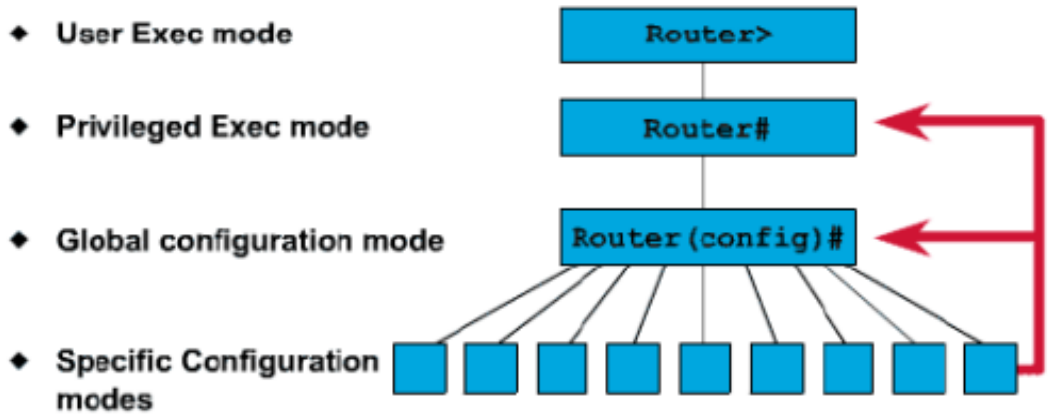
Lab-1: Objective:

Introduction and Basic Configuration of a Router as well as connecting Ethernet interfaces& verifying Connectivity

Lab-1
Introduction and Basic Configuration of a Router

Introduction of different Modes of Router



Following privileged mode commands to work with configuration files.

- ✓ **Router#configure terminal** – modify the running configuration manually from the terminal.
- ✓ **Router#show running-config** – display the running configuration.
- ✓ **Router#show startup-con**fig – display the startup configuration.
- ✓ **Router#copy running-config startup-config** – copy the running configuration to the startup configuration.
- ✓ **show startup-config-** To display the contents of NVRAM (if present and valid) or to show the configuration file pointed to by the CONFIG_FILE environment variable, use the show startup-config EXEC command.

ROM (Read-Only Memory) ROM stores the router's bootstrap startup program, operating system software, and power-on diagnostic test programs (POST).

Flash Memory Generally referred to simply as "flash", the IOS images are held here. Flash is erasable and reprogrammable ROM. Flash memory content is retained by the router on reload.

RAM (Random-Access Memory). Stores operational information such as routing tables and the running configuration file. RAM contents are lost when the router is powered down or reloaded. By default, routers look here first for an Internetwork Operating System (IOS) file during boot.

NVRAM (Non-volatile RAM). NVRAM holds the router's startup configuration file. NVRAM contents are not lost when the router is powered down or reloaded.

Some important comparisons:

RAM contents are lost on reload, where NVRAM and Flash contents are not.

NVRAM holds the startup configuration file, where RAM holds the running configuration files.

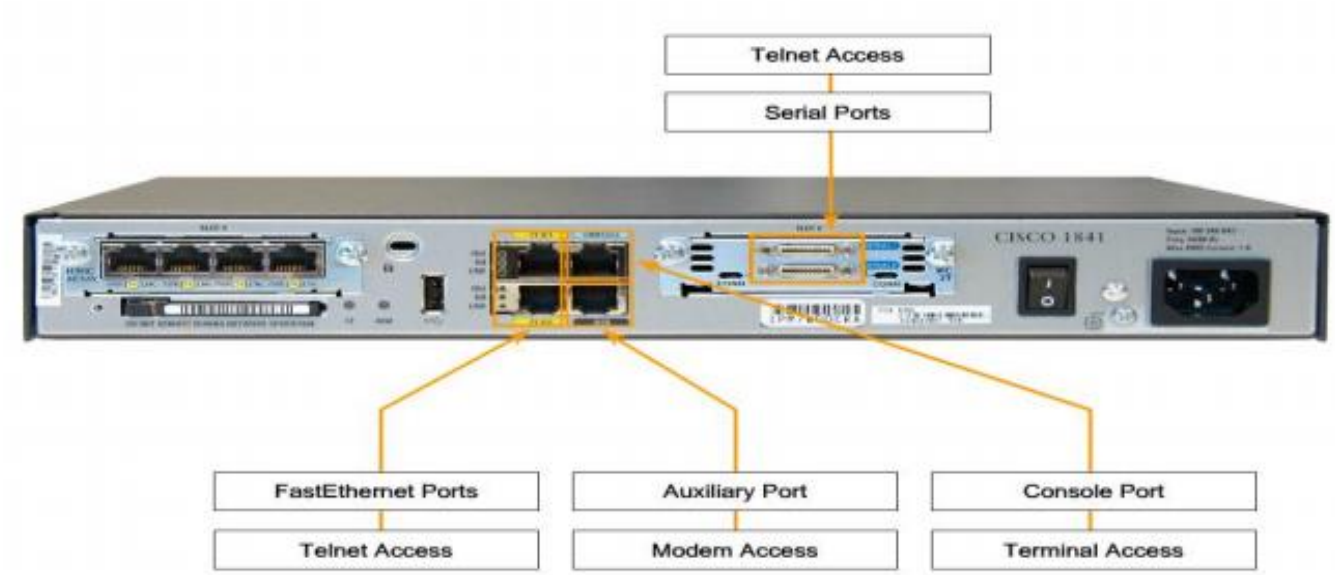


Figure 1

Task 1, Assign IP Address

Steps to configure the IP address of an interface.

Step 1: Enter privileged EXEC mode:

Router>enable

Step 2: Enter the command configure terminal to enter global configuration mode.

Router#configure terminal

Step 3: Enter the interface type slot/port Example:

Router (config)#interface fast ethernet 0/1

Step 4: Enter the IP address and subnet mask of the interface

Example,

Router (config-if)# ip address 192.168.10.1 255.255.255.0
Step 5: Turn on the port status, as an example,
Router (config-if)#no shutdown
Step 6: Exit the configuration mode
Router(config-if)#exit

Task 2, Configuring PC for Connectivity

1- Refer to the figure 2, Right Click on Network and Sharing Center.
2- Change Adapter Settings on left side
3- Right Click on the **LOCAL AREA NETWORK** and Click properties. (Refer Figure 2)
4- Select Internet Protocol Version 4 & click Properties button (Refer Figure 3)

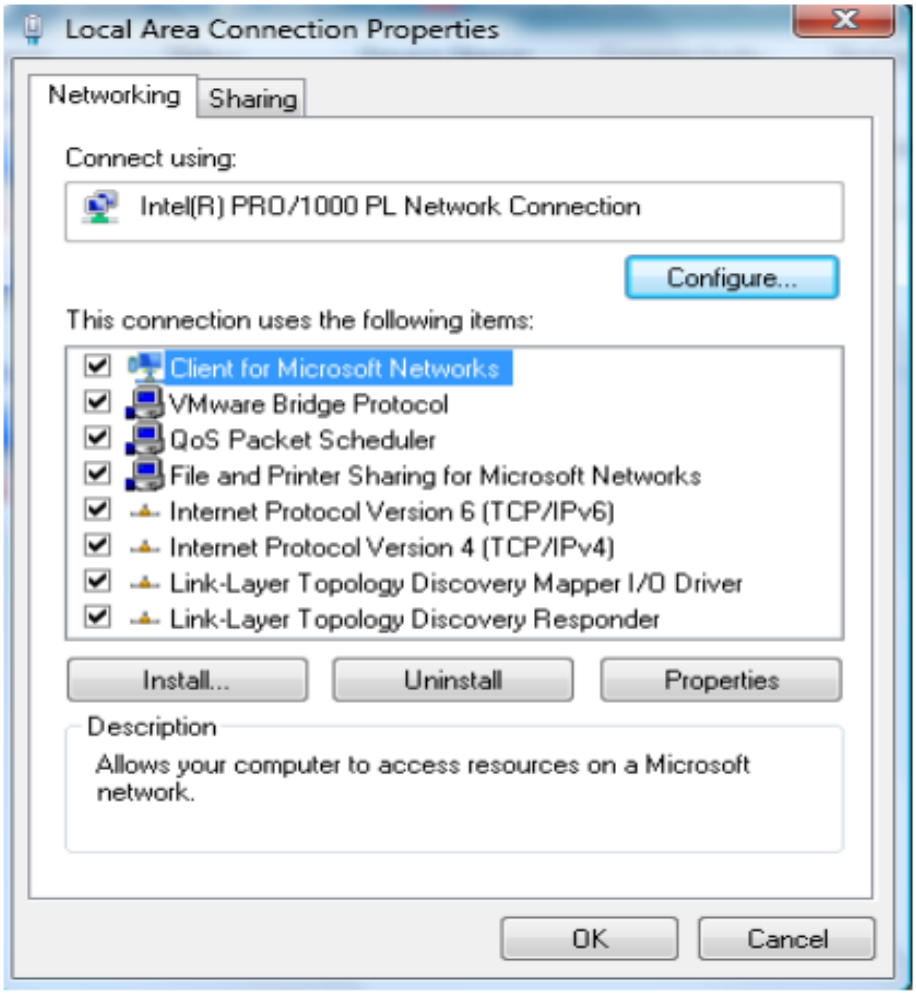


Figure 2

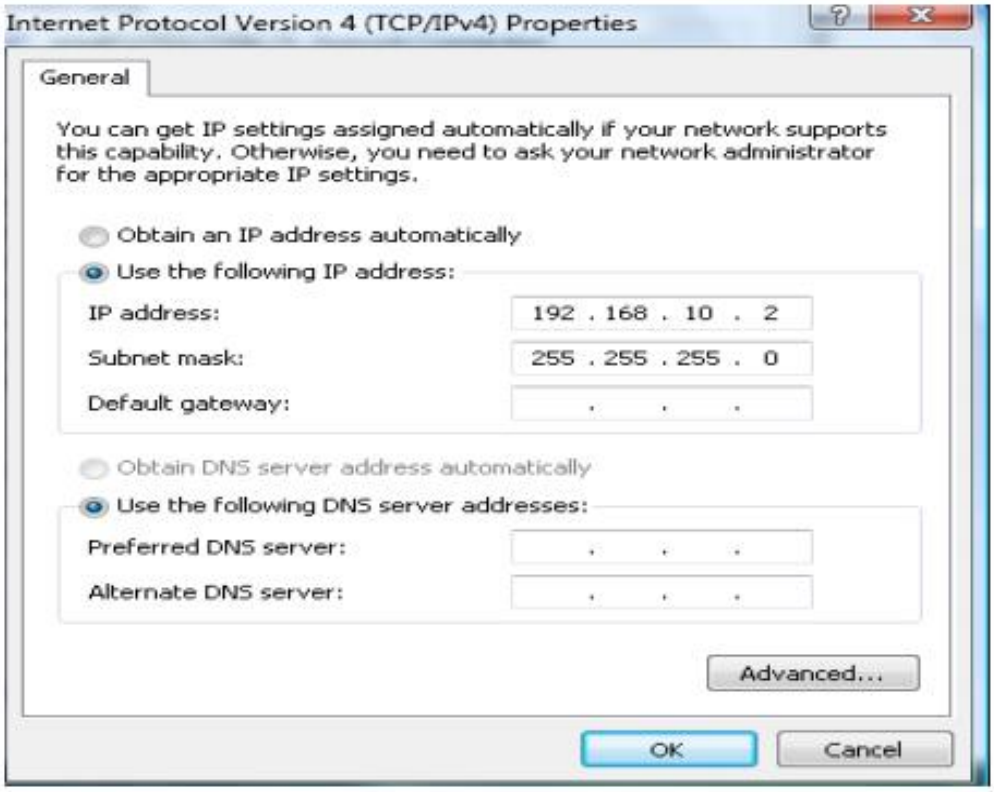


Figure 3

Task 3, PING

Finally Go to Start > RUN> cmd

C :\> ping 192.168.10.1

In the figure 4, we are checking the connectivity between Router and attached PC by using the PING command, if connectivity has been established than router will respond, as shown below.

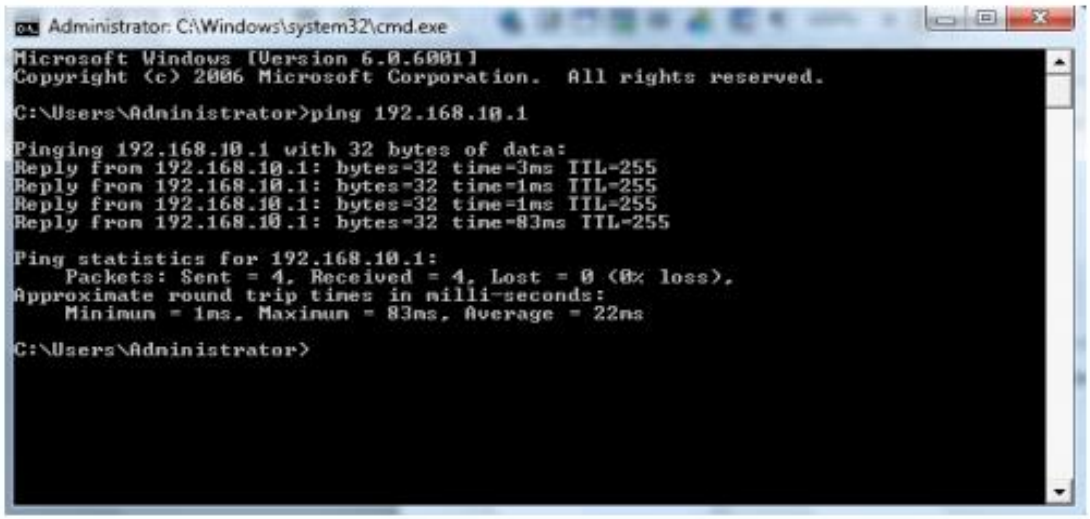


Figure 4

Lab-1 Exercise:

1- In physical routers, we have _____ RAM.

2- We can use different tools to configure physical routers, like _____ and _____.

3- We have _____ series of routers available and each router have number of slots available for _____, _____ and _____ interfaces respectively.

4- PING stands for _____.

5- The purpose of PING is _____.