended)
Other	DVD-ROM (if using DVD), USB (for bootable media)

For better performance, higher specifications (such as 4 GB RAM, 64 GB storage) are recommended.

## 16. Editions of Windows Server 2016 & Features

ANS: Windows Server 2016 comes in several editions, each tailored for different use cases:

Edition	Features
Datacenter	Supports unlimited VMs, advanced networking, and storage features like Shielded VMs and Storage Spaces Direct.
Standard	Supports up to 2 VMs, includes basic virtualization and networking capabilities.
Essentials	Designed for small businesses (max 25 users, 50 devices), lacks advanced virtualization features.
Hyper-V	A free edition focused only on virtualization, with no traditional server roles.

## 17. Steps to Install Windows Server 2016 (GUI Mode)

ANS: 1 Boot from Installation Media  
(DVD/USB).

2 Select Language, Time & Keyboard Layout.

3 Click "Install Now".

4 Choose Windows Server 2016 with Desktop Experience.

5 Accept License Terms.

6 Select Installation Type:

- Upgrade (if upgrading from an older version).
- Custom (for fresh installation).

7 ☐ Partition Disk: Choose a drive and format if necessary.

8 ☐ Wait for Installation to complete. 9 ☐ Set Administrator Password after reboot.

🔑 Log in and complete post-installation setup.

## 18. Steps to Install Windows Server 2016 in Server Core Mode

ANS: 1 Boot from Installation Media.

2 Choose Language, Time & Keyboard Settings.

3 Click "Install Now".

4 Select "Windows Server 2016 Server Core".

5 Accept License Agreement.

6 Choose "Custom Installation" and select the disk partition.

7☐ Complete Installation and Restart.

8☐ Log in with Administrator credentials.

9☐ Use PowerShell for further configuration (e.g., sconfig to set hostname, network, updates).

## 19. Configuring Network Settings During Windows Server 2016 Installation In GUI Mode:

ANS: Open Control Panel > Network and Sharing Center.

- Click Change adapter settings.
- Right-click Ethernet > Properties.
- Select Internet Protocol Version 4 (TCP/IPv4).
- Assign static IP, subnet mask, default gateway, and DNS servers.

In Server Core Mode:

Use PowerShell:

powershell

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New-NetIPAddress -InterfaceIndex 2 -

IPAddress 192.168.1.100 -PrefixLength 24 -DefaultGateway

192.168.1.1

Set-DnsClientServerAddress -InterfaceIndex 2

-ServerAddresses ("8.8.8.8","8.8.4.4")

20. Promoting a Windows Server to a Domain Controller (DC)

ANS: 1 Install Active Directory Domain Services (AD DS) role in Server Manager. 2 Click Promote this server to a domain controller.

3 Choose Add a new forest (if new domain) or Add a domain to an existing forest.

4 Specify Domain Name (e.g., corp.local).

5 Set Directory Services Restore Mode (DSRM) password.

6 Configure DNS settings and NetBIOS name. 7 Review settings and start installation.

8 Reboot the server to complete domain controller setup.



21. Steps to Upgrade to Windows Server  
2016

ANS: 1 Check Compatibility (ensure old OS is supported for direct upgrade).

2 Backup System & Data.

3 Insert Installation Media and run setup.exe.

4 Select "Upgrade" Installation Type.

5 Follow prompts to complete upgrade.

6 Reboot the server and verify all roles/services are functional.

22. What is Active Directory Domain Services (AD DS)?

ANS: AD DS is a role in Windows Server that allows centralized management of:

❑ Users & Computers

❑ Authentication & Authorization

## ❓ Group Policies

## ❓ Domain Controller Replication

### Key Components:

- Domain Controller (DC) – Stores directory data and handles authentication.
- Schema – Defines object attributes (e.g., users, computers).
- Global Catalog – Enables searching across domains.
- Organizational Units (OUs) – Helps manage objects within a domain.

23. How to Create a New Active Directory User Account?

ANS: 1 Open Active Directory Users and Computers (ADUC).

2 Navigate to Users container or a specific OU.

- 3 Right-click New > User.
- 4 Enter username, first name, last name.
- 5 Set password & account policies.
- 6 Click Finish to create the user. PowerShell

Command:

powershell

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New-ADUser -Name "John Doe" -

SamAccountName jdoe -UserPrincipalName jdoe@domain.com -Path

"OU=Users,DC=domain,DC=com" -

AccountPassword (ConvertTo-SecureString "P@ssword1" -

AsPlainText -Force) -Enabled

\$true

## 24. Creating and Managing Group Policy Objects (GPOs)

ANS: 1 Open Group Policy Management Console (GPMC).

- 2 Navigate to Group Policy Objects.
- 3 Right-click New GPO, name it.
- 4 Edit the GPO using Group Policy Management Editor.
- 5 Configure settings (e.g., security policies, software deployment).
- 6 Link GPO to an OU, domain, or site.
- 7 ☐ Use gpupdate /force to apply changes.

25. What are Organizational Units (OUs) in AD?

ANS: ☐ OUs are containers within a domain that help organize users, computers, and groups.

☐ They allow delegated administration and GPO application.

☐ Example:

makefile

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Domain: corp.com

└─ Sales OU

└─ HR OU

└─ IT OU

To create an OU:

powershell

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New-ADOrganizationalUnit -Name "Sales" - Path "DC=corp,DC=com"

## 26. Delegating Administrative Privileges in Active Directory

ANS: Delegation allows junior admins to manage specific AD tasks without full domain control.

Steps:

- 1 Open Active Directory Users and

Computers (ADUC).

- 2 Right-click an OU > Select Delegate Control.
- 3 Choose Users or Groups to delegate.
- 4 Select Permissions (e.g., Reset Password, Create Users).
- 5 Complete the wizard to apply changes. PowerShell Command:

powershell

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```
dsacls "OU=Sales,DC=corp,DC=com" /G "HelpDesk:RPWP"
```