**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?**

🡪 1. **Check Hardware Requirements**: Ensure the server meets the minimum specs (processor, RAM, disk space, etc.).

2. **Create Backups**: Backup important data and system configurations if upgrading or replacing an existing server.

3. **Verify Compatibility**: Ensure all applications and services are compatible with Windows Server 2016.

4. **Gather Installation Media**: Get your installation DVD, USB, or ISO file ready.

5. **Plan Network Configuration**: Plan for static IP, DNS, subnet, and gateway settings.

6. **Choose Installation Type**: Decide between **Server Core** (minimal install) or **Desktop Experience** (GUI).

7. **Prepare Server Roles**: Decide which roles and features you will need (e.g., Active Directory, DNS, Web Server).

8. **Update BIOS/UEFI**: Ensure firmware is up to date and set boot order correctly.

9. **Plan for User Accounts**: Prepare user account structure, especially if using Active Directory.

10. **Check Licensing**: Ensure you have a valid Windows Server 2016 license and product key.

11. **Prepare Backup and Recovery Plan**: Plan for post-installation backup and disaster recovery.

12. **Security Measures**: Plan security configurations like firewall and antivirus after 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. **Sites**: Represents the physical locations (e.g., offices or data centers) in which AD operates, typically linked by reliable, high-speed connections. Sites help with replication and optimize traffic between DCs.
3. Global Catalog Servers: Domain controllers that store a partial replica of all objects in the forest, enabling fast searches across domains.
4. **Replications**: The process by which data is copied between domain controllers to ensure all DCs are synchronized.
5. **Organizational Units (OUs)**: Logical containers used to organize objects (like users, groups, and computers) within a domain.

**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.
5. **Schema**: Defines the types of objects and attributes that can be stored in AD, essentially the blueprint for the directory structure.

**Global Catalog**: A distributed data repository that stores a partial replica of all objects in the forest, enabling efficient searching across domains.

These logical components help structure and manage resources, users, and security policies in Active Directory.

**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**

**🡪**

* 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.**

**🡪** **Here’s a brief walkthrough of installing Windows Server 2016 using GUI mode:**

**1. Prepare the Installation Media:**

* **Download the Windows Server 2016 ISO or use a bootable USB/DVD.**
* **Insert the installation media into your server and boot from it.**

**2. Start the Installation:**

* **Boot the server and press any key to begin installation when prompted.**
* **Choose your language, time, and keyboard preferences, then click Next.**

**3. Install Now:**

* **Click the Install Now button to begin the installation process.**

**4. Enter Product Key:**

* **Enter your Windows Server 2016 product key or click I don't have a product key if you’re installing a trial version.**

**5. Select Edition:**

* **Choose the appropriate edition (e.g., Windows Server 2016 Standard or Datacenter).**
* **Select either Desktop Experience (with GUI) or Core (without GUI). Choose Desktop Experience for GUI.**

**6. Accept License Terms:**

* **Read and accept the license terms, then click Next.**

**7. Choose Installation Type:**

* **Select Custom: Install Windows only (advanced) if it's a fresh install.**

**8. Select Partition:**

* **Choose the disk/partition where you want to install Windows Server 2016.**
* **You can create or delete partitions as needed.**

**9. Start Installation:**

* **Click Next, and Windows will start the installation. This may take some time.**

**10. Configure Initial Settings:**

* **After installation, the system will reboot. Follow the prompts to set an Administrator password.**

**11. Log In:**

* **Once the system restarts, log in using the Administrator account with the password you set.**

**12. Post-Installation Configuration:**

* **After the first login, you can configure settings like network settings, Windows Update, and other server roles.Top of FormBottom of Form**

**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 (no GUI).

**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. Global Catalog
6. Group Policy
7. Replication

**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.