

## EXPERIMENT- 5

**Aim:** Study of basic network command and Network configuration commands.

**Apparatus (Software):** Command Prompt And Packet Tracer.

**Procedure:** To do this EXPERIMENT- follows these steps:

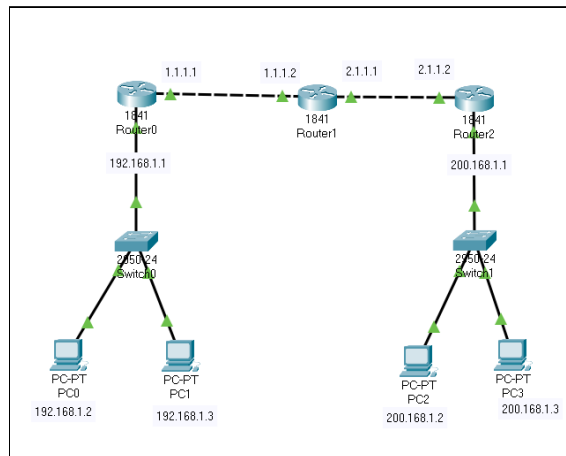
In this EXPERIMENT- students have to understand basic networking commands e.g ping, tracert etc.

All commands related to Network configuration which includes how to switch to privilege mode and normal mode and how to configure router interface and how to save this configuration to flash memory or permanent memory.

This commands includes

- Configuring the Router commands
  - General Commands to configure network
  - Privileged Mode commands of a router
  - Router Processes & Statistics
  - IP Commands
  - Other IP Commands e.g. show ip route etc.
- ( configuration of router was done in previous lab)

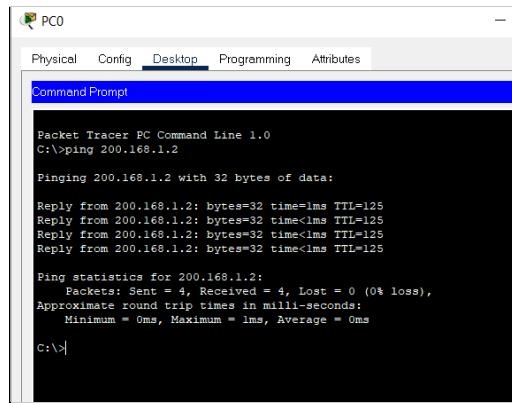
**Diagram :**



- (Took a network from previous lab, Expt 6: configure a network topology)

**ping:**

ping(8) sends an ICMP ECHO\_REQUEST packet to the specified host. If the host responds, you get an ICMP packet back. Sounds strange? Well, you can “ping” an IP address to see if a the machine is alive. If there is no response, you know something is wrong.



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt

Packet Tracer PC Command Line 1.0
C:\>ping 200.168.1.2

Pinging 200.168.1.2 with 32 bytes of data:

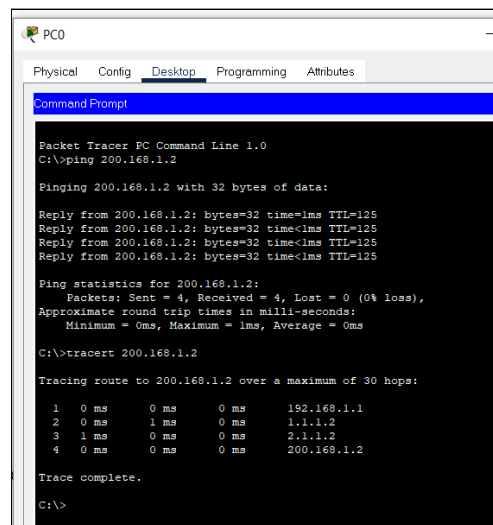
Reply from 200.168.1.2: bytes=32 time=1ms TTL=125
Reply from 200.168.1.2: bytes=32 time<1ms TTL=125
Reply from 200.168.1.2: bytes=32 time<1ms TTL=125
Reply from 200.168.1.2: bytes=32 time<1ms TTL=125

Ping statistics for 200.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

## Traceroute:

Tracert is a command which can show you the path a packet of information takes from your computer to one you specify. It will list all the routers it passes through until it reaches its destination, or fails to and is discarded. In addition to this, it will tell you how long each 'hop' from router to router takes.



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt

Packet Tracer PC Command Line 1.0
C:\>ping 200.168.1.2

Pinging 200.168.1.2 with 32 bytes of data:

Reply from 200.168.1.2: bytes=32 time=1ms TTL=125
Reply from 200.168.1.2: bytes=32 time<1ms TTL=125
Reply from 200.168.1.2: bytes=32 time<1ms TTL=125
Reply from 200.168.1.2: bytes=32 time<1ms TTL=125

Ping statistics for 200.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>tracert 200.168.1.2

Tracing route to 200.168.1.2 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms    192.168.1.1
  1  0 ms    1 ms    0 ms    1.1.1.2
  2  1 ms    0 ms    0 ms    2.1.1.2
  3  0 ms    0 ms    0 ms    200.168.1.2

Trace complete.

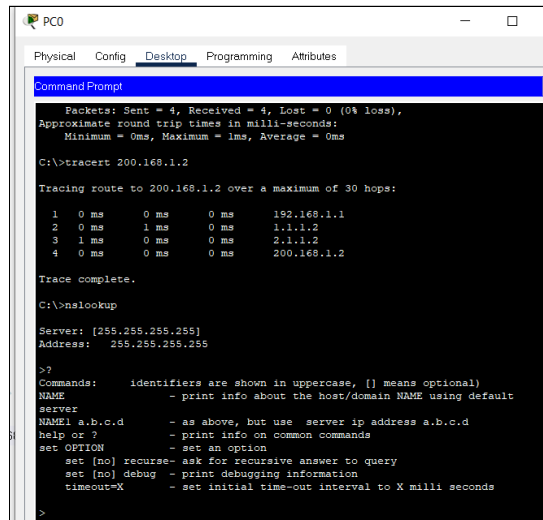
C:\>
```

## nslookup:

Displays information from Domain Name System (DNS) name servers.

NOTE :If you write the command as above it shows as default your pc's server name firstly

## GOA COLLEGE OF ENGINEERING



```
PC0
Physical  Config  Desktop  Programming  Attributes
Command Prompt
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>tracert 200.168.1.2

Tracing route to 200.168.1.2 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms   192.168.1.1
  1  0 ms    1 ms    0 ms   1.1.1.2
  2  1 ms    0 ms    0 ms   2.1.1.2
  3  0 ms    0 ms    0 ms   200.168.1.2

Trace complete.

C:\>nslookup

Server: [255.255.255.255]
Address:  255.255.255.255

>?
Commands:  identifiers are shown in uppercase, [!] means optional
NAME      - print info about the host/domain NAME using default
server
NAME! a.b.c.d - as above, but use server ip address a.b.c.d
help or ?  - print info on common commands
set OPTION - set an option
set [no] recurse- ask for recursive answer to query
set [no] debug  - print debugging information
timeout=X     - set initial time-out interval to X milli seconds
>
```

### pathping:

A better version of tracert that gives you statistics about packet loss and latency.

**Conclusion :** The study of network commands was done successfully .

**EXPERIMENT- 8**

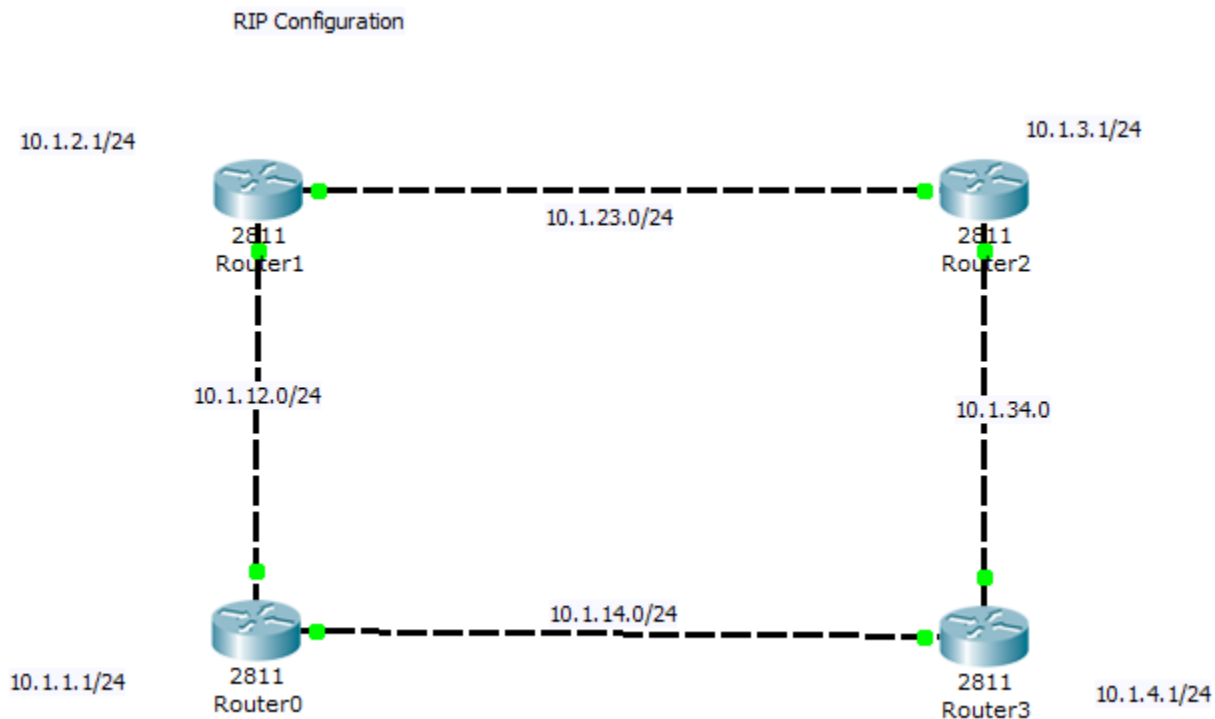
**Aim:** Configure a Network using Distance Vector Routing protocol.

- RIP

**Apparatus** (Software): packet tracer software

**Procedure:**

1. Develop a Topology shown in figure given below.
3. Configure all Routers
4. Implement RIP protocols in Router to configure Network.

**Diagram :****Code :**

```

- Configure router 0
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int lo0
Router(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up
Router(config-if)#ip address 10.1.1.1 255.255.255.0
Router(config-if)#int f0/0
Router(config-if)#ip address 10.1.12.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
Router(config-if)#int f0/1

```

```

Router(config-if)#ip address 10.1.14.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
Router#
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#net 10.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.1.1.0/24 is directly connected, Loopback0
L 10.1.1.1/32 is directly connected, Loopback0

```

- Do the same for all other routers ( router1,router2,router3)

## Output

```

Router0
Physical Config CLI Attributes
IOS Command Line Interface

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Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int lo0

Router(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

Router(config-if)#ip address 10.1.1.1 255.255.255.0
Router(config-if)#int f0/0
Router(config-if)#ip address 10.1.12.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

Router(config-if)#int f0/1
Router(config-if)#ip address 10.1.14.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

```

```

Router0
Physical Config CLI Attributes
IOS Command Line Interface

%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#net 10.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

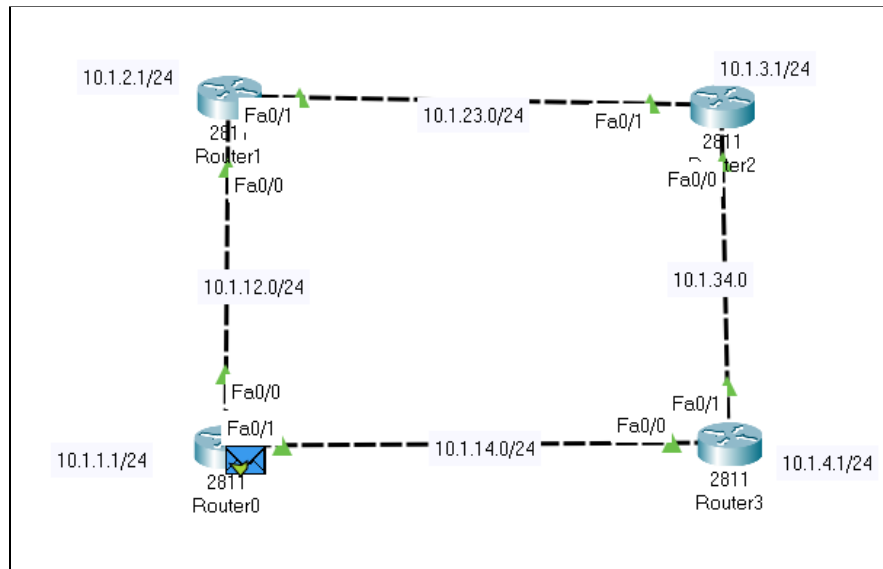
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Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
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i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
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Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.1.1.0/24 is directly connected, Loopback0
L 10.1.1.1/32 is directly connected, Loopback0

Router#

```



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	Router0	Router2	ICMP		0.000	N	0	(edit)	(delete)

- Router0 to router2 ping was successful , which proves everything is working fine.

**Conclusion :** RIP was implemented successfully .