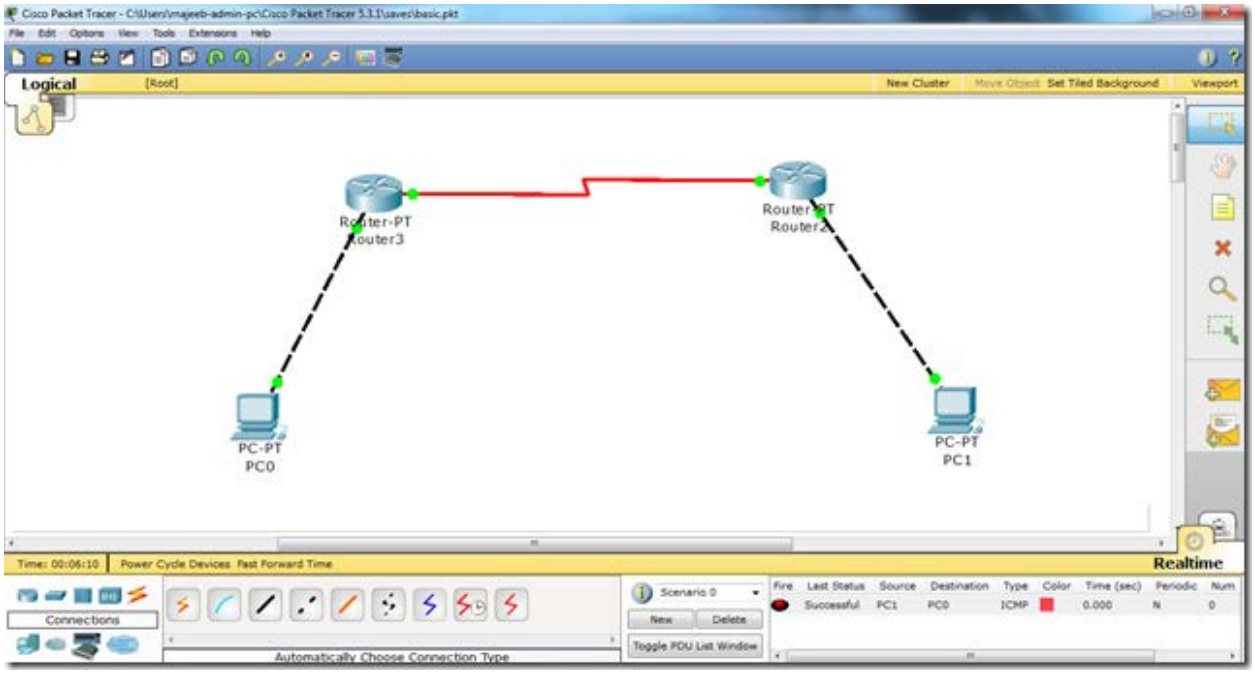
Lab 5& 6 – Routing Protocols implementation on Packet Tracer

TASKS 1

Application of RIP (routing information protocol) version 1 and version 2

Main Commands

`Router(config)#router rip`	Enables RIP as a routing protocol.
`Router(config-router)#network w.x.y.z`	w.x.y.z is the network number of the *directly connected* network you want to advertise.



R1

In order to apply protocol RIP, we will write the following set of commands.

Router(config)#int fa0/0

Router(config-if)#no shutdown

Router(config-if)#ip address 192.168.1.1 255.255.255.0

Router(config-if)#exit

Router(config)#int serial2/0

Router(config-if)#no shutdown

Router(config-if)#clock rate 64000

Router(config-if)#ip address 192.168.2.1 255.255.255.0

Router(config-if)#exit

Router(config)# **router rip**

Router(config-router)# **network 192.168.1.0**

Router(config-router)# **network 192.168.2.0**

Router(config-router)#exit

R2:

In order to apply protocol RIP, we will write the following set of commands on R2 as well.

Router(config)#int fa0/0

Router(config-if)#no shutdown

Router(config-if)#ip address 192.168.2.1 255.255.255.0

Router(config-if)#exit

Router(config)#int serial2/0

Router(config-if)#no shutdown

Router(config-if)#clock rate 64000

Router(config-if)#ip address 192.168.1.2 255.255.255.0

Router(config-if)#exit

Router(config)# **router rip**

Router(config-router)# **network 192.168.1.0**

Router(config-router)# **network 192.168.2.0**

Router(config-router)#exit

RIP V2

There is no big difference between RIP version 1 and version 2 when we are applying them in packet tracer.

Router(config)# router rip

Router(config-router)# version 2

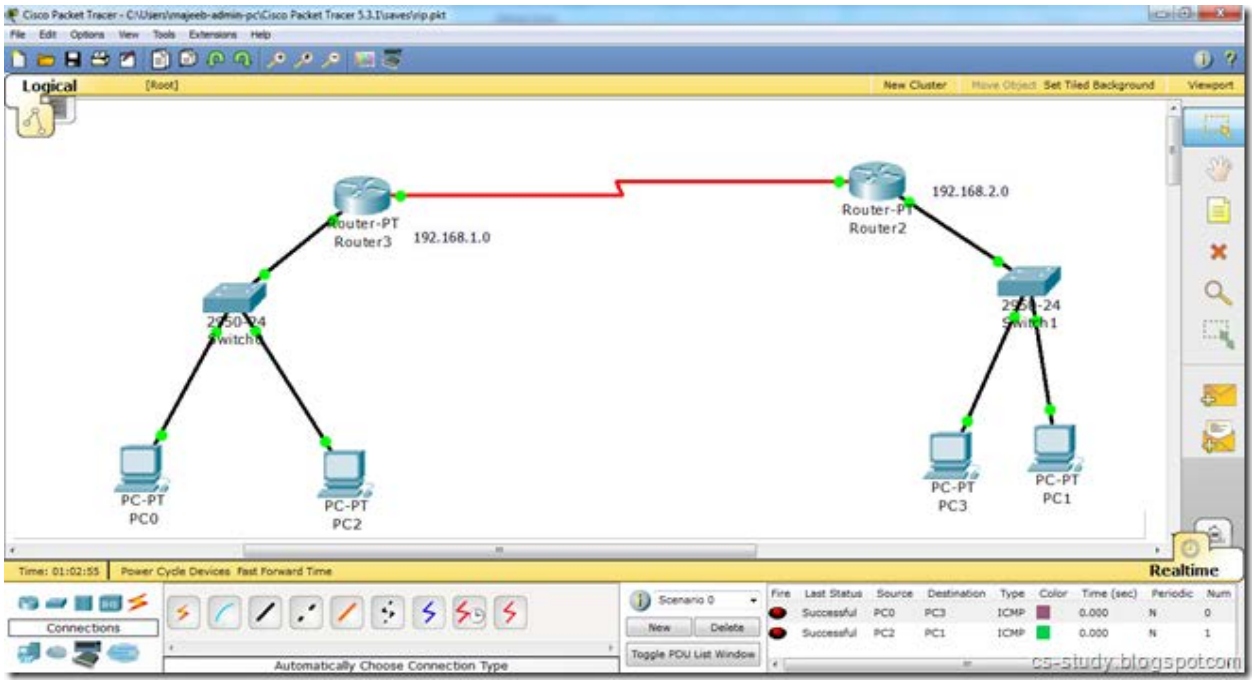
TASKS 2

Application of EIGRP on Packet Tracer

`Router(config)#router eigrp 100`	Turns on the EIGRP process. 100 is the autonomous system number, which can be a number between 1 and 65,535.
	All routers in the same autonomous system must use the same autonomous system number.
`Router(config-router)#network 10.0.0.0`	Specifies which network to advertise in EIGRP.
`Router(config-if)#bandwidth x`	Sets the bandwidth of this interface to *x* kilobits to allow EIGRP to make a better metric calculation.
	TIP: The **bandwidth** command is used for metric calculations only. It does not change interface performance.
`Router(config-router)#no network 10.0.0.0`	Removes the network from the EIGRP process.

Just look at some more commands.

`Router#show ip eigrp neighbors`	Displays the neighbor table.
`Router#show ip eigrp neighbors detail`	Displays a detailed neighbor table.
	TIP: The **show ip eigrp neighbors detail** command verifies whether a neighbor is configured as a stub router.
`Router#show ip eigrp interfaces`	Shows information for each interface.
`Router#show ip eigrp interfaces serial 0/0`	Shows information for a specific interface.
`Router#show ip eigrp interfaces 100`	Shows information for interfaces running process 100.
`Router#show ip eigrp topology`	Displays the topology table.
	TIP: The **show ip eigrp topology** command shows you where your feasible successors are.
`Router#show ip eigrp traffic`	Shows the number and type of packets sent and received.
`Router#show ip route eigrp`	Shows a routing table with only EIGRP entries.



R3:

Router#conf t

Router(config)#**router eigrp 10**
Router(config-router)#**network 192.168.1.0**
Router(config-router)#**network 192.168.2.0**
Router(config-router)#exit

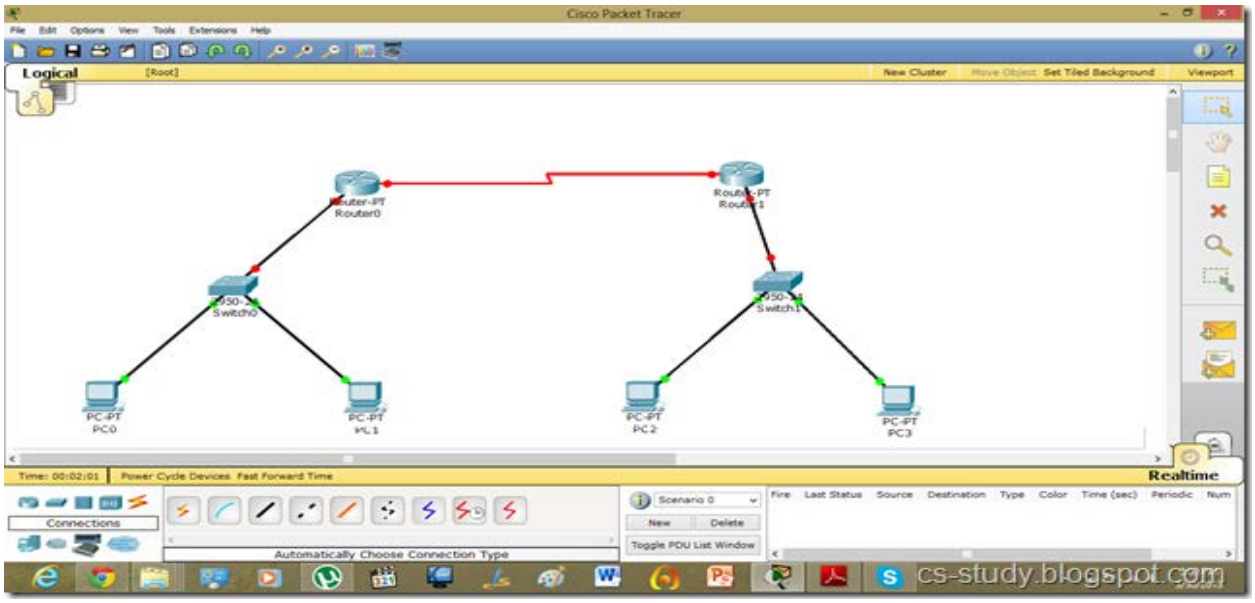
Note:

router eigrp 10

This number ‘10' is the process ID.

TASKS 3

OSPF application on Packet Tracer



ROUTER 0:

Router(config)#int fa0/0

Router(config-if)#no shutdown

Router(config-if)#ip address 192.168.1.3 255.255.255.0

Router(config-if)#exit

Router(config)#int serial2/0

Router(config-if)#no shutdown

Router(config-if)#clock rate 64000

Router(config-if)#ip address 192.168.2.1 255.255.255.0

Router(config-if)#exit

ROUTER 1:

Router(config)#int fa0/0

Router(config-if)#no shutdown

Router(config-if)#ip address 192.168.3.1 255.255.255.0

Router(config-if)#exit

Router(config)#int serial2/0

Router(config-if)#no shutdown

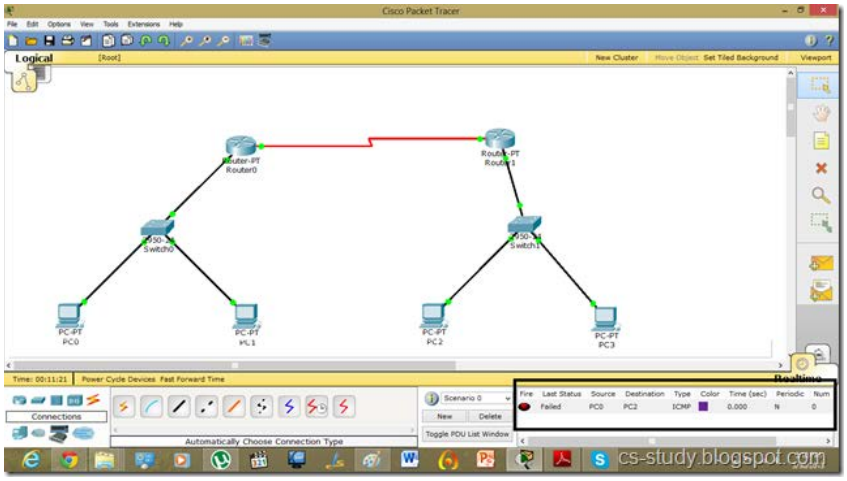
Router(config-if)#clock rate 64000

Router(config-if)#ip address 192.168.2.2 255.255.255.0

Router(config-if)#exit

Assigning the IP addresses to PCs as follows statically.

Now, as we can see, interfaces are up but the communication is not enabled because we have not applied the protocol yet.



Lets do it.

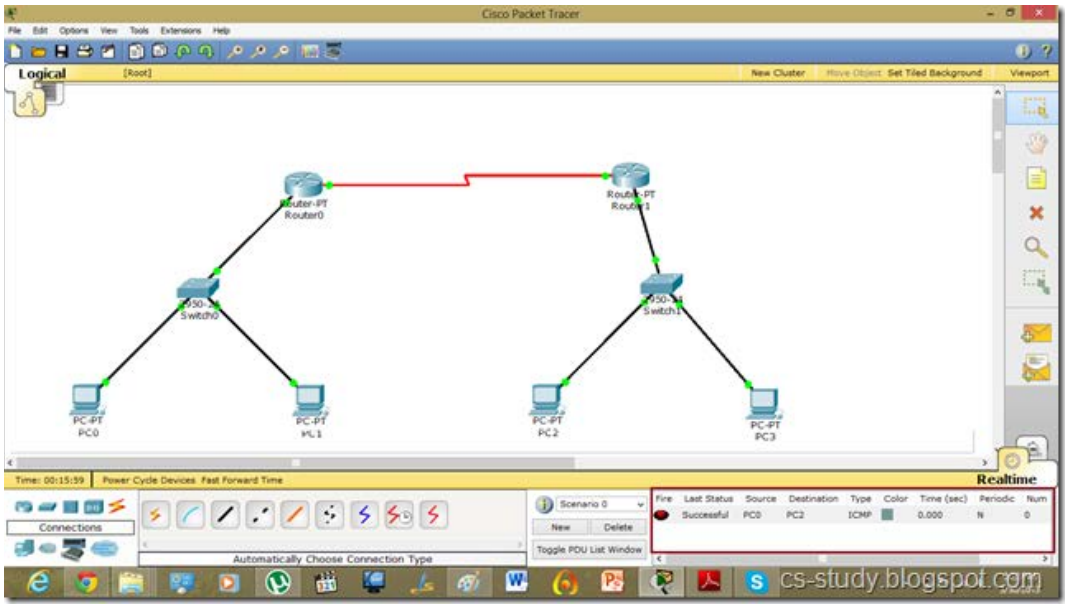
ROUTER 0 & ROUTER 1:

Router#conf t

Router(config)#**router ospf 1**
Router(config-router)#**network 192.168.1.0 255.255.255.0 area 0**
Router(config-router)#**network 192.168.2.0 255.255.255.0 area 0**

Router(config-router)#**network 192.168.3.0 255.255.255.0 area 0**
Router(config-router)#exit

After applying protocol successfully, the traffic is flowing.


Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT
Router0
Router-PT
Router1
2950-24
Switch0
2950-24
Switch1
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
PC-PT
PC3
Time: 00:15:59
Power Cycle Devices
Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time (sec)
Periodic
Num
Successful
PC0
PC2
ICMP
0.000
N
0
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