Chapter 7 Solutions

Review Questions

1. If you want to see the hexadecimal boot setting for the configuration register, which command would you use? (Choose all that apply.)
a. router> sh int
b. router> sh ver
c. router#sh ver
d. router#sh int

2. When the trace command is used, multiple packets are sent to a remote destination with:
a. Progressively higher TTL values until a packet reaches the destination
b. Progressively lower TTL values until a packet is returned from the destination
c. Progressively smaller hop counts
d. Full routing tables

3. If you want to configure the values that ping uses and have access to extended mode ping options, which of the following represents the appropriate prompt and the command you would type before pressing the Return key?
a. router#ping
b. router#ping ex md
c. router#ping motd
d. router> ping
e. router#ping –e
f. router> ping –e

4. What is usually stored in NVRAM? (Choose all that apply.)
a. Configuration register
b. Backup copy of the IOS
c. Limited version of the IOS
d. Configuration file

5. Which of the following connectivity utilities use ICMP messages for troubleshooting the connection? (Choose all that apply.)
a. Ping
b. Telnet
c. Trace
d. IP route
e. Show version

6. Which layer of the OSI model contains the telnet utility?
a. Application
b. Network
c. Data Link
d. Physical
e. Transport

7. Which of the following information is *not* visible after you issue a ping?
a. Quantity of ICMP packets sent
b. Timeout duration
c. Success rate
d. MAC address
e. Roundtrip times

8. If the packet type is unknown, what does ping report?
a. !
b. .
c. ?

d. U

9. Which of the following commands are considered incomplete or will not be recognized by the router's IOS? Assume that the Return key is pressed immediately after the command. (Choose all that apply.)
a. router> ping 192.168.1.1
b. router#ping
c. router> ping
d. router#config
e. router> config

10. Which of the following maps the route from HostA to HostB across the Internet?
a. show ip route command
b. Ping
c. Trace
d. Finger

11. If the configuration register is set to 0x2102, where will the system look for boot instructions?
a. Flash
b. NVRAM
c. RAM
d. ROM

12. If there are no specific instructions to the contrary, from where does the system attempt to load the IOS?
a. ROM
b. RAM
c. NVRAM
d. Flash

13. If you want to see information about other Cisco devices attached to your router, which of the following commands would you use?
a. show cisco neighbor
b. show cdp neighbor
c. show cdp config
d. initiate cdp scan

14. CDP is enabled by default on Cisco devices. **True** or False?

15. Which of the following is the first step in the router boot process?
a. Locate and load Cisco IOS
b. Load bootstrap
c. Locate and load router configuration file
d. POST

16. Which of the following occurs after the loading of the bootstrap?
a. Test hardware
b. Configuration register is examined to determine from where to load the IOS
c. Locate and load router configuration file
d. POST

17. What is another name for the privileged EXEC mode?
a. Enable secret mode
b. Enable mode
c. Login mode
d. User mode

18. By default, what will happen if the IOS cannot be found in flash memory?
a. The router attempts to load a minimal copy from ROM.
b. The router uses CDP.
c. The router contacts an HTTP server.

d. The router automatically shuts down.

19. If the router is configured to load the IOS from a TFTP server, where will the router look next for the IOS?
a. ROM
b. Flash
c. FTP server
d. HTTP server
e. CDP

20. Which command could you use to back up the IOS to a TFTP server?
a. copy IOS tftp
b. copy flash tftp
c. copy rom tftp
d. copy running-config tftp

21. If you want to see information about other Cisco devices attached to your router, including their IP addresses, which of the following commands would you use?
a. show cisco neighbor
b. show cdp neighbor
c. show cdp neighbor detail
d. show cdp neighbor Ethernet

22. What is the command to erase the configuration file on a Cisco 1900 series switch?
a. erase start
b. delete start
c. disable nvram
d. delete nvram

23. The show interfaces command displays the following output: Ethernet0 is up, line protocol is administratively down. What do you infer?
a. There is no cable attached to the Ethernet0 interface on the router.
b. The no shutdown command needs to be configured on the Ethernet0 interface.
c. Incompatible routing protocols have been configured on the router.
d. There is a physical problem with the Ethernet0 interface on the router.

24. What is the purpose of a hosts file on a router?
a. To allow you to use host names instead of IP addresses when referring to network devices
b. To facilitate ARP on the router
c. To allow routers to see other devices on the network
d. To block unwanted hosts from using the router

25. Which of the following commands will display the routing table for a Cisco router?
a. show route
b. show ip route
c. show routing table
d. show table

Case Projects

Case Project 1
CDP is not part of any protocol suite. It is an independent, Cisco proprietary, Data Link layer protocol designed to inform neighbor routers and switches details, such as the port number to which your device is attached to the remote device, the type of device, the model number (for example, 2500), and the holdtime in seconds that the CDP information will be held. CDP broadcasts the information every 60 seconds by default, and is on for every interface by default. You can turn it on and off using the cdp run and no cdp run commands, respectively, in global configuration mode. You can turn it on and off of a single interface in interface configuration mode

using the cdp enable and no cdp enable commands, respectively. You may want to turn it off because of broadcast traffic problems and/or because you don't want to advertise your equipment to other equipment.

Case Project 2
First, they should try the "show interface" command, which will indicate if the interfaces on the router are physically available, and if they are receiving keepalive messages which indicates data link layer connectivity. Over 90% of all network problems are physical layer problems. If all interfaces are UP/UP, the "show ip route" command should be tried next because it displays the routing table. A router cannot send data to a network for which there is no entry in the routing table (unless there is a default or gateway route configured). If the routing table is not correct, they should look at whether or not RIP or other routing protocols or static routes were configured correctly. The "show run" command will display the configuration. If the routing table is correct, they should try pinging a neighbor to see if they have network layer connectivity. If that works, they could use the "trace" command to try and establish if and where communications are breaking down. Telnetting to a remote router indicates connectivity at the highest layer in the OSI mode, the application layer. It is possible that a neighbor router is having problems and affecting the client's router. For example, if a neighbor router has an interface that is DOWN and that interface is connected to the client's router, it could "push" the client's interface DOWN. Also, a neighbor router may have a configuration problem, such as incorrect routing protocol configuration, that can affect the client's router.

Case Project 3
Since the IOS is maintained in flash memory, Moe has just erased the operating system in the router. This is usually highly undesirable. Because the router is not configured to boot a copy of the IOS from a TFTP server, when the router reboots, it will boot a limited version of the IOS from ROM.

Case Project 4
First they should ping the TFTP server to make sure there is connectivity to it. Sometimes, when booting from ROM, the router loses its connections. To make sure it can find the TFTP server, it is a good ideal to shutdown the serial interfaces that do not lead to the TFTP server. At the appropriate interface prompt, they should use the shutdown command to do this. Then, just to make sure the router will find the TFTP server, they can use the ip default-gateway command with the ip address of the next router if there is one in between the router in question and the TFTP server. They should make sure the TFTP software is up and running on the TFTP server. The command to copy the IOS from a TFTP server to the router is copy tftp flash. They will be prompted for the name of the file, which is igs-j-l.111-5, and the ip address of the TFTP server. They will then have to confirm the copy. A series of exclamation marks will display on screen while the file is copying. Once a successful copy has taken place, they can use the reload command to reboot.