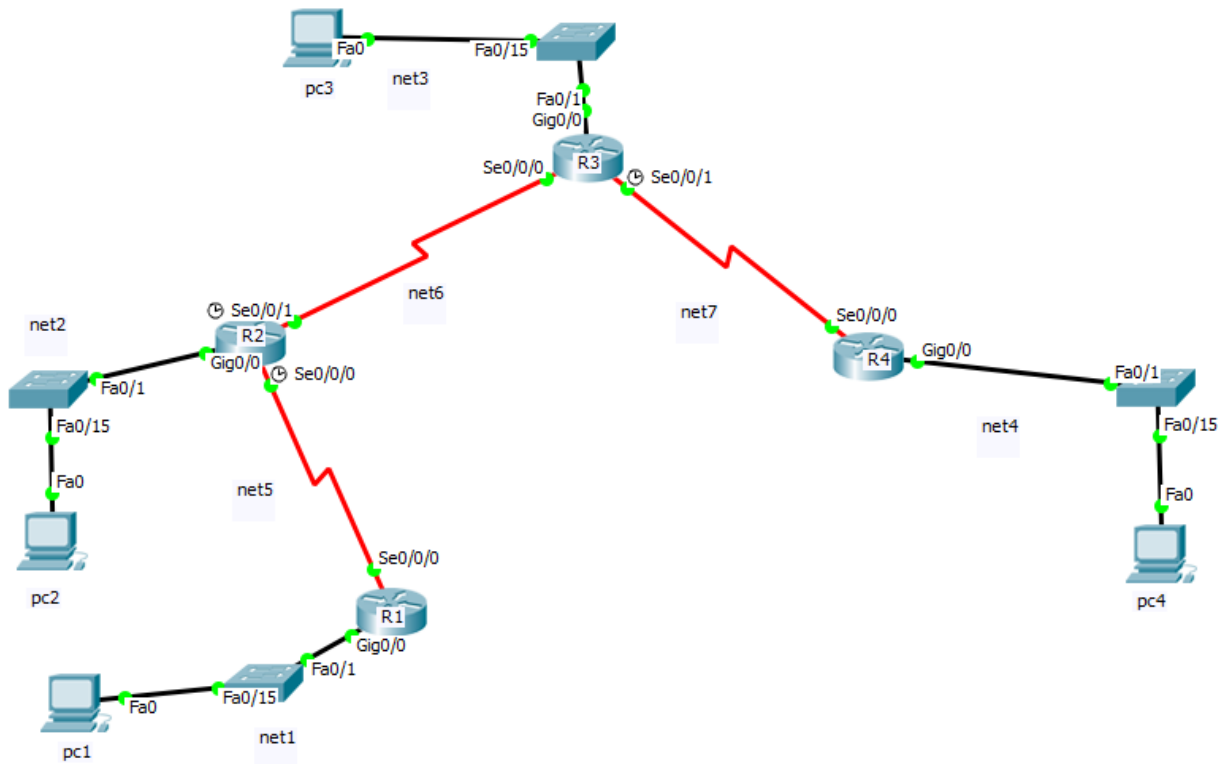


LAB RIP ROUTING PROTOCOL



Given the ip address 172.16.0.0/16

1. Subnet this ip so that:

Net1, Net2, Net3, and Net4 can handle up to 200 hosts.

Net5, Net6, and Net7 each have only 2 hosts.

2. Connect the interfaces exactly as shown in the figure. Configure all interface with the appropriate ip address.

View the routing table on each router.

Try pinging pc4 from pc2. Was it successful? why?

3. Configure RIP version 2 ON routers R2,R3,AND R4 **ONLY**:

What interfaces should be configured as passive interfaces on each of these 3 routers ?
Configure them.

View the routing table on each router. what changed?

Try pinging pc4 from pc2 again. Was it successful ? why?

Try pinging pc1 from pc2 again. Was it successful ? why?

- Configure a default route on R2 to reach network net1.
Try pinging pc1 from pc2 again. Was it successful ? why?
- Configure a default route on R1 to reach all other networks in the figure.
Try pinging pc1 from pc2 again. Was it successful ? why?
Try pinging pc1 from pc4 again. Was it successful ? why?
- NOW propagate this static route to all other router using RIP.
Try pinging pc1 from pc4 again. Was it successful ? why?

View the routing table .what do you notice.

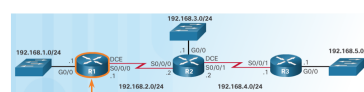
Configuring the RIP Protocol Propagate a Default Route



```
R1(config)# ip route 0.0.0.0 0.0.0.0 209.165.200.224/27
R1(config)# router rip
R1(config-router)# default-information originate
R1(config-router)# no auto-summary
R1# show ip protocols
R1#
```

- In the diagram a default static route to the Internet is configured on R1.
- The **default-information originate** router configuration command instructs R1 to send the default static route information in the RIP updates.

Configuring the RIP Protocol Enable and Verify RIPv2



```
R1(config)# router rip
R1(config-router)# version 2
R1(config-router)# no auto-summary
R1# show ip protocols
R1#
```

- Use the **version 2** router configuration mode command to enable RIPv2
- Use the **show ip protocols** command to verify that RIPv2 is configured.
- Use the **show ip route** command to verify the RIPv2 routes in the routing table.

Configuring the RIP Protocol Disable Auto Summarization



```
R1(config)# router rip
R1(config-router)# no auto-summary
R1(config-router)# no auto-summary
R1# show ip protocols
R1#
```

- RIPv2 automatically summarizes networks at major network boundaries.
- Use the **no auto-summary** router configuration mode command to disable auto summarization.
- Use the **show ip protocols** command to verify that auto summarization is off.

Configuring the RIP Protocol Advertise Networks



```
R1(config)# router rip
R1(config-router)# network 192.168.1.0
R1(config-router)# network 192.168.2.0
R1(config-router)#
```

- The **network network-address** router configuration mode command:
- Enables RIP on all interfaces that belong to a specific network
- Advertises the network in RIP routing updates sent to other routers every 30 seconds.

Note: RIPv1 is a classful routing protocol for IPv4.

Configuring the RIP Protocol Configure Passive Interfaces

- RIP updates:
 - Are forwarded out all RIP-enabled interfaces by default.
 - Only need to be sent out interfaces that are connected to other RIP-enabled routers.
- Sending RIP updates to LANs wastes bandwidth, wastes resources, and is a security risk.
- Use the **passive-interface** router configuration command to stop routing updates out the interface. Still allows that network to be advertised to other routers.



```
R1(config)# router rip
R1(config-router)# passive-interface g0/0
R1(config-router)# no auto-summary
R1# show ip protocols
R1#
```