NETWORK OPERATION PROTOCOLS

Group 4

PORT 67/68

DHCP (Dynamic Host Configuration Protocol) uses UDP ports 67 and 68 to automatically assign and manage IP addresses for devices on a network. The DHCP server communicates through port 67, while the client device uses port 68. This process allows devices to connect to the network without needing manual IP configuration.

- Uses UDP transport protocol and DHCP application protocol
- DHCP is used to automatically assign and manage IP addresses
- Port 67 (UDP) is used by the DHCP server
- Port 68 (UDP) is used by the client device
- Helps devices connect to a network without manual IP setup

- Uses both UDP and TCP transport protocols and NetBIOS application protocol
- Are used for printer and file sharing
- Port 137 (UDP) is used for name registration and resolution.
- Port 138 (UDP) is used for datagram services which supports connectionless communication.
- Port 139 (TCP) is used for session services which facilitates connection-oriented communication.

PORT 137 - 139

NetBIOS (Network Basic Input Output System) over TCP/IP provides a system through which older computer applications can communicate over large TCP/IP networks. Different NetBT functions use different protocols and ports in this range.

PORT 161/162

Simple Network Management Protocol (SNMP) enables network administrators to monitor network operations from centralized monitoring stations

- Uses UDP Transport protocol. and uses SNMP Application protocol.
- Port 161 is used to send commands from the SNMP manager to the SNMP Agent
- Port 161 handles most SNMP communication, such as polling.
- Port 162 is the default port for receiving SNMP trap messages.
- An SNMP trap is an automatic alert message sent from a client device to a centralized server.

PORT 427

Port 427 is **primarily associated with the Service Location Protocol (SLP)**, a discovery protocol that allows devices and services on a local network to find and communicate with each other without prior configuration.

- Port 427 can use both UDP and TCP (Prefers UDP)
- SLP extensively uses multicasting, especially UDP packets sent to port 427, to broadcast service information and find other devices on a network.
- Example of users of Port 427 are HP printers and IBM and Lenovo systems, both use it for service discovery

- Port 445 uses SMB or CIFS (Common Internet Filesystem) through TCP/IP
- Allows for over the network file sharing and printing, network-wide system settings, integrity signing.
- Examples of Port 445 usage include native Windows file sharing, network printing, remote access to filesystem directories and group policy, and domain login.

Server Message Block (SMB) is a client/server file sharing protocol that describes the structure of shared network resources, such as directories, files, printers, and serial ports. SMB file-sharing and print services have become the mainstay of Microsoft networking.

PORT 445

Summary

Port 67/68	It uses UDP ports 67 and 68 to automatically assign IP addresses, making it easy for devices to connect.
Port 137 - 139	Uses both TCP and UDP transport protocols, NetBIOS (NetBT) application protocol. Often used for printer and file transfer
Port 161/162	Uses UDP transport protocol, SNMP application protocol. Used by the SNMP Manager to send request to an SNMP agent.
Port 427	Service location protocol allows computers and other devices to locate services on the Lan without previous configuration, Usually uses UDP but can use TCP
Port 445	Uses SMB to interface network drives, printers, system directories, group policy. Allows for remote access to system resources.

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