**Lab 6**

**(RIP Protocol)**

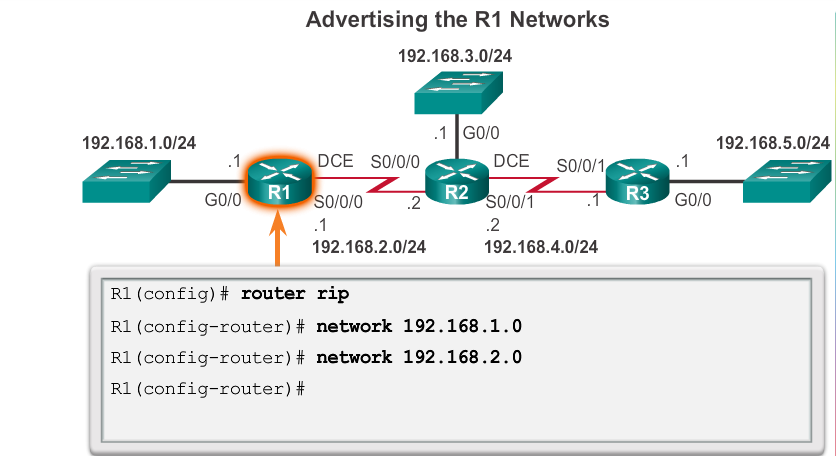
**Routing Information Protocol (RIP):**  is one of the oldest distance-vector routing protocols. RIP prevents routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination. The maximum number of hops allowed for RIP is 15.

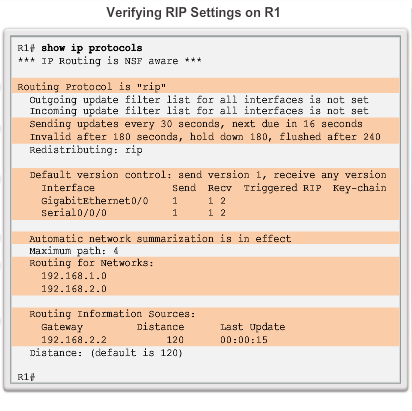
Classful routing protocols do not send subnet mask information in their routing updates, RIPv1 is classful

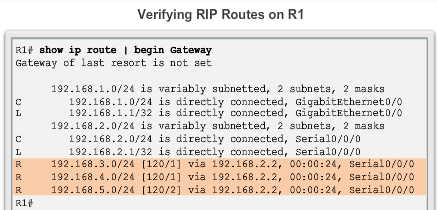
* Created when network addresses were allocated based on classes (class A, B, or C)
* Cannot provide variable length subnet masks (VLSMs) and classless interdomain routing (CIDR)
* Create problems in discontiguous networks

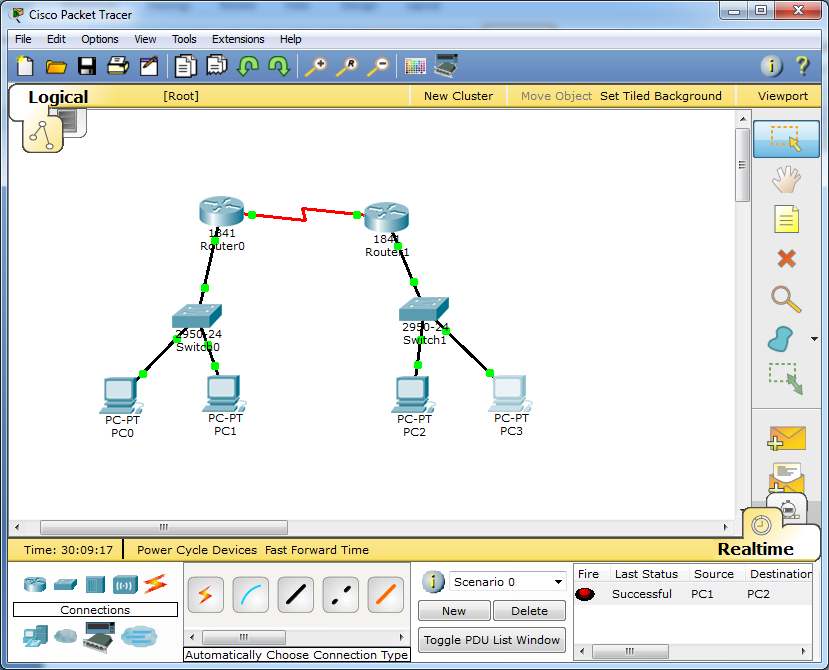
**Distance vector routing protocols**

* Share updates between neighbors
* Not aware of the network topology
* Some send periodic updates to broadcast IP 255.255.255.255 even if topology has not changed
* Updates consume bandwidth and network device CPU resources







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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Device** | **Interface** | **IP Address** | **Subnet Mask** | **Default Gateway** |
| **R0** | **Fa0/0** | 10.0.0.1 | /8 | N/A |
| **S0/0/0** | 20.0.0.1 | /8 | N/A |
| **R1** | **Fa0/0** | 30.0.0.1 | /8 | N/A |
| **S0/0/0** | 20.0.0.2 | /8 | N/A |
| **PC0** | **NIC** | 10.0.0.2 | /8 | 10.0.0.1 |
| **PC1** | **NIC** | 10.0.0.3 | /8 | 10.0.0.1 |
| **PC2** | **NIC** | 30.0.0.2 | /8 | 30.0.0.1 |
| **PC3** | **NIC** | 30.0.0.3 | /8 | 30.0.0.1 |

**RIP Protocol**

1. Draw the network and configure the nodes with the addresses.

**NOTE: Don't forget to set the clock rate at both routers!**

1. Fire a ping command from PC1 to PC3(Connected/Disconnected)
2. Fire a tracert command from PC1 to PC3

PC> tracert xxx.xxx.xxx.xxx

1. Apply the RIP protocol on the routers as follows for router 0 then apply the same commands to router1 but replace the network address part:

Router(config)#router rip

Router(config-router)#network 10.0.0.0

Router(config-router)#network 20.0.0.0

1. Fire again a ping command from PC1 to PC3(Connected/Disconnected)
2. Fire again tracert command from PC1 to PC.
3. To test the RIP routing apply the following commands to both routers:
   1. Router#show ip route
   2. Router#show ip protocol