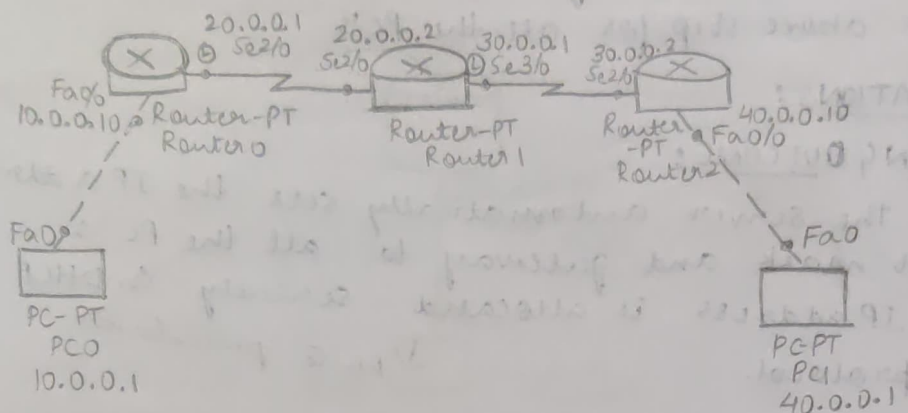


8/12/22

LAB-5

AIM: Configuring RIP routing protocol in router

TOPOLOGY:



PROCEDURE:

Serial DCE: Serial connections, often used for WAN links, must be connected between serial ports. We must enable clocking on the DCE side to bring up the line protocol. We can tell which end of the connection is the DCE side by the small "clock" icon next to the port.

Introduction: Routing Information protocol (RIP) is a protocol that routers can use to exchange network topology information. RIP uses a distance vector algorithm to decide which path to put a packet on to get to its destination.

Procedure:

- Place two PC's and three routers and connect the PC and router with copper cross over cable and the routers are connected with each other with serial DCE cable.
- Click on the PC's and set the IP address, subnet mask and the gateway for each of the PC's.
 - PC0 → ip address: 10.0.0.1, subnet mask: 255.0.0.0 gateway: 10.0.0.10
 - PC1 → ip address: 40.0.0.1, subnet mask: 255.0.0.0 gateway: 40.0.0.10
- click on the first router → go to CLI → type the command
 - > enable ; #config t ; #interface fastethernet 0/0,
 - #ip address 10.0.0.10 255.0.0.0 ; #no shut ; #exit ;
 - #interface serial 2/0 ; #ip address 20.0.0.1 255.0.0.0 ;

encapsulation ppp ; # clock rate 64000 ; # no shut ;

→ Click on the second router → go to CLI → type the commands > enable ; # config t ; # interface serial 2/0 ; # ip address 20.0.0.2 255.0.0.0 ; # encapsulation ppp ; # no shut ; # exit ;

interface serial 3/0 ; # ip address 30.0.0.1 255.0.0.0 ; # encapsulation ppp ; # clock rate 64000 ; # no shut ;

→ Click on the third router → go to CLI → type the commands > enable ; # config t ; # interface serial 2/0 ; # ip address 30.0.0.2 255.0.0.0 ; # encapsulation ppp ; # no shut ; # exit ;

interface fastethernet 0/0 ; # ip address 40.0.0.10 255.0.0.0 ; # no shut

→ Now all the basic configuration are set for all the PC's and routers. All the lights are turned green

→ Now again click on first router and go to cli and type the following commands → # router rip # network 10.0.0.0 # network 20.0.0.0 ; # exit

→ Click on second router → go to CLI and execute # router rip # network 20.0.0.0 # network 30.0.0.0 ; # exit

→ Click on third router → go to CLI and execute # router rip # network 30.0.0.0 # network 40.0.0.0

→ Ping the PC 40.0.0.1 from 10.0.0.1

Observations:

Learning outcome:

When RIP protocol is used we do not have to do static routing for all the routers i.e., we do not have to reach all the routers by providing with the next hop.

In dynamic routing (RIP protocol) we just have to specify the networks known by the router.

Result:

ping 40.0.0.1

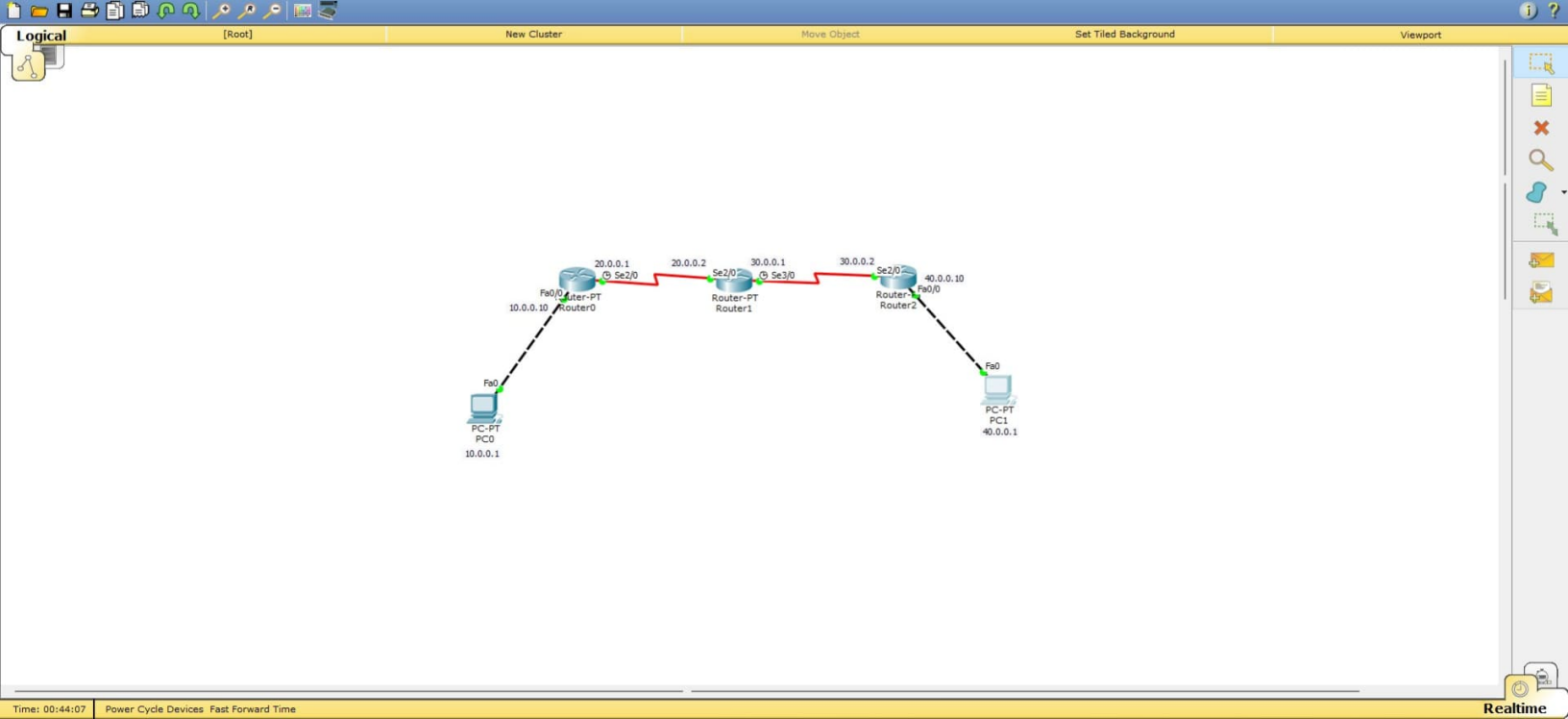
Pinging 40.0.0.1 with 32 bytes of data:

Request timed out

Reply from 40.0.0.1: bytes=32 time=4 ms TTL=125

Reply from 40.0.0.1: bytes=32 time=2 ms TTL=125

Reply from 40.0.0.1: bytes=32 time=9 ms TTL=125



Command Prompt



Packet Tracer PC Command Line 1.0

PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=13ms TTL=125

Reply from 10.0.0.1: bytes=32 time=10ms TTL=125

Reply from 10.0.0.1: bytes=32 time=8ms TTL=125

Reply from 10.0.0.1: bytes=32 time=7ms TTL=125

Ping statistics for 10.0.0.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 7ms, Maximum = 13ms, Average = 9ms

PC>

```
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)
```

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable

Router#configure terminal

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

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 10.0.0.10 255.0.0.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
exit

Router(config)#

Router(config)#interface Serial2/0

Router(config-if)#ip address 20.0.0.1 255.0.0.0

Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down

Router(config-if)#exit

Router(config)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface fastethernet 0/0

Router(config-if)#ip address 10.0.0.10 255.0.0.0

Router(config-if)#encapsulation PPP

% Invalid input detected at '^' marker.

Router(config-if)#exit

Router(config)#interface serial 2/0

Router(config-if)#ip address 20.0.0.1 255.0.0.0

Router(config-if)#encapsulation PPP

Router(config-if)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to down

Router(config-if)#clock rate 64000

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#router rip

Router(config-router)#network 10.0.0.0

Router(config-router)#network 20.0.0.0

Router(config-router)#exit

Router(config)#

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable

Router#configure terminal

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

Router(config)#interface Serial2/0

Router(config-if)#ip address 20.0.0.2 255.0.0.0

Router(config-if)#no shut

Router(config-if)#

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit

Router(config)#

Router(config)#interface Serial2/0

Router(config-if)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#ip address 30.0.0.1 255.0.0.0

Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down

Router(config-if)#exit

Router(config)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to down

Router(config)#interface serial 2/0

Router(config-if)#ip address 20.0.0.2 255.0.0.0

Router(config-if)#encapsulation PPP

Router(config-if)#no

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

% Ambiguous command: "n"

Router(config)#interface serial 3/0

Router(config-if)#ip address 30.0.0.1 255.0.0.0

Router(config-if)#encapsulation PPP

Router(config-if)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to down

Router(config-if)#clock rate 64000

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

Router(config)#router rip

Router(config-router)#network 20.0.0.0

Router(config-router)#network 30.0.0.0

Router(config-router)#exit

Router(config)#


```
.
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)
```

--- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n

Press RETURN to get started!

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Serial2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 40.0.0.10 255.0.0.0
Router(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to down

Router(config)#interface serial 2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#encapsulation PPP
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#exit
Router(config)#
```