

Lab Exam 2 Exercise

Configuring RIP and OSPF Routing Protocols in Cisco Packet Tracer

Objective:

To set up and configure a network topology using RIP and OSPF routing protocols in Cisco Packet Tracer. Each computer is assigned a name and an IP address using the last three digits of the roll number.

1. Network Topology Design:

Devices:

- **Computers:** 10-12 devices, distributed across two LANs.
- **Switches:** 2 switches (one for each LAN).
- **Routers:** 2 routers connected via a WAN link.

Steps:

1. **Add Devices:**
 - Open Cisco Packet Tracer and drag 10-12 computers, 2 switches, and 2 routers onto the workspace.
 - Connect the computers to their respective switches using copper straight-through cables.
 - Connect each switch to one router.
 - Connect the two routers using a serial cable (for WAN link).
2. **Naming the Computers:**
 - Name each computer in the format PC_018.

2. IP Address Configuration:

Subnets:

- **LAN 1:** 192.168.1.0/24
- **LAN 2:** 192.168.2.0/24

Steps:

1. **Assign IP Addresses to Computers:**
 - Assign IP addresses for LAN 1 in the range 192.168.1.018.
 - Assign IP addresses for LAN 2 in the range 192.168.2.018.
 - Ensure the subnet mask is 255.255.255.0.
2. **Assign IP Addresses to Routers:**

- Router connected to LAN 1: 192.168.1.1.
- Router connected to LAN 2: 192.168.2.1.
- Assign serial IP addresses for the WAN link (e.g., 10.0.0.1/30 on Router 1 and 10.0.0.2/30 on Router 2).

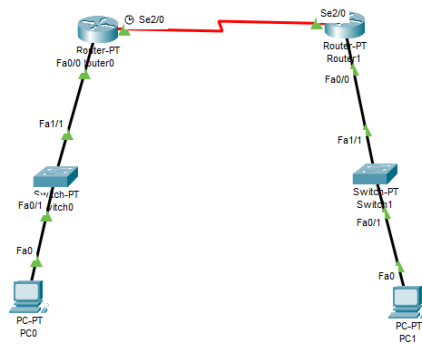
3. Routing Protocol Configuration:

RIP Configuration on Router 1:

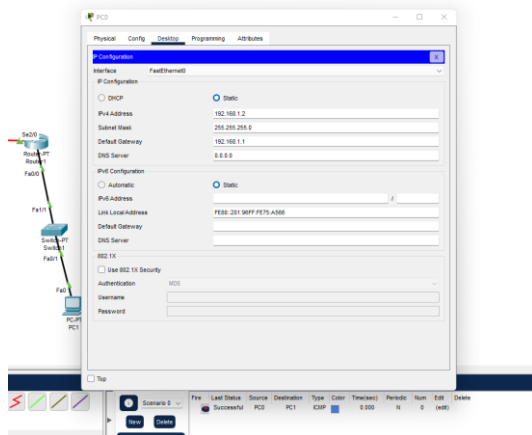
1. Go to the CLI of Router 1.
2. Enter the following commands to configure RIP v1:

```
Router> enable
Router# configure terminal
Router(config)# router rip
Router(config-router)# version 1
Router(config-router)# network 192.168.1.0
Router(config-router)# network 10.0.0.0
Router(config-router)# exit
```

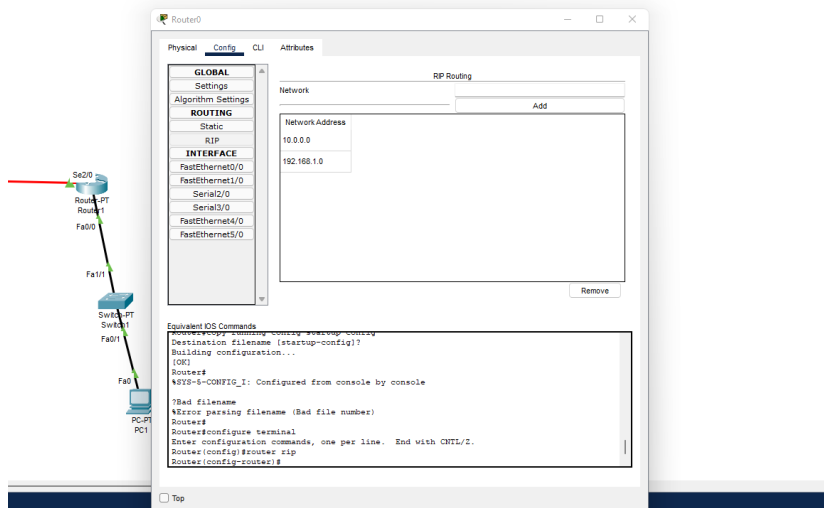
Build the network topology.



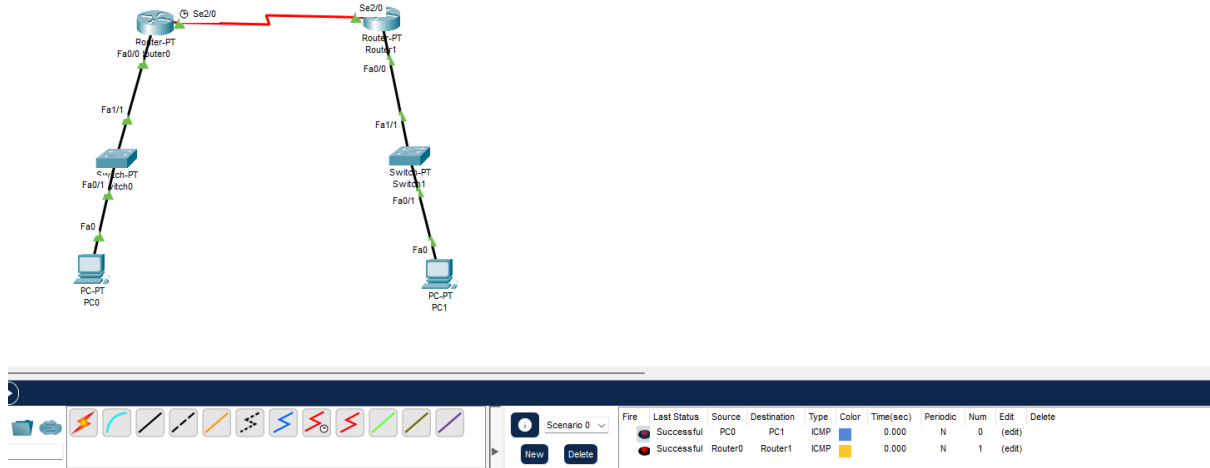
Configure IP addresses on the PCs and the routers.



Configure RIPv2 on the routers



Simulation Checking

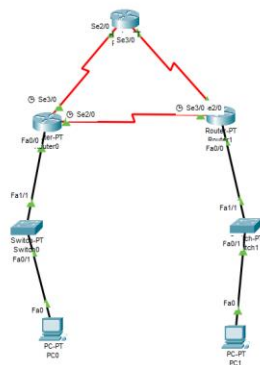


OSPF Configuration on Router 2:

1. Go to the CLI of Router 2.
2. Enter the following commands to configure OSPF:

```
Router> enable
Router# configure terminal
Router(config)# router ospf 1
Router(config-router)# network 192.168.2.0 0.0.0.255 area 0
Router(config-router)# network 10.0.0.0 0.0.0.3 area 0
Router(config-router)# exit
```

Build the network topology.



Configure IP addresses on the PCs and the routers.

PC0 Configuration Window:

Interface: FastEthernet0

IP Configuration:

- ☐ DHCP
- ☒ Static
- IPv4 Address: 192.168.1.2
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1
- DNS Server: 0.0.0.0

IPv6 Configuration:

- ☐ Automatic
- ☒ Static
- IPv6 Address: /
- Link Local Address: FE80::200:CFF:FE0D:10A4
- Default Gateway:
- DNS Server:

802.1X:

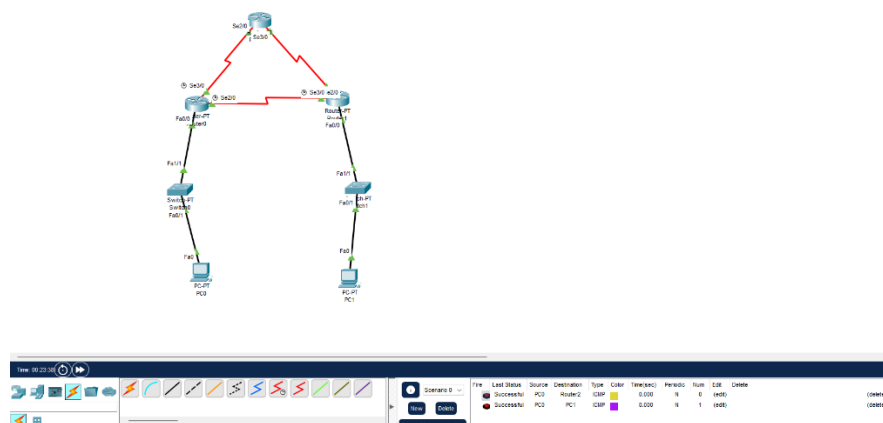
- ☐ Use 802.1X Security
- Authentication: MD5
- Username:
- Password:

Top

Scenario 0

Type	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
Successful	Successful	PC0	Router2	ICMP	Yellow	0.000	N	0	(edit)	
Successful	Successful	PC0	PC1	ICMP	Purple	0.000	N	1	(edit)	

Simulation



4. Packet Tracer Configuration Steps:

1. **Add IP Addresses** to the computers and routers according to the previous IP configuration steps.
2. **Set Up Routing:**
 - Enable RIP on Router 1 and OSPF on Router 2 as described in the previous steps.
3. **Verify Routing:**
 - Use the `show ip route` command to check if the routing tables have been updated.

5. Simulation Testing:

1. **Switch to Simulation Mode** in Cisco Packet Tracer.
2. **Send a message** (e.g., a ping) from one computer in LAN 1 to a computer in LAN 2.
3. **Verify** that the message is successfully transmitted by monitoring the simulation.