Module 13: Windows Networking Services

25. Discuss the role of Windows Firewall in Windows Server and how to configure it.

ANS: Role of windows firewall is described following:

- It controls incoming and outgoing connections based on defined rules.
- Prevents unauthorized access from external sources.
- Only allows traffic for required services and ports, blocking everything else by default.
- Works with Group Policy in domain environments to apply firewall rules consistently.
- Integrates with IPsec for encrypted connections.
- Works with Network Location Awareness to apply different rules for different network profiles (Domain, Private, Public).
- It Can block/allow traffic for specific apps.

26. What is Network Address Translation (NAT) in Windows Server, and how do you configure it?

ANS: Network Address Translation (NAT) is a method that allows multiple devices on a private network to access external networks using a single public IP address.

In Windows Server, NAT is used when the server acts as a router or gateway between internal (private) and external (public) networks.

i. Install the RRAS Role

- Open Server Manager → Manage → Add Roles and Features.
- Select Role-based or feature-based installation.
- Under Server Roles, check Remote Access.
- Click Next, then under Role Services, select Routing.
- Complete installation.

ii. Enable and Configure RRAS

- Open Server Manager → Tools → Routing and Remote Access.
- Right-click your server name → Configure and Enable Routing and Remote Access.
- The wizard opens → Select Network Address Translation (NAT) → Next.
- Select the public network interface (the one connected to the Internet).
- Finish the wizard and start the RRAS service.

iii. Configure Internal Interface

- In RRAS, expand server name → IPv4 → NAT.
- Right-click the internal network interface → Properties.
- Make sure it is not set as a public interface and DHCP is enabled for internal clients

27. Explain the concept of Dynamic Host Configuration Protocol (DHCP) and how to configure it in Windows Server 2016.

ANS: Dynamic Host Configuration Protocol (DHCP) is a network service that automatically assigns IP addresses

It uses DORA prossess to assign ip address:

- Discover → Client broadcasts a DHCP Discover message.
- Offer → DHCP server responds with an IP offer.
- Request → Client requests the offered IP.
- Acknowledge → DHCP server confirms and assigns the IP.

Configuration of DHCP server:

A. Install the DHCP Server Role

i. Open **Server Manager**.
ii. Click **Manage** → **Add Roles and Features**.
iii. Select **Role-based**.
iv. Choose your server from the server pool.
v. Under **Server Roles**, select **DHCP Server** → Click **Next**.
vi. Complete the installation and click **Close**.

B. Authorize the DHCP Server

i. In **Server Manager**, go to **Tools** → **DHCP**.
ii. In the DHCP console, right-click your server → **Authorize**.
iii. Refresh the console until you see a green check mark next to the server name.

C. Create a New DHCP Scope

i. In the DHCP console, expand your server → **IPv4**.
ii. Right-click **IPv4** → **New Scope**
iii. In the wizard:

- **Name** → Enter a Scope name (e.g., "Office Network").
- **IP Address Range** → Define Start and End IP (e.g., 192.168.1.100 – 192.168.1.200).
- **Subnet Mask** → Enter your subnet mask
- **Add Exclusions** → Reserve IPs that should not be assigned (for servers).
- **Lease Duration** → Set how long a client keeps the IP (default is 8 days).
- **Router (Default Gateway)** → Enter the gateway IP (e.g., 192.168.1.1).
- **DNS Servers** → Enter DNS IPs

iv. Activate the scope.

28. Describe the process of configuring DNS (Domain Name System) in Windows Server.

ANS: The process of configuring DNS in Windows Server is described following:

- To Install the DNS Server Role **Open Server Manager** → **click on Manage** → **Add Roles and Features.**
- select Role-based or feature-based installation → Next.

- Choose the server server name.
- Under Server Roles, check **DNS Server** → Install.
- After installation, open **Server Manager** → **Tools** → **DNS Manager**.
- Then configure the Forward lookup zone.
- In DNS Manager, **Right-click on** Forward Lookup Zones **→** New Zone**.**
- The New Zone Wizard starts **choose** Primary Zone → Next.
- **Enter the** zone name.
- Choose the type of updates (secure only, nonsecure and secure, or none).
- Finish the wizard.

29. What is Server Manager, and how do you use it to manage servers in Windows Server?

ANS: Server Manager is console in windows server that **provides a centrallized dashboard** for **managing Server roles and fratures** (like AD,DNS,DHCP File Server),local and remote server and configuration, monitering, and troubleshooting tasks. It manages multiple servers using single console.

We can use following tools to manage the different types of servers:

- Active Directory Users and Computers
- Group policy Management
- DHCP Manager
- DNS Manager
  Etc.

30. Discuss the role of Remote Desktop Services (RDS) in Windows Server 2016 or 2019 and how to configure it.

ANS: Remote Desktop Services (RDS) is a role in Windows Server that allows users to remotely connect to a centralized server and run desktops or applications as if they were local.

Install the RDS Role:

- Open Server Manager.
- Go to Manage → Add Roles and Features.
- Select Role-based or feature-based installation.
- Under Server Roles, check Remote Desktop Services.
- Select the required role services (Session Host, Licensing, etc.).
- Install and restart the server .