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

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

🡪 During the Windows Server 2016 installation, the "Type of Installation" window provides two options:

1. **Windows Server 2016 Standard**: This edition is suitable for most small to medium-sized businesses and offers core features for general server tasks. It supports up to two physical processors and can be used for both virtual and physical environments.
2. **Windows Server 2016 Datacenter**: This edition is designed for highly virtualized environments, such as data centers and large enterprises. It includes all the features of the Standard edition but allows for unlimited virtualization rights, meaning you can run an unlimited number of virtual machines.

**2.Write the step How to configure server step by step?**

🡪 Here’s a step-by-step guide on how to configure a server after installing Windows Server 2016:

Step 1: Log in to the Server

Step 2: Set Static IP Address

Step 3: Rename the Server (Optional)

Step 4: Install Windows Updates

Step 5: Configure Windows Firewall

Step 6: Add Roles and Features

Step 7: Configure Time Zone and Date/Time Settings

Step 8: Set Up Remote Desktop (Optional)

Step 9: Configure Security Settings

Step 10: Install Necessary Software and Drivers

Step 11: Backup and Recovery Configuration (Optional)

Step 12: Monitor the Server

**3.What are the Pre installation tasks?**

🡪 Here are the pre-installation tasks for Windows Server 2016:

1. Check System Requirements: Verify hardware meets the minimum requirements.
2. Backup Data: Ensure important data is backed up before installation.
3. Prepare Installation Media: Create bootable USB or DVD with the Windows Server 2016 ISO.
4. Plan IP Addressing: Plan static IP addresses and DNS settings.
5. Select Server Roles: Decide which server roles (e.g., Active Directory, DNS, etc.) are needed.
6. Verify Compatibility: Ensure all hardware drivers and software are compatible with Windows Server 2016.
7. Prepare Licenses: Ensure you have valid product keys for installation.

**4. What are the Post installation tasks?**

🡪 Here are the **post-installation tasks** in short:

1. **Activate Windows Server**: Enter the product key to activate.
2. **Install Windows Updates**: Download and install the latest updates.
3. **Set Static IP Address**: Configure a static IP if not already done.
4. **Rename Server**: Rename the server if needed.
5. **Configure Time Zone**: Set the correct time zone and sync time.
6. **Install Roles and Features**: Add necessary roles (e.g., AD, DNS, DHCP).
7. **Join Domain**: Join the server to a domain if applicable.
8. **Configure Firewall**: Adjust firewall rules for security.
9. **Enable Remote Desktop**: Allow remote access if needed.
10. **Set Up User Accounts**: Create users and groups, configure permissions.
11. **Install Drivers**: Install any necessary hardware drivers.
12. **Set Up Backup**: Configure a backup solution for data protection.
13. **Configure Security**: Adjust security settings like Windows Defender.
14. **Test Server**: Ensure all services are working correctly.
15. **Monitor Server**: Set up monitoring for system health and performance.

**5. What is the standard upgrade path for Windows Server?**

🡪 The standard upgrade path for Windows Server typically follows this sequence:

1. Windows Server 2012 R2 → Windows Server 2016
2. Windows Server 2016 → Windows Server 2019
3. Windows Server 2019 → Windows Server 2022

**6. What is the Physical structure of AD?**

🡪 The **physical structure of Active Directory (AD)** refers to the actual hardware and network components that support and host Active Directory services. It consists of the following:

1. **Domain Controllers (DCs)**: Servers that store and manage the AD database. They authenticate and authorize users and computers in the domain.

**2.Organizational Units (OUs)**: Logical containers used to organize objects (like users, groups, and computers) within a domain.

**3.Forest**:The highest level of the Active Directory structure, containing one or more domains that share a common schema, configuration, and global catalog.

**7.What is the Logical components of Active Directory?**

🡪 The **logical components of Active Directory (AD)** refer to the organizational structure and services that help manage and define how objects are stored and accessed in the AD environment. These components include:

1. **Domain**: A container for objects (users, groups, computers) that share the same AD database and security policies.
2. **Tree**: A collection of one or more domains in a hierarchical structure, connected by trust relationships.
3. **Forest**: The top-level container that holds one or more trees and defines the entire AD infrastructure. All domains within a forest share a common schema and global catalog.
4. **Organizational Units (OUs)**: Containers within a domain used to organize objects (like users or computers) for easier management and delegation of administrative tasks.

**8.What is the Full form Of LDAP?**

🡪 The full form of LDAP is Lightweight Directory Access Protocol.

It is a protocol used for accessing and managing directory services, such as Active Directory, over a network. LDAP allows for querying and modifying directory services data, including user authentication, and is commonly used in network environments to store and retrieve information about users, groups, devices, and more.

**9. What is the location of the AD database?**

**🡪** C:\Windows\NTDS\NTDS.dit

**10. What is child DC?**

**🡪**A child Domain Controller (DC) is a Domain Controller that exists within a child domain of a parent domain in an Active Directory forest. It replicates the directory information from the parent domain and manages authentication and authorization for the child domain.

**11. Explain the term forest in AD**

🡪In Active Directory (AD), a **forest** is the top-level container that holds one or more domains. It shares a common schema, global catalog, and configuration, allowing all domains within the forest to trust each other and replicate directory information. The forest is the highest organizational boundary in AD.

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

**● An open-source directory server**

**● A Windows-only implementation of a directory server**

**● Microsoft's implementation of a directory server**

**● An LDAP-compatible directory server**

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

**● Superuser**

**● Root**

**● Username**

**● Administrator**

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

**● Centralized authentication**

**● More detailed logging**

**● Centralized management with GPOs**

**● Better performance**

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

**🡪** The minimum hardware requirements for installing Windows Server 2016 are:

* Processor: 1.4 GHz 64-bit processor
* RAM: 512 MB (2 GB for the Server with Desktop Experience installation)
* Hard Disk Space: 32 GB (for 64-bit installation)
* Network Adapter: Ethernet adapter capable of at least 1 Gbps throughput
* Graphics: Super VGA (800x600) or higher resolution monitor
* Firmware: UEFI, Secure Boot capable (for certain installation options)

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

**🡪** 1**.**Standard Edition

2.Datacenter Edition

3.Essentials Edition

4.Web Edition

5.Hyper-V Edition

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

🡪 Step 1: In the first screen, you can able to configure language, region and time, keyboard settings. We should configure correct settings here and then select “Next” to continue.

Step 2: On this screen, I select “Install Now”. Here is another option available “Repair your computer” to choose if existing OS is missing some system files to repair.

Step 3: Wait for a while…… Setup is Starting….

Step 4: On this screen, I ask to choose the edition of the server. Here are two types of edition available one is Standard Evaluation and another is Datacenter Evaluation with Core or with GUI option. In this tutorial, I am going to choose Datacenter with GUI Option.

Step 5: We can see the license terms on this screen, select “I accept license terms” then click “Next” to continue.

Step 6: In this screen Select “Custom: Install Windows only (advanced)” here because I do a clean installation. But if you need an in-place upgrade you should select “Upgrade: Install and keep files, settings, and applications” here.

Step 7: In this screen, we can select and configure disc information (You can set the installation disc, size, etc.). I used default settings here.

Step 8: Now sit back and wait for the next screen as you can see that the necessary files are copied and the installation process is running on this screen.

Step 9: After the installation process is completed it will automatically reboot.

Step 10: This screen shows that the necessary settings were made before the server was started.

Step 11: Here we can set a password for the local administrator account. You should configure a secure password for the local administrator. Set your password to something very strong, in fact, you can use a passphrase.

Step 12: As we have completed our installation process now on the login screen, I can log in with the “Administrator” account and related Password which I set in the last step and press “Enter“.

**18. Describe the steps for installing Windows Server 2016 in Server Core mode.**

**🡪**Here are the short steps for installing Windows Server 2016 in Server Core mode:

1. Boot from Installation Media: Insert bootable USB/DVD and start the server.
2. Select Language and Preferences: Choose language, time, and keyboard, then click Next.
3. Install Now: Click Install Now to start installation.
4. Enter Product Key: Input your product key or select trial.
5. Select Edition: Choose Server Core (no GUI) edition.
6. Accept License Terms: Agree to the terms and click Next.
7. Choose Installation Type: Select Custom for a fresh install.
8. Select Partition: Choose the partition or create a new one.
9. Begin Installation: Click Next to start the installation.
10. Set Administrator Password: After the server restarts, set the Administrator password.
11. Login: Log in using the Administrator account.
12. Post-Configuration: Use PowerShell for server configuration and management.

**19. How do you configure network settings during Windows Server 2016 installation?**

**🡪**To configure network settings during Windows Server 2016 installation:

1. Start the Installation: Boot from installation media and select language/region.
2. Proceed to Setup: After clicking Install Now, select edition and accept license terms.
3. Choose Partition: Select the partition for installation and click Next.
4. Initial Configuration: Once installation completes and the server reboots, you'll be at the Server Core command prompt.
5. Configure Network Settings:
   * Type sconfig and press Enter.
   * Select Network Settings by typing the number for network configuration (typically 1).
   * Choose your network adapter (e.g., Ethernet).
   * Set a static IP address, subnet mask, and default gateway.
   * Optionally, configure DNS settings and hostname.
6. Save and Exit: After configuration, save the settings and exit the menu.

**20. Explain the process of promoting a Windows Server to a domain controller.**

**🡪** Here’s the process to promote a Windows Server to a Domain Controller in short steps:

1. Install AD DS Role:
   * Open Server Manager, click Add roles and features, and install Active Directory Domain Services (AD DS).
2. Promote to Domain Controller:
   * In Server Manager, click the notification to Promote this server to a domain controller.
3. Select Deployment Option:
   * Choose to Add a new forest or Add a domain controller to an existing domain, then enter the domain name.
4. Set Domain Controller Options:
   * Select DNS Server, Global Catalog, and set the DSRM password.
5. Review and Install:
   * Review the settings and click Next to begin the promotion process.
6. Restart Server:
   * The server will automatically restart once the promotion is complete.

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

🡪 1.Check Compatibility:

2.Backup Data:

3.Install Latest Updates:

4.Insert Windows Server 2016 Installation Media:

5.Start the Upgrade Process:

6.Select Edition and Accept License:

7.Start the Upgrade:

8.Reboot and Complete Setup:

9.Verify Installation:

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

🡪 Active Directory Domain Services (AD DS) is a role in Windows Server that provides centralized authentication, authorization, and management of network resources in a domain-based environment.

Key Components of AD DS:

1. Domain Controllers (DCs)
2. Domain
3. Forest
4. Organizational Units (OUs)
5. Group Policy

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

🡪 To create a new Active Directory user account in Windows Server, follow these steps:

1. Open Active Directory Users and Computers:
   * Launch Server Manager >>Tools >> Active Directory Users and Computers.
2. Navigate to the OU:
   * In the Active Directory Users and Computers window, locate the Organizational Unit (OU) where you want to create the user.
3. Create New User:
   * Right-click the OU, select New >>User.
4. Enter User Details:
   * Fill in the user's First Name, Last Name, User logon name (username), and click Next.
5. Set Password:
   * Enter a password, confirm it, and choose password options like User must change password at next logon or Password never expires.
6. Finish:
   * Click Next and then Finish to create the account**.**

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

**🡪** 1. Open Group Policy Management Console (GPMC):

* Open Server Manager >> Tools >> Group Policy Management.

2. Create a New GPO:

* In the Group Policy Management Console (GPMC), right-click the Group Policy Objects node and select New.
* Name the GPO and click OK.

3. Edit the GPO:

* Right-click the newly created GPO and select Edit to open the Group Policy Management Editor.
* Configure policies under Computer Configuration or User Configuration as needed (e.g., security settings, software installation, etc.).

4. Link the GPO:

* To apply the GPO, right-click the target Organizational Unit (OU), domain, or site, and select Link an Existing GPO.
* Choose the GPO you created and click OK.

5. Manage GPO:

* Modify the GPO anytime by opening Group Policy Management, selecting the GPO, and choosing Edit.
* You can backup, restore, or delete a GPO from the Group Policy Objects node in the GPMC.

6. Force Group Policy Update (Optional):

* To apply the GPO immediately, run gpupdate /force on client machines or wait for the next Group Policy refresh cycle.

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

🡪 Organizational Units (OUs) in Active Directory (AD) are containers used to organize and manage objects (such as users, groups, and computers) within a domain. OUs allow you to delegate administrative control, apply Group Policies, and structure your AD hierarchy for easier management.

Key Uses of OUs:

1. Organize Resources: Group users, computers, and other objects logically (e.g., by department, location, or function).
2. Delegate Administrative Control: Assign specific administrative rights to different OUs without giving full control over the entire domain.
3. Apply Group Policies: Link Group Policy Objects (GPOs) to specific OUs for targeted policy enforcement.

**26. Describe the process of delegating administrative privileges in Active Directory.**

**🡪**Here’s a short description of how to delegate administrative privileges in Active Directory:

1. Open AD Users and Computers:
   * Go to Server Manager >> Tools >> Active Directory Users and Computers.
2. Select Object/OU:
   * Right-click the Organizational Unit (OU) or object you want to delegate control over.
3. Delegate Control:
   * Choose Delegate Control from the context menu.
4. Add User or Group:
   * In the Delegation of Control Wizard, click Add and select the user or group to whom you want to delegate permissions.
5. Select Permissions:
   * Choose predefined tasks (like managing user accounts) or select Custom tasks and specify permissions.
6. Finish:
   * Review and click Finish to apply the delegation.