Verify router configuration
simletB2 Verify router configuration

The following case study includes a case description followed by 3 questions.

LEAVE BLANK

Scenario:
You administer the network shown in the topology diagram. You have been tasked with verifying the configuration of all the routers in the network. You can click on a router or switch to establish a console cable connection to the respective device. All passwords are set to "boson".

Please click **Launch Simulator** and examine the network configuration. Use the information you gather to answer the following questions.

RouterB is receiving routing updates from RouterC. However, RouterC is unable to access the 192.168.1.32/28 network on RouterB.

Which of the following is the most likely reason that RouterC cannot access this network? (Select the best answer.)

A. ○ RouterC is not configured to support RIPv2.
B. ◉ RouterB is missing a network statement for the 192.168.1.32/28 network.
C. ○ RouterC is ignoring the routing updates from RouterB.
D. ○ The Serial 0/0 interface on RouterB is not in an up/up state.

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Incorrect
Correct Answer: C

Explanation:
Of the choices available, the most likely reason that RouterC cannot access the 192.168.1.32/28 network is because RouterC is ignoring the routing updates from RouterB. By default, Cisco devices that are configured to use Routing Information Protocol (RIP) transmit RIP version 1 (RIPv1) routing updates and receive both RIPv1 and RIPv2 routing updates. You can issue the **version** command from router configuration mode to specify the appropriate version of RIP. For example, if you issue the **version 2** command from RIP router configuration mode, the router will send and receive only RIPv2 routing information. RIPv2 is an enhancement to RIPv1 that adds support for variable-length subnet masks (VLSMs), Classless Inter-Domain Routing (CIDR), authentication, route summarization, and key management.

You can issue the **show ip protocols** command to determine the operational mode of the

RIP process on a Cisco router. The **show ip protocols** command displays information about the routing processes that are configured on a Cisco router. The following sample output from RouterB indicates that the router is currently configured to send RIPv1 updates and to receive both RIPv1 and RIPv2 updates:

```
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 17 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is
  Incoming update filter list for all interfaces is
  Redistributing:   rip
  Default version control: send version 1, receive any version
    Interface        Send  Recv   Key-chain
    Serial0/1          1    1 2
    FastEthernet0      1    1 2
  Routing for Networks:
    10.0.0.0
    172.16.0.0
    192.168.1.0
  Routing Information Sources:
    10.1.1.14            120      00:00:00
  Distance: (default is 120)
```

Additionally, the output provides information about the interfaces that are actively participating in the RIP routing process, the directly attached networks that the RIP process is advertising, and the next-hop IP address of peer RIP routers.

You can see from the following sample output from the **show ip protocols** command on RouterC that RouterC is configured to support RIPv2:

```
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 23 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is
  Incoming update filter list for all interfaces is
  Redistributing:   rip
  Default version control: send version 2, receive version 2
    Interface        Send  Recv   Key-chain
    Serial0/0          2    2
    Serial0/1          2    2
    FastEthernet0      2    2
    FastEthernet0      2    2
  Routing for Networks:
    10.0.0.0
    172.16.0.0
    192.168.1.0
  Routing Information Sources:
    172.16.1.9           120      00:00:06
    192.168.1.85         120      00:00:06
```

```
  Distance: (default is 120)
```

Because RouterC is currently configured to support RIPv2, RouterC will send and receive only RIPv2 updates. Therefore, RouterC will ignore the RIPv1 routing information it receives from RouterB. Without a source of RIPv2 routing information for the networks advertised by RouterB, RouterC will be unable to reach any of the networks advertised by RouterB. By contrast, RouterB is configured to receive both RIPv1 and RIPv2 updates. Thus RouterB will process the RIPv2 updates it receives from RouterC and will place the relevant routing information in its routing table.

The output of the **show ip protocols** command can be used to verify that the RIP routing process on RouterB is actively routing for the 192.168.1.32/28 network. The `Routing for Networks:` portion of the output displays the classful networks for which the RIP routing process is configured. Alternatively, you can find similar output when you issue the **show running-config** command on RouterB. The relevant portion of the running configuration of RouterB is shown below:

```
router rip
 network 10.0.0.0
 network 172.16.0.0
 network 192.168.1.0
```

The **network** command for RIP does not accept a subnet mask or wildcard mask. All subnets that are contained within the classful network are advertised by RIP. Therefore, the **network 192.168.1.0** command will cause RIP to advertise the 192.168.1.32/28 network.

Although the Serial 0/0 interface on RouterB is not in an up/up state, this is not the reason that RouterC cannot access the 192.168.1.32/28 network on RouterB. The Serial 0/0 interface of RouterB is directly connected to RouterA and is not an active element in the path between RouterB and RouterC. Although this serial link could provide an alternate network path from RouterC to RouterB if all the routers and links were properly configured, the RIP routing algorithm favors the path or paths that have the fewest hops to a destination network. In such a situation, the direct connection between RouterB and RouterC would be the preferred path.

Reference:
Boson ICND1 Curriculum, Module 8: Routers, RIP

Cisco: IP Routing: Protocol-Independent Commands: show ip protocols

Cisco: Configuring Routing Information Protocol: RIP Version 2 and Enabling Authentication

Category:
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