

Module 12: Installation, Storage, and Computer with Windows Server

Q1. What two options are provided in the type of installation window during Windows Server 2016 installation?

Answer :-

- (1)Server Core Installation: Minimal installation without GUI, for advanced users.
- (2)Server with Desktop Experience: Full installation with GUI, suitable for beginners or users who prefer a graphical interface.

Q2. Write the step How to configure server step by step?

Answer :-Here is the step's,

- (1)Insert Windows Server installation media and boot the system.
- (2)Choose language, time, and keyboard layout → Click "Next".
- (3)Click "Install Now".
- (4)Select the edition (Core or GUI) → Click "Next".
- (5)Accept license terms → Click "Next".
- (6)Choose "Custom: Install Windows only".
- (7)Select the drive to install → Click "Next".
- (8)Installation begins and system reboots.
- (9)Set Administrator password after reboot.
- (10)Log in and start configuring IP, hostname, roles (DNS, DHCP), etc.

Q3. What are the Pre installation tasks?

Answer:-Before you install any software or system, there are some basic steps you should do first to make sure everything goes smoothly.

1. Check System Requirements :- Make sure your computer or device meets the minimum hardware and software needs.

For example: Do you have enough RAM? Is the OS supported?

2. Backup Important Data :- Save your important files somewhere safe like a USB, hard drive, or cloud, just in case something goes wrong during installation.

3. Remove or Disable Conflicting Software :- If there's any other software that might cause problems with the new one, uninstall it or turn it off.

4. Update Your System :- Make sure your operating system is up to date and all drivers are installed properly.

5. Check for Admin Access :- You need to have admin rights on your computer to install most software. If you don't, you may need help from someone who does.

6. Check Network Connection (if needed) :- If the software needs the internet to install, make sure your device is connected to a working network

Q4. What are the Post installation tasks?

Answer :- After you finish installing software or setting up a system, there are a few things you should do to make sure everything works properly.

1. **Verify Installation :-** Check if the software is installed correctly. Try to open it and see if it runs without errors.
2. **Activate or Register the Software :-** Some software needs to be activated with a product key or online registration.
3. **Install Updates or Patches :-** Sometimes the latest updates don't come with the installation. So, check for software updates and install them
4. **Configure Settings :-** Change the settings based on your needs (like language, display, user preferences, etc.)
5. **Test All Functions :-** Make sure all features are working fine. If it's a network or system setup, test connectivity or performance.
6. **Create a Restore Point or Backup :-** After successful setup, make a restore point or backup, so you can roll back easily if needed in the future.
7. **Provide User Access or Permissions :-** If others will use the system or software, give them the proper access or login info

Q5. What is the standard upgrade path for Windows Server?

Answer:-

Standard Upgrade Path:

Windows Server 2012 R2 → Windows Server 2016

Windows Server 2016 → Windows Server 2019

Windows Server 2019 → Windows Server 2022

>You cannot directly upgrade from Windows Server 2012 R2 to 2022. You must follow the proper upgrade steps.

Types of Upgrades:

In-place Upgrade:- Upgrading to a newer version on the same system while keeping files and settings.

Migration:-Moving roles and data to a new server running a newer version.

Edition Upgrade:- Changing from one edition to another (e.g., Standard to Datacenter) using a product key.

Important Steps Before Upgrading:Take a full backup of data.Check hardware and software compatibility.Ensure all applications support the new version.Use a valid license/product key.

Q6. What is the Physical Structure of Active Directory (AD)?

Answer:-The physical structure of Active Directory is all about the real-world layout of servers and network locations. It decides how and where the data moves across the network.

Main Parts of Physical Structure:

Domain Controllers (DCs) :- These are special servers that store and control the Active Directory data like user accounts and passwords.

Sites :- A site means a physical location like a city or office building.Sites help in reducing network traffic and making logins faster.

Subnets :- Subnets are the IP address ranges used in each site.They help AD know where a computer or user is located in the network.

Q7. What are the Logical Components of Active Directory (AD)?

Answer :- The logical components of Active Directory are the virtual parts that help organize and manage users, computers, and other resources in a structured way.

Main Logical Components :-

Forest :- A forest is the top-most level of Active Directory. It can have one or more domains and shares a common database and trust.

Tree :- A tree is a group of related domains in a hierarchy (parent-child relationship).

Domain :- A domain is a group of users, computers, and resources that share the same AD database.
Example: company.com

Organizational Unit (OU) :- An OU is like a folder inside a domain used to group users or computers. It helps in applying group policies and managing users easily.

Objects :- Everything in AD (like users, computers, printers) is called an object.

Q8. What is the Full Form of LDAP?

Answer :- LDAP stands for Lightweight Directory Access Protocol. It is a protocol used to access and manage directory services (like Active Directory) over a network. LDAP helps in finding information like usernames, passwords, printers, etc., in a directory.

Q9. What is the location of the AD database?

Answer :- The Active Directory (AD) database is stored in a file named NTDS.dit.

By default, this file is located at :- **C:\Windows\NTDS\NTDS.dit**

This file contains all the important directory information like user accounts, passwords, groups, and other AD data. It is stored on the Domain Controller.

Q10. What is a Child DC?

Answer :- A Child DC (Child Domain Controller) is a Domain Controller that belongs to a child domain in Active Directory. A child domain is a sub-part of a larger domain (called the parent domain). If the parent domain is company.com, then a child domain could be sales.company.com.

Q11. Explain the term Forest in AD?

Answer :- In Active Directory (AD), a forest is the top-most level of the directory structure. It is a collection of one or more domains that share a common schema, structure, and global catalog. A forest can contain one or many domains, and all domains inside a forest automatically trust each other. The schema defines the rules for how data is stored in AD, and it's shared across the forest. You can think of a forest as the complete AD environment for an organization.

Example :- If a company has these domains like head.office.com, sales.office.com, hr.office.com. All of them can be part of one forest called the "office.com" forest.

Q12. What is Active Directory? Check all that apply.

- Answer :- ☒ Microsoft's implementation of a directory server
☒ A Windows-only implementation of a directory server
☒ An LDAP-compatible directory server
☒ An open-source directory server → This is incorrect. Active Directory is not open-source

Q13. When you create an Active Directory domain, what's the name of the default user account?

- Superuser
- Root
- Username
- Administrator

Answer :- ☒ Administrator

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

- Answer:- ☒ Centralized authentication
☒ More detailed logging
☒ Centralized management with GPOs (Group Policy Objects)
☒ Better performance → Not always true. AD focuses more on management and security, not speed.

Q15. What are the minimum hardware requirements for installing Windows Server 2016?

Answer:-The minimum hardware requirements for installing Windows Server 2016 are:

Processor :- 1.4 GHz 64-bit processor (or faster).

RAM :- Minimum 512 MB (2 GB recommended for Server with Desktop Experience).

Hard Disk :- Minimum 32 GB of available disk space.

Network Adapter :- A network adapter compatible with the server's network setup (typically supports Gigabit Ethernet).

Graphics :- Super VGA (1024x768) or higher-resolution monitor.

These are the minimum requirements. For better performance, higher specifications are recommended, especially in production environments.

Q16. Explain the different editions of Windows Server 2016 and their features.

Answer :- Windows Server 2016 comes in different editions based on the size and needs of the organization. Here's a breakdown:

1. Windows Server 2016 Datacenter Edition

Features: Unlimited virtual machines (you can run as many as you want). Includes Storage Spaces Direct (for storage management) and Shielded Virtual Machines (for security). Advanced security and networking features.

Best for: Big companies with lots of virtual machines.

2. Windows Server 2016 Standard Edition

Features: 2 virtual machines per license (if you need more, you have to buy extra). Includes most features of Datacenter edition, but without the Storage Spaces Direct and Shielded Virtual Machines.

Best for: Small to medium-sized businesses.

3. Windows Server 2016 Essentials Edition

Features :- Simplified version of the server with basic features like file sharing, remote desktop, and web hosting. Doesn't support virtualization.

Best for: Very small businesses (up to 25 users and 50 devices).

4. Windows Server 2016 Web Edition

Features :- Includes Internet Information Services (IIS) for web hosting. Limited functionality for web services only (no virtualization or extra roles).

Best for: Businesses needing a web server (for hosting websites).

5. Windows Server 2016 Hyper-V Edition

Features :- This version includes only the Hyper-V role (no GUI, managed through PowerShell). It's for companies that need a hypervisor but not other server features.

Best for: Only virtualization (if you just need to run virtual machines).

Q17. Walk through the steps of installing Windows Server 2016 using GUI mode.

Answer :- To install Windows Server 2016 using the GUI (Graphical User Interface) mode, follow these steps:

Step 1: Prepare the Installation Media

Download the Windows Server 2016 ISO file from the official Microsoft website or use a bootable USB drive with the ISO. Insert the USB drive or mount the ISO file to your machine.

Step 2: Boot from Installation Media

Restart the computer. Press the Boot Menu Key (usually F12 or Esc depending on your system). Choose the boot device (either USB or DVD).

Step 3: Choose the Language and Region

Once the installation starts, the first screen will ask you to choose: Language to Install (English, etc.). Time and Currency Format. Keyboard or Input Method. Select your preferences and click Next.

Step 4: Click "Install Now"

After selecting the language, click on Install Now to start the installation process.

Step 5: Enter the Product Key

You'll be prompted to enter a Product Key. If you have one, enter it. If not, you can click on I don't have a product key and continue with the installation. (You'll need to activate later).

Step 6: Select the Edition

Choose the edition of Windows Server 2016 you want to install (e.g., Datacenter or Standard). Click Next.

Step 7: Accept the License Terms

Read and accept the license terms. After accepting, click Next.

Step 8: Choose Installation Type

Select Custom: Install Windows only (Advanced). This option installs a fresh copy of Windows Server 2016.

Step 9: Select the Drive/Partition

Choose the drive or partition where you want to install Windows Server 2016. If needed, click on New to create a new partition, or select an existing one and click Next.

Step 10: Installation Process

Windows Server will begin copying files, expanding them, and installing features. This process may take some time depending on your hardware.

Step 11: Configure Region and Keyboard Layout

After installation, the system will restart. You'll be asked to select your region, keyboard layout, and network settings.

Step 12: Set Administrator Password

You will be prompted to set a password for the Administrator account. Enter a strong password and confirm it.

Step 13: Complete the Setup

After setting the password, the system will complete the installation process and reboot. The server will take you to the login screen where you can log in with the Administrator account using the password you set.

Step 14: Log in to Windows Server 2016

Once the system boots up, use the Administrator account and the password you created to log in.

Step 15: Final Configuration

After logging in, you'll be able to start setting up Windows Server, like configuring the network, joining a domain, and other server settings.

Q18. Explain the process of promoting a Windows Server to a Domain Controller

Answer :- To make a Windows Server a Domain Controller, you need to install and configure Active Directory Domain Services (AD DS). Here's how you can do it:

Step-by-Step Process:

Step 1: Open Server Manager

After logging in, click Start, then open Server Manager.

Step 2: Add Roles and Features

In Server Manager, click on "Manage" → "Add Roles and Features".

Click Next through the first few pages (like Before You Begin, Installation Type, etc.)

Step 3: Select Server Role

On the "Select Server Roles" page, check the box for Active Directory Domain Services (AD DS).

Click Next, then Install.

Step 4: Promote the Server

After installation, you'll see a yellow flag on the top-right of Server Manager.

Click it and select "Promote this server to a domain controller".

Step 5: Choose Deployment Option

Choose one: Add a new forest (if it's the first domain in the network). Add a domain to an existing forest (if other domains already exist). Enter your root domain name (e.g., yourcompany.local).

Step 6: Set Domain Controller Options

Choose: Domain Name System (DNS) server. Global Catalog (GC). Set the Directory Services Restore Mode (DSRM) password (used for recovery).

Step 7: Review and Install

Review your selections. Click Next and then Install. The server will automatically restart when done.

After Restart :- Your server is now a Domain Controller, which means, It can manage users, computers, and security across the domain. It runs Active Directory and handles authentication.

Q19. Discuss the steps involved in upgrading from a previous version of Windows Server to Windows Server 2016

Answer :- Upgrading from an older Windows Server version (like 2008, 2012) to Windows Server 2016 is called an in-place upgrade. It keeps your files, settings, and roles. Here's how to do it:

Steps to Upgrade to Windows Server 2016:

Step 1. Check System Requirements

Make sure your hardware meets the minimum requirements for Windows Server 2016 (CPU, RAM, disk space).

Make sure your current server is running a supported version (Windows Server 2008 R2, 2012, or 2012 R2).

Step 2. Backup Everything

Take a full backup of your server, including files, settings, and system state.

Just in case something goes wrong during the upgrade.

Step 3. Check Compatibility

Make sure installed applications and services are compatible with Windows Server 2016.

Uninstall any outdated or unsupported software.

Step 4. Download or Insert Windows Server 2016 Media

Use a bootable USB or ISO file with Windows Server 2016 setup.

Step 5. Start the Setup

Run the setup.exe from the media while logged into the current server.

Choose "Upgrade: Install Windows and keep files, settings, and applications".

Step 6. Follow the Installation Steps

Accept license terms.

The setup will check for compatibility and start copying files.

It may restart the server several times during the upgrade.

Step 7. Complete the Upgrade

After installation is done, log in and check if everything is working: Files, apps, roles, and services.

Note :- Upgrades can only be done between the same editions (like Standard to Standard, Datacenter to Datacenter). You can't skip versions (e.g., can't go directly from 2008 to 2016 — first go to 2012, then 2016). Make sure you have a valid license key for Windows Server 2016.

Q20. What is Active Directory Domain Services (AD DS), and what are its key components?

Answer :- AD DS is a service provided by Microsoft Windows Server that helps manage users, computers, and other resources on a network.

It is like a digital phonebook for your network — it stores all the information about users, computers, groups, and security with AD DS, network admins can:Control who can log in,Set rules for security,Organize the network better.

Key Components of AD DS:

1. Domain

A domain is like a group or network of computers managed together.Example: jainil.local is a domain.

2. Organizational Units (OUs)

OUs are like folders inside the domain.They help you organize users, computers, and groups.You can apply Group Policies to OUs for managing settings.

3. Users and Groups

Users are individual people who log into the network.Groups are collections of users (like Sales team, HR team) to make permission management easier.

4. Domain Controller (DC)

This is the server that runs AD DS.It holds the AD database and handles logins and authentication.

5. Global Catalog

It stores information about every object in the forest.Helps in fast searching across domains.

6. Forest

A forest is the top-most level in AD.It can contain one or more domains.All domains in a forest trust each other.

7. Tree

A tree is a collection of one or more domains that share the same namespace (like sales.company.com, hr.company.com).

Q21. How do you create a new Active Directory user account in Windows Server?

Answer :- To create a new user in Active Directory using Windows Server, follow these easy steps:

Steps to Create a New AD User Account:

1. Open Server Manager

Click on the Start Menu, and open Server Manager.

2. Open Active Directory Users and Computers

In Server Manager, go to: Tools → Active Directory Users and Computers

3. Select Your Domain

On the left side, click to expand your domain name (like yourcompany.local).

4. Choose the OU (Organizational Unit)

Pick the OU (folder) where you want to create the user.

Example: Users or Sales Department

5. Right Click → New → User

Right-click on the OU → Click New → Select User

6. Fill in User Details

Enter the following info: First Name, Last Name, Username

7. Set Password

Enter a password for the user. You can choose options like: User must change password at next login, Password never expires

8. Click Next → Finish

After entering all info, click Next, then Finish.

Q22. Explain the process of creating and managing Group Policy Objects (GPOs) in Windows Server 2016 or 2019

Answer:- What is a GPO?

A Group Policy Object (GPO) is a tool in Windows Server that helps control what users and computers can or can't do in a network.

For example, with GPO you can :- Set password rules

Lock the screen after some time

Stop users from changing desktop wallpaper

Block access to Control Panel

It helps admins manage everything easily from one place.

Steps to Create and Use a GPO:

1. Open Group Policy Management

Go to Server Manager > Tools > Group Policy Management

2. Create New GPO

In the left side, right-click on Group Policy Objects

Click New, and give your GPO a name like "Screen Lock Policy"

3. Edit the GPO

Right-click the GPO you made → Click Edit

Now you can change settings for users or computers

Example: To set screen lock time, go to: User Configuration > Administrative Templates > Control Panel > Personalization

4. Link GPO to a Group

Find the group or OU (like HR, IT department) where you want the rule to apply

Right-click it → Click Link an existing GPO

Select your GPO and click OK

5. Apply the Policy

On computers, open Command Prompt and type: gpupdate /force

This will apply to the policy quickly.

Q23. What are Organizational Units (OUs) in Active Directory, and how do you use them?

Answer:- An Organizational Unit (OU) is like a folder inside Active Directory. It is used to organize users, groups, and computers in a neat way. Think of it like making folders on your desktop to keep files organized.

Why do we use OUs?

To group people or devices based on departments or roles (e.g., HR, Sales, IT, Students, Teachers)

To apply different rules or policies (GPOs) to each group

To make management easier for admins

How to Use OUs:

1. Open Active Directory Users and Computers

Go to Server Manager > Tools > Active Directory Users and Computers

2. Create an OU

Right-click your domain name (like raj.local)

Click New > Organizational Unit

Give it a name like "IT_Department" or "Students"

3. Add Users or Computers

You can drag and drop users or computers into the OU or create new users directly inside the OU

4. Apply GPOs to an OU

You can link a Group Policy Object to an OU to apply rules only to that group

Example: You can make a GPO that locks screens after 5 minutes and apply it only to the "Students" OU.

Q24. Describe the process of delegating administrative privileges in Active Directory

What is Delegation in AD?

Answer :- Delegation means giving limited admin powers to another user, so they can manage part of Active Directory (like resetting passwords, creating users, etc.) without giving them full admin rights. It's useful in big organizations where different people handle different tasks.

Steps to Delegate Administrative Privileges:

Step 1. Open Active Directory Users and Computers

Go to Server Manager > Tools > Active Directory Users and Computers

Step 2. Choose the OU

Find and right-click the Organizational Unit (OU) where you want to give someone admin rights (e.g., "HR" or "Students")

Step 3. Select "Delegate Control"

Right-click the OU → Click "Delegate Control..."

Step 4. Add the User or Group

Click Next, then Add the user or group you want to delegate to (e.g., john.hr)

Step 5. Choose Tasks to Delegate

Choose what tasks they can do, like: Reset passwords

Create, delete, or manage user accounts

Manage group membership

You can select from the list or choose Custom tasks

Step 6. Finish the Wizard

Click Next, review the summary, then click Finish. The selected user now has limited admin control over that OU only.