



Lab 4

RIP and OSPF using CISCO Packet Tracer

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Network Security (CS3403)– RVU – Mouli Sankaran

Lab 4: Focus

- **Exp 1:** Configure RIP with Classful IPv4 Addresses
- **Exp 2:** Configure Static routes with CIDR IPv4 Addresses

Files shared:

Lab4_Exp1_RIP_shared.pkt

Lab4_Exp2_Static_shared.pkt

Python IDE used on Windows: Thonny

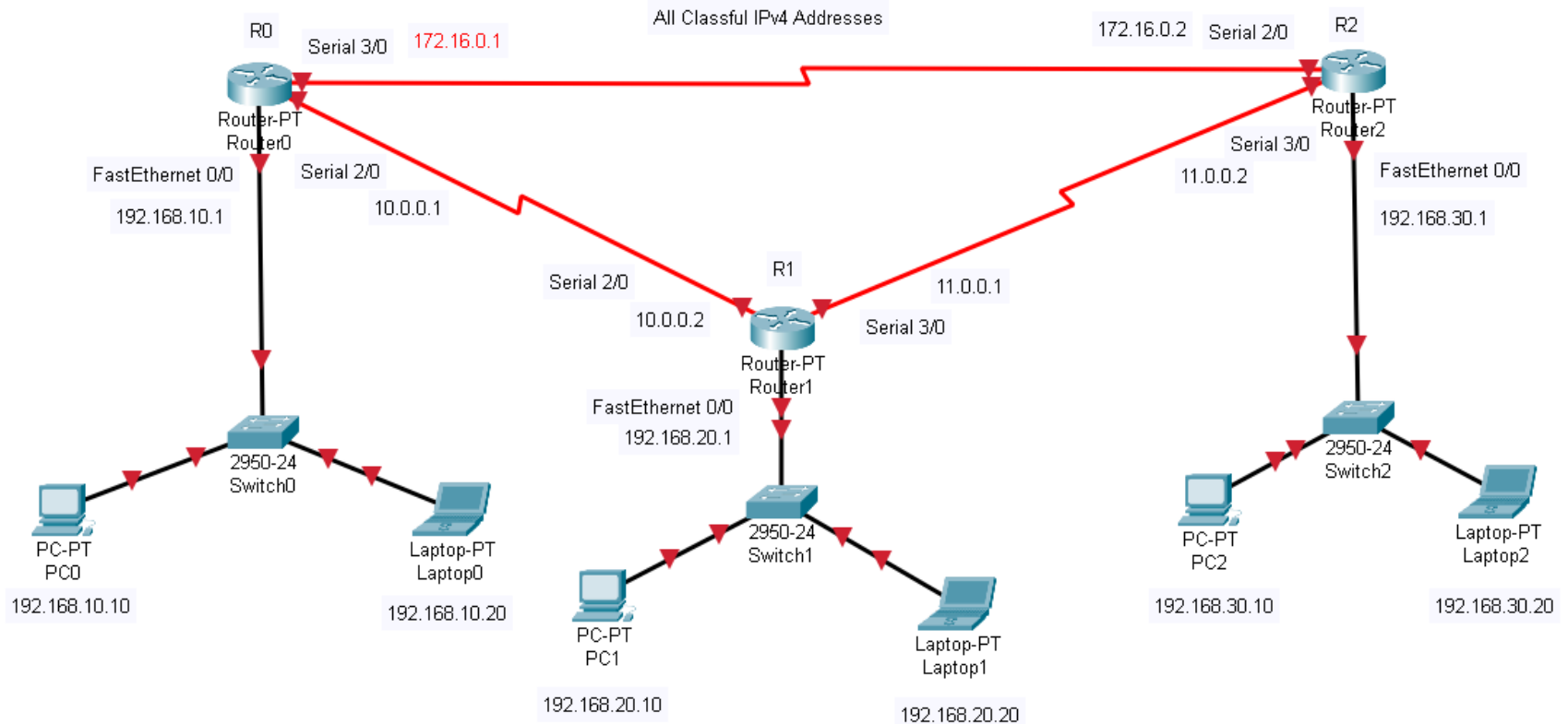
**Course page where the course materials will be posted
as the course progresses:**



Exp 1: Understanding RIP with Classful Addresses **(RIP)**

Using:
Lab4_Exp1_RIP_shared.pkt

Exp 1: Configure RIP with Classful IPv4 Addresses (using Lab4_Exp1_RIP_shared.pkt)



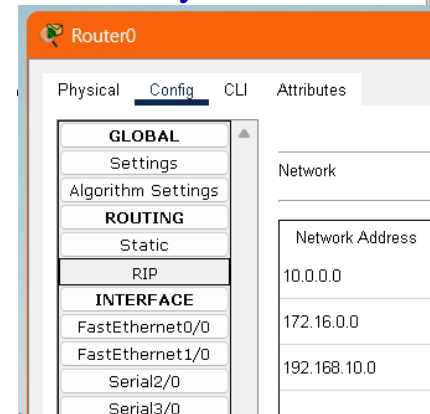
- Configure all the hosts and routers and make sure that you are able to ping all the hosts from each other, as per the configuration given above.
- Notice that before configuring and enabling the interfaces, their **link status indicators** are **red** in colour.

Exp 1: Steps involved

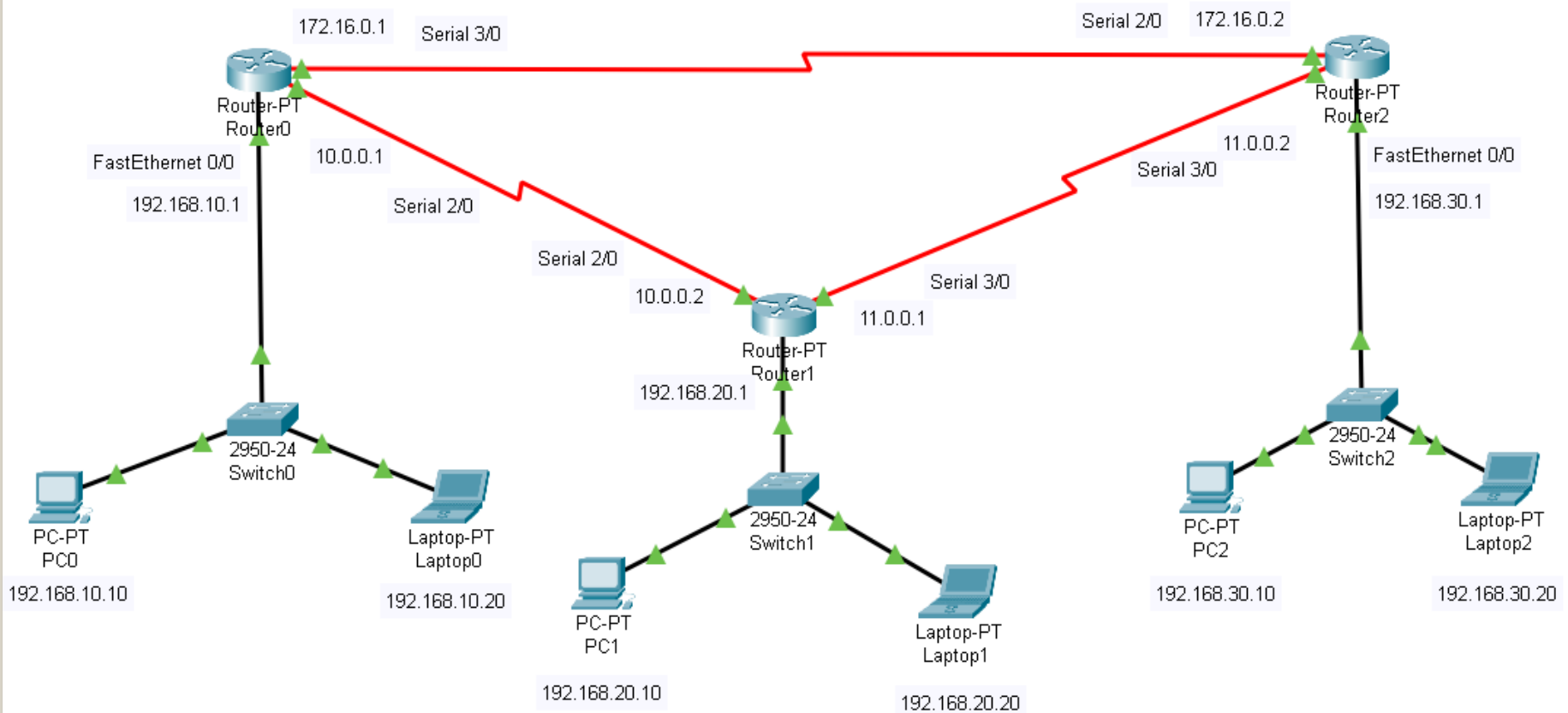
(File name: Lab4_Exp1_RIP.pkt)

1. Configure all the hosts with the Static IPv4 address, subnet mask (classful), DNS Server (8.8.8.8) and Default Gateway as per the IP addresses mentioned in the shared pkt file.
 - **Config → Settings → Static** and **Config → Fast Ethernet0 IP Configuration** **Note: Remember to make I/F Port Status On**
2. Check your configuration using the *ipconfig* command
 - **Desktop → Command Prompt**
3. Configure the chosen router's interfaces FastEthernet 0/0, Serial 1/0 and Serial 2/0 with the given IPv4 addresses and relevant classful subnet masks and make the **Port Status On**
 - **Config → INTERFACES → IP Configuration**
4. Configure all the routers by choosing RIP protocol and **add** the IPv4 network addresses assigned to all its directly connected interfaces
 - **Config → ROUTING → RIP**

Router 0: RIP
Directly connected i/f



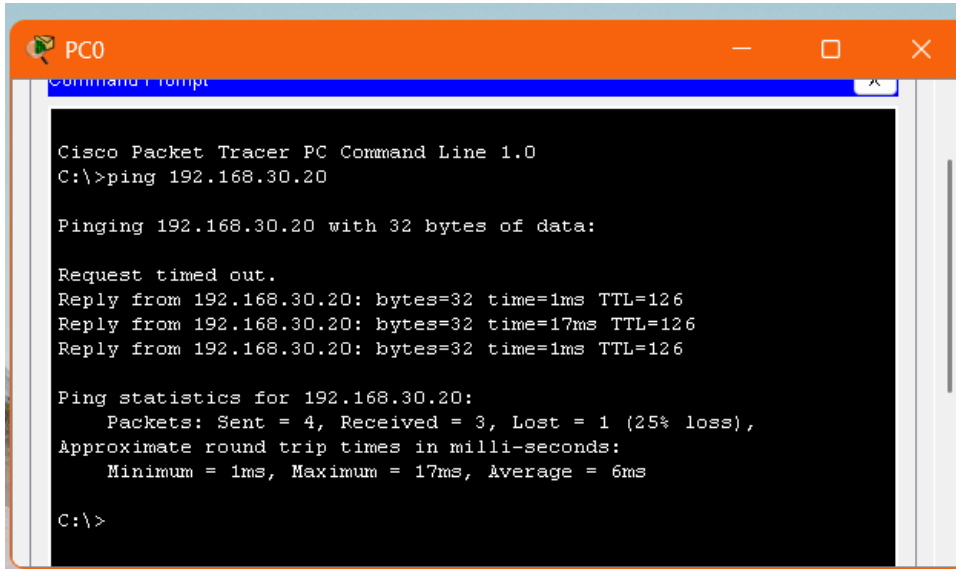
Exp 1: After Configuring them Fully



- Notice the **link status indicators** are becoming **green** on both ends of the links once their IP addresses are configured and they are enabled.

Exp 1: Verification - Samples

(RIP)



PC0

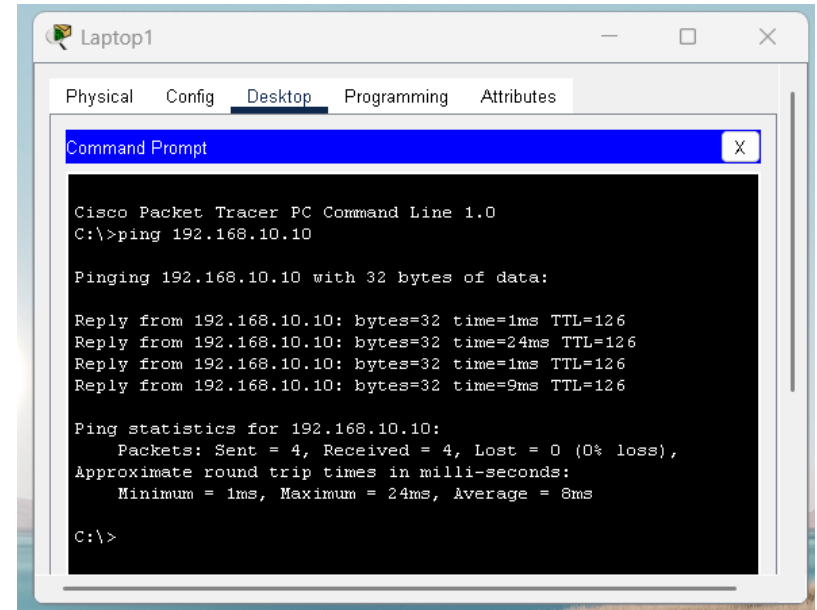
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.20

Pinging 192.168.30.20 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.20: bytes=32 time=1ms TTL=126
Reply from 192.168.30.20: bytes=32 time=17ms TTL=126
Reply from 192.168.30.20: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.30.20:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 17ms, Average = 6ms

C:\>
```



Laptop1

```
Physical  Config  Desktop  Programming  Attributes

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.10

Pinging 192.168.10.10 with 32 bytes of data:

Reply from 192.168.10.10: bytes=32 time=1ms TTL=126
Reply from 192.168.10.10: bytes=32 time=24ms TTL=126
Reply from 192.168.10.10: bytes=32 time=1ms TTL=126
Reply from 192.168.10.10: bytes=32 time=9ms TTL=126

Ping statistics for 192.168.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 24ms, Average = 8ms

C:\>
```

- Verify the network connections and router configurations between all the hosts by using the *ping* command from each host
 - Desktop → Command Prompt

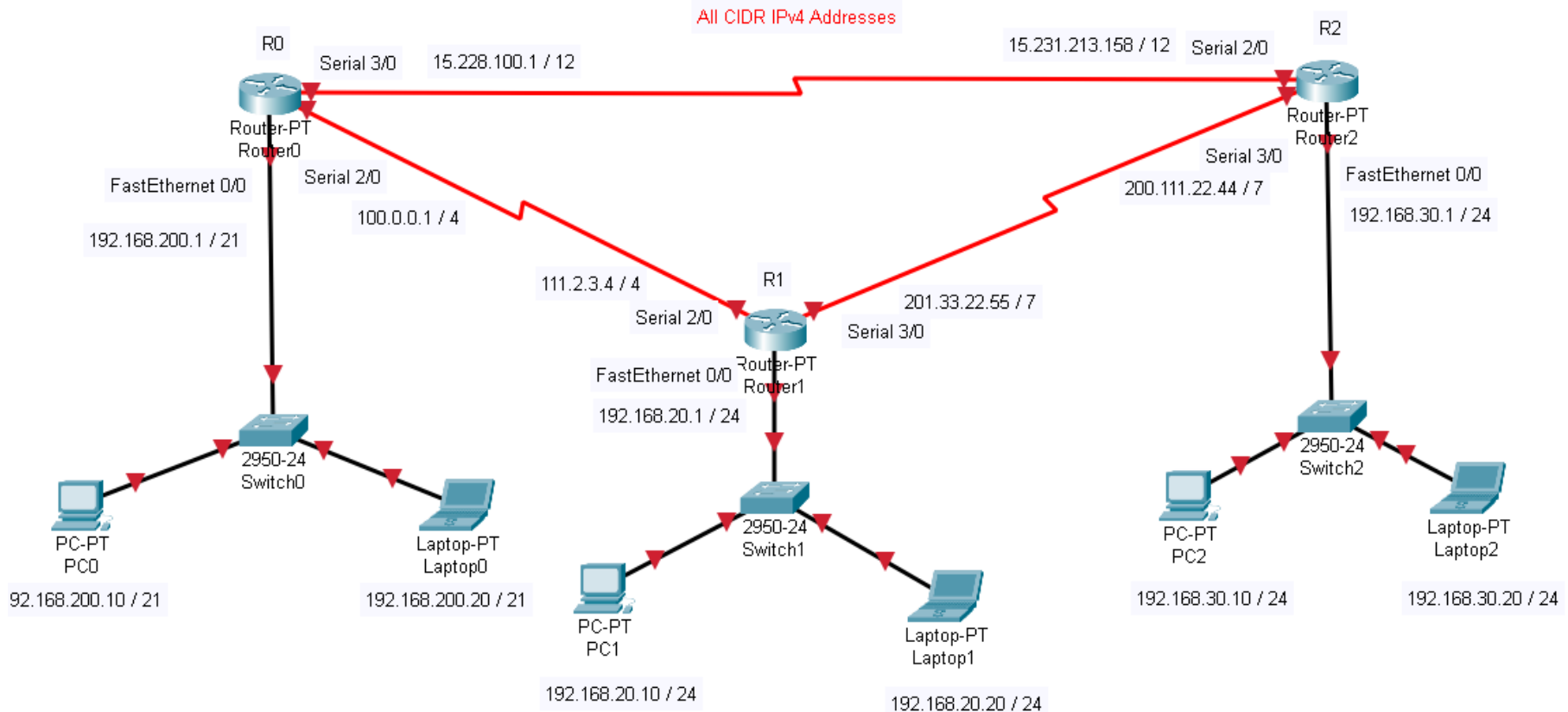


Exp 2: Practice Static Routing with CIDR Addresses (Static Routing)

Using:

Lab4_Exp2_Static_shared.pkt

Exp 2: Configure Static Route with CIDR IPv4 Addresses (using Lab4_Exp2_Static_shared.pkt)



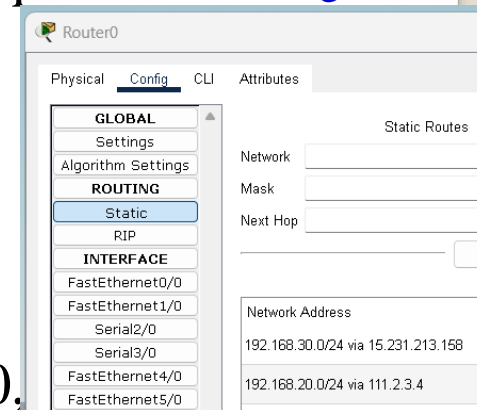
- Configure all the hosts and routers and make sure that you are able to ping all the hosts from each other, as per the configuration given above.
- Configure all the routers using **static routing**.

Exp 2: Steps involved

(File name: Lab4_Exp2_Static.pkt)

1. Configure all the hosts with the Static CIDR IPv4 address, subnet mask (classful), DNS Server (8.8.8.8) and Default Gateway as per the IP addresses mentioned in the shared pkt file.
Note: Remember to make I/F Port Status On
 - Config → Settings → Static and Config → FastEthernet0/0 → IP Configuration
2. Check your configuration using the *ipconfig* command
 - Desktop → Command Prompt
3. Configure the chosen router's interfaces FastEthernet 0/0, Serial 1/0 and Serial 2/0 with the given IPv4 addresses and relevant classful subnet masks and make the **Port Status On**
 - Config → INTERFACES → IP Configuration
4. Configure all the routers by choosing Static routing and add entries giving the next-hop router's interface IP address
 - Config → ROUTING → Static

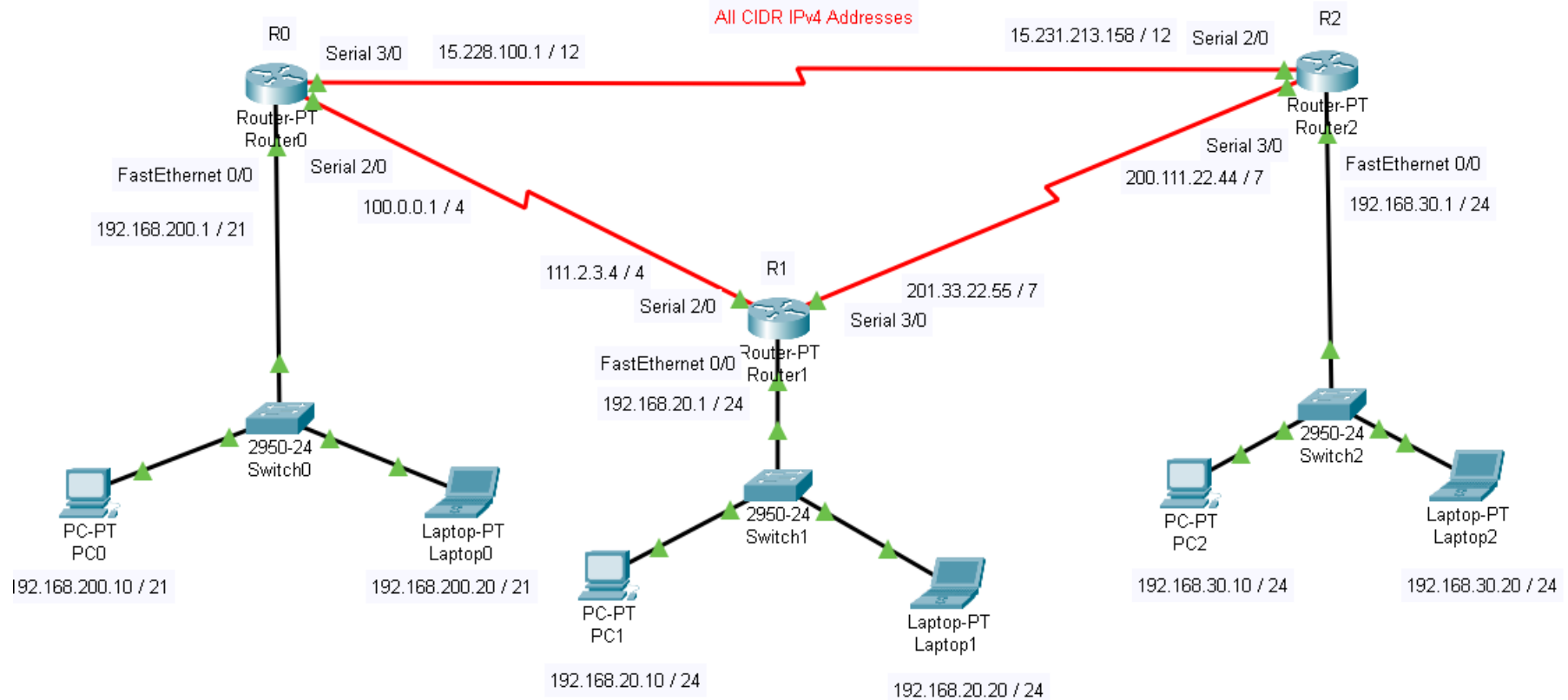
Router 0: Sample Static Routing entries



Note: If you want to identify the link on the picture enable/disable the Port based on link status changes you can identify

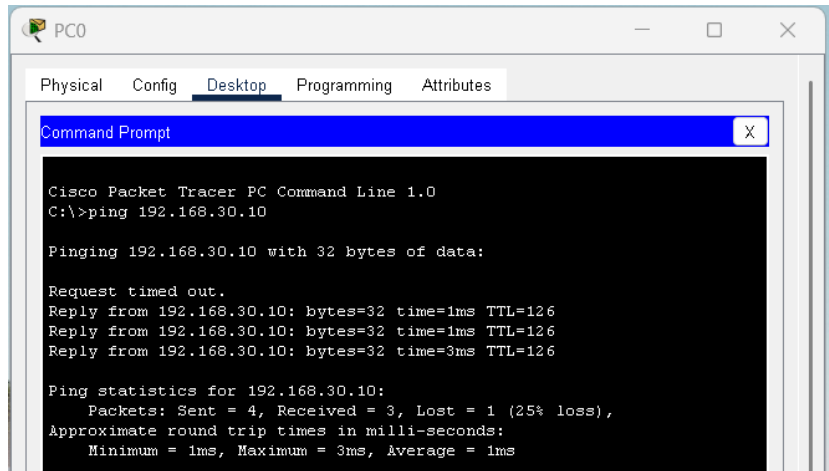
Note: Add one entry for every LAN connected to the other Routers. Ref, Router 0 entries.

Exp 2: After Configuring them Fully



- Notice the **link status indicators** are becoming **green** on both ends of the links once their IP addresses are configured and they are enabled.

Exp 2: Verification - Samples (Static Routing)



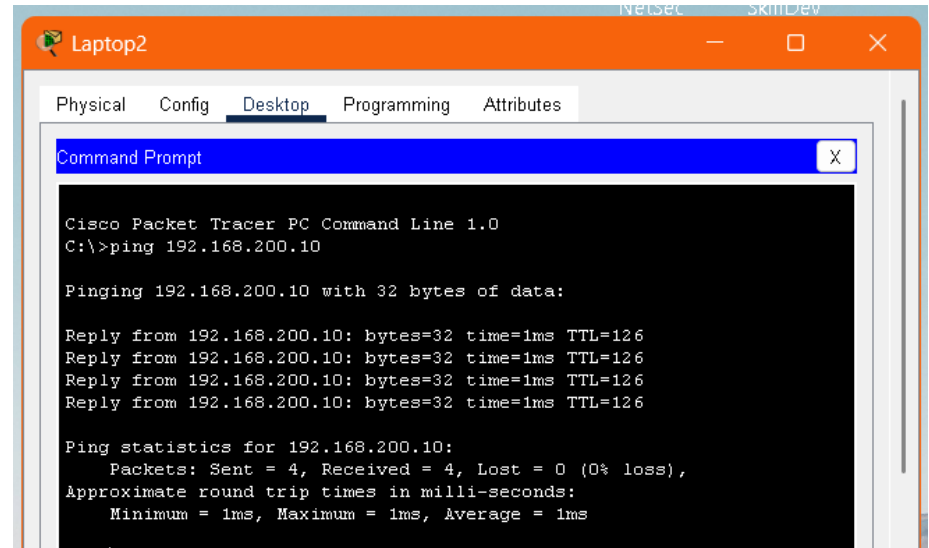
The screenshot shows a Cisco Packet Tracer window for PC0. The 'Desktop' tab is selected, and a 'Command Prompt' window is open. The command prompt shows the execution of the 'ping 192.168.30.10' command. The output indicates a successful ping with 32 bytes of data, showing request and reply times, and statistics for the target IP.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.10

Pinging 192.168.30.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.10: bytes=32 time=1ms TTL=126
Reply from 192.168.30.10: bytes=32 time=1ms TTL=126
Reply from 192.168.30.10: bytes=32 time=3ms TTL=126

Ping statistics for 192.168.30.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 1ms
```



The screenshot shows a Cisco Packet Tracer window for Laptop2. The 'Desktop' tab is selected, and a 'Command Prompt' window is open. The command prompt shows the execution of the 'ping 192.168.200.10' command. The output indicates a successful ping with 32 bytes of data, showing request and reply times, and statistics for the target IP.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.200.10

Pinging 192.168.200.10 with 32 bytes of data:

Reply from 192.168.200.10: bytes=32 time=1ms TTL=126
Reply from 192.168.200.10: bytes=32 time=1ms TTL=126
Reply from 192.168.200.10: bytes=32 time=1ms TTL=126
Reply from 192.168.200.10: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.200.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

- Verify the network connections and router configurations between all the hosts by using the *ping* command from each host
 - **Desktop → Command Prompt**

Lab 4: Summary

- **Exp 1:** Configure RIP with Classful IPv4 Addresses
- **Exp 2:** Configure Static routes with CIDR IPv4 Addresses

Files shared:

Lab4_Exp1_RIP_shared.pkt

Lab4_Exp2_Static_shared.pkt