Chapter 1 Networking Challenge Static VLAN Configuration

## 

Chapter 2 - Networking Challenge—Static Routes

Chapter 2 - Networking Challenge—RIP

Chapter 3 - Networking Challenge—OSPF

## Chapter 3 – Networking Challenge – IS-IS

## Chapter 3 - Networking Challenge – EIGRP

Chapter 10 Networking Challenge - BGP

* **Networking Challenge Static VLAN Configuration**

1. Enter the privileged EXEC mode on the switch. (password: **Chile**).

switch> enable

Password: Chile

1. Enter the switch’s configuration mode, Router(config).

enter switch# configure terminal or Router# conf t

1. Set the hostname of the switch to switch-A.

enter

switch# conf t

switch(config)# hostname switch-A or Switch(config)# host switch-A

4. Configure the IP address for VLAN 1 interface with the following:

IP address: 10.10.20.250

Subnet mask: 255.255.255.0

switch-A# conf t

switch-A(config)# int vlan 1

switch-A(config-if)# ip address 10.10.20.250 255.255.255.0

1. Enable the VLAN 1 interface.

enter switch-A(config-if)# no shut

1. Use the command to display the current VLAN settings for the switch.

enter switch-A# show vlan or switch-A# ss vlan

7. Create a VLAN 2 named Sales.

enter switch-A# conf t

switch-A(config)# vlan 2

switch-A(config-vlan)#name Sales

1. Verify that a new Sales VLAN has been created.

exit to switch-A# prompt or press “cntl Z”

enter switch-A# show vlan

9. Issue the command to enter the fa0/2 interface configuration mode.

enter switch-A# conf t

switch-A(config)# int fa0/2

**Networking Challenge Static VLAN Configuration (continued)**

10. Enter the sequence of commands that are used to assign interface fa0/2 to the Sales VLAN.

enter switch-A(config)# int fa0/2

switch-A(config-if) switcport mode access

switch-A(config-if)# switchport access vlan 2

11. Enter the command that enables you to display the interface assigned to each VLAN.

exit to the Switch# prompt [press “cntl Z]”

Switch#show vlan

12 Enter the command that enables you to view specifically the assignments for the Sales VLAN.

enter Switch# sh vlan name Sales

13. Issue the command that allows you to view the switch’s running-configuration.

enter Switch# sh run (the following is a partial list of what should be displayed)

interface FastEthernet 0/2

switchport mode access

switchport access vlan 2

14. Issue the command to turn trunking on for SwitchA for the fa0/1 interface

SwitchA#conf t

Enter configuration commands, one per line. End with CNTL/Z.

SwitchA(config)#int fa 0/1

SwitchA(config-if)#switchport mode trunk

15. Issue the command to set trunk encapsulation to 802.1Q

SwitchA(config-if)#switchport trunk encapsulation dot1q

16. Issue the command that enables VLAN 1 and VLAN 2 to be carried across the link.

SwitchA(config-if)#switchport trunk allowed vlan 1,2

* **Solutions: Net-Challenge: Static Routes**

Networking Challenge—Static Routes (password: Chile)

1. Click the RouterA select button and press Return to get started.

click on the RouterA button

2. Configure the default gateway address for computerA1 in LAN A (10.10.20.250). Set the IP address to 10.10.20.1/24. To do so, click View Topology and click on the computer A1 icon in LAN A to bring up the TCP/IP Properties menu. Click OK on the menu, and press Enter to see the check.

Click on the A1 computer in LAN A. This opens the Internet Protocol (TCP/IP)

Properties menu. Enter the IP address 10.10.20.250 in the default gateway field.

3. Configure the IP addresses for the FastEthernet0/0 and FastEthernet0/1 ports. Note: Click the

RouterA symbol in the topology to display the IP addresses and subnet mask for the router.

enter the following commands from the correct prompts

Router> enable

Router# conf t

Router# int fa0/0

Router(config-if)# ip address 10.10.20.250 255.255.255.0

Router(config-if)# no shut

Router> en

Router# conf t

Router# int fa0/1 or your can enter this command from the Router(config-if)# prompt

Router(config-if)# ip address 10.10.200.1 255.255.255.0

Router(config-if)# no shut

4. Use the no shut command to enable both FastEthernet ports.

enter Router(config-if)# no shut for int fa0/0 and int fa0/1

5. Use the show ip int brief command to view the current interface status.

enter the following command (note the prompt)

Router# sh ip int brief

6. Use the ip route command to configure two routes to the 10.10.10.0 subnet (NET). Note: Click the RouterB and RouterC symbols in the network topology to display the IP addresses for the router interfaces. (Use a 255.255.255.0 subnet mask.)

enter the following commands

Router(config)# ip route 10.10.10.0 255.255.255.0 10.10.200.2

Router(config)# ip route 10.10.10.0 255.255.255.0 10.10.100.2

**Solutions: Net-Challenge: Static Routes (continued)**

7. Use the show ip route command to view whether the routes are entered into the router’s routing table.

enter the following command (note the prompt)

Router# sh ip route

The routes entered in step 6 should be displayed.

8. Use the show run command to verify whether the static routes are listed in the router’s running-configuration.

enter the following command

Router# sh run

The router information configured in this challenge should be displayed.

1. Use the proper command to set the FA 0/0 for RouterA as the exit interface. The

destination network is 10.10.10/24.

RouterA(config)#ip route 10.10.10.0 255.255.255.0 fa0/2

10. Use the proper command to incorporate null 0 features to prevent network loops to the

10.10.5.0 network.

RouterA(config)#ip route 10.10.5.0 255.255.255.0 null 0

* **Solutions: Net-Challenge: RIPv2**

1. Enter the privileged EXEC mode on the router.

Press RETURN and then

Router> enable

2. Enter the router configuration mode, Router(config).

Enter the following command

Router# conf t

3. Configure the FastEthernet0/0 interface with the following:

IP address 10.10.20.250

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/0

Router(config-if)# ip address 10.10.20.250 255.255.255.0

4. Enable the FA0/0 interface.

enter the following command

Router(config-if)# no shut

5. Configure the FastEthernet0/1 interface with the following:

IP address 10.10.200.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/1

Router(config-if)# ip address 10.10.200.1 255.255.255.0

6. Enable the FA0/1 interface.

enter the following command

router(config-if)# no shut

7. Configure the FastEthernet0/2 interface with the following:

IP address 10.10.100.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/2

Router(config-if)# ip address 10.10.100.1 255.255.255.0

8. Enable the FA0/2 interface.

enter the following command

Router(config-if)# no shut

**Solutions: Net-Challenge: RIPv2 (continued)**

9. Enable RIP V2.

enter the following command from the Router(config)# prompt.

Router(config)# router rip

Router(config-router)# version 2

Note the change in the prompt.

10. Use the network command to specify the class network address to be used by RIP (10.0.0.0).

enter the following command

Router(config-router)# network 10.0.0.0

11. Use the sh ip int brief command to check the interface status.

enter the following command

Router# sh ip int brief

The IP addresses for the interface should be configured

and the status should be up.

12. Use the sh ip protocol command to see whether RIP is running. (Note: This requires that Steps 9 and 10 are complete or the response will be “no protocol.”

enter the following command

Router# sh ip protocol

The routing protocol should be RIP and the

Routing for Network: 10.0.0.0 should be displayed.

13. Use the show ip route command to verify whether the three FastEthernet ports are connected to the router.

enter the following command

Router# sh ip route

14. Display the contents of the running-configuration file. Verify that RIP is enabled and the proper network address is specified.

enter the following command

Router# sh run

15. Copy the router’s running-configuration to the startup-configuration.

enter the following command

Router# copy run start

16. Display the contents of the startup-configuration.

enter the following command

Router# sh start

* **Solutions: Net-Challenge: OSPF**

1. Enter the privileged EXEC mode on the router.

Press RETURN and then enter the following command

Router> enable

1. Enter the router’s terminal configuration mode, Router(config).

enter the following command

Router# conf t

1. Set the hostname to RouterA.

enter the following command (note the change in the prompt)

Router(config)# hostname RouterA

RouterA(config)#

4. Configure the FastEthernet0/0 interface with the following:

IP address 10.10.20.250

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/0

Router(config-if)# ip address 10.10.20.250 255.255.255.0

5. Enable the FA0/0 interface.

enter the following command

Router(config-if)# no shut

6. Configure the FastEthernet0/1 interface with the following:

IP address 10.10.200.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/1

Router(config-if)# ip address 10.10.200.1 255.255.255.0

7. Enable the FA0/1 interface.

enter the following command

Router(config-if)# no shut

8. Configure the FastEthernet0/2 interface with the following:

IP address 10.10.100.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/2

Router(config-if)# ip address 10.10.100.1 255.255.255.0

9. Enable the FA0/2 interface.

enter the following command

Router(config-if)# no shut

**Solutions: Net-Challenge: OSPF (continued)**

10. Enable OSPF with a network number of 100.

enter the following command from the Router(config)# prompt.

RouterA(config)# router ospf 100

11. Use a single command-line instruction to configure RouterA to run OSPF on all three of the FastEthernet interfaces (use area 100).

enter the following command

RouterA(config-router)# network 10.0.0.0 0.255.255.255 area 100

12. Use the sh ip int brief command to check the interface status.

enter the following command

Router# sh ip int brief

13. Use the sh ip protocol command to see whether OSPF is running on RouterA.

enter the following command

RouterA# sh ip protocol

14. Use the sh ip route command to verify that the three FastEthernet ports are connected to RouterA.

enter the following command

RouterA# sh ip route

Three OSPF routes should be displayed.

15. Use the sh run command to view the running-configuration file on RouterA. Verify that OSPF is enabled and the proper network address is specified.

enter the following command

RouterA# sh run

16. The preferred route to reach the 10.10.150.0 network is via RouterB. Issue the command to increase the OSPF cost of the interface connected to RouterC to 5 using *ip ospf cost*command.

RouterA(config)#int fastEthernet 0/2

RouterA(config-if)#**ip ospf cost 5**

**Solutions: Net-Challenge: ISIS**

1. Click the RouterA button.

click on the RouterA button

2. Enter the privileged EXEC mode on the router.

Press RETURN and then enter the following command

Router> enable

3. Enter the router configuration mode, **Router(config)**.

enter the following command

Router# conf t

4. Set the hostname to *RouterA*.

enter the following command (note the change in the prompt)

Router(config)# hostname RouterA

RouterA(config)#

5. Configure the FastEthernet0/0 interface with the following: IP address 10.10.20.2

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/0

Router(config-if)# ip address 10.10.20.2 255.255.255.0

6. Enable the FA0/0 interface.

enter the following command

Router(config-if)# no shut

7. Configure the FastEthernet0/1 interface with the following: IP address 10.10.200.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/1

Router(config-if)# ip address 10.10.200.1 255.255.255.0

8. Enable the FA0/1 interface.

enter the following command

Router(config-if)# no shut

9. Configure the FastEthernet0/2 interface with the following: IP address 10.10.100.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/2

Router(config-if)# ip address 10.10.100.1 255.255.255.0

**Solutions: Net-Challenge: ISIS (continued)**

10. Enable the FA0/2 interface.

enter the following command

Router(config-if)# no shut

11. Enable CNLS routing

RouterA(config)#cnls routing

12. Enable IS-IS on RouterA.

RouterA(config)#router isis

13. Use the ***net*** command to specify the NET address to be used by IS-IS. Specify that the NET address that the router belongs to is 49.0001.c202.00e8.0000.00.

RouterA(config-router)# **net 49.0001.c202.00e8.0000.00**

14. Enable IS-IS on FA0/0

RouterA(config)# int fa 0/0

RouterA(config-if)#ip router isis

15. Enable IS-IS on FA0/2

RouterA(config)# int fa 0/2

RouterA(config-if)#ip router isis

15. Use the ***sh ip int brief*** command to check the interface status.

enter the following command

Router# sh ip int brief

16. Use the ***sh ip protocol*** to see whether IS-IS is running.

enter the following command

RouterA# sh ip protocol

17. Use the ***sh ip route*** command to verify that the four FastEthernet ports are connected to the router.

enter the following command

RouterA# sh ip route

18. Use the ***sh run*** command to view the running-configuration file. Verify that IGRP is enabled and the proper network address is specified.

enter the following command

RouterA# sh run

19. Copy the running-configuration to the startup-configuration.

enter the following command

RouterA# copy run start

20. Display the contents of the startup configuration.

enter the following command

RouterA# sh start

* **Solutions: Net-Challenge: EIGRP**

1. Enter the privileged EXEC mode on the router.

Press RETURN and then enter the following command

Router> enable

2. Enter the router configuration mode, **Router(config)**.

enter the following command

Router# conf t

3.Set the hostname to *RouterA*.

enter the following command (note the change in the prompt)

Router(config)# hostname RouterA

RouterA(config)#

4. Configure the FastEthernet0/0 interface with the following:

IP address 10.10.20.250

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/0

Router(config-if)# ip address 10.10.20.250 255.255.255.0

5. Enable the FA0/0 interface.

enter the following command

Router(config-if)# no shut

6. Configure the FastEthernet0/1 interface with the following:

IP address 10.10.200.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/1

Router(config-if)# ip address 10.10.200.1 255.255.255.0

7. Enable the FA0/1 interface.

enter the following command

Router(config-if)# no shut

8. Configure the FastEthernet0/2 interface with the following:

IP address 10.10.100.1

Subnet mask 255.255.255.0

enter the following commands

Router(config)# int fa0/2

Router(config-if)# ip address 10.10.100.1 255.255.255.0

**Solutions: Net-Challenge: EIGRP (continued)**

9. Enable the FA0/2 interface.

enter the following command

Router(config-if)# no shut

10. Enable EIGRP with an AS number of 200.

enter the following command from the Router(config)# prompt.

RouterA(config)# router eigrp 200

11. Enter the network command that enables EIGRP on the router on the 10.0.0.0 network.

enter the following command

RouterA(config-router)# network 10.0.0.0

12. Use the ***sh ip int brief*** command to check the interface status.

enter the following command

Router# sh ip int brief

13. Use the ***sh ip protocol*** command to see whether EIGRP is running on RouterA.

enter the following command

RouterA# sh ip protocol

14. Use the ***sh ip route*** command to verify that the three FastEthernet ports are connected

to RouterA.

enter the following command

RouterA# sh ip route

EIGRP routes should be displayed.

15. Use the ***sh run*** command to view the running-configuration file on RouterA.

Verify that EIGRP is enabled and the proper network address is specified.

enter the following commands

RouterA# sh run

16. Use the ***ping*** command to verify connection to the following interfaces:

10.10.5.250

10.10.150.1

10.10.200.2

10.10.100.2

enter the following commands

Border-Router# ping 10.10.5.250

Border-Router# ping 10.10.150.1

Border-Router# ping 10.10.200.2

Border-Router# ping 10.10.100.2

**Solutions: Net-Challenge: BGP**

1. Enter the privileged EXEC mode on the router.

Press RETURN and then enter the following command

Router> enable

2. Enter the router configuration mode [the **Router(config)#** prompt].

enter the following command

Router# conf t

3. Set the hostname to *Border-Router.*

enter the following command (note the change in the prompt)

Router(config)# hostname Border-Router

Border-Router(config)#

4. Configure the Fast Ethernet 0/0 interface on Border-Router with the following: IP address 10.10.1.2; Subnet mask 255.255.255.0

enter the following commands

Border-Router(config)# int fa0/0

Border-Router(config-if)# ip address 10.10.1.2 255.255.255.0

5. Enable the router’s Fast Ethernet 0/0 interface.

enter the following command

Border-Router(config-if)# no shut

6. Configure the Serial0/0 interface with the following: IP address[md]192.168.1.2; Subnet mask[md]255.255.255.0

enter the following commands

Border-Router(config)# int s0/0

Border-Router(config-if)# ip address 192.168.1.2 255.255.255.0

7. Enable the router’s Serial0/0 interface.

enter the following command

Border-Router(config-if)# no shut

8. Use the router’s description command (***descr***) to indicate that this interface is the “ISP Connection.” (*Note:* The text “ISP Connection” is case-sensitive.)

enter the following command

Border-Router(config)# int s0/0

Border-Router(config-if)# descr ISP Connection

**Solutions: Net-Challenge: BGP (continued)**

9. Enable BGP on the router with an AS number of 65002.

enter the following command

Border-Router(config)# router bgp 65002

10. Configure Border-Router’s BGP neighbor with a remote AS of 65001.

enter the following command

Border-Router(config-router)# neighbor 192.168.1.1 remote-as 65001

11. Configure a BGP route to the 10.0.0.0 network.

enter the following command

Border-Router(config-router)# network 10.0.0.0

12. Use the ***show ip route*** command to verify that the route from Border-Router to the ISP is configured.

enter the following command

Border-Router# sh ip route

13. Use the ***ping*** command to verify that the 192.168.1.1 interface is connected.

enter the following command

Border-Router# ping 192.168.1.1

14. Use the ***sh run*** command to view the running-configuration file on Border-Router. Verify that BGP is enabled, the description *ISP Connection* has been entered, and the proper network address is specified for the ISP connection.

enter the following command

Border-Router# show run

15. Use the ***sh ip int brief*** command to check the interface status.

enter the following command

Border-Router# sh ip int brief