

Assignment 5 → Dynamic Routing Using 3 routers, 3 switches & 6 End devices (2 per Switch)

★ Steps to configure the Complete Setup are as
Following →

□ Step 1: Topology Setup

• Devices Needed →

i) 3 Routers: Router0, Router1, Router2

ii) 3 Switches: Switch0, Switch1, Switch2

iii) 6 End Devices: PC0 to PC5

iv) Cables: Copper Straight Through

(For PCs ↔ Switches, Switches ↔ Routers)

& Serial DCE (For Router ↔ Router)

□ Step 2: Connect the Devices

• For PCs & Switches

• Switch0 ↔ PC0 & PC1

• Switch1 ↔ PC2 & PC3

• Switch2 ↔ PC4 & PC5

• For Switches to Routers

• Switch0 ↔ Router0 (Gig0/0)

• Switch1 ↔ Router1 (Gig0/0)

• Switch2 ↔ Router2 (Gig0/0)

• Interconnect Routers Using Serial Connections (DCE)

• Router0 (Serial0/0/0) ↔ Router1 (Serial0/0/0) → Network: 10.0.0.0/30

• Router1 (Serial0/0/1) ↔ Router2 (Serial0/0/0) → Network: ~~10~~ 11.0.0.0/30

• Router2 (Serial0/0/1) ↔ Router0 (Serial0/0/1) → Network: 12.0.0.0/30

Use Clock Rate on one end of each serial connection (DCE Side)

Step 3: Assign IP Addresses

PCs & Routers (LAN Side)

Device	Interface	IP Address	Subnet Mask
PC0	FastEthernet0	192.168.1.2	255.255.255.0
PC1	FastEthernet0	192.168.1.3	255.255.255.0
PC2	FastEthernet0	192.168.2.2	255.255.255.0
PC3	FastEthernet0	192.168.2.3	255.255.255.0
PC4	FastEthernet0	192.168.3.2	255.255.255.0
PC5	FastEthernet0	192.168.3.3	255.255.255.0

Router	Interface	IP Address	Subnet Mask
R0	Gig0/0	192.168.1.1	255.255.255.0
R1	Gig0/0	192.168.2.1	255.255.255.0
R2	Gig0/0	192.168.3.1	255.255.255.0

Router-to-Router Serial Interfaces

Link	Interface	IP Addresses	Subnet Mask
R0 ↔ R1 (10.x)	R0-S0/0/0 - 10.0.0.1	R1-S0/0/0 - 10.0.0.2	255.255.255.252
R1 ↔ R2 (11.x)	R1-S0/0/1 - 11.0.0.1	R2-S0/0/0 - 11.0.0.2	255.255.255.252
R2 ↔ R0 (12.x)	R2-S0/0/1 - 12.0.0.1	R0-S0/0/1 - 12.0.0.2	255.255.255.252

□ Step 4: Configure IP Addresses in Routers

• Configuring Router 0

Router > enable

Router # configure terminal

Router (config) # interface gig 0/0

Router (config-if) # ip address 192.168.1.1 255.255.255.0

Router (config-if) # no shutdown.

Router (config) # interface s0/0/0

Router (config-if) # ip address 10.0.0.1 255.255.255.252

Router (config-if) # clock rate 64000

Router (config-if) # no shutdown.

Router (config) # interface s0/0/1

Router (config-if) # ip address 12.0.0.2 255.255.255.252

Router (config-if) # no shutdown.

Repeat similar steps for Router 1 & Router 2, assigning respective IPs & clock rate on one side of the serial links.

P.T.O.

□ Step 5 : Dynamic Routing using RIP Configuration

• On Each Router

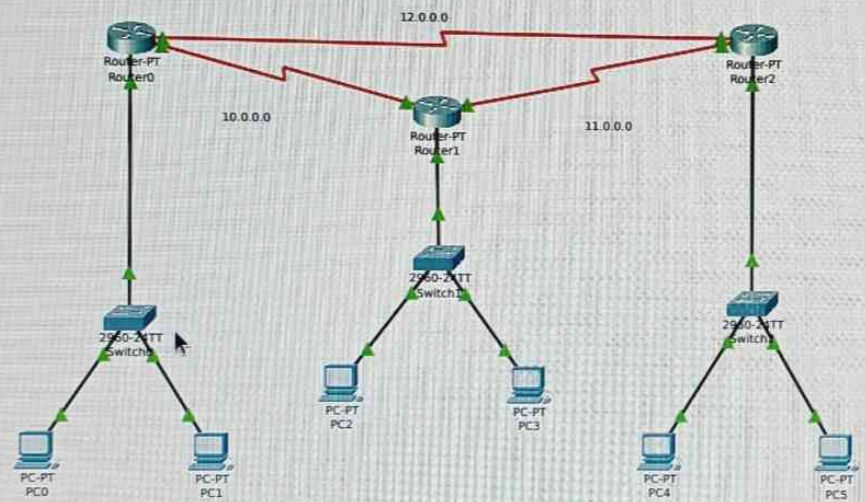
```
Router > enable
Router # configure terminal
Router (config) # router rip
Router (config-router) # version 2
Router (config-router) # no auto summary
Router (config-router) # network 10.0.0.0
Router (config-router) # network 11.0.0.0
Router (config-router) # network 12.0.0.0
Router (config-router) # network 192.168.X.0 ← (Use router's LAN Subnet)
```

• For Example on Router 0:

```
network 10.0.0.0
network 12.0.0.0
network 192.168.1.0
```

□ Step 6 : Test the Network

- Use ping from PC0 to PC5, & other cross-router devices.
- If everything is configured properly, all pings should be successful.



Time: 00:37:11

Realtime Simulation

Tools palette with icons for various network components and a search bar.

Copper Straight-Through

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	Router...	PC0	IC...		0.000	N	0	(e...
	Successful	PC4	Router0	IC...		0.000	N	1	(e...
	Successful	Router...	PC5	IC...		0.000	N	2	(e...
	Successful	Router...	PC2	IC...		0.000	N	3	(e...