

Experiment No - 2

Title: Basic Router Configuration

Introduction: A router connects one network to another network. The router is responsible for the delivery of packets across different networks. The destination of the IP packet might be a web server in another country or an email server on the LAN. The router uses its routing table to determine the best path to use to forward a packet. It is the responsibility of the routers to deliver those packets in a timely manner. When a host sends a packet to a device on a different IP network, the packet is forwarded to the default gateway because a host device cannot communicate directly with devices outside of the local network. The default gateway is the intermediary device that routes traffic from the local network to devices on remote networks. Because the router can route packets between networks, devices on different networks can communicate.

Objective: The objective of this lab is to build small network topology with two routers and one switch using Cisco Packet Tracer. We will set up the Topology and initialize the devices. Then we will configure devices and verify connectivity.

Network Topology:

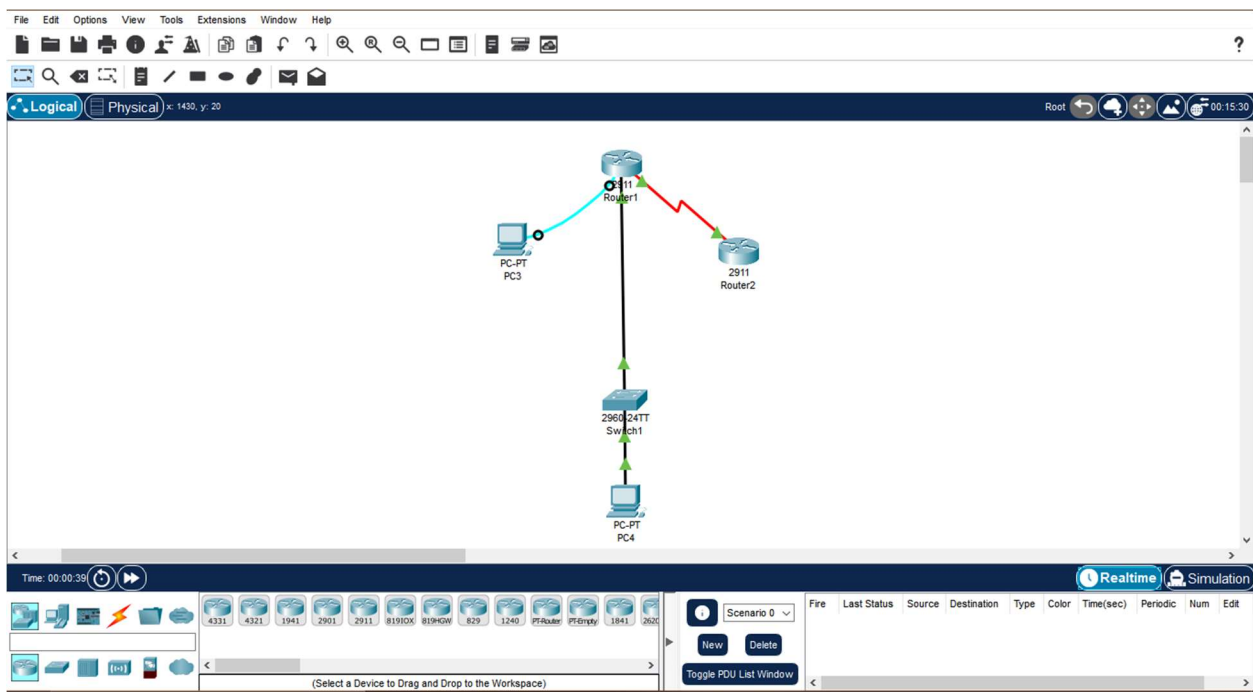


Fig: 01

Methodology: In this lab activity, we will create a network that is similar to the one shown in the Topology Diagram. We used two 2911 routers, one 2960switch and two PCs. We will begin by cabling the network as shown in the Topology Diagram. We will then perform the initial router configurations required for connectivity. When the network configuration is complete, we will then examine the routing tables to verify that the network is operating properly. We will make sure to use the appropriate type of Ethernet cable to connect from host to switch, switch to router, and host to router. We will connect the serial DCE cable to router Router1 and the serial DTE cable to router Router2.

First we will configure the PC interfaces-

We will configure the IP address, subnet mask, and default gateway settings on PC-1 and PC-2. After that we will configure the router. For configuring the router we will go to PC-1 and we will open the terminal from desktop section, then we will enter the commands to configure the router.

Commands:

1. For entering privileged mode

```
Router>enable
```

```
Router#
```

2. Enter configuration mode.

```
Router# conf t
```

3. For enable Password on login

```
Router (config)# line console 0
```

```
Router (config-line)# password $cisco
```

```
Router (config-line)# login
```

```
Router (config-line)#exit
```

4. For assigning vty password in privileged mode

```
Router(config)# line vty 0 4
```

```
Router(config-line)#password $cisco
```

```
Router(config-line)#exit.
```

5. Configure gigabitEthernet(switch) interface on the router with the IPv4 addressing information from the addressing table above. Activate interface-

```
Router(config)# interface gigabitEthernet 0/0
```

```
Router(config-if)#ip address 192.168.10.1 255.255.255.0
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#exit
```

6. Configure serial port ip setup

```
Router(config)#interface serial 0/3/0
```

```
Router(config-if)#ip address 192.168.11.1 255.255.255.0
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#exit
```

7. Save the running configuration to the startup configuration

```
Router# copy running-config startup-config
```

IOS Command Line Interface

```

Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#line console 0
Router(config-line)#password cisco
Router(config-line)#login
Router(config-line)#exit
Router(config)#line vty 0 4
Router(config-line)#password cisco
Router(config-line)#exit
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
exit
Router(config)#interface serial 0/3/0
Router(config-if)#ip address 192.168.11.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/3/0, changed state to down
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#

```

Fig : 02

```

Router(config)#cloc
Router(config)#int
Router(config)#interface ser
Router(config)#interface serial 0/3/0
Router(config-if)#clo
Router(config-if)#clock rate 72000
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

```

Fig : 03

Discussion: In this lab, we have learned about router setup and security. From a PC that is directly linked to the router by a console connection in the comp port. We may virtually configure it from a separate PC on a different network. Here, we first configured it using console cable. We accessed the router terminal using a console cable-connected PC and initially set the line console password to secure the router's user mode with a password in global configuration mode. The router was then reloaded, and when we attempted to log in, it asked for password. We entered user mode and then privilege mode after providing the password. Privilege mode is unprotected. To protect privilege mode, again from global configuration mode, we entered the “enable password” and “Enable Secret” passwords. Both do protect the privilege mode . The command "banner motd “message” allows us to establish a banner that displays a message to the user before they enter the router. TELNET is the protocol that can be used to connect to a router from another network. That is why we have used a virtual teletype password to secure this router. After creating a password that makes the login option in the terminal accessible, we used the "login" command. Now, if someone tries to access it virtually, then it will ask for a password. Then, we assigned IP addresses for each network connected with both networks which are connected using WAN Cable.