

Lab Exam Documentation

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Objective

Set up and configure a network topology using RIP and OSPF routing protocols in Cisco Packet Tracer, and customize the network by assigning names and IP addresses based on the last three digits of the roll number.

1. Network Topology Design

Topology Overview The network consists of:

- Two LANs (LAN 1 and LAN 2)
- Two switch (Switch 1 for LAN 1 and Switch 2 for LAN 2)
- Two routers (Router 1 with RIP, Router 2 with OSPF)
- WAN connection between the two routers

Device List - Computers:

- PC_001
- PC_002
- PC_003
- PC_004
- PC_005
- PC_011
- PC_012
- PC_013
- PC_014
- PC_015
- Switches:
- Switch 1
- Switch 2 - Routers: - Router 1 (RIP)
- Router 2 (OSPF)

2. IP Address Configuration

Subnets

- LAN 1: 192.168.1.0/24 - PC_001: 192.168.1.1
- PC_002: 192.168.1.2

- PC_003: 192.168.1.3
- PC_004: 192.168.1.4
- PC_005: 192.168.1.5
- Switch 1: 192.168.1.254 (Management IP)

- LAN 2: 192.168.2.0/24
- PC_011: 192.168.2.11
- PC_012: 192.168.2.12
- PC_013: 192.168.2.13
- PC_014: 192.168.2.14
- PC_015: 192.168.2.15
- Switch 2: 192.168.2.254 (Management IP)

3. Routing Protocols Configuration

Router 1 (RIP Configuration)

1. Access Router 1 CLI:

enable configure terminal

2. Configure Interfaces:

```
interface FastEthernet0/0 ip address
192.168.1.1 255.255.255.0 no
shutdown
```

```
interface Serial0/0/0 # Adjust based on WAN
```

```
link ip address [WAN_IP_R1]
```

```
[WAN_Subnet_Mask] no shutdown 3. Enable RIP:
```

```
router rip version 1 network 192.168.1.0 netWork
```

```
[WAN_Network_R1] # e.g., 10.0.0.0
```

Router 2 (OSPF Configuration) 1.

Access Router 2 CLI:

```
...
```

```
enable configure terminal
```

...

2. Configure Interfaces:

...

```
interface FastEthernet0/0 ip address  
192.168.2.1 255.255.255.0 no  
shutdown
```

```
interface Serial0/0/0 # Adjust based on WAN link  
ip address [WAN_IP_R2] [WAN_Subnet_Mask] no  
shutdown
```

...

3. Enable OSPF:

...

```
router ospf 1 network 192.168.2.0 0.0.0.255 area 0 network  
[WAN_Network_R2] 0.0.0.3 area 0 # e.g., 10.0.0.0
```

...

4. Testing and Simulation

Testing Connectivity

1. Ping Test:

- From PC_001 (192.168.1.1), open Command Prompt and ping PC_011 (192.168.2.11): ping

```
192.168.2.11
```

...

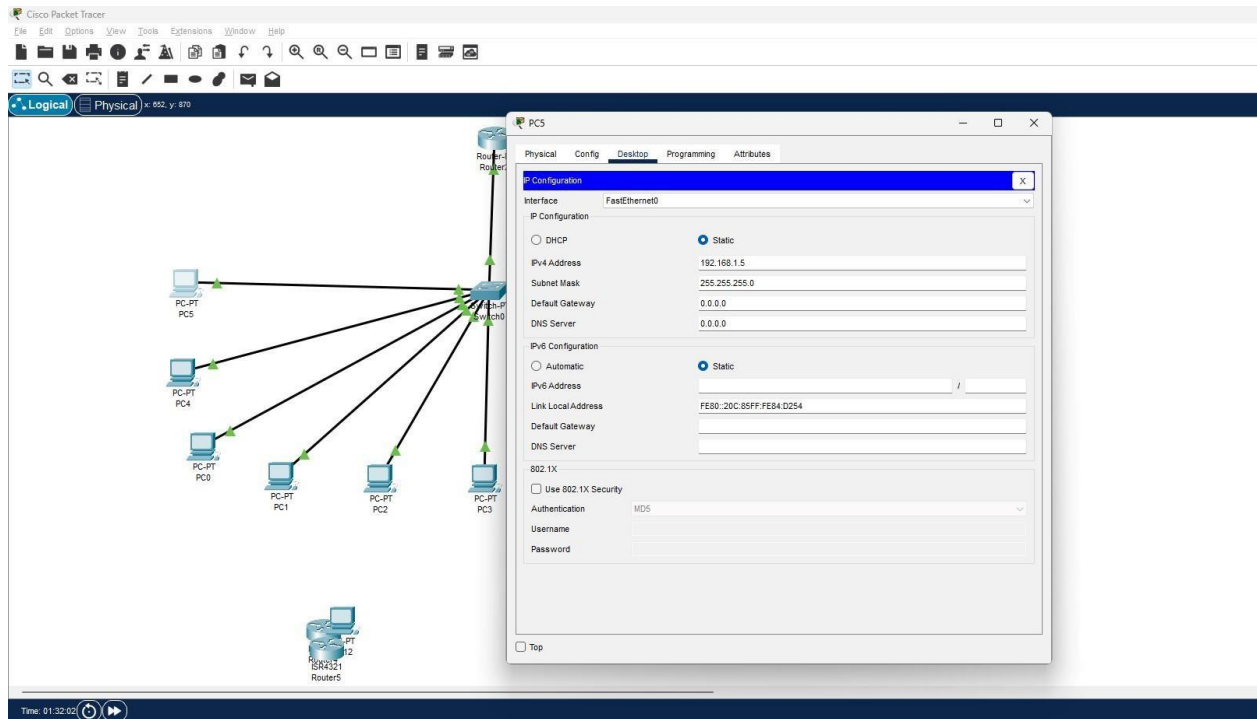
- Verify successful responses to ensure communication between LANs.

Simulation Mode

- Switch to Simulation Mode
- Test message transmission between PCs in different LANs to verify the routing protocols' functionality.

5. Documentation and Submission

Screenshots



File Edit Options View Tools Extensions Window Help

Logical Physical x: 679, y: 696

Router2

Router3

PC-PT PC5

PC-PT PC4

PC-PT PC0

PC-PT PC1

PC-PT PC2

PC-PT PC3

Router5

Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#
Router(config)#router rip
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet1/0
Router(config-if)#
$SYS-S-CONFIG_1: Configured from console by console
no shutdown
Router(config-if)#
$LINK-S-CHANGED: Interface FastEthernet1/0, changed state to up

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet5/0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
```

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