APPENDIX A

Net-Challenge Solutions

Chapter 6—Subnet Masking Net-Challenge Solutions

1. A host computer is assigned the IP address 192.168.12.8 and a subnet mask of 255.255.255.192. The host sends a packet to another host wih an IP address of 192.168.12.65. Is the destination IP address in the same subnet as 192.168.12.8?

   Answer: No, because the 192.168.12.65 address is in the 64 subnet.

2. The subnet mask 255.255.255.224 is applied to a packet with a destination IP address of 192.168.12.135. Which subnet is the packet sent to?

   Answer: The packet is sent to the 192.168.12.128 subnet.

3. The subnet mask 255.255.255.0 is applied to the following IP address: 10.20.35.12. Which subnet is the packet sent to?

   Answer: 10.20.35.0 subnet

4. Given an IP address of 193.10.10.0, determine the network address and broadcast address for each subnet if the number of subnets created is 4.

   Answer: Network is 193.10.10.0. 64, 128, 192; broadcast is 193.10.10.63, 127, 191, 255.

5. Given an IP address of 193.10.10.0, determine the subnet mask if the number of subnets created is 4.

   Answer: 255.255.255.192

6. Given an IP address of 193.10.10.0, determine the number of usable hosts per subnet if the number of subnets created is 4.

   Answer: 62

7. Given a network IP address of 211.123.83.0, determine the network address and broadcast address for each subnet if 8 subnets are to be created.

   Answer: Network is 211.123.83.0, 32, 64, 96, 128, 160, 192, 224; broadcast is 211.123.83.31, 63, 95, 127, 159, 191, 223, 255

8. Given a network IP address of 211.123.83.0, determine the subnet mask if 8 subnets are to be created.

   Answer: 255.255.255.224

9. Given a network IP address of 211.123.83.0, determine the subnet mask if 8 subnets are to be created

   Answer: 30

10. Given a network address of 128.123.0.0 and a CIDR of /30, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet is 255.255.255.252; the number of subnets is 16384; and the number of hosts/subnet is 2.

11. Given a network address of 135.45.0.0 and a CIDR of /25, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.255.128; the number of subnets is 512; and the number of hosts/subnet is 126.

12. Given a network address of 193.10.10.0 and a CIDR of /28, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.255.240; the number of subnets is 16; and the number of hosts/subnet is 14.

13. Given a network address of 211.123.83.0 and a CIDR of /26, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.255.192; the number of subnets is 4; and the number of hosts/subnet is 62.

14. Given a network address of 10.0.0.0 and a CIDR of /13, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.248.0.0; the number of subnets is 32; and the number of hosts/subnet is 524286.

15. Given a network address of 32.0.0.0 and a CIDR of /20, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.240.0; the number of subnets is 4096; and the number of hosts/subnet is 4094.

16. Given a network address of 204.204.5.0 and a CIDR of /28, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.255.240; the number of subnets is 16; and the number of hosts/subnet is 14.

17. Given a network address of 224.201.65.0 and a CIDR of /27, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.255.224; the number of subnets is 8; and the number of hosts/subnet is 30.

18. Given a network address of 156.35.0.0 and a CIDR of /21, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.255.248.0; the number of subnets is 32; and the number of hosts/subnet is 2046.

19. Given a network address of 116.0.0.0 and a CIDR of /14, what is the subnet mask, the number of subnets, and number of hosts/subnet?

    Answer: The subnet mask is 255.252.0.0; the number of subnets is 64; and the number of hosts/subnet is 262142.

20. Given a network address of 145.23.0.0 and a CIDR of /29, what is the subnet mask, number of subnets, and number of usable hosts/subnet?

    Answer: The subnet mask of 255.255.255.248; number of subnets is 8192, and the number of hosts/subnet is 6.

21. Given a network address of 192.12.1.0 and a CIDR of /30, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet of 255.255.255.252; number of subnets is 64, and the number of hosts/subnet is 2.

22. Given a network address of 15.0.0.0 and a CIDR of /29, what is the subnet mask, number of subnets, and number of hosts/subnet?

    Answer: The subnet mask of 255.255.255.248; number of subnets is 2097152, and the number of hosts/subnet is 6.

23. Given a network address of 10.0.0.0 and a CIDR of /11, what is the subnet mask, the number of subnets, and the number of usable hosts/subnet?

    Answer: The subnet mask is 255.224.0.0; the number of subnets is 8; and the number of hosts/subnet is 2097150.

24. A network address of 192.168.6.0. and a subnet mask of 255.255.254.0 can be written in CIDR as what?

    Answer: 192.168.6.0/23

25. A CIDR block contains the following subnets with an IP address of:

    192.168.64.0/22

    192.168.65.0/22

    192.168.66.0/22

    192.168.67.0/22

    Are there any problems with this group of subnets in the CIDR block?

    Answer: No, because with the IP addresses, no boundary has been crossed.

26. The subnet mask 255.255.255.0 is applied to the following IP address: 10.50.35.6. Which subnet is the packet sent to?

    Answer: 10.50.35.0 subnet

27. The subnet mask 255.255.255.0 is applied to the following IP address: 192.168.12.8. Whichsubnet is the packet sent to?

    Answer: 192.168.12.0 subnet

28. Which table is correct for a network address of 192.168.65.0?

    Answer: Box "B" 4 subnets, 62 hosts/subnet

Chapter 7—User EXEC Mode Net-Challenge Solutions

1. Click on the **RouterA** button.
2. Press the **Enter key** on the keyboard.
3. Type **?** <press **Enter**> as shown:

```
Router> ?
```

4. Type **exit** <press **Enter**> as shown:

```
Router> exit
```

5. Press **Enter** to enter the router's user EXEC mode.
6. Type **show ?** <press **Enter**> as shown:
```
Router> show ?
```
7. Type **show flash** <press **Enter**> as shown:
```
Router> show flash
```
8. Type **show version** <press **Enter**> as shown:
```
Router> show version
```
9. Type **show history** <press **Enter**> as shown:
```
Router> show history
```

Chapter 7—Privileged EXEC Mode Net-Challenge Solutions

1. Click the RouterA button.
2. Press **Enter** to enter the user EXEC mode, and then type enable or en to enter the privileged EXEC mode. There is not a password for this version of Net-Challenge:
```
Router> enable
Router#
```
3. From the router# prompt, enter conf t (configure terminal) <**Enter**>:
```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
```
4. Enter the command hostname RouterA <**Enter**>:
```
Router(config)# hostname RouterA
```
5. Enter enable secret Chile <**Enter**>:
```
RouterA(config)# enable secret Chile
```
6. Enter the following commands:
```
RouterA(config)# line vty 0 4
RouterA(config-line)# password ConCarne
```
7. Enter the following commands:
```
RouterA(config)# int fa0/0
RouterA(config-if)# ip address 10.10.20.250 255.255.255.0
RouterA(config-if)# no shut
```

   Enter the following commands:

```
int fa0/1
```

   (! this can be entered from the Router(config)# prompt or the Router(config-if)# prompt)

```
RouterA(config-if)# ip address 10.10.200.1  255.255.255.0
RouterA(config-if)# no shut
```

   Enter the following commands:

```
int fa0/2
```

   (! this can be entered from the Router(config)# prompt or the Router(config-if)# prompt)

```
RouterA(config-if)# ip address 10.10.100.1  255.255.255.0
RouterA(config-if)# no shut
```

8. Use the **no shut** command to enable each interface as shown previously.
9. From the RouterA# prompt, enter **show ip interface brief** or **sh ip int brief**:

```
RouterA# show ip interface brief
```

or

```
RouterA# show ip int brief
```

10. From the RouterA(config)# and the Router(config-if)# prompts, enter the following commands:

```
RouterA(config)# int s0/0
RouterA(config-if)# ip address 10.10.128.1  255.255.255.0
RouterA(config-if)# no shut
```

11. Enter the following commands:

```
int s0/1
```

(! this can be entered from the Router(config)# prompt or the Router(config-if)# prompt)

```
RouterA(config-if)# ip address 10.10.64.1  255.255.255.0
RouterA(config-if)# no shut
```

12. Enter the following commands:

```
RouterA(config)# int s0/0
RouterA(config)# clock rate 56000
```

13. From the RouterA# prompt, enter **show ip interface brief** or **sh ip int brief**:

```
RouterA# show ip interface brief
RouterA# show ip int brief
```

14. Enter the following commands:

```
ping 10.10.200.2
ping 10.10.100.2
```

Note: The **ping** will not work if the RouterA interfaces have not been configured.

Chapter 8—Switch Configuration Net-Challenge Solutions

1. Press **Enter** and then enter the following command:

```
Switch> enable
Password: Chile
```

2. Enter the following command:

```
Switch# configure terminal
```

or

```
Router# conf t
```

3. Enter the following command:

```
Switch(config)# hostname switch-A
```

4. Enter the following commands:

```
Switch# conf t
Switch(config)# int vlan 1
```

5. Enter the following command:

```
Switch(config-if)# no shut
```

6. Exit to the Switch# prompt and enter the following command:
```
Switch# show vlan
```
7. Enter the following command:
```
Switch# vlan database
```
8. Enter the following command:
```
Switch(vlan)# vlan 2 name Sales
     Vlan 2 modified:
     Name: Sales
```
9. Exit to the Switch# prompt and enter the following command:
```
Switch# show vlan
```
10. Enter the following command:
```
Switch# conf t
```
11. Enter the following command:
```
Switch(config)# int fa0/2
```
12. Enter the following commands:
```
Switch(config)# int fa0/2
Switch(config-if)# switchport access vlan 2
```
13. Exit to the Switch# prompt and enter the following command:
```
Switch#show vlan
```
14. Enter the following command:
```
Switch# sh vlan name Sales
```
15. Enter the following command and review the output that should be displayed:

```
Switch# sh run
   Interface FastEthernet 0/2
   switchport mode access
   switchport access vlan 2
```

Chapter 9— Static Routes Net-Challenge Solutions

1. Click the RouterA button.
2. Click 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. Enter the following commands from the correct prompts:
```
Router> enable  !Note:  password is Chile
Router# conf t
Router# int fa0/0
Router(config-if)# ip address 10.10.20.250 255.255.255.0
```
4. Enter the **no shut** command:
```
Router(config-if)# no shut
```
5. Enter the following commands from the correct prompts:
```
Router> enable

Router> en
Router# conf t
Router# int fa0/1
(! or you can enter this command from the Router(config-if)# prompt)
Router(config-if)# ip address 10.10.200.1 255.255.255.0
```
6. Enter the **no shut** command:
```
Router(config-if)# no shut
```

7. Enter the following command (note the prompt):
```
Router# sh ip int brief
```
8. 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
```
9. Enter the following command (note the prompt):
```
Router# sh ip route
```
   The routes entered in step 6 should be displayed.
10. Enter the following command:
```
Router# sh run
```
   The router information configured in this challenge should be displayed.

Chapter 9—RIPV2 Net-Challenge Solutions

1. Press **Enter** and then enter the following:
```
Router> enable
```
2. Enter the following command:
```
Router# conf t
```
3. Enter the following commands:
```
Router(config)# int fa0/0
Router(config-if)# ip address 10.10.20.250 255.255.255.0
```
4. Enter the following command:
```
Router(config-if)# no shut
```
5. Enter the following commands:
```
Router(config)# int fa0/1
Router(config-if)# ip address 10.10.200.1 255.255.255.0
```
6. Enter the following command:
```
Router(config-if)# no shut
```
7. Enter the following commands:
```
Router(config)# int fa0/2
Router(config-if)# ip address 10.10.100.1 255.255.255.0
```
8. Enter the following command:
```
Router(config-if)# no shut
```
9. Enter the following command from the Router(config)# prompt:
```
Router(config)# router rip
Router(config-router)#
```
   Note the change in the prompt.
10. Enter the following command from the Router(config-router)# prompt:
```
Router(config-router)# version 2
```
11. Enter the following command:
```
Router(config-router)# network 10.0.0.0
```
12. Enter the following command:
```
Router# sh ip int brief
```
   The IP addresses for the interface should be configured and the status should be up.

13. 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.
14. Enter the following command:
    ```
    Router# sh ip route
    ```
15. Enter the following command:
    ```
    Router# sh run
    ```
16. Enter the following command:
    ```
    Router# copy run start
    ```
17. Enter the following command:
    ```
    Router# sh start
    ```