BUDGE BUDGE INSTITUTE OF TECHNOLOGY

EMPOWERING KNOWLEDGE

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COMPUTER NETWORK ASSIGNMENT

RIP confguration in Packet Tracer

Welcome! In this tutorial we'll take a look at **Routing Information Protocol** (RIP). This is one of the oldest distance vector routing protocols, invented in the 1980s. Two versions of the protocol were developed:

RIP version 1 -supports **only classful routing** and doesn't send subnet masks in routing updates.Uses broadcasts for updates.

RIP version 2– supports classless routing and sends subnet masks in routing updates. This version uses the multicast address of 224.0.0.9 to send routing updates.

There is also a version of RIP developed for IPv6 networks called RIPng.

RIP has a default **administrative distance** of 120. It uses the *hop count* (the number of routers between the source and destination network) as the **metric**. The hop count limit is 15. Any route with a higher hop count will be marked as unreachable.

Downsides of RIP:

* RIP sends the entire routing table every 30 seconds, which can consume a lot of network bandwidth.
* It lacks some more advanced of features of the newer routing protocols like OSPF or EIGRP and is not widely used in modern networks. For example, RIP doesn't support route summarization.

Coniguring RIP in Packet Tracer

1. Build the network topology.
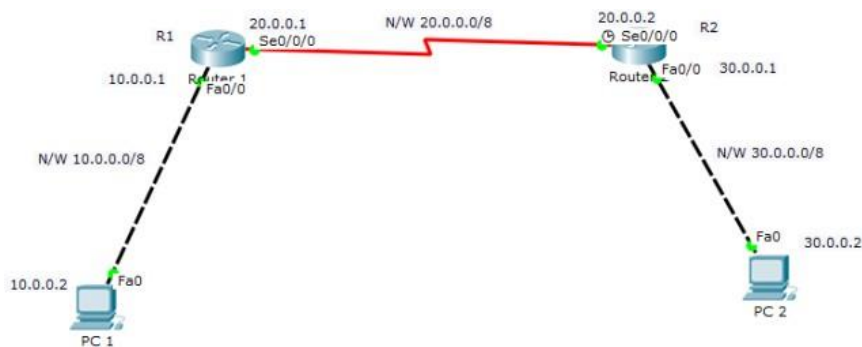
2. Confgure IP addresses on the PCs and the routers.

Router 1

```
R1(config)#
R1(config)#int  fa0/0
R1(config-if)#ip address 10.0.0.1 255.0.0.0
R1(config-if)#no shut

R1(config-if)#
R1(config-if)#int serial 0/0/0
R1(config-if)#ip add 20.0.0.1 255.0.0.0
R1(config-if)#no shut
```

Router 2

```
R2(config)#
R2(config)#int  fa0/0
R2(config-if)#ip add 30.0.0.1 255.0.0.0
R2(config-if)#no shut

R2(config-if)#
R2(config-if)#int serial 0/0/0
R2(config-if)#ip add 20.0.0.2 255.0.0.0
R2(config-if)#no shut
```

IP configuration on PCs

Click PC->Desktop->IP Configuration. On each PC assign these addresses:

PC1: IP address: 10.0.0.2 Subnet mask 255.0.0.0 Default Gateway 10.0.0.1

PC2: IP address: 30.0.0.2 Subnet mask 255.0.0.0 Default Gateway 30.0.0.1

And now:

3. Configure **RIPv2** on the routers

Router 1

```
R1(config)#

R1(config)#router rip
R1(config-router)#version  2
R1(config-router)#network  10.0.0.0
R1(config-router)#network  20.0.0.0
```

Router 2

```
R2(config)#

R2(config)#router rip
R2(config-router)#version  2
R2(config-router)#network  20.0.0.0
R2(config-router)#network  30.0.0.0
```

As you can see,to configure rip on each router,we enable enable RIP using *router rip* command then advertise the networks directly connected to the router interfaces using *network* command.

That's all for RIP configuration.

4. We'll now **verify** RIP configuration.

To verify that RIP is in deed advertising routes,we can use the *show ip route* command
on **R1.**

```
R1#
R1#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

C    10.0.0.0/8 is directly connected, FastEthernet0/0
C    20.0.0.0/8 is directly connected, Serial0/0/0
R    30.0.0.0/8 [120/1] via 20.0.0.2, 00:00:17, Serial0/0/0
```
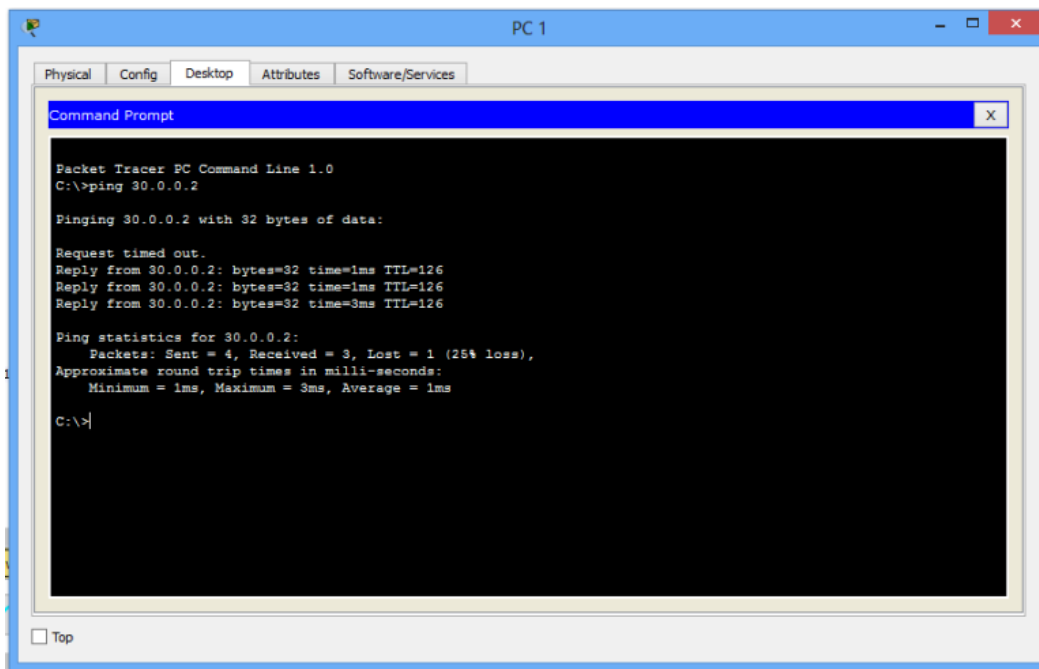
You can see that R1 has learned about the 30.0.0/8 network. The letter R indicates that
the route was learned using RIP.Note the administrative distance of 120 and the metric
of 1 in the [120/1] part.

To specifically display routes learnt through RIP use *show ip route rip* command on the
router.

Now lets Ping **PC2** from **PC1** to further confirm that connectivity is really established
between the two subnets.

```
Packet Tracer PC Command Line 1.0
C:\>ping 30.0.0.2

Pinging 30.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 30.0.0.2: bytes=32 time=1ms TTL=126
Reply from 30.0.0.2: bytes=32 time=1ms TTL=126
Reply from 30.0.0.2: bytes=32 time=3ms TTL=126

Ping statistics for 30.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 1ms

C:\>
```

Ping test should succeed.