

Experiment No: 7

Date: .....

## ROUTER IOS BASIC MANAGEMENT COMMANDS

### AIM:

To demonstrate Router IOS Basic Management Commands.

### THEORY:

Routers are used to connect multiple networks together. Routers analyze the data being sent over a network, change how it is packaged, and send it to another network or to a different type of network. Most common routers are made by Cisco. The Cisco routers have an in-built operating system called the Internetwork Operating System (IOS) which is operated through Command Line Interface (CLI). The interfaces include LAN ports (different types of Ethernet ports), WAN ports (serial ports), Console ports and AUXiliary ports (both for router configuration).

#### Cisco Router Modes:

To help Cisco device configuration, the CLI is divided into different modes; each with its own set of commands for the configuration, maintenance, and monitoring of router and network operations. The major modes are;

1. *User EXEC mode*: The default command mode when a user logs in to IOS. Only limited privilege is available here. Helps to perform basic tests and list system information. Its prompt is **Router>**. The EXEC commands available at the user level are a subset of those available at the privileged level. Type **?** to see all commands available in this mode.

2. *Privileged EXEC mode*: More control over the IOS. To enter this mode, type **enable** from user EXEC mode. Prompt is **Router#** .

3. *Global Configuration Mode*: The term "global" is used to indicate characteristics or features that affect the system as a whole. Global configuration mode is used to configure the system globally, or to enter specific configuration modes to configure specific elements such as interfaces or protocols. Use the **configure terminal** privileged EXEC command to enter global configuration mode. Its prompt is **Router(config)#**.

### PROCEDURE:

#### Basic Commands in privileged EXEC mode:

##### **enable**

To enter the privileged exec mode from user exec mode.

##### **show running-configuration**

The show running-config command shows the router, switch, or firewall's current configuration. The running-configuration is the configuration that is in the router's memory. You change this config when you make changes to the router. Keep in mind that config is not saved until you do a *copy running-configuration startup-configuration*. The show command can be abbreviated **sh run**.

### **copy running-configuration startup-configuration**

This command will save the configuration that is currently being modified (in RAM), also known as the running-configuration, to the non volatile RAM (NVRAM). If the power is lost, the NVRAM will preserve this configuration. In other words, if you edit the router's configuration, don't use this command and reboot the router - those changes will be lost. This command can be abbreviated **copy run start**.

### **show ip interface brief**

The show ip interface brief command provides a quick status of the interfaces on the router, including their IP address, Layer 2 status, and Layer 3 status.

### **show ip route**

The show ip route command is used to show the router's routing table. This is the list of all networks that the router can reach, their metric (the router's preference for them), and how to get there. This command can be abbreviated **sh ip ro**.

### Basic Commands in Global Configuration mode:

#### **interface <interface & number>**

To enter an interface for its configuration.

Eg: Router0(config)# interface gigabitEthernet 0/0

#### **ip route <destination\_network> <subnet\_mask> <IP\_address\_of\_next\_hop>**

Eg: ip route 10.0.0.0 255.0.0.0 172.16.0.2

### Basic commands in interface configuration mode:

#### **ip address <ip-address> <subnet\_mask>**

To set the ip address for a particular interface.

Eg: Router0(config-if)#ip address 192.168.1.1 255.255.255.0

### **no shutdown**

The no shutdown command enables an interface (brings it up). To bring the interface down, reverse the command and just say shutdown. This command can be abbreviated no shut.

### Packet Tracer Software

Packet Tracer is a powerful network simulator by Cisco that can be utilized in training for CCNA and CCNP certification exam by allowing students to create networks with an almost unlimited number of devices and to experience troubleshooting without having to buy real Cisco routers or switches. The purpose of Packet Tracer is to offer students a tool to learn the principles of networking as well as develop Cisco technology specific skills. However, it is not to be used as a replacement for Routers or Switches.

### Result:

Familiarized with Router IOS basic modes and commands.