Chapter 9

Connecting to and Setting Up a Network

Reviewing the Basics

1. How many bits are in a MAC address?

48 bits

2. How many bits are in an IPv4 IP address? In an IPv6 IP address?

32 bits, 128 bits

3. How does a client application identify a server application on another computer on the network?

By a port number

4. What are IP addresses called that begin with 10, 172.16, or 192.168?

Private IP addresses

5. In what class is the IP address 185.75.255.10?

Class B

6. In what class is the IP address 193.200.30.5?

Class C

7. Describe the difference between public and private IP addresses. If a network is using private IP addresses, how can the computers on that network access the Internet?

Public IP addresses are licensed and authorized to use the Internet. Private IP addresses are not authorized or licensed to use the Internet. A computer with a private IP address uses a NAT router to access the Internet.

8. Why is it unlikely that you will fi nd the IP address 192.168.250.10 on the Internet?

IP addresses that begin with 192.168 are private IP addresses.

9. In Figure 15-9, the subnet mask is four notches tall and is considered a classless subnet mask for this network of sticks. How many notches tall would be a classful subnet mask for the same network?

A classful subnet mask for this network would be two notches tall because the first two notches of all sticks in the network are the same.

10. If no DHCP server is available when a computer confi gured for dynamic IP addressing

connects to the network, what type of IP address is assigned to the computer?

Automatic private IP address (APIPA)

11. If a computer is found to have an IP address of 169.254.1.1, what can you assume about

how it received that IP address?

The IP address was automatically assigned by Windows when it failed to lease an address from the DHCP server. The computer received an APIPA IP address.

12. What are the last 64 bits of a IPv6 IP address called? How are these bits used?

The Interface ID which is used to uniquely identify the network connection on the local link.

13. Name at least three tunneling protocols that are used for IPv6 packets to travel over an

IPv4 network.

ISATP, Teredo, and 6TO4

14. How is an IPv6 IP address used that begins with 2000::? That begins with FE80::?

IP addresses that begin with 2000:: are global addresses used on the Internet.

Addresses that begin with FE80:: are link local addresses used on a private network.

15. How many bits are in the Subnet ID block? What are the values of these bits for a linklocal

IP address?

The Subnet ID block contains 16 bits. The value of these bits for a link-local address are 0000 0000 0000 0000.

16. Which type of IPv6 address is used to create multiple sites within a large organization?

Unique local addresses

17. What type of server serves up IP addresses to computers on a network?

DHCP server

18. Which TCP/IP protocol that manages packet delivery guarantees that delivery? Which protocol
does not guarantee delivery, but is faster?

TCP, UDP

19. At what port does an SMTP email server listen to receive email from a client computer?

Port 25

20. Which protocol does a web server use when transmissions are encrypted for security?

HTTPS uses either HTTP together with SSL or TLS encryption protocols

21. What type of server resolves fully qualifi ed domain names to IP addresses?

DNS server

22. Which email protocol allows a client application to manage email stored on an email server?

IMAP

23. What type of protocol is used to present a public IP address to computers outside the LAN
to handle requests to use the Internet from computers inside the LAN?

NAT

24. Which protocol is used when an application queries a database on a corporate network
such as a database of printers?

LDAP

25. What type of encryption protocol does Secure FTP (SFTP) use to secure FTP transmissions?

SSH

26. What two Windows applications use the RDP protocol and port 3389?

Remote Desktop and Remote Assistance

27. Which version of 802.11 technologies can use two antennas at both the access point and

the network adapter?

802.11n

28. Which wireless encryption standard is stronger, WEP or WPA?

WPA

29. When securing a Wi-Fi wireless network, which is considered better security: to fi lter MAC

addresses, use encryption, or not broadcast the SSID?

To use encryption

30. Would you expect WPS to be used when a wireless network is using strong security, weak

security, or no security (as in a public hotspot

Strong security

Thinking Critically

1. You have just installed a network adapter and have booted up the system, installing the drivers. You open Windows Explorer on a remote computer and don't see the computer on which you just installed the NIC. What is the fi rst thing you check?

a. Has TCP/IPv6 been enabled?
b. Is the computer using dynamic or static IP addressing?
c. Are the lights on the adapter functioning correctly?
d. Has the computer been assigned a computer name?

Answer: c. Are the lights on the adapter functioning correctly?

2. Your boss asks you to transmit a small fi le that includes sensitive personnel data to a server on the network. The server is running a Telnet server and an FTP server. Why is it not a good idea to use Telnet to reach the remote computer?

a. Telnet transmissions are not encrypted.
b. Telnet is not reliable and the fi le might arrive corrupted.
c. FTP is faster than Telnet.
d. FTP running on the same computer as Telnet causes Telnet to not work.

Answer: a. Because Telnet transmissions are not encrypted

3. Your job is to support the desktop computers in a small company of 32 employees. A consulting fi rm is setting up a private web server to be used internally by company employees.
The static IP address of the server is 192.168.45.200. Employees will open their web

browser and enter *personnel.mycompany.com* in the URL address box to browse this web site. What steps do you take so that each computer in the company can browse the site using this URL?

Answer: Make this entry in the Hosts file on each computer:

192.168.45.200 personnel.mycompany.com