

Data Communications Laboratory

Managing IP Routing

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Step 1: Ensure that RIP is up and running.

Observations

```
router1>enable
router1#show ip protocol
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 1 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface          Send Recv Triggered RIP Key-chain
  GigabitEthernet0/0/0 12 1
  GigabitEthernet0/0/1 12 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  192.168.1.0
  192.168.3.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
  192.168.3.2      120          00:00:19
Distance: (default is 120)
router1#
```

Which routing protocols are listed?

ANSWER: The **rip** routing protocol is listed

Can you tell by this command output which RIP version is running? **ANS:**

ANSWER: No, it does not say what RIP version is running. It only mentions send version and receive versions.

Step 2: View information on IP routing timers and advertised networks

What version of RIP updates is being sent and received?

ANSWER: Sending RIP version 1, receiving any RIP version

What is the update interval?

ANSWER: The update time is **30 seconds**

What is the timeout interval?

ANSWER: The timeout time is **180 seconds**

What is the suppress timer interval?

ANSWER: Suppress time (**hold down time**) is also **180 seconds**

What is the garbage-collect interval?

ANSWER: Garbage collection time (**flushed time**) is **240 seconds**

Step 5: Disable IP routing.

Now again ping from host attached to router 1 to the host that is attached to router. Was the ping successful?

ANSWER: The ping was unsuccessful.

Step 6: Ensure RIP is not active.

Record your observations

```
!  
interface GigabitEthernet0/0/0  
ip address 192.168.1.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/0/1  
ip address 192.168.3.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/0/2  
no ip address  
duplex auto  
speed auto  
shutdown  
!  
interface Vlan1  
no ip address  
shutdown  
!  
ip classless  
!  
ip flow-export version 9  
!  
!
```

ANSWER: The show running-conf on Router 1 only shows information about each interface and the IP address we have set. It does not show any of the RIP networks we created in earlier steps. It also does not show any connected interfaces.

Step 7: Ensure there is no RIP entry in the routing table.

Record your observations

Output should not contain any IP route.

```
Gateway of last resort is not set

    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, GigabitEthernet0/0/0
L       192.168.1.1/32 is directly connected, GigabitEthernet0/0/0
    192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.3.0/24 is directly connected, GigabitEthernet0/0/1
L       192.168.3.1/32 is directly connected, GigabitEthernet0/0/1

router1#
```

ANSWER: Router 1 still shows the variably subnetted subnets and masks attached to each gigabit ethernet interface. Port 0/0/0 still has the same IP address we setup and same with port 0/0/1. There is no mention of RIP in the routing table.

Step 8: Re-enable RIP.

Record your observations

ANSWER: The ping from PC 1 to PC 2 still did not work.

Step 9: View the current configuration.

Record your observations

ANSWER: The main difference is that there is now a router rip line telling us that the router is in RIP mode. We can also see, like before, that the connected interfaces are up because they do not say shutdown. I believe that the PING still did not work because when we removed the use of RIP, we removed the networks to send broadcast. This means that the router does not know what networks to broadcast every 30 seconds. I even skipped time in packet tracer to see if that was the issue and it did not fix the issue, I believe we need to reconfigure the networks of the RIP ROUTER on Router 1.

Step 10: Re-add RIP on networks.

Record your observations

```
!
interface Vlan1
  no ip address
  shutdown
!
router rip
  network 192.168.1.0
  network 192.168.3.0
!
ip classless
!
ip flow-export version 9
!
```

ANSWER: We can now see that router rip has the appropriate networks attached.

Step 11: View the current configuration again.

Record your observations

ANSWER: THE PING IS NOW SUCCESSFUL!!! This is because the RIP Router and networks have been set up.

Preventing Routing Updates through an Interface

Step 2: Confirm that RIP on both routers.

Record your observations

```

!
interface GigabitEthernet0/0/2
  no ip address
  duplex auto
  speed auto
  shutdown
!
interface Vlan1
  no ip address
  shutdown
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4

```

ANSWER: We can tell that rip has been disabled because there is now no router rip or networks section in the output.

ANSWER: The ping was unsuccessful; the host was unreachable.

Step 4: Verify the static route has been added.

```

Gateway of last resort is not set

    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, GigabitEthernet0/0/0
L       192.168.1.1/32 is directly connected, GigabitEthernet0/0/0
S       192.168.2.0/24 [1/0] via 192.168.3.2
    192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.3.0/24 is directly connected, GigabitEthernet0/0/1
L       192.168.3.1/32 is directly connected, GigabitEthernet0/0/1
. . .

```

ANSWER: The corresponding line is 192.168.2.0/24 [1/0] via 192.168.3.2. The destination address is 192.168.2.0/24 and the next hop is 192.168.3.2.

Step 5: Ping from both PCs to verify connectivity.

Record your observations

ANSWER: Yes, the pings were successful.