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| **Assignment No** | 5 |



Assignment Number - 05

**Title :** Configuration of router by using router commands and implementation of RIP

**Problem Statement** Using a Network Simulator (e.g. packet tracer) Configure routers for RIP

# Theory :

**Router –** Router is a network device that allows you to direct data traffic to an appropriate destination. Router maintain routing table that contain IP addresses of computers over the network. A router has different components that enable proper functioning.

# Cisco IOS supports various command modes, among those followings are the main command modes.



* User EXEC Mode
* Privileged EXEC Mode
* Global Configuration Mode
* Interface Configuration Mode
* Sub Interface Configuration Mode
* Setup Mode

|  |  |  |  |
| --- | --- | --- | --- |
| **Mode** | **Prompt** | **Command to enter** | **Command to exit** |
| User EXEC | Router > | Default mode after booting. Login | Use **exit** command |
| Privileged EXEC | Router # | Use **enable** command from user  exec mode | Use **exit** command |
| Global Configuration | Router(config)# | Use **configure terminal**  command | Use **exit** command |
| Interface Configuration | Router(config- if)# | Use **interface**  **type *number*** command from  global configuration mode | Use **exit** command to  return in global configuration |
| Sub-Interface  Configuration | Router(config- subif) | Use **interface type *sub interface***  ***number***command from global configuration mode or interface configure mode | Use **exit** to return  previous mode. Use **end** command to return in privileged |

**Some important router Command**

|  |  |
| --- | --- |
| **Command** | **Description** |
| Router(config)#interface serial 0/0/0 | Enter into serial interface 0/0/0 |
| Router(config- Connecte to interface | Optional command. It set description on  interface that is locally significant |
| Router(config-if)#ip address 10.0.0.1  255.0.0.0 | Assigns address and subnet mask to |
| Router(config-if)#clock rate 64000 | DCE side only command. Assigns a clock |
| Router(config-if)#bandwidth 64 | DCE side only command. Set bandwidth for |
| Router(config-if)#no shutdown | Turns interface on |
|  |  |
|  |  |

A diagram of a computer network

Description automatically generated

**Runtime Simulation:**

**A screenshot of a computer

Description automatically generated**

# Code

**Basic Router Configuration –**

**Router0 Configuration**

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface GigabitEthernet0/0

Router(config-if)#ip address 192.168.1.1 255.255.255.0

Router(config-if)#exit

Router(config)#interface GigabitEthernet0/0

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

ip address 192.168.1.1 255.255.255.0

Router(config-if)#ip address 192.168.1.1 255.255.255.0Router(config)#interface Serial0/0/0

Router(config-if)#no shutdown

Router(config-if)#no ip address

Router(config-if)#ip address 10.10.1.2 255.0.0.0

Router(config-if)#ip address 10.10.1.2 255.0.0.0

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#router rip

Router(config-router)#network 192.168.1.0

Router(config-router)#network 192.0.0.0

Router(config-router)#network 10.0.0.0

Router(config-router)#

**Router1 Configuration**

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface GigabitEthernet0/0

Router(config-if)#ip address 192.168.2.1 255.255.255.0

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

ip address 192.168.2.1 255.255.255.0

Router(config-if)#ip address 192.168.2.1 255.255.255.0

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

ip address 10.10.1.3 255.0.0.0

Router(config-if)#ip address 10.10.1.3 255.0.0.0

Router(config-if)#ip address 10.10.1.3 255.0.0.0

Router(config-if)#exit

Router(config)#router rip

Router(config-router)#network 192.0.0.0

Router(config-router)#network 10.0.0.0

Router(config-router)#network 192.168.2.0

# Conclusion :

we configured routers using router commands and implemented the Routing Information Protocol (RIP) to facilitate dynamic routing. By using a network simulator such as Cisco Packet Tracer, we successfully established communication between multiple routers. RIP allowed routers to automatically share routing information and adjust paths based on network changes, enhancing network efficiency. This project demonstrated the practical application of RIP in routing tables to achieve effective data transmission across a network, ensuring connectivity and proper route updates between devices.