Module: 13- Networking with Windows Server

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

- **Roles of Windows Firewall in Windows Server**
- **Protection Against Unauthorised Access:** Windows Firewall acts as a barrier between the server and potential threats from the network, allowing you to define which ports and services are accessible from external sources.

- **Configuring Windows Firewall in Windows Server:-**
- **Using Group Policy**
- Open Group Policy Management.
- Create or edit a GPO linked to the appropriate Organisational Unit (OU).
- Navigate to Computer Configuration -> Policies -> Windows Settings -> Security Settings -> Windows Firewall with Advanced Security.
- Configure settings for Domain Profile, Private Profile, and Public Profile as needed.

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

- Network Address Translation (NAT) is a technique used to map private, internal IP addresses to a single public IP address or a pool of public IP addresses.
- **Configuring NAT in Windows Server**
- **Windows Server with Routing and Remote Access Service (RRAS)**: Ensure you have a version of Windows Server that supports RRAS.
- **Two Network Interfaces**: One network interface must be connected to the private network (internal) and the other to the public network (external).

Step-by-Step Configuration

1. **Install the RRAS Role**:
    - Open the **Server Manager**.
    - Click on **Add roles and features**.
    - In the wizard, select **Remote Access** and proceed.
    - On the **Role Services** page, select **Routing** and **Routing and Remote Access Services**.
    - Complete the installation.
2. **Enable RRAS**:
    - In **Server Manager**, go to **Tools** > **Routing and Remote Access**.
    - Right-click your server name and select **Configure and Enable Routing and Remote Access**.
    - Choose **Network Address Translation (NAT)** from the setup wizard.
    - Click **Next** to proceed.
3. **Select Network Interfaces**:
    - You'll need to configure the internal and external interfaces:
        - **External**: Choose the network interface connected to the public internet.
        - **Internal**: Choose the network interface connected to the private network.
    - Follow the prompts to finish the configuration.

4. **Configure NAT Properties**:
    - After completing the initial configuration, you can customise NAT settings:
        - In the RRAS console, expand your server node, then expand **IP Routing** and click on **NAT**.
        - Right-click on your external interface and select **Properties** to configure options like address translation, timeouts, etc.
5. **Configure Static NAT (if needed)**:
    - If you need to map a specific internal IP address to a specific external IP address, you can create a static mapping:
        - Right-click on the **NAT** node and select **New Mapping**.
        - Specify the internal IP address and the external IP address, and configure port forwarding if required.

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

- Dynamic Host Configuration Protocol (DHCP) is a network management protocol used to automatically assign IP addresses.
- **Configuring DHCP in Windows Server 2016**
- Add DHCP Role in windows server
- Go to flag icon-> go to DHCP configuration
- Open wizard click on “next” -> commit -> close (DHCP ON)
- Go to DHCP wizard to creat pool
- Click on DHCP manager
- Double click on pc name ->
- Select IPv4 or IPv6
- Right click on IPv4 ->
- New scope -> open wizard click “next” ->
- Write scope name then “next” ->
- Set starting and ending pool ip address
- Set subnet mask -> next
- **Set ip address we can manually assign in this pool**
- Click on add
- Set limit of IP pool (DAY,HOURS,MIN.)
- Then click on “next”
- Click on “yes”
- Then “next”
- **Set gateway IP**
- Click on ADD -> next -> next (see domain name) -> next ->tick “yes” -> finish

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

- **ADD role of DNS in windows server**
- Go to tools -> DNS
- Right click on DNS -> connect to DNS server -> ok
- (we configure 2 zones in DNS (i) forward lookup zone -> name configure

(ii) reverse lookup zone -> ip configure)

- **Name configure**
- Right click on forward lookup zone -> new zone -> next
- Select primary zone -> next
- Select Domain name -> next
- Write zone name -> next
- Select allows -> next ->finish
- **Ip configure**
- Right click on reverse lookup zone
- New zone -> next
- Select primary zone -> next
- Select domain -> next
- Select ip version -> next
- Write network id (ip starting three octets 192.16.1) -> next
- Select allow only secure -> next -> finish

  - Double click on created reverse lookup zone -> right click on blank area ->

  Click on new pointer(PTR)-> browse -> select pc name -> forward lookup zone -> select domain name -> select pc name -> ok

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

- Server Manager is a management console in Windows Server that provides a centralised platform for configuring and managing server roles and features.

Accessing Server Manager
Adding Roles and Features
Managing Server Roles
Monitoring and Alerts
Managing Remote Servers
Creating Server Groups

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

- Remote Desktop Services (RDS) is a key role in Windows Server that enables users to access desktops and applications remotely. It provides a platform for hosting virtual desktops and applications, allowing users to connect to a centralised server or collection of servers from various devices.
- RDS Configure.
- Add role of Remote Desktop services -> tick features you needed and install it
- Go to tools -> Remote Desktop Services -> Remote Desktop Gateway manager
- Select user -> connect to RD gateway