

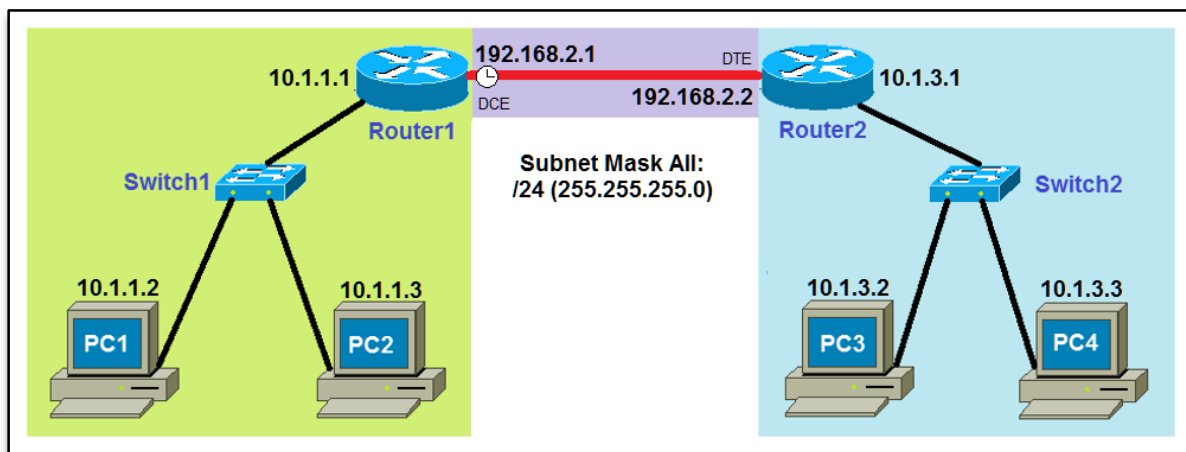
Packet Tracer Mini-Lab 08: Supplement

Configuring 2 LANs/2 Routers using Config, CLI, & RIPv2

CAVEAT: THE LABS IN CC2-180 MAY NOT WORK ENTIRELY AS PLANNED. WE WILL BE UTILIZING BOTH A SERVER 2012 R2 HOST PC AND VIRTUAL MACHINES (VMs) ON THE HOST PC, IN WHICH CASE THERE MAY BE UNFORESEEN ISSUES. AS SUCH WE WILL LIKELY GET SOME UNEXPECTED 'REAL WORLD' TROUBLESHOOTING PRACTICE AND MAY EVEN HAVE TO "WING IT"

Mini-Lab 08 Objective

The lab provides further practice in a simulated environment using Cisco's Packet Tracer application.



INSTRUCTIONS: You can use the **Packet Tracer project** (e.g., **minilab05.pkt**) created in **Mini-Lab 5**, which we are going to modify before starting this lab (we are going to remove the static routes in both routers, so the devices will no longer be able to ping across all the networks, then instead of using static routes we'll use the RIP routing protocol).

Make a copy of that project and rename it to **minilab08.pkt** (or whatever naming convention you used previously).

If you do not have a copy of the previous project, then you will have to work through **Mini-Lab 5** and save the project first before starting this lab (making sure to make a second copy of the completed lab then renaming that copy appropriately).

1. Open the copy of the project (e.g., copied/renamed **minilab08.pkt**) you created from the previous Mini-Lab 5 project (e.g., **minilab05.pkt**)
2. Click on **PC1** and select the **Desktop** tab.



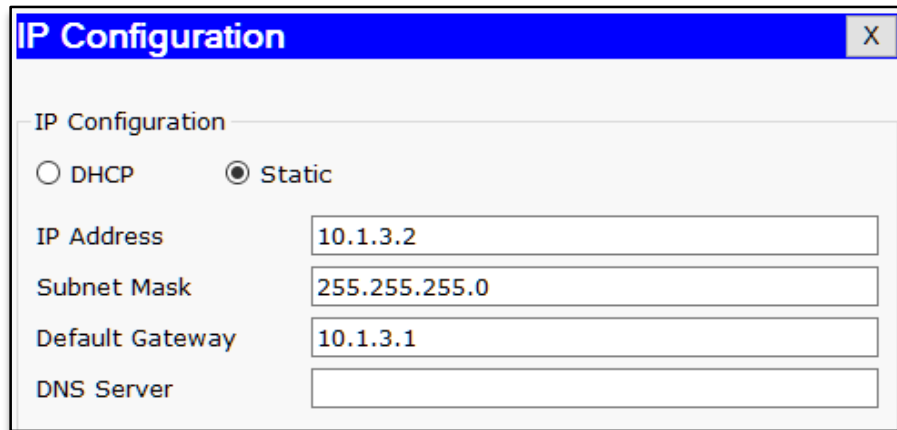
3. Select **IP Configuration**, and enter the following **address information**:

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	10.1.1.2
Subnet Mask	255.255.255.0
Default Gateway	10.1.1.1
DNS Server	

4. Click on **PC2** and select the **Desktop** tab.
5. Select **IP Configuration**, and enter the following **address information**:

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	10.1.1.3
Subnet Mask	255.255.255.0
Default Gateway	10.1.1.1
DNS Server	

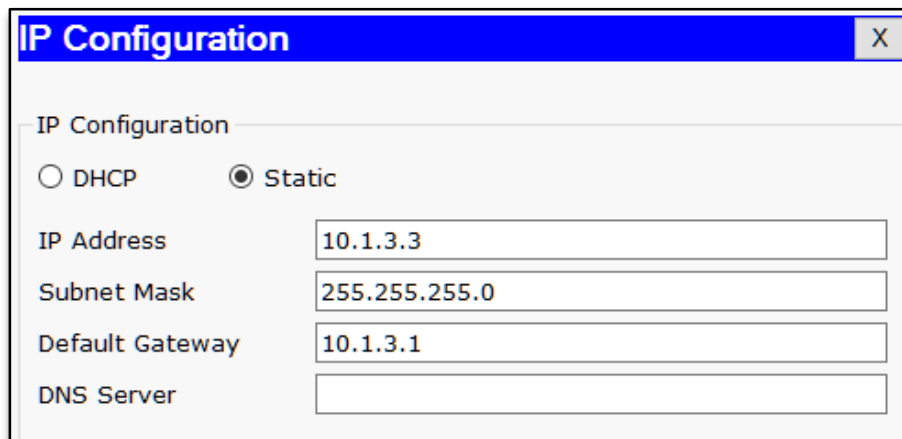
- Click on **PC3** and select the **Desktop** tab.
- Select **IP Configuration**, and enter the following **address information**:



The screenshot shows the 'IP Configuration' dialog box for PC3. The 'Static' radio button is selected. The IP Address is 10.1.3.2, Subnet Mask is 255.255.255.0, and Default Gateway is 10.1.3.1. The DNS Server field is empty.

Field	Value
IP Address	10.1.3.2
Subnet Mask	255.255.255.0
Default Gateway	10.1.3.1
DNS Server	

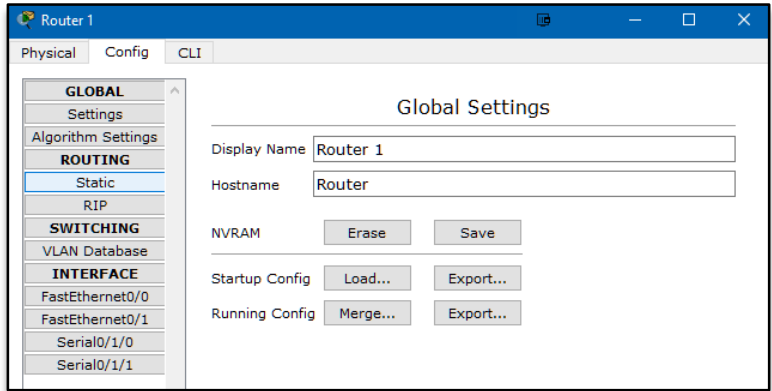
- Click on **PC4** and select the **Desktop** tab.
- Select **IP Configuration**, and enter the following **address information**:



The screenshot shows the 'IP Configuration' dialog box for PC4. The 'Static' radio button is selected. The IP Address is 10.1.3.3, Subnet Mask is 255.255.255.0, and Default Gateway is 10.1.3.1. The DNS Server field is empty.

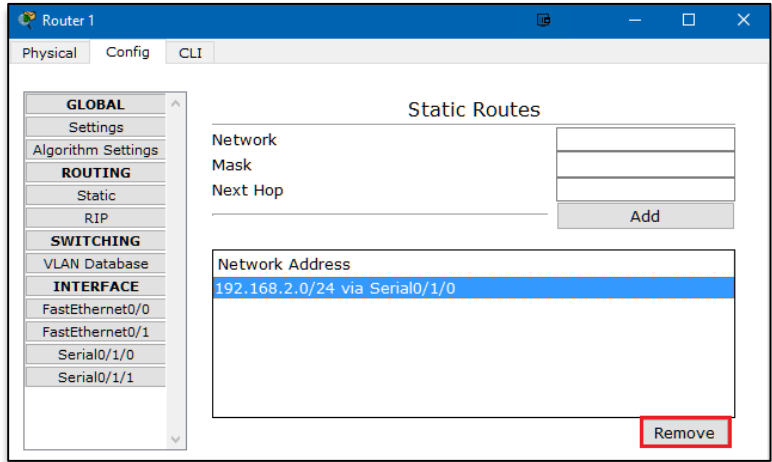
Field	Value
IP Address	10.1.3.3
Subnet Mask	255.255.255.0
Default Gateway	10.1.3.1
DNS Server	

10. Click on **Router 1** and select the **Config** tab.

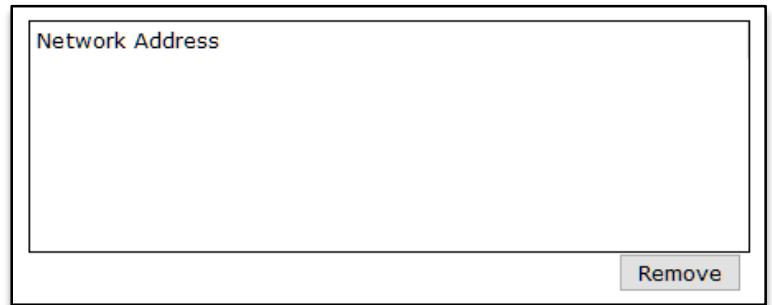


11. Under **ROUTING**, select the **Static** bar.

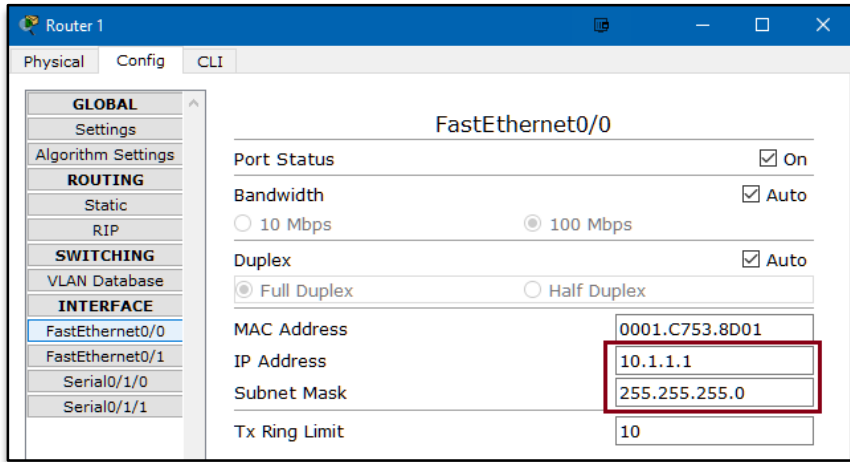
12. In the **Static Routes** box, select **192.168.2.0/24 via Serial0/1/0**, then click the **Remove** button.



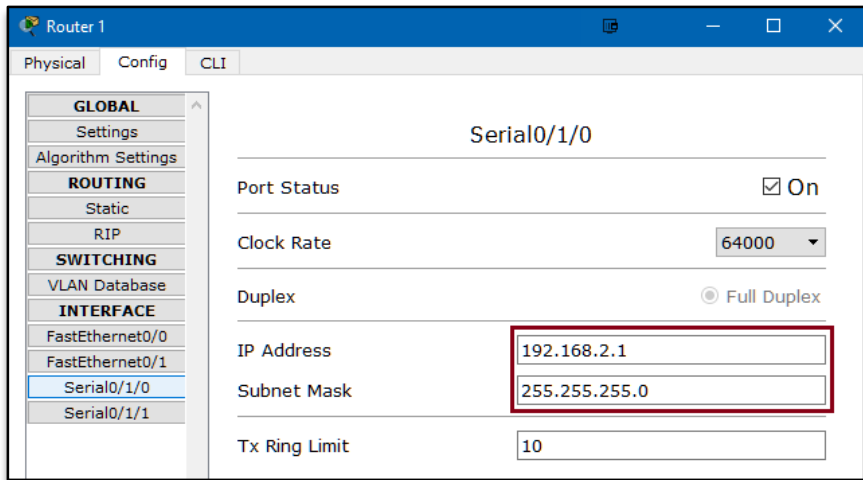
13. The **static route** will be removed.



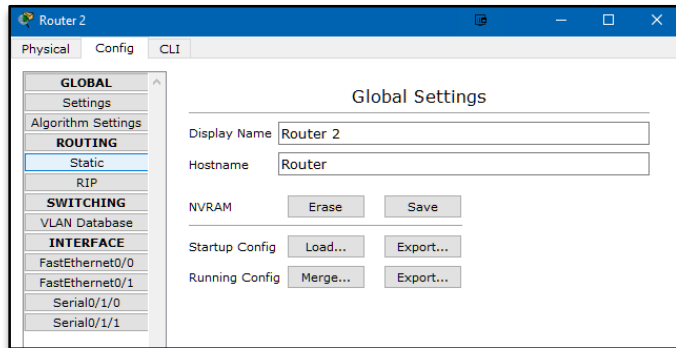
14. Select **FastEthernet0/0** and enter the following address information



15. Select **Serial0/1/0** and enter the following address information

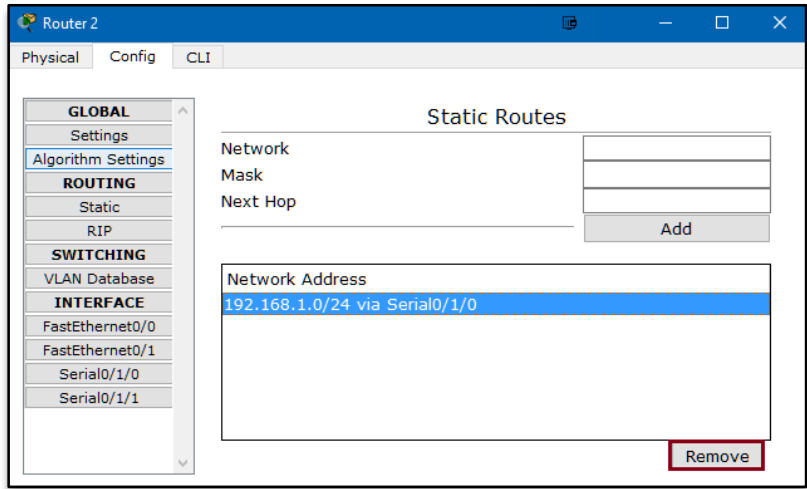


16. Close the window, and click on **Router 2** and select the **Config** tab.

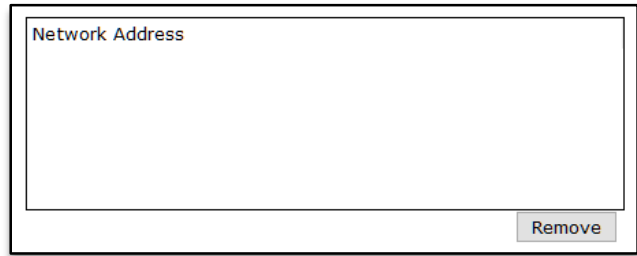


17. Under **ROUTING**, select the **Static** bar.

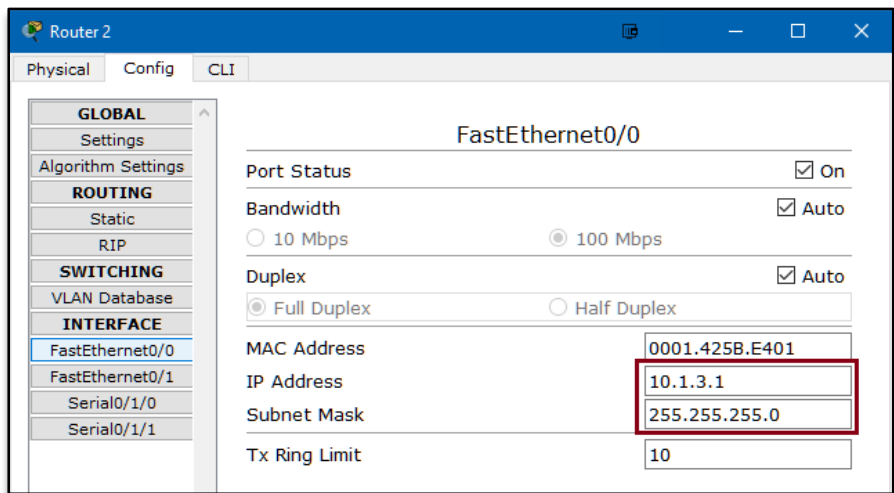
18. In the **Static Routes** box, select **192.168.1.0/24 via Serial0/1/0**, then click the **Remove** button.



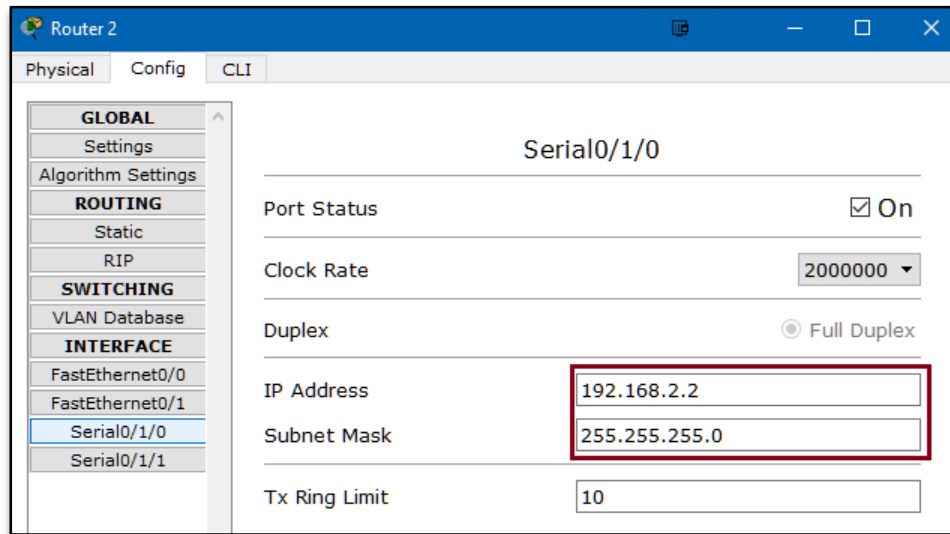
19. The **static route** will be removed.



20. Select **FastEthernet0/0** and enter the following address information



21. Select **Serial0/1/0** and enter the following address information



22. From **PC 1**, try pinging **PC 4 (10.1.3.3)**. You should get a **Destination host unreachable** response, because that portion of the network can no longer be found. This is what we want 😊

```
PC>ping 10.1.3.3

Pinging 10.1.3.3 with 32 bytes of data:

Reply from 10.1.1.1: Destination host unreachable.
Reply from 10.1.1.1: Destination host unreachable.
Reply from 10.1.1.1: Destination host unreachable.
Reply from 10.1.1.1: Destination host unreachable.

Ping statistics for 10.1.3.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

NOTE: To get this network to work and for each router to be aware of all routes all that is required is to add the “version 2” into the RIP configuration. This changes the RIP protocol from version 1 to version 2 and turns it from a **classful** protocol to a **classless** protocol. In effect it allows for the **subnet mask** to be transferred with a network and therefore, in this instance, the routers can now learn about the networks the other routers have attached. Below I show the complete configuration with the “version 2” and “no auto-summary” settings added in. I suggest you initially just add the version 2 setting by going into the configuration mode and first typing “router rip” and then at the prompt typing “version 2 – it should look something like this: Router(config-router)#version 2. Once done on both routers the network should work and you can check with “show ip route” command. You can then add the “no auto-summary” setting to see what happens, but to do that you’ll need to use the “show ip route” command again. Anyway the complete RIP version 2 configuration for the network is as follows.

23. Close the windows, and click on **Router 1** again and select the **CLI** tab; click in the CLI window and hit the **Enter** key to bring up the **Router>** prompt.

```
Router>
```

24. At the **Router>** prompt, type **enable**.

```
Router>enable
Router#
```

25. At the **Router#** prompt, type **config t**

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
```

26. At the **Router(config)#** prompt, type **router rip**

```
Router#conf t
Enter configuration commands:
Router(config)#router rip
Router(config-router)#
```

27. At the **Router(config-router)#** prompt, type **version 2**

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#
```

28. At the **Router(config-router)#** prompt, type **network 10.0.0.0**, then **Enter** key, then **network 192.168.2.0**, then the **Enter** key again.

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#network 10.0.0.0
Router(config-router)#network 192.168.2.0
Router(config-router)#
```

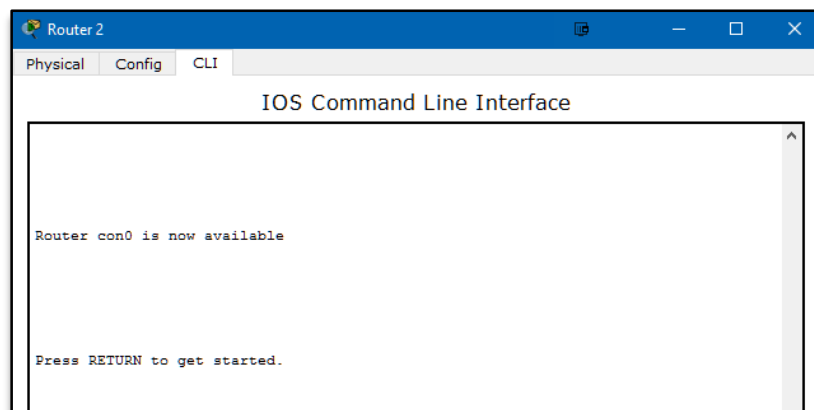
29. At the prompt, type **exit** to return to the previous prompt, then type **exit** again, then the **Enter** key.


```
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
```

30. If you want, you can see the running router configuration by typing **show run** and navigating down through the CLI window using **Enter** key

```
router rip
version 2
network 10.0.0.0
network 192.168.2.0
!
ip classless
!
!
```

31. Close the window, and click on **Router 2**, then the **CLI** tab.



32. Click in the window and hit the **Enter** key to bring up the **Router>** prompt.

```
Router>
```

33. At the **Router>** prompt, type **enable** to bring up the **Router#** prompt, then type **conf t** to bring up the **Router (config)#** prompt.

```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
```

34. At the **Router(config)#** prompt, type **router rip**

```
Router#conf t
Enter configuration commands:
Router(config)#router rip
Router(config-router)#
```

35. At the **Router(config-router)#** prompt, type **version 2**

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#
```

36. At the **Router(config-router)#** prompt, type **network 10.0.0.0**, then **Enter** key, then **network 192.168.2.0**, then the **Enter** key again.

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#network 10.0.0.0
Router(config-router)#network 192.168.2.0
Router(config-router)#
```

37. At the prompt, type **exit** to return to the previous prompt, then type **exit** again, then the **Enter** key.

```
Router(config)#router rip
Router(config-router)#network 192.168.2.0
Router(config-router)#network 192.168.3.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

38. At this stage, we can have a look at the route configuration by typing in `show ip route`, then hitting **Enter** key.

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
R       10.0.0.0/8 [120/1] via 192.168.2.1, 00:00:07, Serial0/1/0
C       10.1.3.0/24 is directly connected, FastEthernet0/0
C       192.168.2.0/24 is directly connected, Serial0/1/0
Router#
```

This tells us that **Router 2** knows about all the connected networks 😊

39. Close the window, because that's it. You're all done! Now all **devices** should be able to **ping all** the **interfaces** and other **devices** successfully using **RIPv2** 😊

40. Click on **PC1**, and select the **Desktop** tab.

41. Select **Command Prompt**, and try pinging each of the following:

- a. Ping 10.1.1.2 (itself)
- b. ping 10.1.1.3 (PC2)
- c. ping 10.1.1 (Router 1 fa0/0)
- d. ping 192.168.2.1 (router 1 s0/1/0)
- e. ping 192.168.2.2 (router 2 s0/1/0)
- f. ping 10.1.3.1 (router 2 fa0/0)
- g. ping 10.1.3.2 (PC3)
- h. ping 10.1.3.3 (PC4)

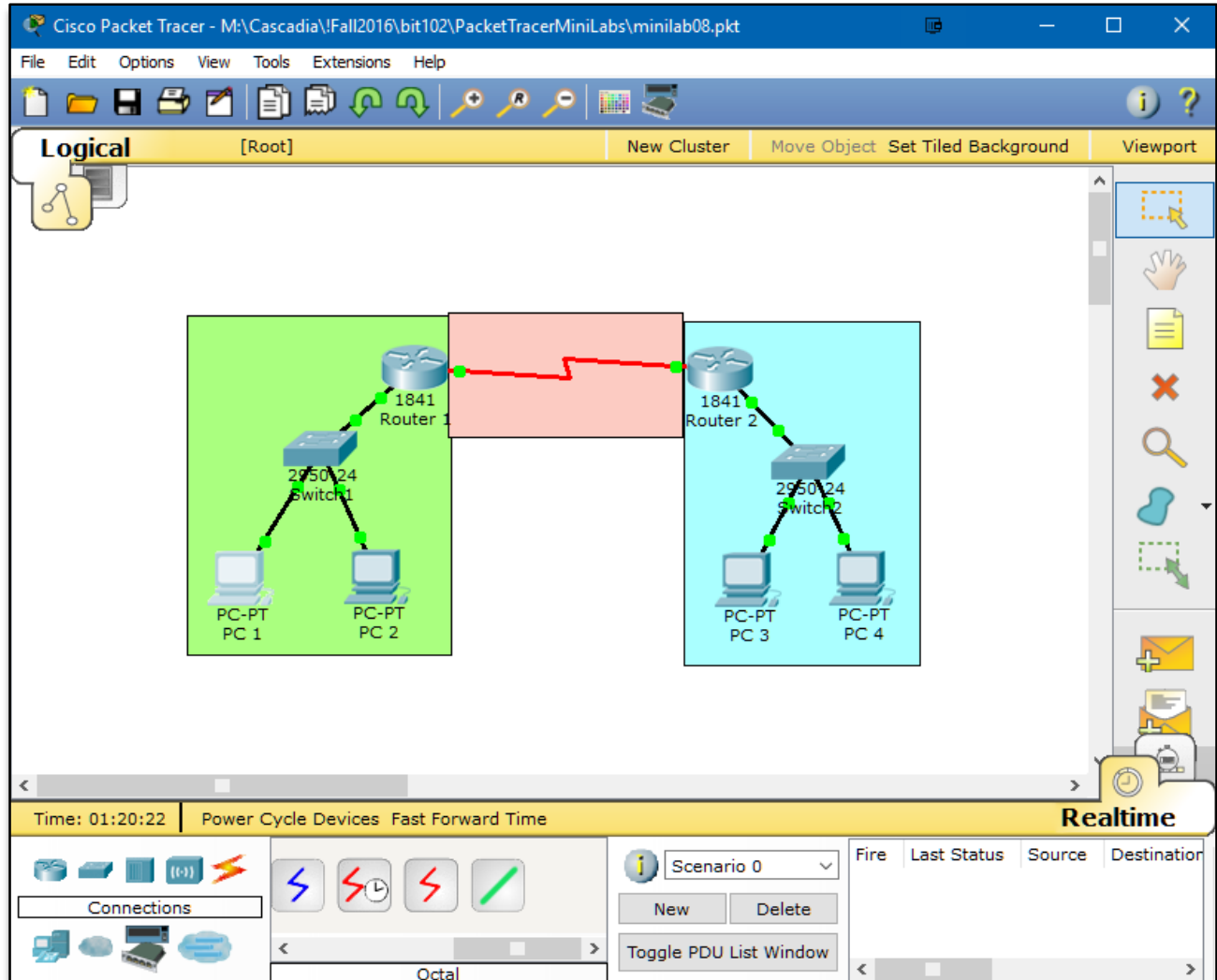
```
PC>ping 10.1.3.3

Pinging 10.1.3.3 with 32 bytes of data:

Reply from 10.1.3.3: bytes=32 time=5ms TTL=126
Reply from 10.1.3.3: bytes=32 time=1ms TTL=126
Reply from 10.1.3.3: bytes=32 time=7ms TTL=126
Reply from 10.1.3.3: bytes=32 time=1ms TTL=126

Ping statistics for 10.1.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 3ms
```

42. Test doing the same from PC2, PC3, and PC4.



END OF MINI-LAB 08