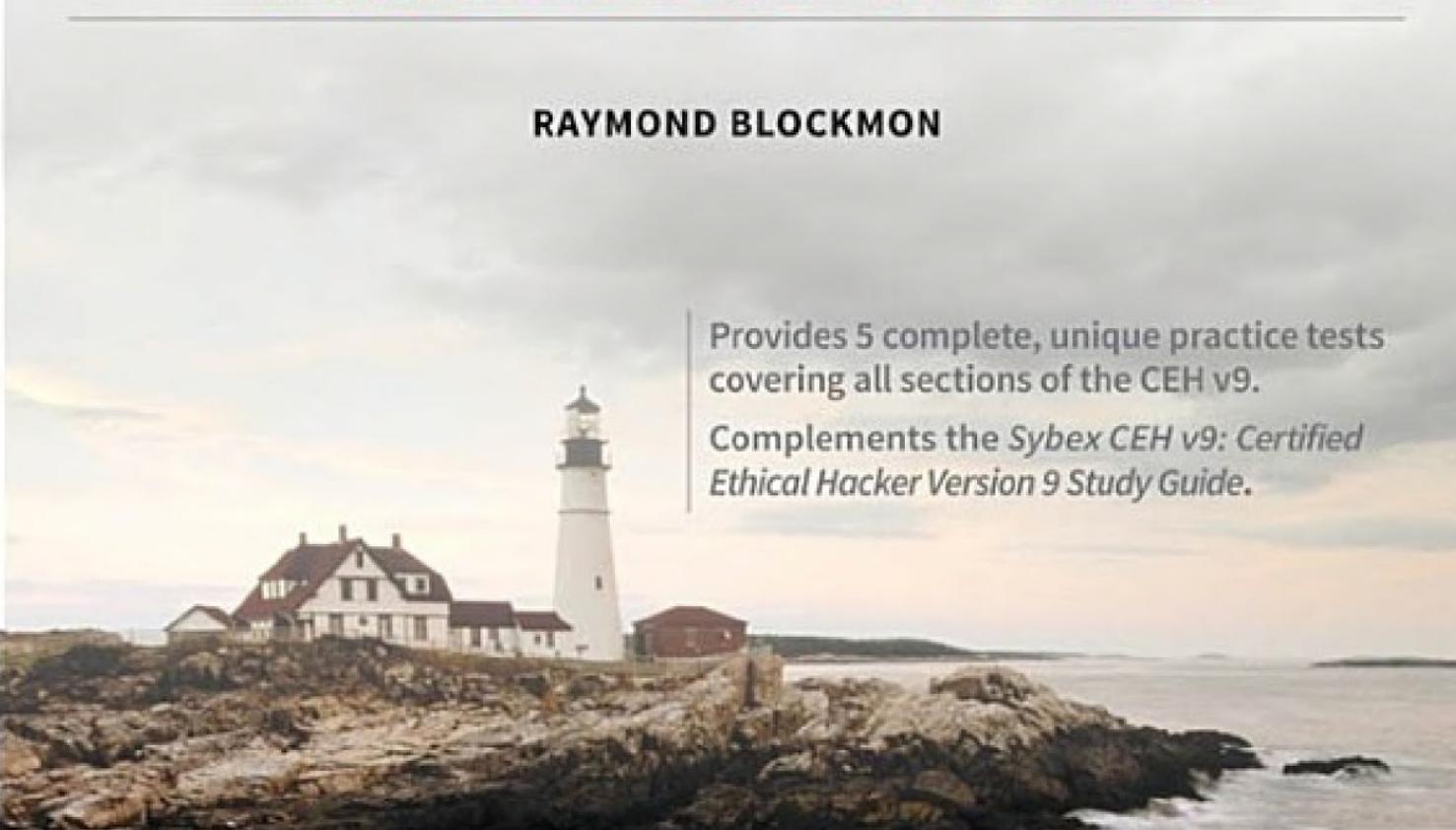


# CEH™ v9

## CERTIFIED ETHICAL HACKER VERSION 9

### PRACTICE TESTS

RAYMOND BLOCKMON



Provides 5 complete, unique practice tests covering all sections of the CEH v9.

Complements the *Sybex CEH v9: Certified Ethical Hacker Version 9 Study Guide*.

 SYBEX  
A Wiley Brand

Copyrighted material

# **Contents**

[Introduction](#)

[Chapter 1 Practice Test 1](#)

[Chapter 2 Practice Test 2](#)

[Chapter 3 Practice Test 3](#)

[Chapter 4 Practice Test 4](#)

[Chapter 5 Practice Test 5](#)

[Appendix Answers to Review Questions](#)

[Practice Test 1](#)

[Practice Test 2](#)

[Practice Test 3](#)

[Practice Test 4](#)

[Practice Test 5](#)

[Index](#)

[Advert](#)

[EULA](#)

# Introduction

This exam book is designed to give the CEH candidate a realistic idea of what the CEH exam will look like. As a candidate, you should be familiar with Wireshark, Nmap, and other tools. To get the most out of these exams, you should consider constructing a virtual lab and practicing with the tools to become familiar with viewing the logs that are generated. In preparing for the CEH exam, you will benefit greatly by using YouTube. YouTube is a goldmine of information—and it's free. It is also recommended that you keep up with the latest malware and cybersecurity news provided online. Most cybersecurity-related websites provide insight on the latest vulnerabilities and exploits that are in the wild. Keeping up to date with this information will only add value to your CEH knowledge and will help solidify your understanding even more.

Finally, this exam book should not be the only resource you use to prepare. You should use other exam books and study guides as well. The more diverse the exposure in terms of reading and preparation material, the better. Take your time studying; invest at least one hour per day prior to your exam date.

If you have not already read *CEHv9: Certified Ethical Hacker Version 9 Study Guide* by Sean-Philip Oriyano (Sybex, 2016) and you're not seeing passing grades on these practice tests, you should invest in the Study Guide since it is an excellent resource to master any of the CEH topics that may be causing you problems.

# **CHAPTER 1**

## **Practice Test 1**

**1.** Which of the following is considered a passive reconnaissance action?

- A. Searching through the local paper
- B. Calling Human Resources
- C. Using the nmap -sT command
- D. Conducting a man-in-the-middle attack
- E. Setting up a rogue hot spot

**2.** Which encryption was selected by NIST as the principal method for providing confidentiality after the DES algorithm?

- A. 3DES
- B. Twofish
- C. RC4
- D. AES

**3.** What tool is able to conduct a man-in-the-Middle Attack on an 802.3 environment?

- A. Ettercap
- B. Cain & Abel
- C. Wireshark
- D. Nmap

4. What is the difference between a traditional firewall and an IPS?

- A. Firewalls do not generate logs.
- B. IPS cannot drop packets.
- C. IPS does not follow rules.
- D. IPS can dissect packets.

5. Why is it important to scan your target network slowly?

- A. To avoid alerting the IDS
- B. It is not necessary to scan the network slowly.
- C. To evade the firewall
- D. Services may not have started, so starting slowly ensures that you capture services that started late.

6. You are the senior manager in the IT department for your company. What is the most cost effective way to prevent social engineering attacks?

- A. Install HIDS.
- B. Ensure that all patches are up-to-date.
- C. Monitor and control all email activity.
- D. Implement user awareness training.

7. In which phase within the ethical hacking framework do you alter or delete log information?

- A. Scanning and enumeration
- B. Gaining access
- C. Reconnaissance
- D. Covering tracks

**8.** A hacker is conducting the following on the target workstation: nmap -sT 192.33.10.5. The attacker is in which phase?

- A. Covering tracks
- B. Enumeration
- C. Scanning and enumeration
- D. Gaining access

**9.** Which encryption algorithm is a symmetric stream cipher?

- A. AES
- B. ECC
- C. RC4
- D. PGP

**10.** What is the most important aspect when conducting a penetration test?

- A. Receiving a formal written agreement
- B. Documenting all actions and activities
- C. Remediating serious threats immediately
- D. Maintaining proper handoff with the information assurance team

11. You are a CISO for a giant tech company. You are charged with implementing an encryption cipher for your new mobile devices that will be introduced in 2017. What encryption standard will you most likely choose?

- A. RC4
- B. MD5
- C. ECC
- D. Skipjack

12. What does a SYN scan accomplish?

- A. It establishes a full TCP connection.
- B. It establishes only a “half open” connection.
- C. It opens an ACK connection with the target.
- D. It detects all closed ports on a target system.

13. What is the major vulnerability for an ARP request?

- A. It sends out an address request to all the hosts on the LAN.
- B. The address is returned with a username and password in cleartext.
- C. The address request can cause a DoS.
- D. The address request can be spoofed with the attacker’s MAC address.

14. You are the CISO for a popular social website. You recently learned that your web servers have been compromised with the SSL Heart Bleed zero day exploit. What will be your most likely first course of action to defend against?

- A. Patch all systems.
- B. Establish new cryptographic keys.
- C. Shut down Internet-facing web services.
- D. Restrict access to sensitive information.

15. In what phase is an attacker who is currently conducting a successful man-in-the-middle attack?

- A. Gaining access
- B. Maintaining access
- C. Reconnaissance
- D. Covering tracks

16. What method of exploitation allows the adversary to test for SQL queries within the URL?

- A. SQL injection
- B. XSS
- C. Spear phishing
- D. Ruby on Rails injection method

17. What is the default TTL values for Microsoft Windows 7 OS?

- A. 64
- B. 128
- C. 255
- D. 256

18. Which input value would you utilize in order to evaluate and test for SQL injection vulnerabilities?

- A. SQL test
- B. admin and password
- C. || or | !
- D. 1'or'1'='1

19. What is the downside of using SSH with Telnet when it comes to security?

- A. SSH encrypts the traffic and credentials.
- B. You cannot see what the adversary is doing.
- C. Data is sent in the clear.
- D. You do not know what keys you are using.

20. What year did the Ping of Death first appear?

- A. 1992
- B. 1989
- C. 1990
- D. 1996

21. Which of the following viruses was the most infectious?

- A. The Melisa virus
- B. I Love You Virus
- C. Blue Cross virus punter
- D. Stuxnet

22. You are part of the help desk team. You receive a ticket from one of your users that their computer is periodically slow. The user also states that from time to

time, documents have either disappeared or have been moved from their original location to another. You remote desktop to the user's computer and investigate. Where is the most likely place to see if any new processes have started?

- A. The Processes tab in Task Manager
- B. C:\Temp
- C. The Logs tab in Task Manager
- D. C:\Windows\System32\User

23. As a network engineer, you received the task of bridging two corporate facilities by way of wireless communication. These facilities are more than 20 miles apart, contain more than 400 employees at each site, and have a \$20,000 budget. Each site has a single-mode fiber connection. Which antenna would you use to bridge the gap?

- A. Multimode fiber
- B. Very small aperture terminal (VSAT)
- C. Omni direction antenna
- D. Directional antenna

24. What does a checksum indicate?

- A. That the data has made it to its destination
- B. That the three-way TCP/IP handshake finished
- C. That there were changes to the data during transit or at rest
- D. The size of the data after storage

25. Out of the following, which is one of RSA's registered key strengths?

- A. 1,024 bits
- B. 256 bits
- C. 128 bits
- D. 512 bits

26. To provide nonrepudiation for email, which algorithm would you choose to implement?

- A. AES
- B. DSA
- C. 3DES
- D. Skipjack

27. Which of the following describes a race condition?

- A. Where two conditions occur at the same time and there is a chance that arbitrary commands can be executed with a user's elevated permissions, which can then be used by the adversary
- B. Where two conditions cancel one another out and arbitrary commands can be used based on the user privilege level
- C. Where two conditions are executed under the same user account
- D. Where two conditions are executed simultaneously with elevated user privileges

28. Your end clients report that they cannot reach any website on the external network. As the network

administrator, you decide to conduct some fact finding. Upon your investigation, you determine that you are able to ping outside of the LAN to external websites using their IP address. Pinging websites with their domain name resolution does not work. What is most likely causing the issue?

- A. The firewall is blocking DNS resolution.
- B. The DNS server is not functioning correctly.
- C. The external websites are not responding.
- D. HTTP GET request is being dropped at the firewall from going out.

29. You are the security administration for your local city. You just installed a new IPS. Other than plugging it in and applying some basic IPS rules, no other configuration has been made. You come in the next morning and you discover that there was so much activity generated by the IPS in the logs that it is too time consuming to view. What most likely caused the huge influx of logs from the IPS?

- A. The clipping level was established.
- B. There was a DoS attack on the network.
- C. The LAN experienced a switching loop.
- D. There was no baseline established.

30. Which method would be considered a client-side attack?

- A. Cross-site scripting (XSS)
- B. Man-in-the-middle attack
- C. Watering hole attack
- D. Denial of service (DoS)

**31.** As a penetration tester, only you and a few key selected individuals from the company will know of the targeted network that will be tested. You also have zero knowledge of your target other than the name and location of the company. What type of assessment is this called?

- a. Gray box testing
- b. White box testing
- c. Black box testing
- d. Blue box testing

**32.** As an attacker, you found your target. You spend the next two weeks observing and watching personnel move in and move out of the facility. You also observe how the front desk handles large packages that are delivered as well as people who do not have access badges. You finally come up with a solid schedule of security patrols that you see being conducted. What is it that you are doing?

- A. Casing the target
- B. Gaining access
- C. Maintaining access
- D. Reconnaissance

**33.** Which scanning tool is more likely going to yield accurate results for the hacker?

- A. Ncat
- B. Nmap
- C. Ping
- D. Nslookup

**34.** Why would an attacker conduct an open TCP connection scan using Ncat?

- A. The attacker does not want to attack the system.
- B. The attacker made a mistake using the nmap function.
- C. The attacker is trying to connect to network services.
- D. The attacker is trying to see what ports are open for connection.

**35.** Why would an attacker want to avoid tapping into a fiber-optic line?

- A. It costs a lot of money to tap into a fiber line.
- B. If done wrong, it could cause the entire connection signal to drop, therefore bringing unwanted attention from the targeted organization.
- C. The network traffic would slow down significantly.
- D. Tapping the line could alert an IPS/IDS.

**36.** You are an attacker who has successfully infiltrated your target's web server. You performed a web defacement on the targeted organization's website, and you were able to create your own credential with administrative privileges. Before conducting data exfiltration, what is the next move?

- A. Log in to the new user account that you created.
- B. Go back and delete or edit the logs.
- C. Ensure that you log out of the session.
- D. Ensure that you migrate to a different session and log out.

37. What is the main drawback to using Kerberos?

- A. Symmetric keys can be compromised if not secured.
- B. Kerberos uses weak cryptography and keys can be easily cracked.
- C. Kerberos uses asymmetric cryptography and can be easily exploited.
- D. The adversary can replay the ticket-granting ticket to gain access to a system or service.

38. Where is the password file located on a Windows system?

- A. C:\Windows\temp
- B. C:\Win\system\config
- C. C:\Windows\accounts\config
- D. C:\Windows\system32\config

39. Which response would the adversary receive on closed ports if they conducted an XMAS scan?

- A. RST
- B. RST/ACK
- C. No Response
- D. FIN/ACK

**40.** Why would the adversary encode their payload before sending it to the target victim?

- A. Encoding the payload will not provide any additional benefit.
- B. By encoding the payload, the adversary actually encrypts the payload.
- C. The encoded payload can bypass the firewall because there is no port associated with the payload.
- D. Encoding the payload can bypass IPS/IDS detection because it changes the signature.

**41.** Which password is more secure?

- A. !9Apple
- B. pass123!!
- C. P@\$\$worD
- D. keepyourpasswordsecuretoyourself

**42.** Which of the following best describes DNS poisoning?

- A. The adversary intercepts and replaces the victims MAC address with their own.
- B. The adversary replaces their malicious IP address with the victim's IP address for the domain name.
- C. The adversary replaces the legitimate domain name with the malicious domain name.
- D. The adversary replaces the legitimate IP address that is mapped to the domain name with the malicious IP address.

**43.** Which of the following allows the adversary to forge certificates for authentication?

- A. Wireshark
- B. Ettercap
- C. Cain & Abel
- D. Ncat

**44.** Which encryption standard is used in WEP?

- A. AES
- B. RC5
- C. MD5
- D. RC4

**45.** You are sitting inside of your office and you notice a strange person in the parking lot with what appears to be a tall antenna connected to a laptop. What is the stranger most likely doing?

- A. Brute-forcing their personal electronic device
- B. Wardriving
- C. Warflying
- D. Bluesnarfing

46. As a network administrator, you see a familiar IP address pinging the broadcast address. What do you believe is happening?

- A. Smurf attack
- B. DNS poisoning
- C. Man-in-the-middle attack
- D. Trojan virus infecting the gateway

47. Which best describes a denial of service (DoS)?

- A. Victim's computer is infected with a virus.
- B. A misconfigured switch is in a switching loop.
- C. An adversary is forging a certificate.
- D. An adversary is consuming all available memory of a target system by opening as many "half-open" connections on a web server as possible.

48. In the Windows SAM file, what attributes would indicate to the adversary that a given account is an administrator account?

- A. 500
- B. 1001
- C. ADM
- D. ADMIN\_500

**49.** Which regional Internet registry is responsible for North and South America?

- A. RIPE
- B. AMERNIC
- C. LACNIC
- D. ARIN

**50.** Which of following actions is the last step in scanning a target?

- A. Scan for vulnerabilities.
- B. Identify live systems.
- C. Discover open ports.
- D. Identify the OS and servers.

**51.** Which of the following best describes the ICMP Type 8 code?

- A. Device is being filtered
- B. Network route is incorrect or missing
- C. Echo request
- D. Destination unreachable

**52.** Which of the following options shows the well-known ports?

- A. 0 to 1023
- B. 0 to 255
- C. 1024 to 49151
- D. 1 to 128

**53.** What is war dialing?

- A. An adversary conducting a DoS on a modem
- B. An adversary dialing to see what modems are open
- C. An adversary using a modem as an evil twin
- D. An adversary verifying closed modems

**54.** Which of the following switches for the Nmap command fingerprints an operating system?

- A. -sO
- B. -sFRU
- C. -sA
- D. -sX

**55.** What command would the adversary use to show all the systems within the domain using the command line interface in Windows?

- A. netstat -R /domain
- B. net view /<domain\_name>:domain
- C. net view /domain:<domain\_name>
- D. netstat /domain:<domain\_name>

**56.** You are a passenger in an airport terminal. You glance across the terminal and notice a man peering over the shoulder over a young woman as she uses her tablet. What do you think he is doing?

- A. Wardriving
- B. Shoulder surfing
- C. War shouldering
- D. Shoulder jacking

**57.** You are the attacker that has successfully conducted a SQL injection vulnerability assessment on a target site. Which keyword would you use to join the target database with your own malicious database as part of the SQL injection?

- A. UNION
- B. ADD
- C. SELECT
- D. JOIN

**58.** Which option describes the concept of injecting code into a portion of data in memory that allows for arbitrary commands to be executed?

- A. Buffer overflow
- B. Crash
- C. Memory overflow
- D. Data overflow

**59.** Of the following methods, which one acts as a middleman between an external network and the private network by initiating and establishing the connection?

- A. Proxy server
- B. Firewall
- C. Router
- D. Switch

**60.** As an attacker, you successfully exploited your target using a service that should have been disabled. The service had vulnerabilities that you were able to exploit with ease. What may be the issue here?

- A. The administrator did not apply the correct patches.
- B. The web server was improperly configured.
- C. You are dealing with a honeypot.
- D. The firewall was not configured correctly.

**61.** Where is the logfile that is associated with the activities of the last user that signed in within a Linux system?

- A. /var/log/user\_log
- B. /var/log/messages
- C. /var/log/lastlog
- D. /var/log/last\_user

**62.** What default port does SSH utilize?

- A. Port 22
- B. Port 21
- C. Port 443
- D. Port 25

63. As a pentester, you are hired to conduct an assessment on a group of systems for your client. You are provided with a list of critical assets, a list of domain controllers, and a list of virtual share drives. Nothing else was provided. What type of test are you conducting?

- A. White hat testing
- B. Gray hat testing
- C. Gray box testing
- D. Red hat testing

64. Which of the following best describes what is meant by the term *firewalking*?

- A. Decrementing the TTL value by 1 past the firewall will show if a port is opened.
- B. Causing a denial of service on the firewall with a ping flood
- C. Conducting a ping sweep on the firewall
- D. Setting the TTL passed the router to determine what servers and other hosts are available

65. Which tool can be used to conduct layer 3 scanning and enumeration?

- A. Cain & Abel
- B. John the ripper
- C. Ping-eater
- D. Nmap

66. What port number or numbers is/are associated with the IP protocol?

- A. 0 to 65535
- B. No ports
- C. 53
- D. 80

67. Which two protocols are connectionless?

- A. IP and TCP
- B. IP and FTP
- C. IP and UDP
- D. TCP and UDP

68. What is the role of an individual who interrogates a system with permission?

- A. White hat
- B. Gray hat
- C. Black hat
- D. Red hat

69. What is patch management?

- A. Deploying patches when they are available
- B. Testing patches in a testing environment before they are deployed to the production environment
- C. Deploying patches at the end of the month
- D. Determining what vulnerabilities are currently on your network and deploying patches immediately to eliminate the threat

70. At which layer of the OSI model does FTP reside?

- A. Session
- B. Application
- C. Network
- D. Transport

71. Which exploitation was associated with the heartbleed attack?

- A. Buffer overflow
- B. Man in the middle
- C. Fragle attack
- D. Smurf attack

72. Which switch in Nmap invokes the XMAS scan?

- A. -sX
- B. -sS
- C. -xS
- D. -sT

73. Which of the following best describes a fingerprint scan?

- A. Scanning for vulnerabilities
- B. Using the -sX switch for Nmap
- C. Matching characteristics from a scan to a database in Nmap
- D. Check to see what ports are open by firewalking

74. Which option describes a client-side attack targeting web applications?

- A. SQL injection
- B. Cross-site malware injection
- C. Cross-site scripting
- D. SQL site scripting

75. What port is used by DNS?

- A. 80
- B. 8080
- C. 53
- D. 25

76. In Linux, what file allows you to see user information such as full name, phone number, and office information?

- A. shadow file
- B. passwd file
- C. userinfo file
- D. useraccount file

77. In a packet analyzer, where can you see where the FIN flag is set?

- A. TCP – Header
- B. TCP – Packet
- C. UDP – Flags
- D. TCP – Flags

78. Which type of packet does a fraggle attack use to create a DoS attack?

- A. TCP
- B. IP
- C. ICMP
- D. UDP

79. Which instruction value is used to invoke a NOP (non-operating procedure)?

- A. 0x99
- B. 0x91
- C. oxGH
- D. 0x90

80. What protocol would you use to conduct banner grabbing?

- A. FTP
- B. IRC
- C. DNS
- D. Telnet

81. Which of the following functions is no longer utilized within IPv6?

- A. Multicast
- B. Anycast
- C. Unicast
- D. Broadcast

82. What are you creating when you set up a server with certain configurations and document step-by-step

instructions?

- A. Baseline
- B. Procedure
- C. Technical advisory
- D. Guideline

83. Which application uses two ports?

- A. Telnet
- B. ICMP
- C. HTTPS
- D. FTP

84. Which of the following protocols periodically force the client and server to challenge each other for mutual authentication?

- A. CHAP
- B. POP
- C. PAP
- D. PPE

85. Which of the following is part of the account management life cycle?

- A. Account provisioning
- B. Access Denied
- C. User authentication
- D. None of the above

86. Which of the following activities describes the act of

a person rummaging through a trash container looking for sensitive information?

- A. Trash jumping
- B. Dumpster party
- C. Trash diving
- D. Dumpster diving

87. What are two common ports used to connect to a web server?

- A. 80 and 25
- B. 80 and 8080
- C. 443 and 53
- D. 20 and 21

88. When considering the risks of local storage vs. third-party cloud storage, which statement is most accurate?

- A. Cloud storage is more secure because the commercial vendor has trained security professionals.
- B. When storage is local, you are responsible and accountable for the storage services.
- C. You can sue the cloud provider for damages.
- D. The cloud has more layers of security than traditional local storage infrastructures.

89. What would you call an IP address joined with a port number?

- A. TCP/IP
- B. Connection-oriented protocol
- C. TCP/IP socket
- D. Socket

**90.** A classification label is associated with which of the following?

- A. A subject
- B. A file
- C. An object
- D. A folder

**91.** Which of the following tools allows you to create certificates that are not officially signed by a CA?

- A. Cain & Abel
- B. Nmap
- C. Ettercap
- D. Darkether

**92.** Which RAID configuration is not viable or used anymore?

- A. RAID-1
- B. RAID-3
- C. RAID-5
- D. RAID-2

**93.** This protocol is used for authentication purposes; it sends cleartext usernames and passwords with no forms

of encryption or a means of challenging. What authentication protocol is this?

- A. CHAP
- B. POP
- C. PAP
- D. MSCHAP

94. “Something you are” is considered a part of which authentication factor type?

- A. Type 1
- B. Type 3
- C. Type 2
- D. Multifactor authentication

95. When two or more authentication methods are used, it is called?

- A. Multitiered authentication factor
- B. Multifactor authentication
- C. Multicommom factor authentication
- D. Multiauthentication factor

96. Which of the following has no key associated with it?

- A. MD5
- B. AES
- C. Skipjack
- D. PGP

97. Which operating system build provides a suite of

tools for network defense purposes?

- A. Kali Linux
- B. Windows Server 2012 R2
- C. FreeBSD
- D. Security Onion

98. Which operating system build provides a suite of tools for network offensive ( attack your target) purposes?

- A. Kali Linux
- B. Windows Server 2012 R2
- C. FreeBSD
- D. Security Onion

99. What is a major drawback of antivirus software?

- A. It can be extremely slow.
- B. It must have the latest virus definitions.
- C. It can take up a lot of host resources.
- D. It requires a lot of effort to administer.

100. Which of the following applications would you use to implement an IDS/IPS solution in order to defend your network?

- A. Kali Linux
- B. Windows Vista
- C. Ncat
- D. Suricata

101. What is the maximum byte size for a UDP packet?

- A. 65,535
- B. 65,507
- C. 1,500
- D. 65,527

102. As an attacker, which of the following resources would you start with first to form a footprint of your target during the reconnaissance phase?

- A. Nmap using the -sO switch
- B. Kali Linux
- C. The help wanted section in the newspaper
- D. Calling the help desk masquerading as an authorized user

103. When sending a packet with a FIN flag set, what will the target respond with if the port is open?

- A. RST is returned.
- B. No response is returned.
- C. RST/ACK is returned.
- D. SYN/ACK is returned.

104. What is the result of conducting a MAC flood on a switch?

- A. The switch would fail to respond.
- B. It would create a DoS.
- C. The switch would operate as if it were a hub.
- D. The switch would continue to operate as normal.

105. Which of the following is the correct way to search for a specific IP address in Wireshark?

- A. ip.addr = 192.168.1.100
- B. ip == 192.168.1.100
- C. ip = 192.168.1.199
- D. ip.addr == 192.168.1.100

106. Which of the following is a Type 2 access control method?

- A. Fingerprint
- B. PIN
- C. GPS location
- D. Token access card

107. What type of attack best defines the following situation? An email contains a link with the subject line “Congratulations on your cruise!” The email instructs the reader to click a hyperlink to claim the cruise. When the link is clicked, the reader is presented with a series of questions within an online form, such as name, social security number, and date of birth.

- A. Email phishing
- B. Spear phishing
- C. Social engineering
- D. Identity theft

108. A network of zombie computers used to execute a DDoS on a target system is called?

- A. Botnet
- B. Whaling
- C. Social engineering
- D. DoS

109. Cipher locks, mantraps, and bollards are considered what?

- A. Physical controls
- B. Technical controls
- C. Crime prevention through environmental design
- D. Physical barriers

110. Which of the following describes the X.509 standard?

- A. It defines the LDAP structure.
- B. It is a symmetric encryption algorithm.
- C. It uses a sandbox method for security.
- D. It describes the standard for creating a digital certificate.

111. Which of the following best describes

steganography?

- A. A symmetric encryption algorithm
- B. Allowing the public to use your private key
- C. Hiding information within a picture or concealing it in an audio format
- D. Encrypting data using transposition and substitution

112. In which of the following classifications would a honeypot be in most cases?

- A. Enticement
- B. Entrapment
- C. Social engineering
- D. Honeynet

113. At what bandwidth does an 802.11a access point operate?

- A. 54 Mbps
- B. 1 Gbps
- C. 5 GHz
- D. 2.4 GHz

114. What is the governing council of the CEH exam?

- A. (ISC)<sup>2</sup>
- B. EC-Council
- C. CompTIA
- D. Microsoft

115. What Transport layer protocol does DHCP operate with?

- A. IP
- B. TCP
- C. ICMP
- D. UDP

116. According to the diagram, what is the IANA ID?

The screenshot shows a web browser window with the URL [www.whois.com/whois/yahoo.com](http://www.whois.com/whois/yahoo.com). The main content is titled "yahoo.com registrar whois" and shows the following WHOIS data:

- Domain Name: yahoo.com
- Registry Domain ID: 9641634\_DOMAIN\_COM-VRSN
- Registrar WHOIS Server: whois.markmonitor.com
- Registrar URL: http://www.markmonitor.com
- Updated Date: 2019-06-28T19:30:44-0700
- Creation Date: 1996-01-18T09:00:00-0800
- Registrar Registration Expiration Date: 2023-01-18T21:00:00-0800
- Registrar: MarkMonitor Inc.
- Registrar IANA ID: 292
- Registrar Abuse Contact Email: [abuse@markmonitor.com](mailto:abuse@markmonitor.com)
- Registrar Abuse Contact Phone: +12083895740
- Domain Status: clientUpdateProhibited (<https://www.icann.org/epoclientUpdateProhibited>)
- Domain Status: clientTransferProhibited (<https://www.icann.org/epoclientTransferProhibited>)
- Domain Status: clientDeleteProhibited (<https://www.icann.org/epoclientDeleteProhibited>)
- Registry Registration ID:
- Registrant Name: Domain Administrator
- Registrant Organization: Yahoo! Inc.
- Registrant Street: 701 First Avenue
- Registrant City: Sunnyvale
- Registrant State/Province: CA
- Registrant Postal Code: 94089
- Registrant Country: US
- Registrant Phone: +14083493300
- Registrant Phone Ext:
- Registrant Fax Ext:
- Registrant Fax Ext:
- Registrant Email: [domainadmin@yahoo-inc.com](mailto:domainadmin@yahoo-inc.com)
- Registry Admin ID:
- Admin Name: Domain Administrator
- Admin Organization: Yahoo! Inc.
- Admin Street: 701 First Avenue
- Admin City: Sunnyvale
- Admin State/Province: CA
- Admin Postal Code: 94089
- Admin Country: US
- Admin Phone: +14083493300
- Admin Phone Ext:

On the right side of the screen, there is a sidebar advertisement for web hosting services. It features a blue background with white text and a yellow callout box. The text in the sidebar includes:

- Unlimited Disk Space
- Unlimited Data Transfer
- Unlimited Databases
- Unlimited Email Accounts
- 30 Day Money Back Guarantee

[View Plans](#)

The yellow callout box contains the text "Starts @ \$3.88/mo".

- A. 292
- B. 94089
- C. US
- D. 4083493300

117. According to the following screen shot, what process identification is Terminal running?

```

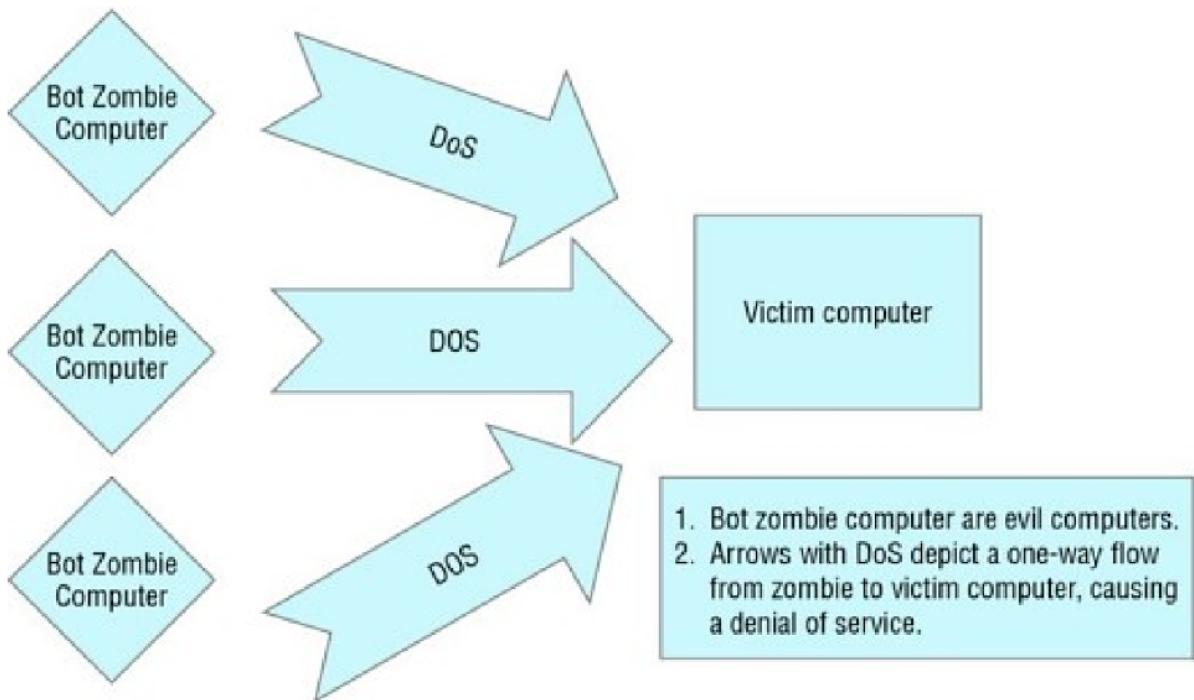
rblockmon - top - 80x24
Processes: 188 total, 4 running, 8 stuck, 176 sleeping, 872 threads 18:48:07
Load Avg: 1.96, 1.52, 2.31 CPU usage: 37.77% user, 15.73% sys, 46.48% idle
SharedLibs: 16M resident, 17M data, 0B linkedit.
MemRegions: 308804 total, 1184M resident, 45M private, 431M shared.
PhysMem: 4076M used (950M wired), 19M unused.
VM: 454G vsize, 1064M framework vsize, 0(0) swapins, 0(0) swapouts.
Networks: packets: 633227/753M in, 385518/53M out.
Disks: 70433/2394M read, 121601/3290M written.

PID COMMAND %CPU TIME #TH #WQ #PORT MEM PURG CMPRS PGRP PPID
718 firefox 96.1 34:22.42 87/4 3 517+ 720M- 4096B 197M+ 718 1
861 plugin-conta 60.7 01:33.63 50/1 2 441+ 342M+ 0B 26M+ 718 718
0 kernel_task 21.5 07:45.74 92/4 0 2 348M- 0B 0B 0 0
1203 AddressBookS 7.8 00:00.40 11 7 135+ 6468K+ 0B 0B 1203 1
245 coreaudiod 3.8 00:19.01 4 0 264 2104K- 0B 972K+ 245 1
137 WindowServer 2.9 08:43.80 4 0 377 23M- 0B- 41M+ 137 1
1204 top 2.7 00:00.30 1/1 0 22+ 1944K+ 0B 0B 1204 1195
1206 screencaptur 2.6 00:00.05 6 4 53+ 2036K+ 20K 0B 243 243
1161 com.apple.iC 2.2 00:00.17 5 3 58+ 1596K+ 0B 572K- 1161 1
92 hidd 1.9 02:01.66 7 2 94 1412K- 0B 2508K+ 92 1
265 nsurlstorage 0.7 00:01.52 4 2 95 2956K+ 0B 7468K- 265 1
1186 Terminal 0.5 00:02.50 7 1 199 13M- 0B 5772K+ 1186 1
243 SystemUIServ 0.5 00:04.04 8 5 281+ 4764K- 0B 3932K+ 243 1
56 mds 0.4 00:21.05 8 5 255 17M- 0B 27M+ 56 1

```

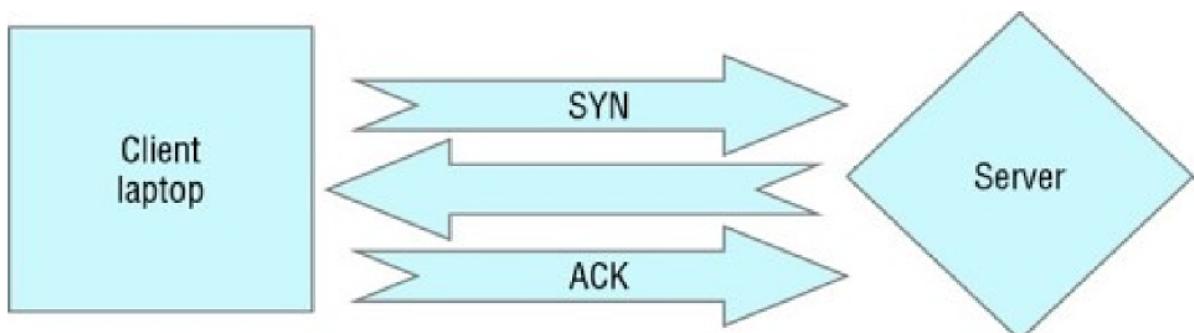
- a. 1
- b. 708
- c. 243
- d. 1186

118. As shown in the following image, what type of attack is being conducted?



- A. Fraggle
- B. DDoS
- C. DoS
- D. Bot attack

119. What is missing to complete the three-way handshake shown here?



- A. ACK/SYN
- B. ACK
- C. TCP/IP
- D. SYN/ACK

120. In the following screen shot, which process is taking 386 MB of memory from the computer?

The screenshot shows a terminal window titled "rblockmon - top - 80x24". The window displays system statistics and a process list. The statistics include:

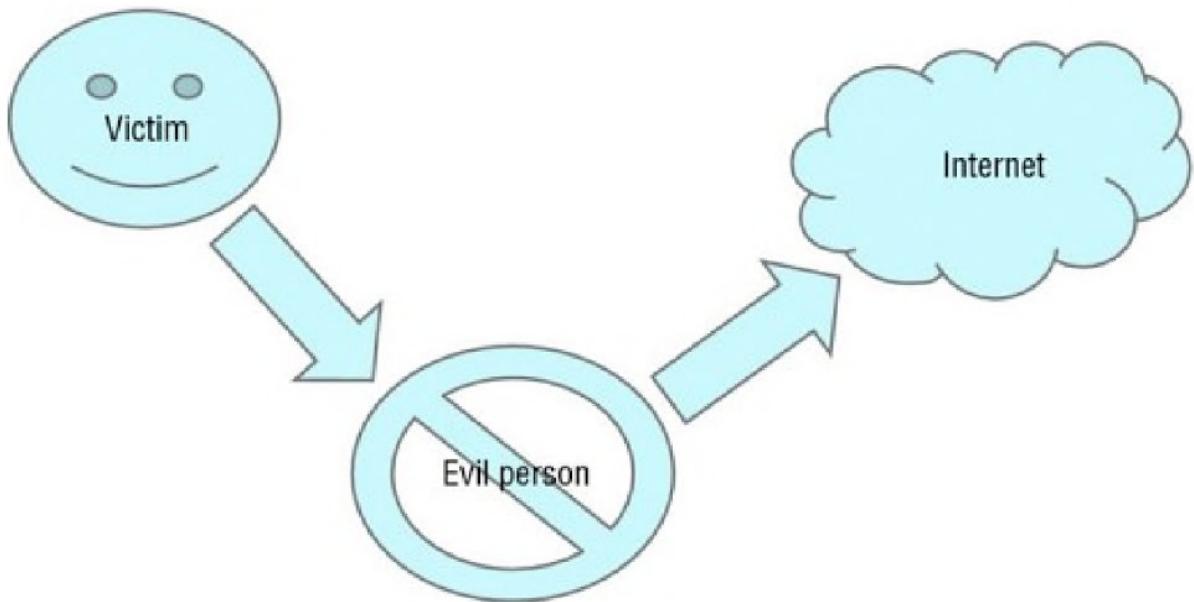
- Processes: 178 total, 2 running, 5 stuck, 171 sleeping, 690 threads at 19:56:57
- Load Avg: 1.80, 1.71, 2.06 CPU usage: 2.69% user, 2.69% sys, 94.60% idle
- SharedLibs: 16M resident, 17M data, 0B linkedit.
- MemRegions: 38420 total, 935M resident, 39M private, 394M shared.
- PhysMem: 3999M used (979M wired), 94M unused.
- VM: 429G vsize, 1064M framework vsize, 0(0) swapins, 256(0) swapouts.
- Networks: packets: 825122/933M in, 544300/107M out.
- Disks: 88320/2643M read, 161873/4126M written.

The process list is as follows:

PID	COMMAND	%CPU	TIME	#TH	#WQ	#PORT	MEM	PURG	CMPRS	PGRP	PPID
718	firefox	4.0	46:24.62	65	0	506	608M	0B	288M	718	1
0	kernel_task	2.9	10:15.34	92/4	0	2	386M	0B	0B	0	0
861	plugin-conta	5.3	08:23.21	21	0	326	110M+	0B	74M	718	718
875	soffice	0.0	03:40.23	9	1	253	93M	0B	35M	875	1
137	WindowServer	1.9	09:43.67	4	0	377	36M	44K	46M	137	1
244	Finder	0.0	00:07.46	3	0	256	21M	44K	20M	244	1
1186	Terminal	0.6	00:04.84	7	1	210	11M	0B	8004K	1186	1
215	mds_stores	0.0	00:34.61	3	1	54	11M	520K	15M	215	1
759	VTDecoderXPC	0.0	00:41.84	0	0	72	11M	0B	6660K	759	1
268	CalendarAgen	0.0	00:10.77	4	0	172	10M	0B	14M	268	1
56	mds	0.0	00:27.93	3	0	242	7964K	0B	32M	56	1
1	launchd	0.0	00:13.10	5	4	3160	7648K	0B	5700K	1	0
88	loginwindow	0.0	00:05.17	2	0	368	6640K	8192B	10M	88	1
285	Notification	0.0	00:02.23	3	0	198	6612K	0B	7340K	285	1

- A. Firefox
- B. kernel\_task
- C. Finder
- D. WindowServer

121. What type of attack is shown in the following image?



- A. Man-in-the-middle
- B. DoS
- C. DDoS
- D. Spear phishing

122. Under which scan had the most ports been scanned?

Screenshot of the PENTEST-TOOLS.COM website showing a completed TCP Port Scan report for www.yahoo.com.

**Scan Result** > TCP Port Scan - 47

Target: www.yahoo.com

Raw output | Save as pdf

```

STARTING NMAP 6.40 ( https://nmap.org ) at 2013-11-22 03:24 EET
NSE: Loaded 17 scripts for scanning.
Initiating Ping Scan at 03:24
Scanning www.yahoo.com (46.228.47.115) [4 ports]
Completed Ping Scan at 03:24, 0.00s elapsed (4 total hosts)
Initiating SYN Stealth Scan at 03:24
Scanning www.yahoo.com (46.228.47.115) [100 ports]
Discovered open port 80/tcp on 46.228.47.115
Discovered open port 443/tcp on 46.228.47.115
Completed SYN Stealth Scan at 03:24, 2.06s elapsed (100 total ports)
Initiating Service scan at 03:24
  
```

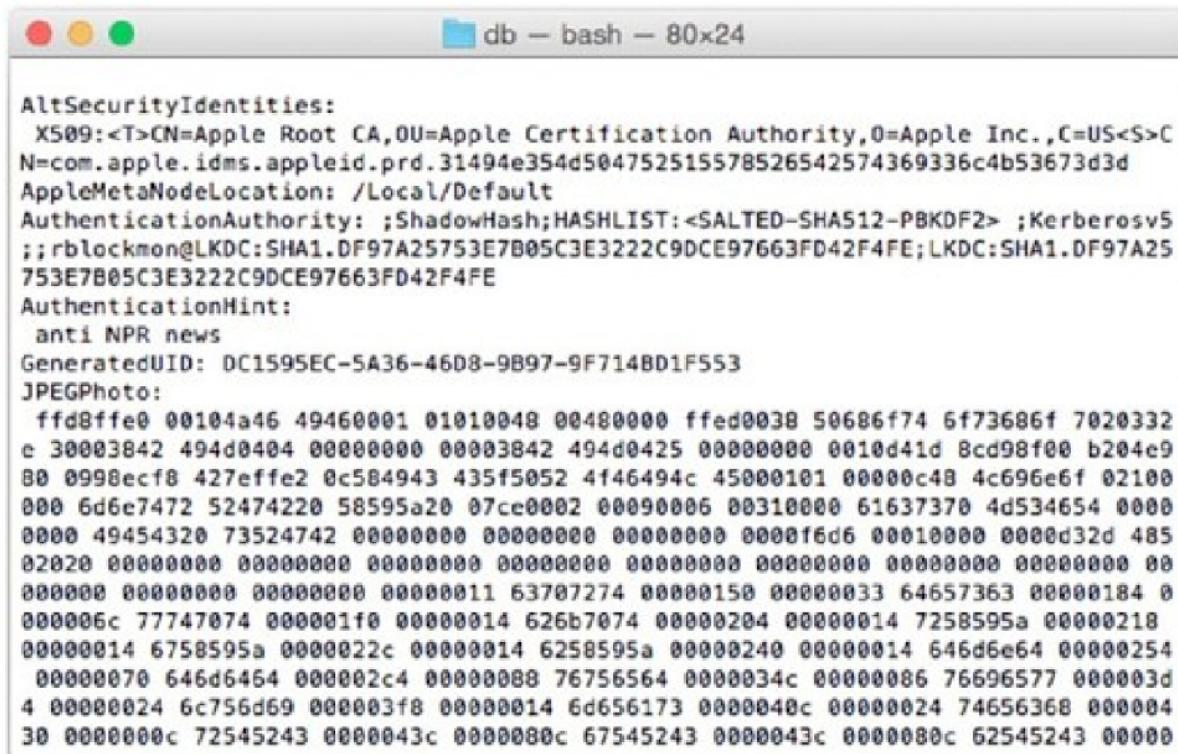
You should also try:

- UDP Port Scan
- Ping Sweep
- Web server Scan

https://pentest-tools.com/network-vulnerability-scanning/tcp-port-scanner-online-nmap

- A. Ping
- B. SYN stealth
- C. SYN
- D. DUP

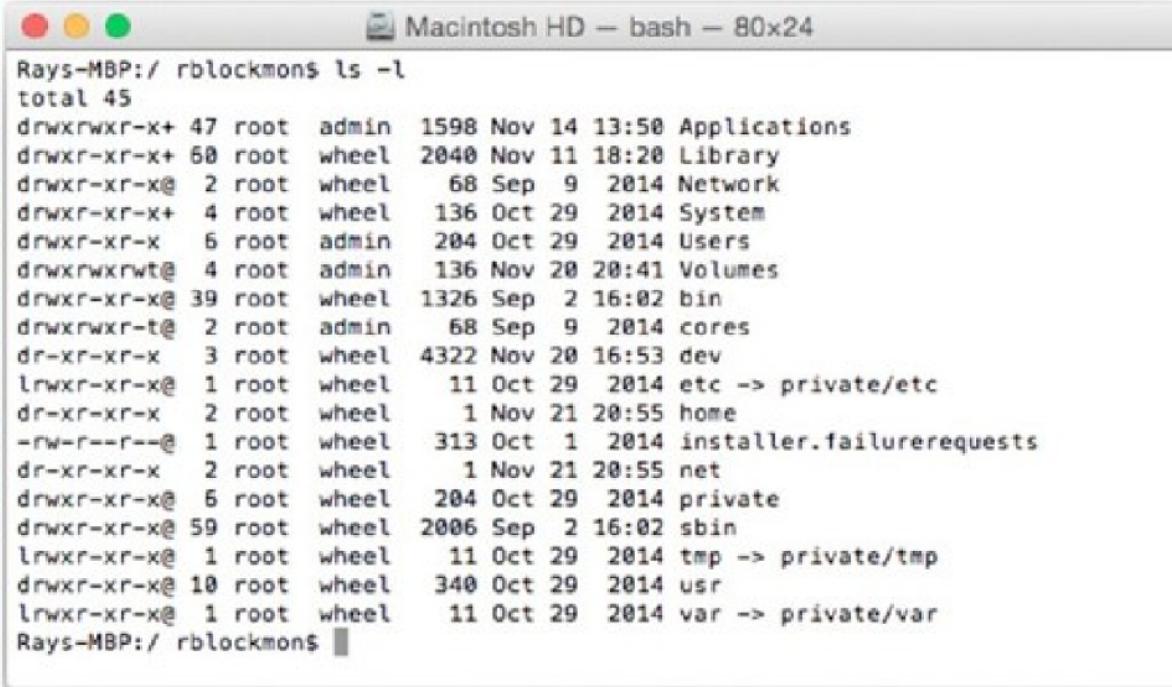
123. As shown in the following screen shot, what type of algorithm was used to hash the user password?



```
AltSecurityIdentities:  
X509:<T>CN=Apple Root CA,OU=Apple Certification Authority,O=Apple Inc.,C=US<S>C  
N=com.apple.idms.appleid.prd.31494e354d504752515578526542574369336c4b53673d3d  
AppleMetaNodeLocation: /Local/Default  
AuthenticationAuthority: ;ShadowHash;HASHLIST:<SALTED-SHA512-PBKDF2> ;Kerberosv5  
;;rblockmon@LKDC:SHA1.DF97A25753E7B05C3E3222C9DCE97663FD42F4FE;LKDC:SHA1.DF97A25  
753E7B05C3E3222C9DCE97663FD42F4FE  
AuthenticationHint:  
anti NPR news  
GeneratedUID: DC1595EC-5A36-46D8-9B97-9F714BD1F553  
JPEGPhoto:  
ffd8ffe0 00104a46 49460001 01010048 00480000 ffed0038 50686f74 6f73686f 7020332  
e 30003842 494d0404 00000000 00003842 494d0425 00000000 0010d41d 8cd98f00 b204e9  
80 0998ecf8 427effe2 0c584943 435f5052 4f46494c 45000101 00000c48 4c696e6f 02100  
000 6d6e7472 52474220 58595a20 07ce0002 00090006 00310000 61637370 4d534654 0000  
0000 49454320 73524742 00000000 00000000 00000000 0000f6d6 00010000 0000d32d 485  
02020 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00  
000000 00000000 00000000 00000011 63707274 00000150 00000033 64657363 00000184 0  
000006c 77747074 000001f0 00000014 626b7074 00000204 00000014 7258595a 00000218  
00000014 6758595a 0000022c 00000014 6258595a 00000240 00000014 646d6e64 00000254  
00000070 646d6464 000002c4 00000088 76756564 0000034c 00000086 76696577 000003d  
4 00000024 6c756d69 000003f8 00000014 6d656173 0000040c 00000024 74656368 000004  
30 0000000c 72545243 0000043c 0000080c 67545243 0000043c 0000080c 62545243 00000
```

- A. SHA-512
- B. Kerberos
- C. AES
- D. SHA-256

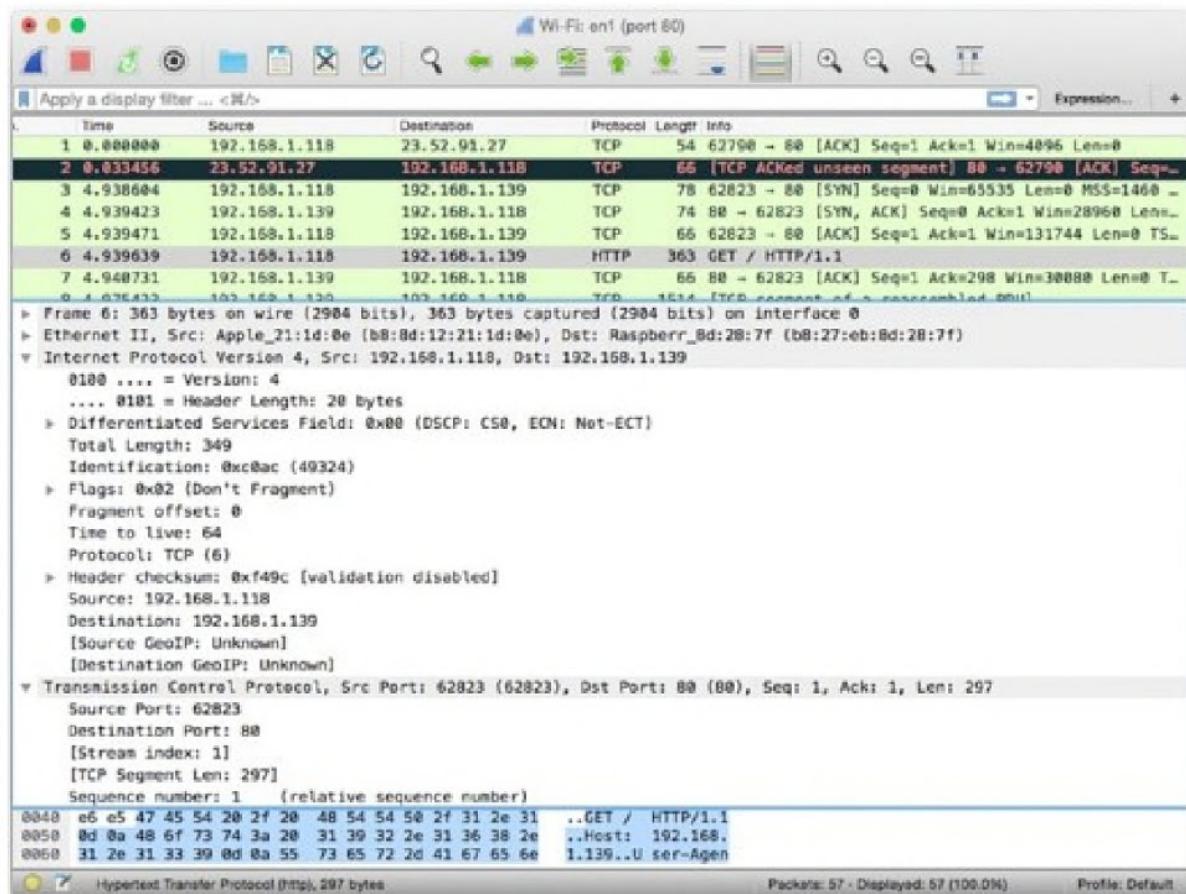
124. Which file or application has the permission set with 644?



```
Rays-MBP:/ rblockmon$ ls -l
total 45
drwxrwxr-x+ 47 root admin 1598 Nov 14 13:50 Applications
drwxr-xr-x+ 68 root wheel 2040 Nov 11 18:28 Library
drwxr-xr-x@ 2 root wheel 68 Sep 9 2014 Network
drwxr-xr-x+ 4 root wheel 136 Oct 29 2014 System
drwxr-xr-x 6 root admin 204 Oct 29 2014 Users
drwxrwxrwt@ 4 root admin 136 Nov 20 20:41 Volumes
drwxr-xr-x@ 39 root wheel 1326 Sep 2 16:02 bin
drwxrwxr-t@ 2 root admin 68 Sep 9 2014 cores
dr-xr-xr-x 3 root wheel 4322 Nov 20 16:53 dev
lrwxr-xr-x@ 1 root wheel 11 Oct 29 2014 etc -> private/etc
dr-xr-xr-x 2 root wheel 1 Nov 21 20:55 home
-rw-r--r--@ 1 root wheel 313 Oct 1 2014 installer.failurerequests
dr-xr-xr-x 2 root wheel 1 Nov 21 20:55 net
drwxr-xr-x@ 6 root wheel 204 Oct 29 2014 private
drwxr-xr-x@ 59 root wheel 2006 Sep 2 16:02 sbin
lrwxr-xr-x@ 1 root wheel 11 Oct 29 2014 tmp -> private/tmp
drwxr-xr-x@ 10 root wheel 340 Oct 29 2014 usr
lrwxr-xr-x@ 1 root wheel 11 Oct 29 2014 var -> private/var
Rays-MBP:/ rblockmon$
```

- A. usr
- B. net
- C. Volumes
- D. Installer.failurerequests

125. From the information given in the Wireshark pcap file, what operating system is the source connecting to a web server?



- A. OS X
- B. Microsoft
- C. Linux
- D. Raspbian

# CHAPTER 2

## Practice Test 2

1. Which of the following is considered an administrative control?

- A. Biometric device
- B. Mantrap
- C. Security policy
- D. Access control list

2. On a class C network, how many networks can network administrators plan for if they are using the subnet mask /27?

- A. 8
- B. 32
- C. 16
- D. 1

3. What is the default port number for Telnet?

- A. 21
- B. 23
- C. 53
- D. 443

4. Convert the ASCII text *Wiley* into hexadecimal format.

- A. 57 69 6c 65 79
- B. 63 f3 1i 79 51 ab
- C. 11 fe a5 6c 81 3h
- D. 87 105 105 101 121 132

5. Which algorithm does not provide integrity or confidentiality?

- A. DSA
- B. AES
- C. RC4
- D. PGP

6. Which of the following acronyms represent the institution that governs North America IP space?

- A. ICANN
- B. PIR
- C. ARIN
- D. APNIC

7. At what layer of the OSI model does ARP reside?

- A. Presentation layer
- B. Application layer
- C. Physical layer
- D. Network layer

8. An 8-foot-tall fence with razor wire stranded on top is considered what type of measure?

- A. 64 and 128
- B. 128, 192, and 256
- C. 128 and 256
- D. 256

13. Which of the following describes a logic bomb?

- A. A malicious code that is delivered and executed through an email attachment
- B. Malware that is installed on the kernel operating system
- C. Malicious code that lies dormant until certain conditions are met, such as a time, date, or even certain keystrokes, and it executes its payload
- D. Malware that corrupts the CPU registers in which arbitrary code can be executed

14. Which of the following applications are mainly used to manage a botnet?

- A. IRC
- B. FTP
- C. Email
- D. Web server

15. You are team leader for your financial firm. You set a policy in place that all coworkers must clean off their desk, empty trash, shred sensitive documents, and secure other critical documents in their respective containers at the end of the day. What is the common name for such a policy?

- A. Clean room policy
- B. Clean desk policy
- C. Sanitization policy
- D. Wrapping up policy

16. You work for an organization that has its own internal network. This internal network has been extended to geographically separated company locations as well. Regardless of location, you still have access to your internal network; however, you are blocked from using the Internet because of security concerns. What type of network conditions are you experiencing?

- A. VPN
- B. Internet
- C. Extranet
- D. Intranet

17. At what layer does a circuit-level gateway operate within the OSI model?

- A. Session layer
- B. Data-Link layer
- C. Network layer
- D. Transport layer

18. Which backup method copies only those files with the bit set for archived?

- A. Full
- B. Partial
- C. Incremental
- D. Differential

19. What is another term for *masquerading*?

- A. Doppelganger
- B. Ghost
- C. Impersonation
- D. Dual persona

20. Malware installed at the kernel is very difficult to detect with products such as antivirus and anti-malware programs. What is the name of this type of malware called?

- A. Logic bomb
- B. Rootkit
- C. Vampire tap
- D. Worm

21. What is the name given for the device component physically located on the motherboard that stores encryption keys for hard drives, preventing an adversary from removing the hard drive and using it on another computer?

- A. Hard drive encryption
- B. Crypto-locker
- C. Hardware Security Module
- D. Trusted Platform Module

22. Which of the following password cracking methods is the fastest?

- A. Dictionary attack
- B. Brute force
- C. Birthday attack
- D. Reverse hash matching

23. In Linux, what designator is used to uniquely identify a user account?

- A. GID
- B. SID
- C. UID
- D. PID

24. Using Nmap, which switch command enables a UDP connections' scan of a host?

- A. -sS
- B. -sX
- C. -PT
- D. -sU

25. Which of the following best indicates a top-level parent domain?

- A. [sybex.com](http://sybex.com)
- B. .org
- C. [www.wiley.com](http://www.wiley.com)
- D. www.

26. Which of the following is a benefit when a security administrator is using Telnet?

- A. Traffic is sent in the clear.
- B. The password is not encrypted.
- C. Security administrators can see what the adversary is doing.
- D. Security administrators cannot see what the adversary is doing.

27. You are a security administrator working at a movie production company. One of your daily duties is to check the IDS logs when you are alerted. You notice that you received a lot of incomplete three-way handshakes and your memory performance has been dropping significantly on your web server and customers are complaining of really slow connections. What could be the actual issue?

- A. DoS
- B. DDoS
- C. Smurf attack
- D. SYN flood

28. What message type and code is the message “Network Unknown”?

- A. Type 3, Code 6
- B. Type 3, Code 0
- C. Type 0
- D. Type 5, Code 1

29. Which of the following frequency modes is designed to not create interference or be jammed by the adversary?

- A. Direct-sequence spread spectrum
- B. Frequency-hopping spread spectrum
- C. Orthogonal frequency-division multiplexing
- D. Time-division multiple access

30. As a security administrator, you are checking the different IP connections that are trying to contact your servers within a DMZ. You noticed months ago that your servers received very similar attacks and probes from an IP registered in Iran. This time, you notice similar tactics with IPs coming from Brazil, Greece, Sudan, and South Africa. What do you think is going on?

- A. A hacking group has banded together.
- B. Your servers on the DMZ are found to be highly attractive to hackers.
- C. A hacker is using a proxy server.
- D. You have a torrent server installed in the DMZ.

31. Which of the following provides free information about a website that includes phone numbers, administrator's email, and even the domain registration authority?

- A. Nslookup
- B. Dig
- C. Whois.net
- D. Ping

32. What is significant about RFC 18?

- A. It signifies nonroutable IP addresses.
- B. It signifies the use of web proxy servers.
- C. It describes the usage of DMZs.
- D. It covers the authentication header in IPsec.

33. Which of the following types is an ICMP echo request?

- A. Type 8
- B. Type 3, Code 1
- C. Type 0
- D. Type 5, Code 0

34. An HIDS for the most part uses which method for detection?

- A. Signature base
- B. Anomaly base
- C. Firewall rules
- D. anomaly

35. Which of the following verifies a user's authenticity when the user is requesting a certificate?

- A. Certificate authority
- B. Certificate revocation list
- C. X.509 and Kerberos
- D. Registration authority

**36.** A hacker is using different methods of cracking an encryption algorithm, such as side channel attacks, frequency analysis, and also bit flipping. What is the hacker doing?

- A. Brute forcing
- B. Cracking credentials
- C. Digital forensics
- D. Cryptanalysis

**37.** Which of the following is the correct XOR output?

- A.  $0 \text{ } 0 = 1$
- B.  $1 \text{ } 0 = 0$
- C.  $1 \text{ } 0 = 0$
- D.  $1 \text{ } 1 = 0$

**38.** To sniff, what mode must your network adapter be configured to in order to pull frames off an Ethernet or wireless network?

- A. Active
- B. Promiscuous
- C. Stealth
- D. CSMA/CD mode

39. Which authentication protocol is used in WPA2?

- A. CCMP
- B. 3DES
- C. AES
- D. LEAP

40. You are an administrator overseeing IT security operations for a local bank. As you review logs from the prior day, you notice a very high rate of UDP packets targeting your web server that are coming from your clients all at the same time. What could be the culprit?

- A. Smurf attack
- B. DDoS
- C. SYN flood attack
- D. Fraggle attack

41. Which is the last step in the TCP three-way handshake?

- A. ACK
- B. SYN
- C. SYN/ACK
- D. FIN

42. A token is what type of authentication factor?

- A. Type 1
- B. Type 2
- C. Type 3
- D. Type 4

**43.** Operating as a black hat, you decide to stand up a web server that mimics a very popular social media website. You are also a disgruntled employee who decides to build and execute a script that updates the host file on your fellow coworkers computers. It poisoned their DNS cache. Your coworkers start their morning routine by going to this popular social media website, providing their personal credentials when prompted. Unfortunately for them, they are hitting your website, and you are storing their credentials for later use. What type of attack did you conduct?

- A. Man in the middle
- B. Pharming
- C. Spear phishing
- D. Phishing

**44.** Which of the following is the flag byte for a TCP header used to enable an XMAS scan?

- A. 00101001
- B. 11001011
- C. 11101000
- D. 00101100

**45.** Which of the following describes a “soft” control?

- A. User agreement
- B. Access control list
- C. Biometrics
- D. Security clerk

46. What capability does a backdoor provide to the adversary?

- A. Backdoors can corrupt data software.
- B. They destroy cryptographic keys in the TPM.
- C. They provide low-level formatting operations.
- D. They provide remote access to the client.

47. Which of the following describes the collection of human psychical attributes for use in performing electronic authentication?

- A. Personal identification card
- B. Hair and fingerprints
- C. Biometrics
- D. Type 3 control

48. Which of the following is the only symmetric cryptography stream cipher?

- A. RC6
- B. Blowfish
- C. RC4
- D. ECE

49. Which of the following compares two hash values in

order to provide nonrepudiation?

- A. DSA
- B. ECE
- C. MD5
- D. SHA-1

**50.** As a black hat, you identify a WAP at the mall that you are going to exploit. You discover that the WAP is using WEP. Which method will you utilize in order to exploit the WAP?

- A. The encryption algorithm, which is RC4
- B. The initialization vector (IV)
- C. The password
- D. The username and password

**51.** As a white hat who just completed the footprinting phase of your attack, you move on by operating an assortment of tools to gather intelligence on your target. You were able to determine what services are being offered on ports. You were able to see what accounts are available and to identify different sharing services as well. What phase were you operating within?

- A. Service proxy
- B. Impassive scanning
- C. Fingerprinting
- D. Enumeration

**52.** Using Nmap, what is the correct command to scan a target subnet of 192.168.0.0/24 using a ping sweep and

identifying the operating system?

- A. nmap -sP -O 192.168.0.0/24
- B. nmap -sP -V 192.168.0.0/24
- C. nmap -sT -P 192.168.0.0/24
- D. nmap -Ps -O 192.168.0.0/24

**53.** Which of the following services is registered for port 110?

- A. SNMP
- B. RPC
- C. POP3
- D. LDAP

**54.** Which of the following is natively installed on Unix systems to conduct DNS queries?

- A. Ping
- B. Nmap
- C. Nslookup
- D. Dig

**55.** Which of the following sites is effective in obtaining DNS query information?

- A. [google.com](http://google.com)
- B. [geektools.com](http://geektools.com)
- C. [akodo-dojo.com](http://akodo-dojo.com)
- D. [yahoo.com](http://yahoo.com)

56. Which of the following can you use to conduct banner grabbing?

- A. Telnet
- B. Ping
- C. Nmap -sP
- D. del \*.\*

57. As a pentester, what content might you include in addition to your general findings?

- A. List of patched systems
- B. List of disabled accounts
- C. List of identified vulnerabilities
- D. List of revoked certificates

58. What is the IEEE port base authentication?

- A. TACACS
- B. Diameter
- C. 802.1x
- D. TACACS+

59. Which of the following attacks sends fragmented UDP packets to a Windows system using port 53 or other UDP ports that may cause the system to crash?

- A. Fraggle
- B. Bonk
- C. Smash the stack
- D. Smurf

60. Which of the following is an application that does not need a host or human interaction to disrupt and corrupt data?

- A. Worm
- B. Virus
- C. Trojan
- D. Malware

61. A user reports that they are receiving pop-up window advertisements that occur randomly. There are even times when there are so many windows that the user is forced to restart the computer. What could be the issue?

- A. A Trojan is installed on her workstation.
- B. Adware is installed.
- C. The website that is generating the pop ups is still running.
- D. There is a rootkit installed.

62. Which of the following describes the level at which a business or an organization can defend against and withstand a cyberattack?

- A. Defense in depth
- B. Security measure
- C. Baseline configuration
- D. Security posture

63. What is one disadvantage of a single sign-on (SSO) strategy?

attack would cause such behavior?

- A. Ping of death
- B. DoS
- C. Fragle attack
- D. ICMP flood

68. Which of the following uses symmetric keys in its SSO authentication standard.

- A. SESAME
- B. Diameter
- C. Kerberos
- D. HIDS

69. What is the protocol that changes a private IP address to a public address at the gateway?

- A. NAT
- B. PAT
- C. GNAT
- D. NAT-T

70. Which combination is used in intrusion detection systems?

- A. NIDS and SIDS
- B. HIDS and SIDS
- C. IDS and IPS
- D. HIDS and NIDS

71. You are a security administrator tasked with

determining the expected losses a media firm may incur in the event of a fire. You estimate the firm could expect to lose half of its assets, equal to \$10 million dollars. You also determine that the likelihood of a fire occurring is once every 10 years. What is the annual loss expectancy (ALE)?

- A. Loss of \$500,000
- B. Loss of \$1,000,000
- C. Gain of \$250,000
- D. Loss of \$250,000

72. Which federal law mandates securing medical records at rest and in transit?

- A. PCI
- B. HIPAA
- C. FISMA
- D. PATRIOT Act

73. What is one advantage an attacker (black hat) has over a defender (potential victim)?

- A. Time
- B. Online hacking forums
- C. Money
- D. Metasploit

74. Which of the following is associated with security access in a wireless network?

- A. Omni
- B. Fan
- C. Yagi
- D. Satellite dish

78. Which of the following encryption methods was developed by Phil Zimmerman?

- A. AES
- B. PGP
- C. DES
- D. DEA

79. What addressing scheme is used by IPv6?

- A. 32 bits
- B. 128 bytes
- C. 32 bytes
- D. 128 bits

80. Which of the following best describes a vulnerability?

- A. A threat being potentially realized
- B. No countermeasure available
- C. A threat actor
- D. An incident

81. A new user in a company is given a minimal set of privileges. As they are promoted and move to different positions, they continue to gain more privileges. What is

this called?

- A. Scope creep
- B. Position creep
- C. Access creep
- D. Privilege escalation

82. What would you call a device on a network?

- A. A node
- B. A computer
- C. A switch
- D. An access device

83. What would you call an application that secretly collects information about a victim?

- A. Trojan
- B. Spyware
- C. Malware
- D. Stealware

84. How many characters does a service set identifier (SSID) contain?

- A. 32
- B. 64
- C. 20
- D. 128

85. What is the purpose of the Internet Key Exchange (IKE) protocol?

- A. To transfer user data
- B. To collect user profiles
- C. To distribute keys to the public
- D. To exchange secret keys

86. In regard to biometrics, when the false reject rate (FRR) and the false acceptance rate (FAR) are equal, what does this intersection mean?

- A. Crossover error rate
- B. False equal rate
- C. Sum
- D. Crossover equal rate

87. An application that is designed to look like a known legitimate application, but is actually malicious in nature is considered what type of malware?

- A. Spyware
- B. Rootkit
- C. Adware
- D. Trojan

88. What standard port does SFTP use?

- A. 20
- B. 21
- C. 22
- D. 20 and 21

89. Which of the following describes an IEEE 802.3

environment?

- A. CSMA/CD
- B. Wireless security
- C. User access control list
- D. Port base authentication

90. You are a system administrator for a law firm. You are informed that a few users are indicating that anytime they enter their email address when opening applications, their computer requires a manual reboot in order to recover a system fault according to a pop-up window. What could be the problem?

- A. A Trojan was executed.
- B. A logic bomb was initiated.
- C. The users do not have patience.
- D. The users were in a middle of patch update.

91. Which of the following services is associated with TCP port 389?

- A. LDAP
- B. IMAP
- C. SMB
- D. RPC

92. A system creates a certificate with the assigned public and private keys. This system also digitally signs it. What is this system's role?

- A. Registering authority
- B. Certificate authority
- C. Kerberos system
- D. Server/client environment

**93.** As a security administrator, you want to restrict employee access to information to only certain individuals. What type of access will you implement?

- A. Need to know
- B. Least privilege
- C. Reducing availability
- D. Setting up an encryption process

**94.** Microsoft Office and other office suite applications have a feature that should be turned off to prevent malware from executing or spreading. What feature should be disabled?

- A. Mail
- B. FTP client
- C. Auto-update feature
- D. Macro feature

**95.** What is the name of the entity that is certified to hold trusted keys?

- A. Government safe
- B. Hot site
- C. Escrow
- D. Offsite backup

96. What standard TCP port does HTTPS use?

- A. 443
- B. 8080
- C. 80
- D. 22

97. When a user authenticates once to a resource and is then permitted to access additional applications without the need to reauthenticate, what form of authentication is being used?

- A. Once sign-on
- B. Nonce sign-on
- C. Kerberos
- D. Single sign-on

98. What does a router separate?

- A. Collision domains
- B. Broadcast domains
- C. Switching domains
- D. Routing loops

99. What UDP port is Type o associated with?

- A. It is associated with port 53.
- B. It uses the entire port range, that is, 0 to 1023.
- C. ICMP is not associated with port numbers.
- D. Ports are generated dynamically for Type o.

100. Which of the following storage technologies is

considered the most volatile?

- A. Hard drive
- B. USB flash drive
- C. CPU cache
- D. DDR3

101. The password file of a Windows system is located in which of the following directories?

- A. C:\System32\Windows\config
- B. \etc\win\config
- C. C:\System\Windows\config
- D. C:\Windows\System32\config

102. What is the act of guessing every possible password combination of an account?

- A. Brute force
- B. Pass the hash
- C. Dictionary attack
- D. Social engineering

103. What command would you use to give read, write, and execute privileges for an object to the owner, group, and others in Linux?

- A. chmod 666
- B. chmod 777
- C. chmod 7
- D. chmod 532

104. In Linux, which of the following is used to toggle between the different operating systems to boot from?

- A. Unified Bootloader
- B. Ctrl+S
- C. Grand Unified Bootloader
- D. Ctrl+F4+S

105. Which of the following is considered a framework for penetration testing of a system?

- A. Metasploit
- B. Cain & Abel
- C. Nessus
- D. Security Onion

106. In Windows, what command can you use to hide a file?

- A. +h attrib <filename>
- B. h+ <filename>
- C. filename attrib +h
- D. attrib +h <filename>

107. Which of the following is a correct MAC address?

- A. 00-12-3e-ff-d4-98
- B. 3i-45-fa-90-25-1b
- C. ff-ff-ff-ff-ff-fg
- D. 65-23-ab-cb-a9

108. A packet firewall device operates at what layer of the OSI model?

- A. Layer 2
- B. Layer 4
- C. Layer 7
- D. Layer 3

109. As a black hat, you are scanning an array of subnets and determine that you have found one that is lacking some security appliances. You also determine that there are obvious signs of misconfiguration or a lack of detail. It may be possible the administrator is a rookie and still learning the ropes on hardening their network. What could possibly be the issue here?

- A. Honeynet
- B. Honeypot
- C. Misconfiguration
- D. A subnet that's not in use anymore

110. What is the biggest drawback from using anti-malware software?

- A. It takes up processing resources.
- B. It must have up-to-date virus definitions.
- C. Anti-malware software is expensive.
- D. It can be centrally or independently administered.

111. What is the name of the DES algorithm?

- A. DEA
- B. DES
- C. Twofish
- D. 3DES

112. What does Heartbleed provide to the adversary?

- A. The memory contents of the target server at the time of exploit
- B. A DoS
- C. The adversary's memory contents at the time
- D. It does not provide any information to the adversary.

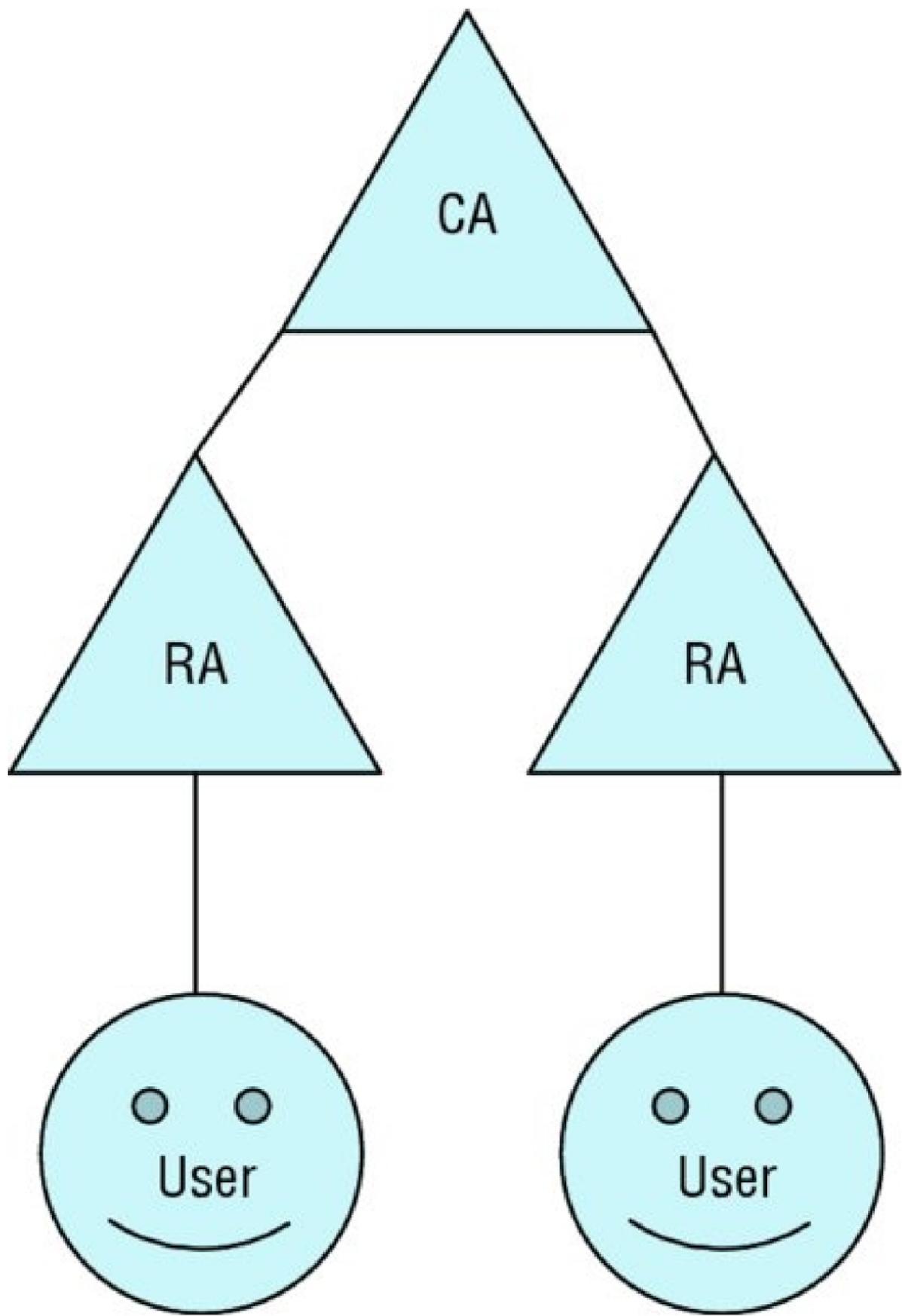
113. A user reports that they have downloaded a music file from the Internet. They inform you that when they opened the file, it seemed as though it installed an application, and then the user was prompted to send a payment of \$500 dollars to a PayPal account to get the key to unencrypt their hard drive. The user no longer has access to their desktop. What could be the issue?

- A. The user is experiencing a hoax.
- B. The user downloaded and installed ransomware.
- C. The user installed malware.
- D. The user downloaded the wrong music file.

114. Which Wi-Fi standard has a radio band of 2.4 and 5 GHz and a speed of 100 Mbps?

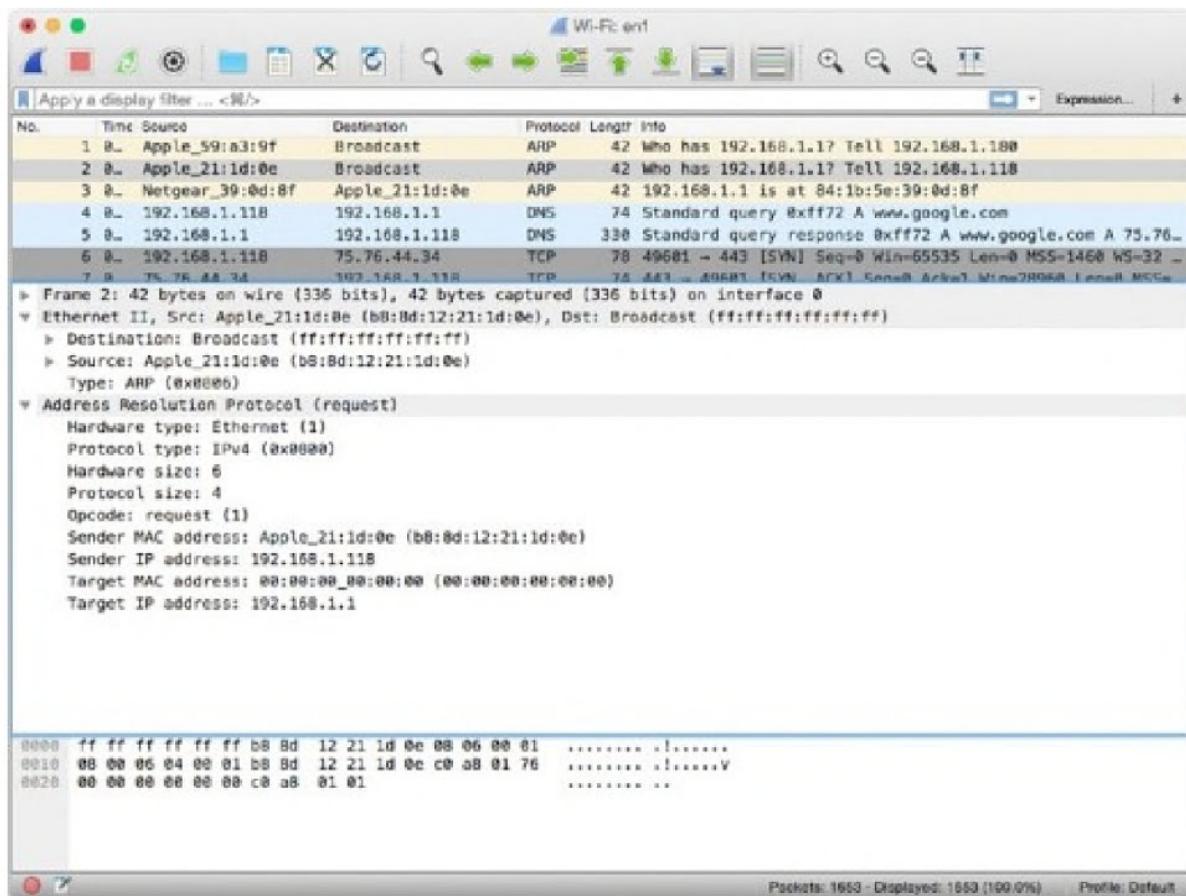
- A. 802.11i
- B. 802.11
- C. 802.b
- D. 802.11n

115. What type of infrastructure does this describe?



- A. PKI
- B. Man-in-the-middle attack
- C. Social engineering
- D. Kerberos environment

116. What type of protocol is primarily being used in this diagram?



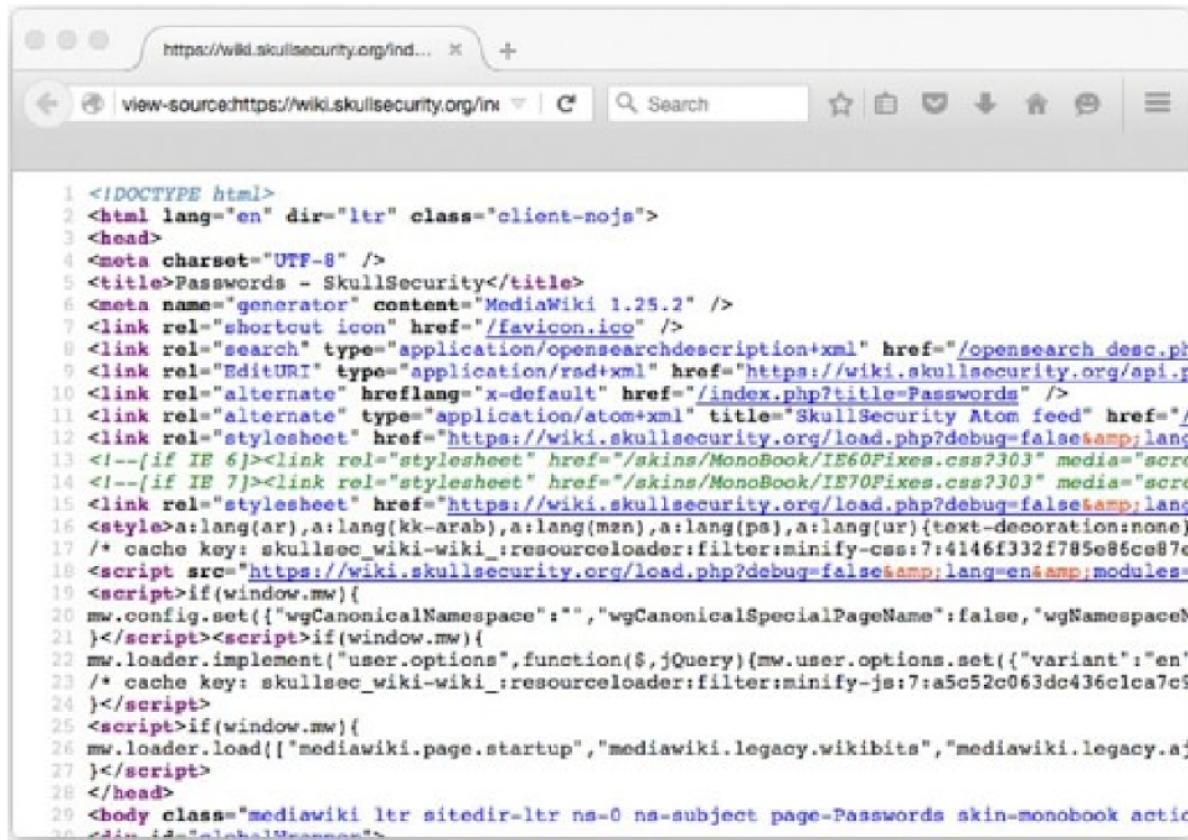
- A. Broadcast
- B. ARP request
- C. Ping
- D. DHCP lease

117. What IP address can you determine from the following diagram?

```
rblockmon - bash - 80x24
Last login: Sun Nov 29 12:55:14 on ttys000
Rays-MBP:~ rblockmon$ ifconfig -a
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
    options=3<RXCSUM,TXCSUM>
    inet6 ::1 prefixlen 128
        inet 127.0.0.1 netmask 0xff000000
            inet6 fe80::1%lo0 prefixlen 64 scopeid 0x1
                nd6 options=1<PERFORMNUD>
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=0<> mtu 1280
en0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    options=10b<RXCSUM,TXCSUM,VLAN_HWTAGGING,AV>
    ether 3c:07:54:31:ab:01
    nd6 options=1<PERFORMNUD>
    media: autoselect (none)
    status: inactive
en1: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    ether b8:8d:12:21:1d:0e
    inet6 fe80::ba8d:12ff:fe21:1d0e%en1 prefixlen 64 scopeid 0x5
        inet 192.168.1.118 netmask 0xffffffff broadcast 192.168.1.255
            nd6 options=1<PERFORMNUD>
            media: autoselect
            status: active
en2: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
```

- A. 192.168.1.255
- B. 192.168.1.118
- C. 255.255.255.255
- D. 192.168.1.1

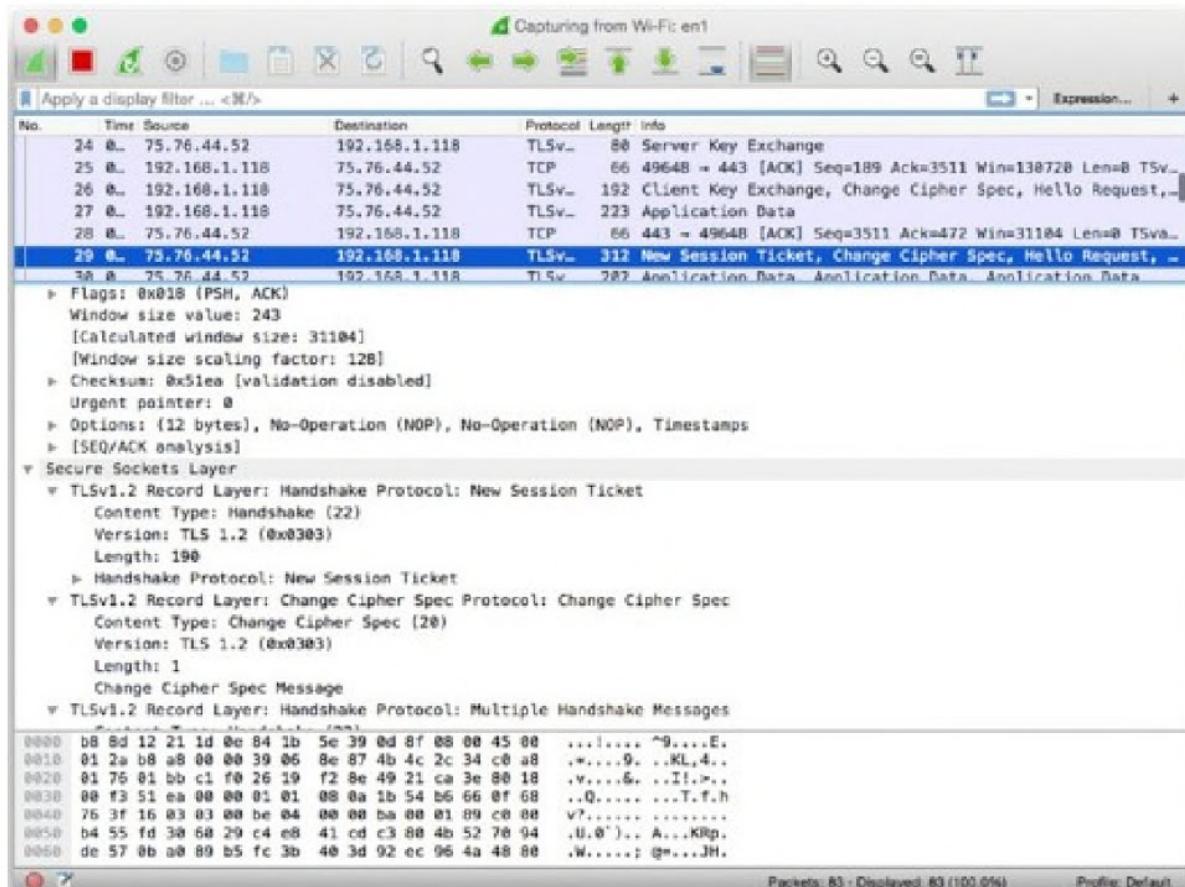
118. What encoding type is being used in the screen shot?



```
1 <!DOCTYPE html>
2 <html lang="en" dir="ltr" class="client-nojs">
3 <head>
4 <meta charset="UTF-8" />
5 <title>Passwords - SkullSecurity</title>
6 <meta name="generator" content="MediaWiki 1.25.2" />
7 <link rel="shortcut icon" href="/favicon.ico" />
8 <link rel="search" type="application/opensearchdescription+xml" href="/opensearch_desc.ph
9 <link rel="EditURI" type="application/rdf+xml" href="https://wiki.skullsecurity.org/api.p
10 <link rel="alternate" hreflang="x-default" href="/index.php?title=Passwords" />
11 <link rel="alternate" type="application/atom+xml" title="SkullSecurity Atom feed" href="/
12 <link rel="stylesheet" href="https://wiki.skullsecurity.org/load.php?debug=false&lang=
13 <!--{if IE 6}><link rel="stylesheet" href="/skins/MonoBook/IE60Fixes.css?303" media="scr
14 <!--{if IE 7}><link rel="stylesheet" href="/skins/MonoBook/IE70Fixes.css?303" media="scr
15 <link rel="stylesheet" href="https://wiki.skullsecurity.org/load.php?debug=false&lang=
16 <style>a:lang(ar),a:lang(kk-arab),a:lang(mzn),a:lang(ps),a:lang(ur) {text-decoration:none}
17 /* cache key: skullsec_wiki-wiki_resourceloader:filter:minify-css:7:4146f332f785e86ca87e
18 <script src="https://wiki.skullsecurity.org/load.php?debug=false&lang=en&modules=
19 <script>if(window.mw{
20 mw.config.set({"wgCanonicalNamespace": "", "wgCanonicalSpecialPageName": false, "wgNamespac
21 }</script><script>if(window.mw{
22 mw.loader.implement("user.options", function($, jQuery){mw.user.options.set({"variant":"en"
23 /* cache key: skullsec_wiki-wiki_resourceloader:filter:minify-js:7:a5c52c063dc436c1ca7c9
24 }</script>
25 <script>if(window.mw{
26 mw.loader.load(["mediawiki.page.startup","mediawiki.legacy.wikibits","mediawiki.legacy.aj
27 }</script>
28 </head>
29 <body class="mediawiki ltr sitedir-ltr ns-0 ns-subject page-Passwords skin-monobook action
30 <div id="content" data-content="">
```

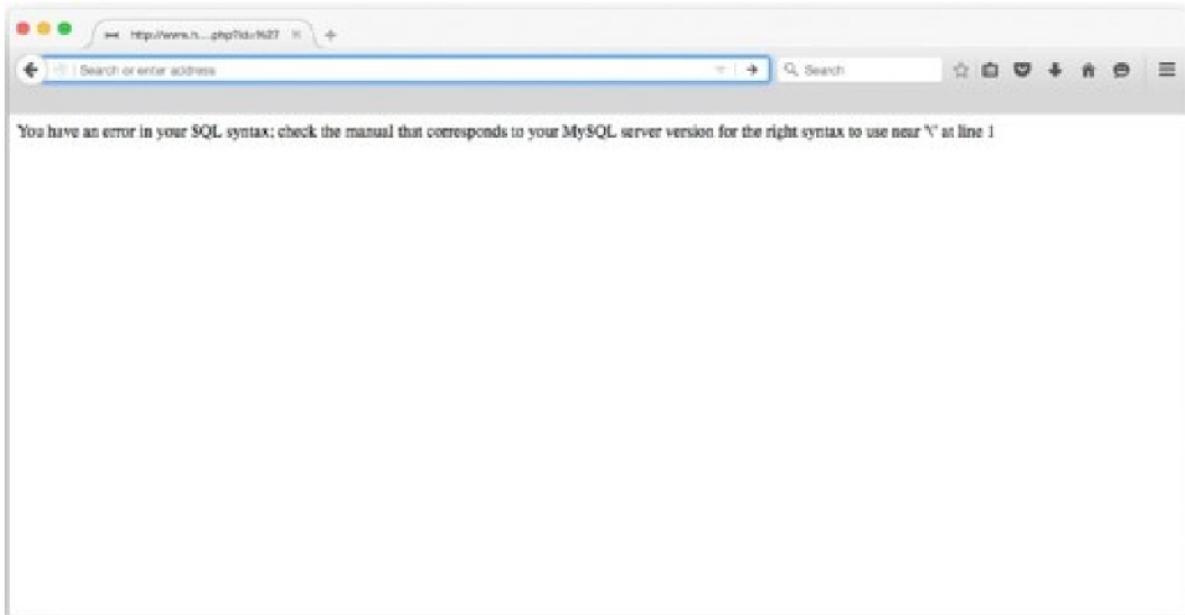
- A. ASCII
- B. Hexadecimal
- C. Binary format
- D. UTF-8

119. What TLS version can be found in the following screen shot?



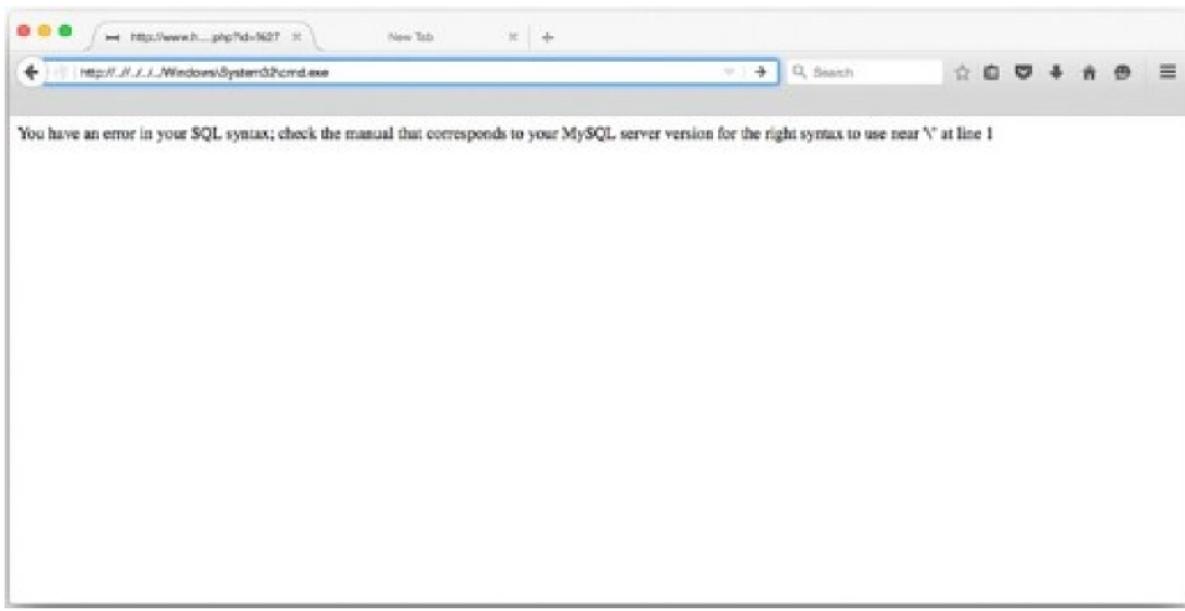
- A. 1.2
- B. 1.3
- C. 312
- D. 1

120. What is the adversary trying to do in the following diagram?



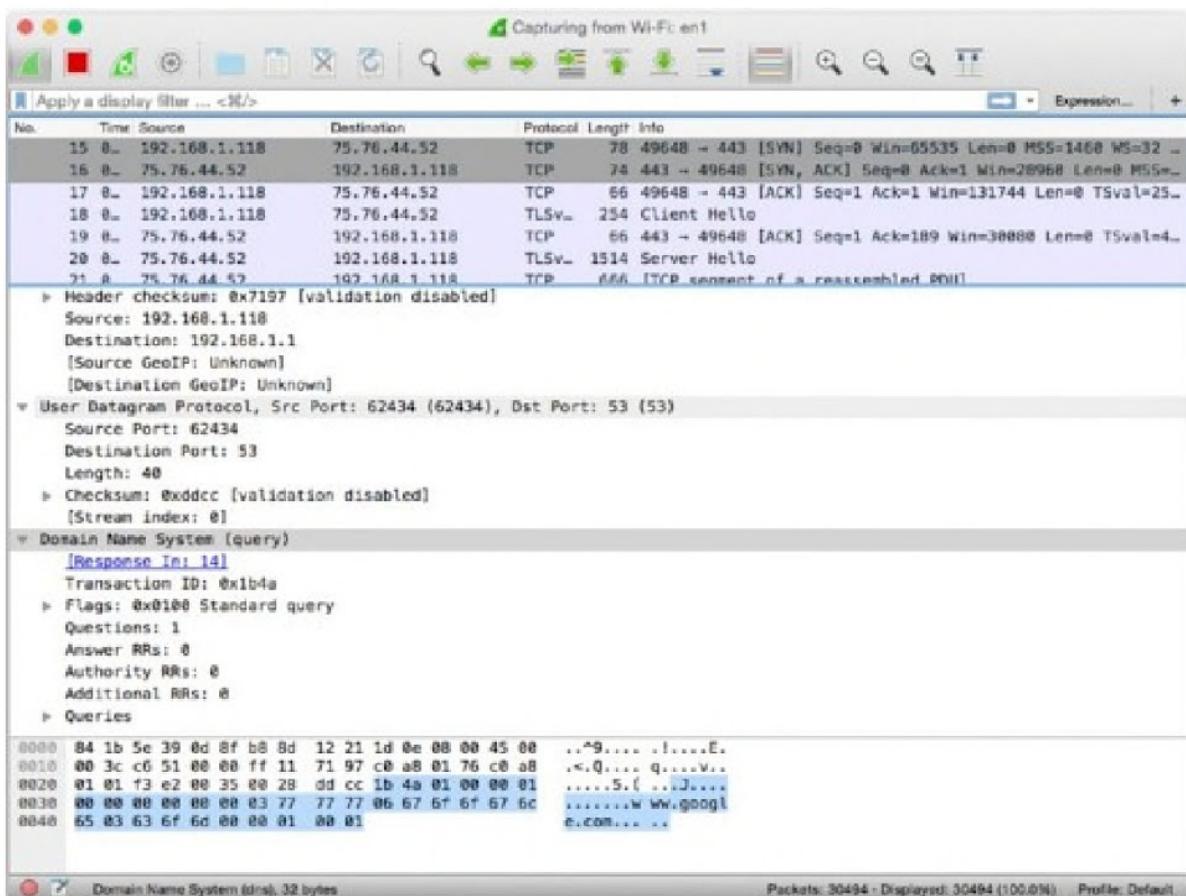
- A. Ping of death
- B. Web server detection
- C. SQL injection
- D. Web defacement

121. As seen in the following screen shot, what is the adversary trying to do in URL bar in the web browser?



- A. Privilege escalation
- B. Directory traversal
- C. Blind SQL injection
- D. Deletion of a table in SQL

122. What DNS system is being queried by the client in the following screen shot?



- A. Google
- B. Port 53
- C. Port 64234
- D. None

123. What is the password for the user root according to the following screen shot?

Kali Linux (64-bit) [Running]  
root@kali: ~  
Sat Oct 31, 7:23 PM  
root@kali: ~

Computer

File Edit View Search Terminal Help  
GNU nano 2.2.6 File: /etc/passwd

```
root:x:0:root:/bin/bash
daemon:x:1:daemon:/usr/sbin:/bin/sh
bin:x:2:bin:/bin:/bin/sh
sys:x:3:sys:/dev:/bin/sh
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/bin/sh
man:x:6:12:man:/var/cache/man:/bin/sh
lp:x:7:1p:/var/spool/lpd:/bin/sh
mail:x:8:8:mail:/var/mail:/bin/sh
news:x:9:9:news:/var/spool/news:/bin/sh
uucp:x:10:18:uucp:/var/spool/uucp:/bin/sh
proxy:x:13:13:proxy:/bin:/bin/sh
www-data:x:33:33:www-data:/var/www:/bin/sh
backup:x:34:34:backup:/var/backups:/bin/sh
list:x:38:36:Mailing List Manager:/var/list:/bin/sh
ircx:x:39:39:ircd:/var/run/ircds:/bin/sh
gnats:x:41:41:gnats Bug-Reporting System (admin):/var/lib/gnats:/bin/sh
nobody:x:65534:65534:nobody:/nonexistent:/bin/sh
libuuid:x:100:101:/var/lib/libuuid:/bin/sh
```

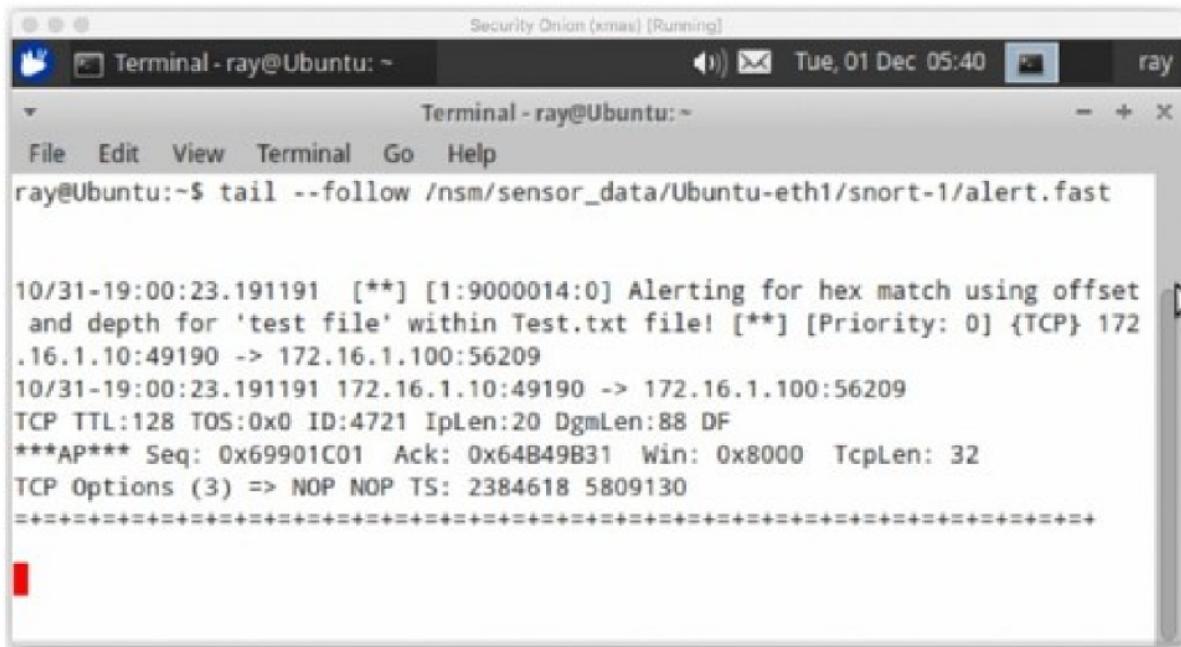
[ Read 44 lines ]

Get Help WriteOut Read File Prev Page Cut Text Cur Pos  
Exit Justify Where Is Next Page Uncut Text To Spell

root@kali: ~

- A. Root
- B. x
- C. There is no password.
- D. x:0:0

124. Based on the following log in Snort, what is the destination port to which the file is being downloaded?



A screenshot of a terminal window titled "Terminal - ray@Ubuntu: ~". The window shows the command "tail --follow /nsm/sensor\_data/Ubuntu-eth1/snort-1/alert.fast" being run. The output displays several lines of network traffic analysis, specifically alerting for hex matches. One line of interest is: "10/31-19:00:23.191191 [\*\*] [1:9000014:0] Alerting for hex match using offset and depth for 'test file' within Test.txt file! [\*\*] [Priority: 0] {TCP} 172.16.1.10:49190 -> 172.16.1.100:56209". This indicates a TCP connection from port 49190 to port 56209.

- A. 56209
- B. 23
- C. 49190
- D. The port is not available.

125. Which of the following is a user account?

```
colord:x:16733:0:99999:7:::  
lightdm:x:16733:0:99999:7:::  
avahi-autoipd:x:16733:0:99999:7:::  
avahi:x:16733:0:99999:7:::  
usbmux:x:16733:0:99999:7:::  
kernoops:x:16733:0:99999:7:::  
pulse:x:16733:0:99999:7:::  
rtkit:x:16733:0:99999:7:::  
speech-dispatcher:x:16733:0:99999:7:::  
hplip:x:16733:0:99999:7:::  
saned:x:16733:0:99999:7:::  
mysql:x:16733:0:99999:7:::  
ntp:x:16733:0:99999:7:::  
sshd:x:16733:0:99999:7:::  
sphinxsearch:x:16733:0:99999:7:::  
prads:x:16733:0:99999:7:::  
ossec:x:16733:0:99999:7:::  
ossecm:x:16733:0:99999:7:::  
ossecr:x:16733:0:99999:7:::  
nobody:x:16733:0:99999:7:::  
ray:$6$xHEKhMr2$95xeLgwRrKfDZ7QvhG5t3bn2xFSqETvLgwJVJd7VcQi0j./eXJh4CG9ff1ls  
yJu3E2Mvlno/iYxPocUNHrYd/:16733:0:99999:7:::  
sguil:l:16739:0:99999:7:::
```

- A. usbmux
- B. ray
- C. ossecr
- D. nobody

# **CHAPTER 3**

## **Practice Test 3**

1. Which protocol is used for network management and can gather statistics and derive a current status from the node that it is operating on?
- A. NTP
  - B. SMNP
  - C. SSH
  - D. SNMP
2. Which of the following is part of a DMZ but bridges access from organization to organization?
- A. Internet
  - B. Extranet
  - C. Intranet
  - D. Outernet
3. How many subnets can be provided using a /26 classless inter-domain routing (CIDR)?
- A. 1
  - B. 2
  - C. 3
  - D. 4
4. In a Linux system, where is the password file stored?

- A. /etc/passwd
- B. /etc/shadow
- C. /etc/user/password
- D. /shadow/etc

**5.** What command can you use to switch to a different user in Linux?

- A. swu
- B. user
- C. sudo
- D. su

**6.** What encryption algorithm is used within TLS?

- A. AES
- B. RSA
- C. PGP
- D. ECE

**7.** Prior to deploying an anomaly-based detection system on a network, what must be achieved?

- A. Baseline
- B. Updated file definition
- C. Updated network infrastructure
- D. Patches pushed to clients before installation

**8.** Which of the following records determines a mail server in your domain?

- A. SOA
- B. CNAME
- C. A
- D. MX

**9.** Which of the following has the least amount of memory available?

- A. DIMM
- B. SIMM
- C. CPU cache
- D. DDR3

**10.** You are a security administrator for a local bank. You notice that some of the employees have been in their current positions for quite some time. What risk could possibly occur based on this situation?

- A. Employees that held positions for a long time can circumvent security measures.
- B. Workers can skip out on work easily.
- C. Employees know too much about their job.
- D. Workers can develop and understand other workers' work habits.

**11.** You are a security administrator for an online dating website. Your website recently experienced a zero day SSL attack that leaked information about your SQL database. As an immediate course of action, what would be your first choice in defending and keeping your client's information safe?

- A. Update all the web servers with the latest virus definitions.
- B. Put up a maintenance banner on the front page and restrict all Internet traffic.
- C. Change PKI certificates.
- D. Install the latest patches to clients immediately on the workstations.

12. The SAM log file entry is located in what part of a Windows Registry system?

- A. HKEY\_LOCAL\_MACHINE\SAM
- B. HKEY\_LOCAL\_SAM
- C. HKEY\_LOCAL\_MACHINE\WINDOWS
- D. HKEY\_SYSTEM\_MACHINE\SAME.L

13. Under which auxiliary in Metasploit can you scan for SNMP configurations?

- A. auxiliary/snmp/scanner
- B. auxiliary/snmp/version
- C. auxiliary/scanner/snmp
- D. auxiliary/scan/snmp

14. In Linux, what command is used to search for information?

- A. ser
- B. grep
- C. info >
- D. ls -l

15. Which of the following tools is used to encode your payload in Metasploit?

- A. msfconsole
- B. msfpayload
- C. encodesploit
- D. msfencode

16. A system is compromised and is able to spawn a connection back to the adversary. What is the common term used to describe this activity?

- A. Reverse shellcode
- B. reverse socket
- C. Victim-initiated shellcode
- D. Call to attacker shellcode

17. What do buffers contain?

- A. Infinite data
- B. Data storage capacity
- C. Data in transit
- D. Processing power

18. What type of function is being called by strcpy (attacker, "exploit\_this");?

- A. strcpy
- B. ( ) ;
- C. The variable, which is attacker
- D. None

19. What is the issue when there is no boundary being checked or validated in programming?

- A. The program will assign its own values.
- B. The program does not validate if the input values can be stored without overwriting the next memory segment.
- C. The program executes without checking what other programs are open.
- D. Memory allocation has already been reserved for a program.

20. When writing a program, what is one of the fundamental tasks that should be done when declaring a variable?

- A. Assign a random value to it.
- B. Do not assign a value because it can corrupt data.
- C. Initialize the variable.
- D. A variable does not need to be initialized.

21. What is a heap?

- A. A static allocation of memory
- B. A memory segment located within the CPU
- C. Memory that is swapped with using the hard drive
- D. Memory allocation of size and location that is assigned dynamically

22. What is the region in memory that is assigned to a process or a program when it is initiated?

- A. Cluster
- B. Stack
- C. Heap
- D. Pointer

23. What can the adversary do in order to get around a segment violation when trying to execute their own code in memory?

- A. Use padding to increase the chances of finding the correct address using NOP.
- B. Statically assign a return address to the pointer.
- C. Smash the stack.
- D. Dynamically assign values in memory to receive a point address.

24. Which term defines the condition when an adversary purposely crashes a server?

- A. Smashing the stack
- B. Server crashing
- C. Denial of service
- D. Buffer overflow

25. Which of the following protocols is/are vulnerable to session hijacking?

- A. TCP/IP
- B. UDP/IP
- C. Man-in-the-middle attack
- D. IP

26. Which of the following must be conducted first in order to hijack a session?

- A. Track the session.
- B. Desynchronize the session.
- C. Inject the adversary's packet into the stream.
- D. Disrupt the stream first and then inject the adversary's packet information.

27. Which standard provides best business practice for information security management?

- A. ISO 27002
- B. ISO 21999
- C. OWASP
- D. BBB

28. Which of the following is used for recording key

strokes at a terminal or keyboard using malicious software?

- A. Spyware
- B. Malware
- C. Key logger
- D. Recordware

29. Within SNMP, which of the following is used for authentication?

- A. PIN
- B. Asymmetric strings
- C. Community strings
- D. Cryptographic strings

30. What is the function of a CNAME record?

- A. Provides authentication to a website
- B. Encrypts DNS zone transfers
- C. Supplements an alias to a domain name
- D. Replaces the MX for security transactions

31. Software that creates pop-up advertisement messages while visiting websites is known as what?

- A. Adware
- B. Malware
- C. Pop-up blocker
- D. Freeware

32. The ability for information or services that must be

to update a table?

- A. DROP
- B. ADD
- C. COPY
- D. UPDATE

37. In Linux, besides the User and Group, what other object can be assigned permissions?

- A. Domain
- B. Realm
- C. Others
- D. All others

38. Of the following, which allows you to conduct password cracking?

- A. LOIC
- B. John the Ripper
- C. CPU Dump
- D. Wireshark

39. In the TCP/IP model, what is the equivalent of the OSI Network layer?

- A. Network
- B. Internet
- C. Transport
- D. Network Access

40. What flag is used to order a connection to terminate?

- A. SYN
- B. FIN
- C. PSH
- D. RST

41. Which of the following scanners provides ping sweeps and at times can be very noisy if not properly configured?

- A. Angry IP
- B. Cain & Abel
- C. nmap -sT -T0
- D. Nslookup

42. Which of the following is an application that provides ARP spoofing?

- A. Cain & Abel
- B. Evercrack
- C. Kismet
- D. John the Ripper

43. A team that conducts penetration testing can be referred to as what?

- A. Blue team
- B. Red team
- C. Black team
- D. White team

44. Which option describes an adversary pretending to be someone else in order to obtain credit or attempt fraud?

- A. Impersonation
- B. Identity Theft
- C. Masquerading
- D. Cloning

45. Which Linux distribution is best suited to support an attacker by providing the necessary preinstalled tools?

- A. Kali
- B. Security Onion
- C. Mint
- D. Ubuntu

46. Which of the following is conducted during the pre-attack phase of a pen test?

- A. Clearing logs
- B. Elevating privileges
- C. Reconnaissance
- D. Acquiring a target

47. Which of the following organizations provides government-backed standards?

- A. EC-Council
- B. NIST
- C. CAIN
- D. NITS

48. Which of the following teams is a group of people focused on addressing or resolving key issues or problems in an organization, often in a temporary state of structure?

- A. Tiger team
- B. Red team
- C. Project management team
- D. Project sponsor

49. When a user or a process is trying to evade security mechanisms and policies, it uses what type of channel?

- A. Overt
- B. Dark
- C. Espionage or secret
- D. Covert

50. What is a Type 0 ICMP message?

- A. ECHO request
- B. ICMP request
- C. Ping reply
- D. ECHO reply

51. Which wireless mode is used when there is a point-

to-point connection but no wireless access point involved?

- A. One to one
- B. Synchronization setting
- C. Ad hoc
- D. Clients must access a WAP

**52.** To sniff wireless traffic, what must you have set on your wireless adapter?

- A. Transport mode
- B. AirPcap mode
- C. Transparency mode
- D. Promiscuous mode

**53.** In social engineering, what is one of the things that the adversary will try to accomplish?

- A. Manipulation
- B. Conducting a man-in-the-middle attack
- C. Copy the user's email account.
- D. Forwarding the user's web access to the adversary's website

**54.** When a system or a process lacks a countermeasure, what is it considered?

- A. Secured
- B. A threat
- C. A threat agent or threat vector
- D. Vulnerable

**55.** An ATM transaction uses which type of authentication method(s)?

- A. Type 2
- B. Something you have
- C. Type 1 and Type 2
- D. Token with a PIN assigned

**56.** In what situation would you immediately exercise a password change policy?

- A. Every 90 days
- B. When an account may be compromised
- C. When a user has been on vacation for two weeks
- D. When a user account has been disabled

**57.** Firewalls work on which type of default policy?

- A. Implicit allow all.
- B. Block all ICMP.
- C. Block all incoming traffic.
- D. Implicit deny all.

**58.** Which tool is used to illuminate a SID for a username?

- A. Nslookup
- B. SID2User
- C. HKEY\_LOCAL\_USER\SID
- D. >user ls -l

59. On which port does a standard DNS zone transfer operate?

- A. 53
- B. 80
- C. 8080
- D. 25

60. The process of dialing unsecured modems at random is called what?

- A. War dialing
- B. Blue boxing
- C. Black boxing
- D. Modem pinging

61. What UDP flag forces a connection to terminate at both ends of the circuit?

- A. RST
- B. FIN
- C. None
- D. URG and RST

62. What information does the traceroute tool provide?

- A. Username of the person logged in
- B. What links are encrypted on the network
- C. Layer 3 protocol details
- D. Route path information and hop count

63. What does the TLL value mean?

- A. The number of packets remaining until it times out
- B. The number of hops to the destination
- C. The number of the packet last sent
- D. The number of routing loops that are permitted

64. Which of the following delegates a DNS zone?

- A. EX
- B. NS
- C. EM
- D. PTR

65. Which of the following switches enables an idle scan within the Nmap tool?

- A. -Si
- B. -sI
- C. -Is
- D. None, because Nmap does not support idle scans

66. What process methodology is used to measure the potential performance with actual performance?

bind them using cryptographic measures?

- A. TPM
- B. Block cipher
- C. Encryption keys
- D. Encryption module

71. What tool can be used to spoof a MAC address?

- A. MAC and Cheese
- B. Cheesy MAC
- C. GodSMAC
- D. SMAC

72. What type of antenna focuses the direction of the signal?

- A. Yagi
- B. Omni
- C. Small aperture
- D. LOIC

73. Which of the following encrypts community strings and provides authentication?

- A. ICMP
- B. SNMPv3 (Simple Network Management Protocol)
- C. SNMP
- D. IMAP

74. A wireless access point that looks legitimate may actually be what?

- A. Least privilege
- B. Two-man source
- C. Biba Model
- D. Separation of duties

87. As a security administrator, you are conducting corrective actions against a system that crashed due to malicious code. What is this activity called?

- A. System hardening
- B. Remediation
- C. Patching
- D. Fix action

88. A Category I IAVA (information assurance vulnerability alert) is equal to what?

- A. Inevitable compromise
- B. System infected with data destruction malware
- C. Root system access
- D. Ransomware that was installed

89. As a network administrator, your manager instructs you to reduce the organization's accessibility to the file server. She claims that doing so will aid in preventing company trade secrets from being leaked to the public; however, you understand that doing so will have a negative impact on productivity and aggravate employees. Which part of the Confidentiality, Integrity, and Availability triad is being impacted here?

- A. Integrity
- B. Confidentiality
- C. Least privilege/need to know
- D. Availability

**90.** As a CISO, you published a security policy to your organization that a cross-shred shredder must be used to destroy classified documents in a secure manner. What type of security control did you implement?

- A. Technical
- B. Physical
- C. Administrative
- D. Controlled destruction

**91.** Which of the following is the most common Network Access Translation protocol used??

- A. S-NAT
- B. PAT
- C. Basic NAT
- D. Public NAT

**92.** Due to the ILOVEYOUvirus, Microsoft implemented a new business practice in its software to prevent such attacks from occurring again. What was it?

- A. Disabling the macro features in Microsoft Office by default
- B. Disabling the CD-ROM autorun feature
- C. Setting user profiles to disabled
- D. Removing HKEY\_LOCAL\_MACHINE\USER

**93.** What kind of control would you use to validate and authenticate a user based on their physical location?

- A. Type 1
- B. Something you are
- C. Type 4
- D. GPS tracking

**94.** Which of the following denotes the root directory in a Linux system?

- A. root/
- B. /
- C. home\
- D. \home\

**95.** As the security administrator, you are tasked with implementing an access control strategy that will assign permissions to users based on the roles they will be hired to fill. What type of access control are you being asked to implement for your organization?

- A. RBAC
- B. MAC
- C. DAC
- D. UAC

**96.** As a black hat, you are conducting a reconnaissance operation on a potential target. You gather intelligence by using publicly available information, conducting stakeouts of the facility, and observing workers as they enter and leave the premises from across the street. What phase of the hacking methodologies are you operating within?

- A. Footprinting
- B. Fingerprinting
- C. Active surveillance
- D. Passive reconnaissance

**97.** In Snort, which part of the rule dictates the source, destination, rule type, and direction?

- A. Rule body
- B. Rule action
- C. Rule head
- D. Rule connection

**98.** What prevents IP packets from circulating throughout the Internet forever?

- A. TTL
- B. Spanning tree
- C. Broadcast domains
- D. NAT

**99.** As a white hat, you are conducting an audit of your customer's security policies. You notice that the policies the organization published do not conform to its actual practices. You also note that the security administrators are implementing different corrective actions than what is supposed to be happening according to the policies. What is the correct action to take here?

- A. Inform the security administrators that they need to follow the security policies published by the organization.
- B. Recommend a once-a-month meeting that evaluates and make changes to the security policies.
- C. Allow the security administrators to tailor their practices as they see fit.
- D. Shred the old policies.

**100.** As a black hat, you are trying to prevent an IDS from alerting your presence to the network administrators. You determine that the rules that are set in place by the firewall are pretty effective and you dare not risk any more attempts to get past the security appliances. What is one method that may defeat the security policies set in place by the IDS and other security appliances?

- A. Firewalking
- B. Conducting a reverse shell exploit
- C. Session splicing
- D. Encrypting your traffic

101. When a layer 2 switch is flooded, what mode does it default to?

- A. Fail open mode, where it mimics a hub.
- B. Fail closed, where nothing is passed anymore.
- C. Layer 2 switches process IP packets and not datagrams.
- D. Layer 2 switches cannot be flooded because they are collision domains.

102. Using Nmap, what switches allow us to fingerprint an operating system and conduct a port scan?

- A. -sS -sO
- B. -sSO
- C. -O -Ss
- D. -O -sS

103. Which application allows the adversary to conduct war dialing for vulnerable systems using a modem?

- A. Blue Box
- B. ToneLoc
- C. TwoTone
- D. Icy Manipulator

104. Using ACK in TCP, if there was no response, what can we determine from the port?

- A. ACK does not use a port.
- B. The port is open and ready to receive a SYN packet.
- C. The port is closed.
- D. A SYN/ACK is returned.

105. As a security administrator, you are responsible for leading a working group on determining threats that pose a significant risk to your assets that are intangible. What type of analysis are you conducting?

- A. Quantitative risk analysis
- B. Risk mitigation analysis
- C. Qualitative risk analysis
- D. Qualitative risk mitigation

106. Which of the following describes a wireless band that operates at 11 Mbps and uses the 2.4 GHz frequency?

- A. 802.11b
- B. 802.11
- C. 802.11g
- D. 802.11a

107. IPv6 uses IPsec. Which of the following establishes the key agreement?

- A. IKE
- B. ISAKMP
- C. Diffie-Hellman
- D. TLS

108. What ICMP type denotes a “Time Exceeded” response?

- A. Type 3
- B. Type 0
- C. Type 5
- D. Type 11

109. Which of the following is a lightweight Cisco proprietary protocol for building security tunnels?

- A. EAP
- B. PEAP
- C. CHAP
- D. LEAP

110. What three services are usually included with the NETBIOS protocol?

- A. NBT, NetBIOS session, and NetBIOS datagram
- B. NBT, asymmetric session, and NetBIOS datagram
- C. NetBIOS datagram, NBT, and NetBIOS AD
- D. NetBIOS datagram, NBT, and NetBIOS SCP

111. Which vulnerability exploits Cisco's LEAP?

- A. LEAPER
- B. ASLEAP
- C. CLEAP
- D. REAP

112. What do wireless access points use to advertise their presence?

- A. Beacon frame
- B. Homing beacon
- C. Homing broadcast
- D. Broadcast frame

113. As a security administrator, you notice that your users are writing down their login credentials and sticking them on their monitors. What is an effective way of combating this security issue?

- A. Implementing a PKI solution
- B. Mandate password changes every 30 days.
- C. Set up a user and security awareness training session.
- D. Inform users that they need to memorize their credentials.

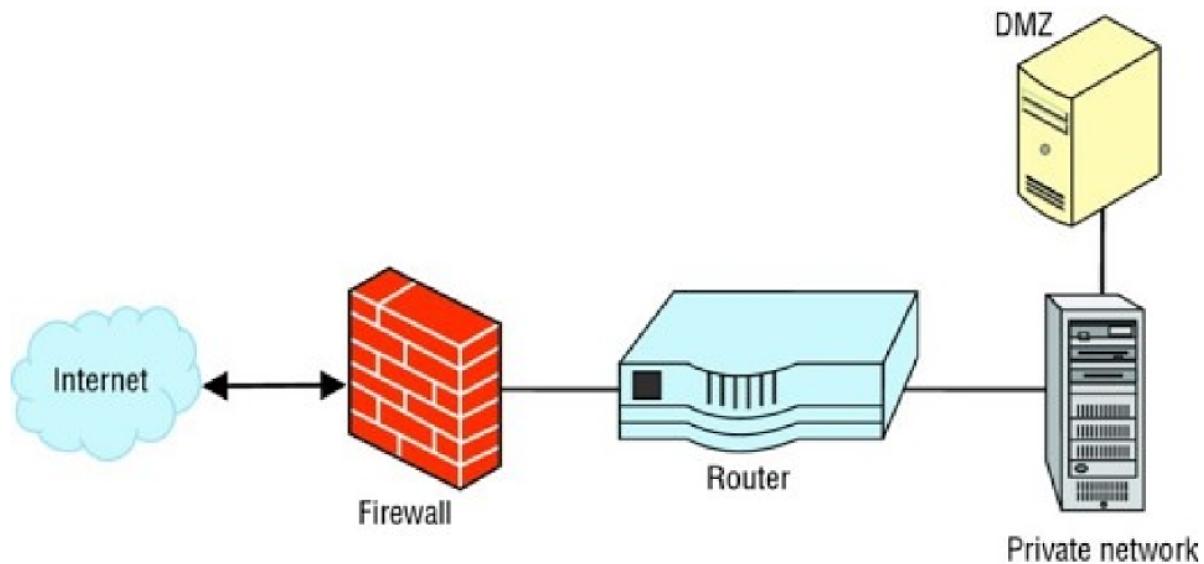
114. What does stateful inspection provide to the network administrator?

- A. It tracks all communication streams and the packets are inspected.
- B. It provides the administrator with a slower network response.
- C. It ensures that communications are terminated.
- D. It provides the administrator with reduced admin work.

115. As a white hat, you're tasked to identify all vulnerabilities possible on a network segment that your customer provided to you. Although you are given nothing but a subnet mask to reference, nothing else has been provided. What type of assessment are you conducting?

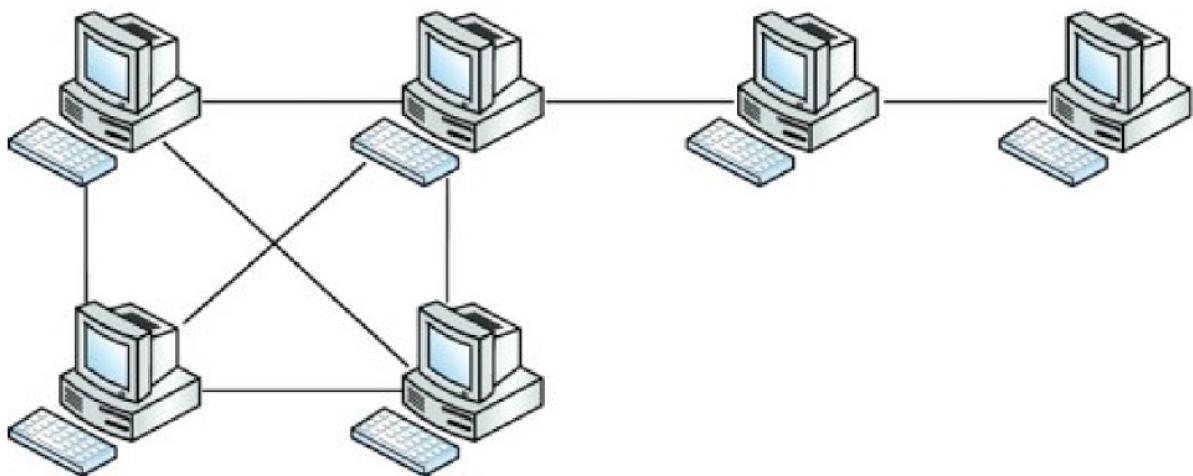
- A. White box
- B. Gray box
- C. Black box
- D. Crystal box

116. What is wrong with the following diagram?



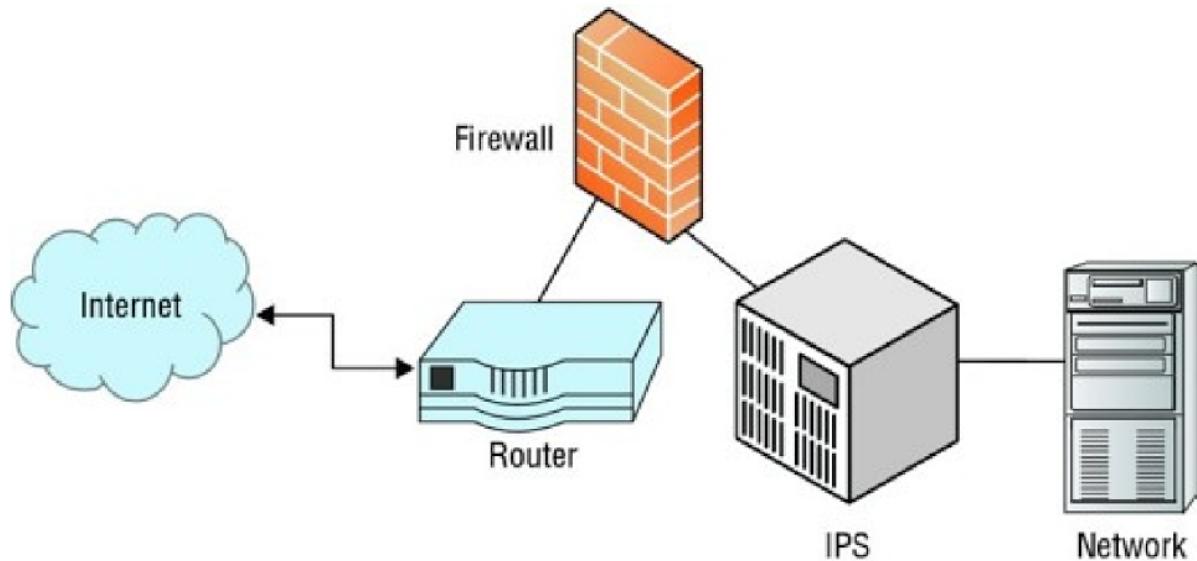
- A. There is no subnet being screened.
- B. The firewall should be behind the router.
- C. The DMZ should be in front of the private network.
- D. The DMZ should be associated with the Internet.  
The DMZ should reside off of the firewall and not directly off of the private network.

[117.](#) What type of network topology is being shown in the following diagram?



- A. Token ring topology
- B. Hybrid-mesh topology
- C. Bus topology
- D. Screen subnet

[118.](#) What type of subnet is being implemented based on this logical diagram?



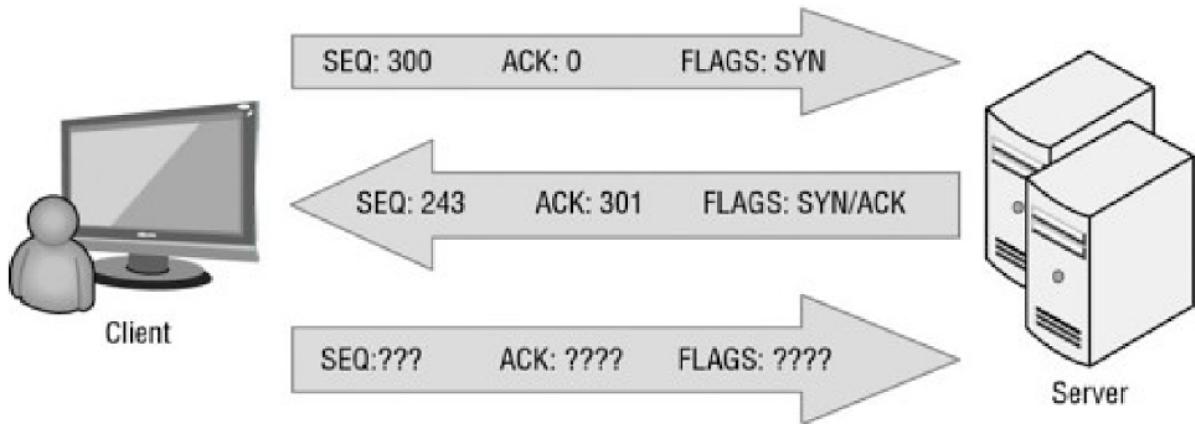
- A. Dual-homed firewall
- B. Double-screen firewall
- C. Screen subnet
- D. Screen firewall

119. What is missing from the TCP segment structure?

SOURCE PORT		DESTINATION PORT			
SEQUENCE NUMBER					
ACKNOWLEDGE NUMBER					
OFFSET	RESERVED	???????????	WINDOW		
CHECKSUM					
OPTIONS		PADDING			
DATA					

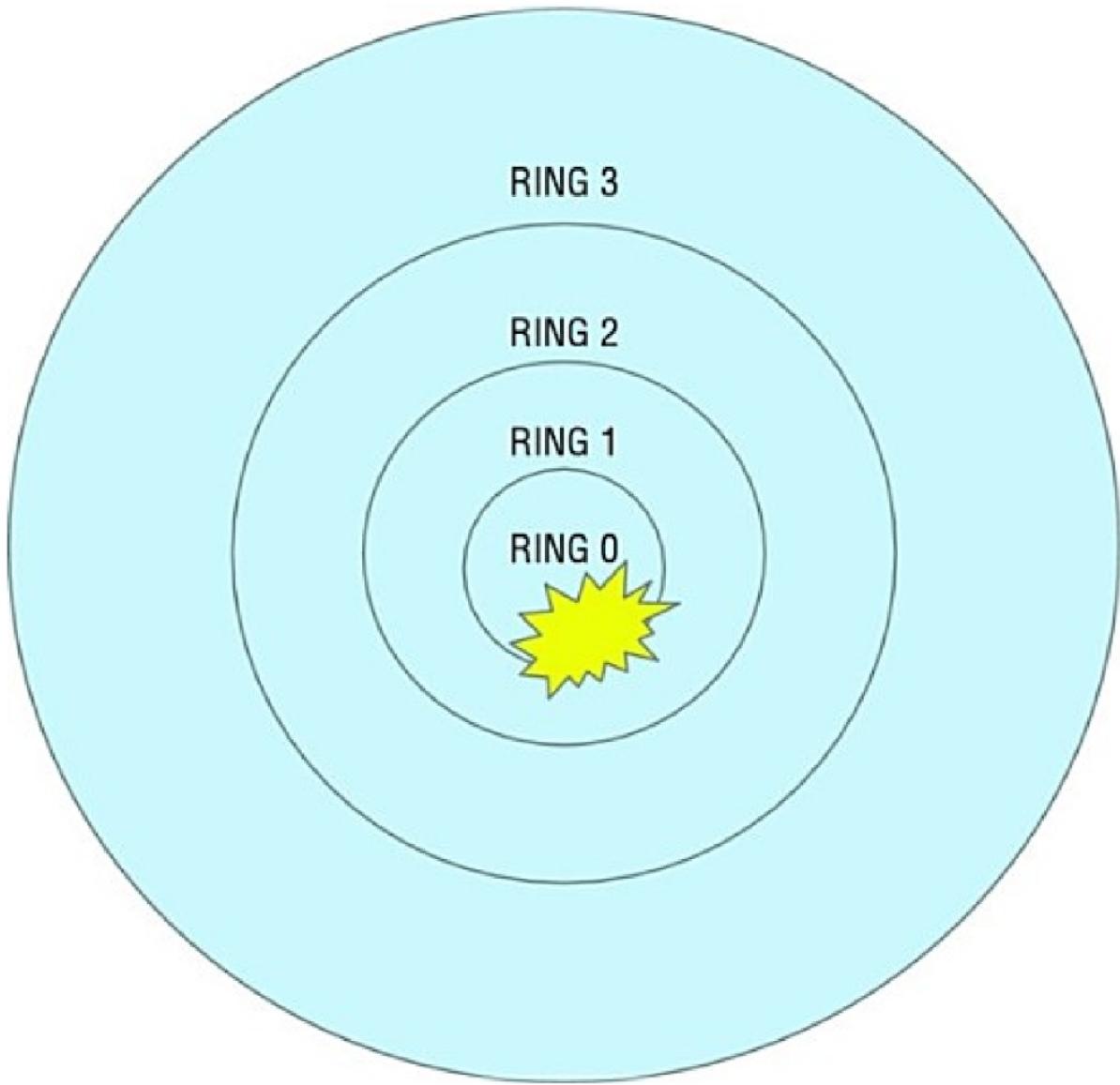
- A. Timing
- B. TTL
- C. ICMP
- D. Flags

120. What would be the last values to complete the connection?



- A. SEQ: 302 ACK: 200 FLAGS: SYN
- B. SEQ: 302 ACK: 201 FLAGS: ACK
- C. SEQ: 301 ACK: 202 FLAGS: ACK
- D. SEQ: 301 ACK: 244 FLAGS: ACK

121. What type of application has impacted Ring 0?



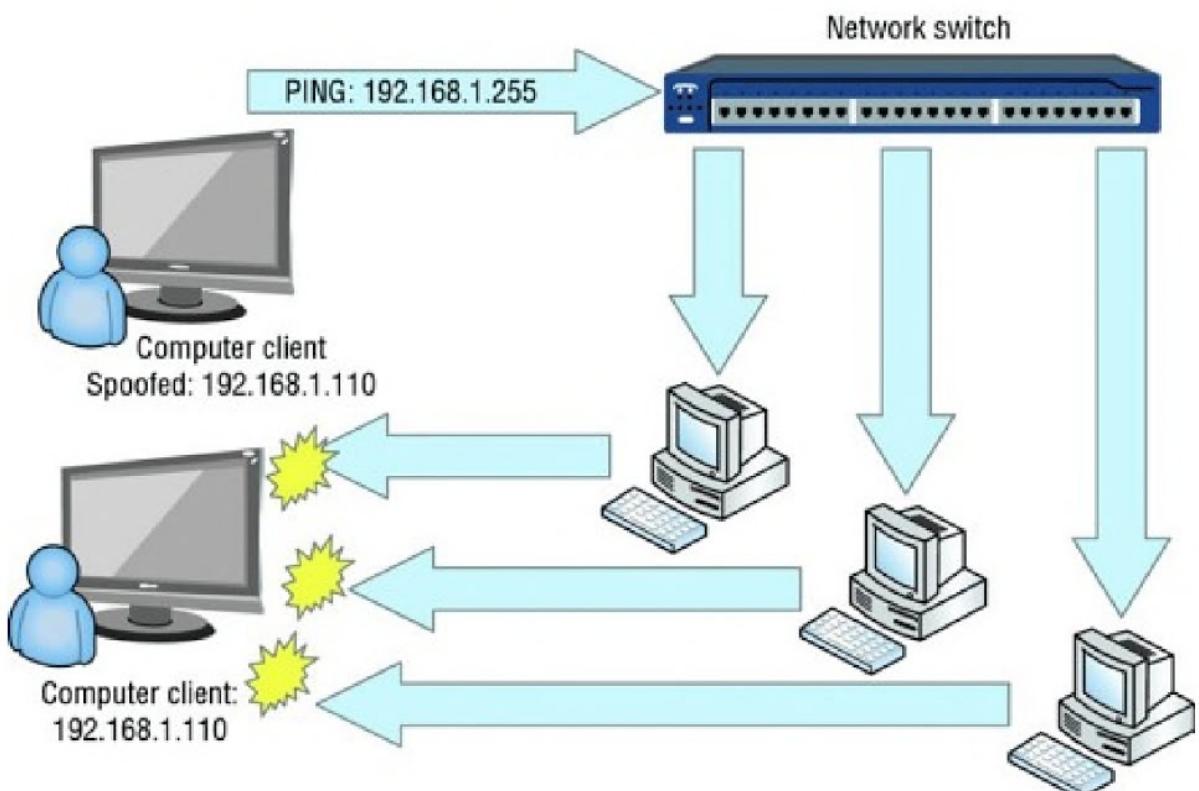
- A. Root access
- B. Malware
- C. Rootkit
- D. Trojan virus

122. The following depicts the adversary conducting what type of action?



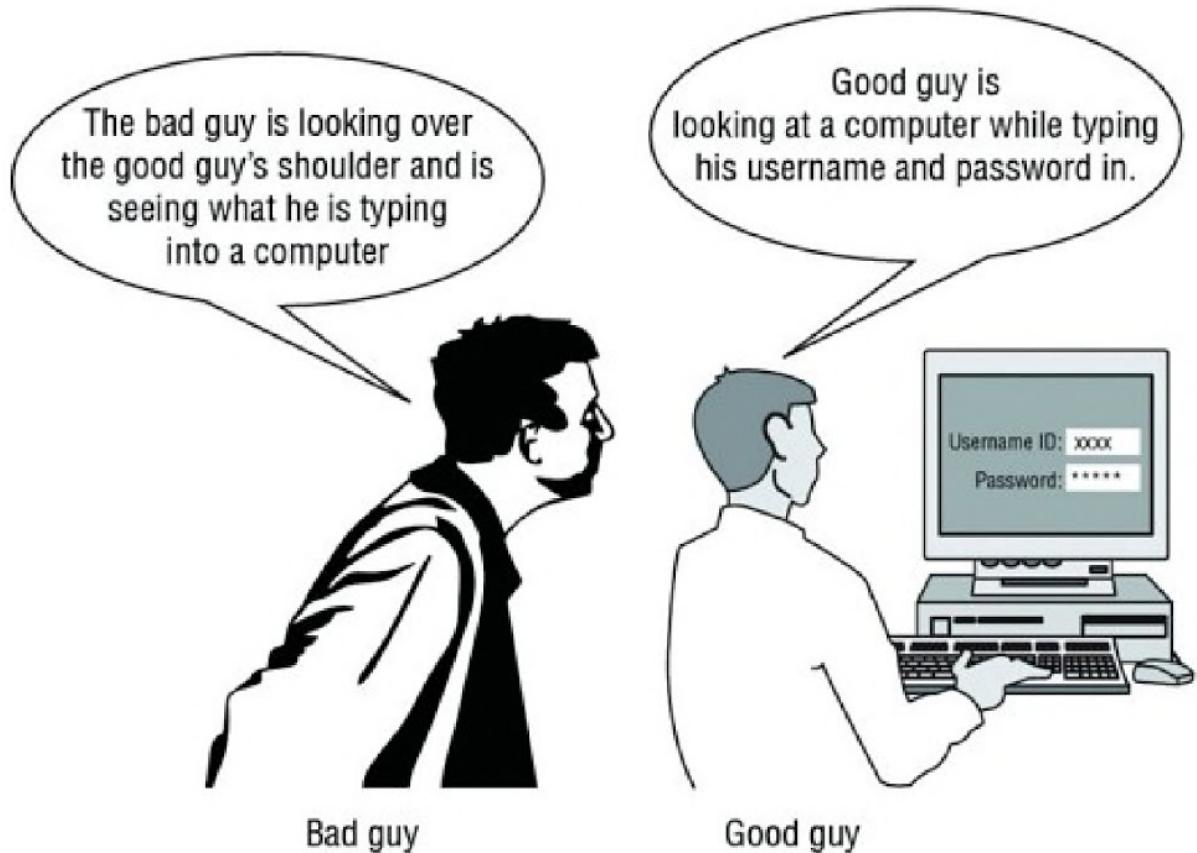
- A. Passive reconnaissance
- B. Scanning and enumeration
- C. Footprinting
- D. Fingerprinting

123. What type of attack is the adversary conducting in the following diagram?



- A. Smurf attack
- B. Bluesnarfing
- C. Teardrop attack
- D. DoS attack

124. What type of attack is the adversary conducting in the following diagram?



- A. Man-in-the-middle attack
- B. Shoulder surfing
- C. Passive reconnaissance
- D. Foot inactive surveillance

125. In the following screen shot, why is the packet flag set to “Don't Fragment”?

The screenshot shows a Wireshark interface with several network frames listed. Frame 112 is selected, showing detailed information about an Internet Protocol Version 4 (IPv4) packet. The packet's source is SamsungE\_23:e6:b5 (c0:bd:d1:23:e6:b5) and destination is Apple\_21:1d:0e (b8:8d:12:21:1d:0e). The IP header includes fields like Version (4), Header Length (20 bytes), Differentiated Services Field (DSCP: CS0, ECN: Not-ECT), Total Length (381), Identification (0x34c5 (13509)), Flags (0x02 (Don't Fragment)), Fragment offset (0), Time to live (237), and Protocol (TCP (6)). The TCP header shows Source (17.157.192.176), Destination (192.168.43.204), and various flags. The payload is identified as a "TLSv1 Record Layer: Handshake Protocol: Multiple Handshake Messages". The content type is "Handshake (22)", version is "TLS 1.0 (0x0301)", and length is 4416. Below this, a "Handshake Protocol: Server Hello" message is shown. The hex dump of the selected frame (Frame 112) is displayed at the bottom, showing bytes from 0000 to 0040.

- A. The client is trying to establish a TCP handshake.
- B. A Hello Server packet has been crafted.
- C. The packet does not need to be fragmented.
- D. The client is trying to establish an SSL connection.

# **CHAPTER 4**

## **Practice Test 4**

1. Which of the following encryption algorithms uses two large prime numbers?

- A. RSA
- B. AES
- C. El Gamal
- D. RC5

2. What can be said about asymmetric encryption?

- A. The two keys are not related mathematically.
- B. The two keys are mathematically related.
- C. Both keys do the same thing.
- D. One key is shared between both parties.

3. What protection characteristics are in use with IPsec transport mode?

- A. The header is encrypted.
- B. Both payload and message are encrypted.
- C. It provides authentication to the sender's data.
- D. It provides encryption to the payload only.

4. Which of the following defines the private, non-routable IP address ranges?

- A. RFC 1929
- B. RFC 1918
- C. NIST 1918
- D. RFC 1921

5. Which DNS record maps an IP address to a hostname?

- A. MX
- B. A
- C. AAA
- D. MR

6. In a POODLE attack, what cryptographic protocol would the victim revert back to?

- A. TLS 1.2
- B. TLS 1.0
- C. SSL 2.0
- D. SSL 3.0

7. You are a disgruntled worker who is trying to access a blocked website at your job. You attempted to use a proxy server, but the website was blocked too. You then attempt to change the URL into another format that may not be blocked by the firewall, such as binary. What are you attempting to do?

- A. URL encoding
- B. URL obfuscating
- C. URL scrambling
- D. URL encryption

8. During an annual security training course you are facilitating, you place a call to another employee picked randomly who is not part of the training class. In this call, you state that you work in the help desk department and request their password in order to reset an account you noticed is locked. What risk are you demonstrating?

- A. Social engineering
- B. Weak passwords
- C. Malware being installed by workers
- D. Spam emails circulating the office

9. What operating speed does IEEE 802.11g use?

- A. 10 Mbps
- B. 54 Gbps
- C. 54 Mbps
- D. 100+ Mbps

10. What key size range does RC4 use within WEP?

- A. 32 to 232 bits
- B. 16 to 40 bits
- C. 40 to 256 bits
- D. 40 to 232 bits

11. What command in Windows allows you to bring up a list of startup items and their locations in the Registry?

- A. Mslookup
- B. MSConfig
- C. Regedit
- D. iexplorer.exe

**12.** WEP's initialization vectors (IVs) are relatively small and therefore easily predictable. What other aspect makes IVs susceptible to eavesdropping?

- A. They are sent in the clear.
- B. They are not susceptible to eavesdropping.
- C. The attacker has to capture enough packets to see the IVs.
- D. The IVs use weak encryption.

**13.** In SQL, what input value or term means *everything*?

- A. \*
- B. ALL
- C. SELECT
- D. FROM

**14.** As a security administrator, you are tasked with developing a technical solution to prevent scam and phishing emails from being generated by your company. What is one method you can use to perform this?

- A. Updating the employees address book on the domain
- B. Implementing digital signatures
- C. Implementing social engineering training
- D. Implementing a username and password policy for sending emails

15. In Kerberos, which ticket is presented to a server to grant access to a service?

- A. TGS
- B. KDC
- C. TGT
- D. AS

16. Which term describes how information is collected and handled in order to provide assurance that there has been no tampering or manipulation of evidence?

- A. Chain of evidence
- B. Custody of evidence
- C. Custodial of custody
- D. Chain of custody

17. As a security consultant, your customer provides you with its processes, plans, and procedures regarding how it responds to hazards and business operations disruptions. What type of documents are in your possession?

- A. Incident handling
- B. Business continuity plan
- C. Disaster recovery plan
- D. Fault tolerance capabilities

18. What port does a fraggle attack use?

- A. UDP port 7
- B. TCP port 7
- C. TCP 21
- D. TCP 53

19. What method is used to send spam or malicious content over instant messaging applications?

- A. Spim
- B. Spam
- C. Ham and Cheese (HAC)
- D. Phishing

20. In wireless communications, what frequency type uses all available frequencies simultaneously and in parallel?

- A. Frequency hop spread spectrum
- B. Orthogonal frequency-division multiplexing
- C. Spread spectrum
- D. Direct sequence spread spectrum

21. What type of attack is a hoax?

- A. Spam
- B. Social engineering
- C. Whaling
- D. Manipulation

22. What is the goal of having a baseline image?

- A. To have an image that receives the required security packages
- B. So that all workstations have the same applications
- C. So the company is using the resources they paid for
- D. To deploy images faster

23. What software technique tests for input values of programs and applications?

- A. Fizzing
- B. Fuzzing
- C. Obfuscating
- D. Encoding

24. If you were to lose a mobile device, what would be the appropriate response to prevent personal data and information from being recovered by an untrusted subject?

- A. Encryption
- B. Remote backup
- C. Remote screen lock
- D. Remote wipe

25. At what stage within Kerberos is the subject authenticated?

- A. When the client presents the TGS ticket
- B. When the client receives the TGT
- C. When the client requests a ST
- D. When the client accesses the resources it requested

26. As a black hat, you are targeting a sever room that contains important data. Which unconventional method would you use to DoS the entire room?

- A. Target the routers by DDoS.
- B. Conduct a fraggle attack on the servers.
- C. Target the HVAC units.
- D. Change all the administrator login information.

27. Which of the following transfers risk to a third party?

- A. Mitigation
- B. Disaster recovery plan
- C. Assigning risk
- D. None, because risk cannot be transferred

28. What is the process of collecting, protecting,

conducting analysis on, and maintaining the integrity of evidence to be later used in court?

- A. Forensics
- B. Chain of custody
- C. Incident Response
- D. Incident Handling

29. Which of the following is one of the goals for incident response?

- A. To recover as quickly as possible
- B. To continue operations during the incident
- C. To maintain evidence
- D. To identify how the incident occurred

30. Which corporation developed SSL?

- A. Microsoft
- B. Netscape
- C. Google
- D. America Online

31. What is the purpose of dividing networks?

- A. To create larger networks
- B. To create more broadcast domains
- C. Ease of management
- D. Aggregate networks together

32. Which of the following RFCs includes guidelines on how to collect and archive evidence?

- A. RFC 1918
- B. RFC 3337
- C. RFC 3298
- D. RFC 3227

**33.** As a security administrator, you task your team to conduct a review to determine who has increased their user access privilege over time. What are they evaluating?

- A. Privilege escalation
- B. Privilege abuse
- C. Privilege scope creep
- D. Access right creep

**34.** Which of the following is the highest classification level used by the US government?

- A. Top Secret
- B. Secret
- C. For Your Eyes Only
- D. Confidential

**35.** Which of the following focuses on restoring an organization's business process or operation?

- A. Business continuity plan
- B. Creating a disaster recovery plan
- C. Developing high redundancy servers
- D. Reducing the availability

36. Which backup method copies only files in which the flagged archive bit is set?

- A. Full
- B. Differential
- C. Incremental
- D. Partial

37. As a black hat, you are targeting a banking firm to knock it offline. You understand that the longer the firm is down, the more money it loses. There is a set time limit on how long the firm can be offline and still recover. What time limit are you trying to exceed to bring the banking firm down?

- A. Recovery point objective
- B. Mean time to recover
- C. Mean time to failure
- D. Maximum tolerable downtime

38. Which of the following is the correct humidity level for an information system environment?

- A. Below 40 percent humidity
- B. Above 60 percent humidity
- C. Between 20 and 40 percent humidity
- D. Between 40 and 60 percent humidity

39. As a security administrator, you require members of the workforce and new hires to sign a document that details what is and what is not acceptable to use with regard to telephones, printers, and even computers.

What policy type are you enforcing?

- A. User agreement policy
- B. Acceptable use policy
- C. Security agreement policy
- D. Computer abuse policy

40. You are a security consultant, and your customer is asking you to conduct an assessment of its disaster recovery plan. Which of the following methods would you use to recommend to update and evaluate the customer's disaster recover plan?

- A. Conducting a risk analysis and assessment
- B. Developing a business impact analysis
- C. Develop user training and awareness.
- D. Review the maintenance and assessment of the plan.

41. Which of the following is most important when it comes to incident response?

- A. Eradication
- B. Containment
- C. Analysis
- D. Detection

42. In the TCP three-way handshake, which is next after the initial SYN packet is sent?

- A. An ACK is received.
- B. A SYN is received.
- C. A SYN/ACK is sent.
- D. An ACK is sent.

43. Which of the following tools is used for war dialing?

- A. PAWS
- B. LOIC
- C. Cain & Abel
- D. Butt dialer

44. Which flag forces both sender and receiver on the network to terminate their connection with one another?

- A. FIN
- B. RST
- C. URG
- D. SYN

45. Which character means NOT when defining a Snort rule?

- A. N
- B. !
- C. #
- D. %

46. What does NTFS file streaming provide?

- A. It can hide a file behind another file.
- B. It prevents a file from being changed.
- C. It prevents a file from being moved.
- D. It prevents an unauthorized user from viewing the file.

**47.** Which of the following allows you to compile a source file within the C programming language?

- A. gc+ source.c newsource.exe
- B. g++ source.cpp newsource.exe
- C. g++ source.c newsource.exe
- D. gcc source.c newsource.exe

**48.** Which option describes the act of rummaging through trash to find important data?

- A. Dumpster swimming
- B. Social engineering
- C. Dumpster collection
- D. Dumpster diving

**49.** As a black hat, you forge an identification badge and dress in clothes associated with a maintenance worker. You attempt to follow other maintenance personnel as they enter the power grid facility. What are you attempting to do??

- A. Piggybacking
- B. Social engineering
- C. Tailgating
- D. Impersonating

**50.** Chris decides to download some music from a website while at work. When he opens the music files, a pop-up notification informs Chris that he must send \$500 US dollars to a PayPal account using the email address Shoju@scorpion.ru if he wants access to his system again. What do you think Chris may have installed?

- A. Ransomware
- B. Adware
- C. Cryptoware
- D. Trojan

**51.** What server configuration groups them together and provides redundancy and fault tolerance?

- A. Clustering
- B. High availability
- C. Fault tolerance
- D. Server redundancy

**52.** What type of label is given to a subject for security reasons?

- A. Classification
- B. Clearance
- C. Secret
- D. Confidential

**53.** A safeguard is a security function that provides protection. What are two factors you must consider before committing to a safeguard?

- A. Cost and quantity
- B. Cost and type
- C. Cost and benefit
- D. Technical and logical

**54.** Which term best describes the absence or weakness of a safeguard related to an asset?

- A. Vulnerability
- B. Risk
- C. Exploit
- D. Threat

**55.** You are a security administrator charged with protecting data from being emanated in your work environment. Which program would you use to align your security policies in order to prevent data from emanating?

- A. TEMPEST
- B. IEEE 802.11i
- C. IEEE 802.1x
- D. Encryption

56. What is a Faraday cage?

- A. A cage that houses encryption keys
- B. A cage designed to keep people out
- C. A cage that blocks electromagnetic signals
- D. A cage that holds backup tapes

57. On what default port(s) does SCP operate?

- A. TCP port 22
- B. TCP port 21
- C. TCP port 24
- D. TCP port 21 and 22

58. What is the purpose of using an extranet?

- A. To allow the public to access a company's resources
- B. To implement a business-to-business solution that functions like a DMZ
- C. To allow internal users to access DMZ resources
- D. To implement public access that functions like a DMZ

59. For an anomaly-based IPS to run optimally, what first must be determined?

- A. Updated signatures
- B. Accurate rules set
- C. Updated firmware
- D. Network baseline set

**60.** Which of the following attacks uses UDP packets to target the broadcast address and cause a DDoS?

- A. Smurf
- B. Fragle
- C. Land
- D. Teardrop

**61.** Which tool causes sockets to be used up and can cause services to freeze or crash?

- A. LOIC
- B. Slowloris
- C. Cain & Abel
- D. John the Ripper

**62.** Which of the following takes advantage of a threat?

- A. Threat actor
- B. Threat agent
- C. Threat vector
- D. Threat object

**63.** What is a user or administrator who has access to an information system called?

- A. Cyber persona
- B. Object
- C. Subject
- D. User profile

64. What is a computing platform with a software solution that is based on the cloud or on a virtual stack for customers to use?

- A. Platform as a service
- B. Software as service
- C. FTP
- D. Web application

65. What is the act of looking over the shoulder of a victim to capture the information being displayed on their machine?

- A. Piggybacking
- B. Impersonation
- C. Shoulder surfing
- D. Shoulder peering

66. Which protocol does IPsec support natively?

- A. IPv4
- B. IPv6
- C. IPX
- D. AppleTalk

67. Which of the following uses sockets that are unique

to a web connection and translate from private to public and vice versa?

- A. NAT
- B. IPsec
- C. PAT
- D. Proxy

68. Which of the following allows networks to be subnetted into various sizes?

- A. NAT
- B. CIDR
- C. OSPF
- D. BGP

69. As a network administrator, you are tasked to separate different networks in order to increase security. By doing so, you attempt to create networks for users with a “need to know” policy. What can you do to ensure that only the workstations for those users participate in those layer 2 networks?

- A. Create broadcast multiple domains.
- B. Create VLANs.
- C. Maintain the collision domains.
- D. Implement a VPN solution.

70. At what layer does ICMP operate?

- A. Layer 2
- B. Layer 3
- C. Layer 5
- D. Layer 4

71. What is the best solution for making a backup copy of a system?

- A. Full backup
- B. Bit-level image
- C. Incremental
- D. Differential

72. Which of the following is the best defense against a zero day attack?

- A. User awareness training
- B. Up-to-date patches applied
- C. Removing applications that are not required
- D. Keeping up to date with firewall rules

73. Which type of network uses a group of zombie computers to carry out the commands of the bot master?

- A. Zombie net
- B. Zombie group
- C. Botnet
- D. Bot heard

74. Which of the following Trojan port numbers are associated with the SniperNet?

- A. Updating the workstation firmware
- B. Disabling the CBC mode cipher in SSL
- C. Switching to the Mozilla Firefox or Google Chrome web browser
- D. Downgrading to SSL 2.0

79. Fences, security cameras, and armed guards are considered what type of control?

- A. Physical
- B. Technical
- C. Logical
- D. Operational

80. Which of the following Trojans use TCP 666?

- A. TCP Wrapper
- B. Tini
- C. Wormhole
- D. Doom

81. Which of the following devices allows a black hat to collect all the data traffic with minimal effort?

- A. Layer 2 switch
- B. Bridge
- C. Router
- D. Hub

82. Which of the following describes a network appliance that acts as an intermediary server?

- A. Stateful firewall
- B. Packet filter firewall
- C. Proxy firewall
- D. Data server

83. Which of the following is considered a natural event?

- A. Lightning strike
- B. Malware
- C. Data corruption
- D. Electrical fire

84. What must the digital signature authority have to validate a message?

- A. User's digital signature
- B. User's private key
- C. The original message
- D. The hash value

85. Which of the following algorithms successfully implemented the public key cryptosystem?

- A. AES
- B. El Gammal
- C. Diffie-Hellman
- D. RSA

86. Which of the following attacks forges a TCP packet as both the source and destination IP address of the victim and causes the victim's computer to freeze or crash?

- A. Land
- B. Fragle
- C. Teardrop
- D. Smurf

87. What is the third portion of the TCP header field that comes after source port and destination port?

- A. RESV
- B. WINDOW
- C. SEQ NUMBER
- D. ACK NUMBER

88. A message that carries data and acknowledgments is called what?

- A. Segments
- B. Packets
- C. Frames
- D. Nibbles

89. You are a black hat who was successful in sending out malicious emails from one of the workers at a card game factory. The malware in the digitally signed email spread quickly, and most users were actually surprised that the victim was capable of doing such a terrible thing. What two things must you have in order to carry out the digitally signed email attack?

- A. Username and password
- B. Token and PIN
- C. Username and token
- D. Token and access to computer

90. Which of the following is considered an AAA server?

- A. Kerberos
- B. Solaris
- C. Apache
- D. Exchange

91. What is a stack pointer within memory?

- A. It points to the next memory pointer in the stack.
- B. It points at the bottom of the stack.
- C. Memory does not use a stack pointer.
- D. It points at the top of the stack.

92. Apache OpenOffice and Microsoft Office have a built-in feature that allows the user to automate a series of specified commands. These commands usually assist with daily routine tasks. This feature can be used in conjunction with launching malware. What feature is this?

- A. File sharing services
- B. Object Link
- C. Macro
- D. Compression

**93.** In virus scanning, what is the telltale sign of a virus?

- A. Hash value
- B. Signature
- C. Definition
- D. Trojan

**94.** When a security administrator is trying to reduce physical access to the backup vault, what type of control will they implement?

- A. Physical control
- B. Technical control
- C. Administrative control
- D. Logical control

**95.** As a white hat, you are hired to conduct an assessment of a target web server. After you conduct your assessment, you provide your client with your findings and recommendations to improve the security posture. What did you formally hand over to your client?

- A. Problem tracker
- B. Fix action plan
- C. Vulnerability list
- D. Risk mitigation plan

**96.** As a black hat, you use ToneLoc to dial random numbers in order to connect to a modem that is providing service to a server. What type of attack are you conducting?

- A. Wardriving
- B. DoS
- C. Scanning
- D. War dialing

97. In Linux, how would you create a new user in a terminal?

- A. # useradd /home/samarea ssamarea
- B. >useradd raeleah
- C. cuser ray\_j /home/ray\_j
- D. useradd savion

98. In Linux, what method uses a brute-force effort to locate a file?

- A. find
- B. grep
- C. |
- D. search

99. Besides usernames and passwords, what other critical objects can be retrieved by using Heartbleed?

- A. Tokens
- B. X.509
- C. X.35
- D. Symmetric keys

100. As a white hat, your customer asks what type of assessments you can conduct. What are they?

- A. Risk, threat, and vulnerability
- B. Malware, risk, and exploit
- C. Risk, vulnerability, and exploits
- D. Risk, mitigation, and vulnerability

101. A method that defends against a flooding attack and massive DoS attacks is referred to as what?

- A. Defense in depth
- B. Spam blocker
- C. Flood safe
- D. Flood guard

102. A firewall that blocks all traffic by default is known as what?

- A. Implicit allow
- B. Implicit deny
- C. Deny all
- D. Implicit prevent all

103. On which UDP ports does SNMP operate?

- A. 53
- B. 160 and 161
- C. 161 and 162
- D. 167

104. In IPsec, what is known as the security association manager?

- A. IKE
- B. ISAKMP
- C. VPN
- D. ESP

105. In WPA2, what AAA server can be used in the enterprise configuration?

- A. RADIUS
- B. Exchange
- C. Solaris
- D. Netware

106. The act of falsifying data is also known as what?

- A. Boink
- B. Packet crafting
- C. Spoofing
- D. Data diddling

107. When a black hat sends corrupted UDP packets to port 53, it can cause a Windows system to crash. What attack is the adversary trying to conduct?

- A. Bonk
- B. Boink
- C. Ping flood
- D. DNS poison

108. As a black hat, you are injecting inputs into the back of the LDAP server instead of the database. What are you

- A. Disable unnecessary ports.
- B. Open all ports.
- C. Disable all accounts.
- D. Reducing file restrictions

112. When inputting data into the data payload field of a SYN packet, what is the adversary trying to do?

- A. Packet crafting
- B. Data injection
- C. Session crafting
- D. Fragmentation

113. What is a unique identifier that is used in Snort?

- A. SID
- B. ID
- C. PID
- D. NID

114. Which of the fooling tools can be used to steal cookies between a client and a server to use in a replay attack?

- A. Mouse
- B. Ferret
- C. Ratpack
- D. Nezumi

115. Which option describes the architecture in the following image?

119. What would be the results of this XOR?

1	0	0	1	1	1	0	1
XOR	1	1	0	0	0	1	0

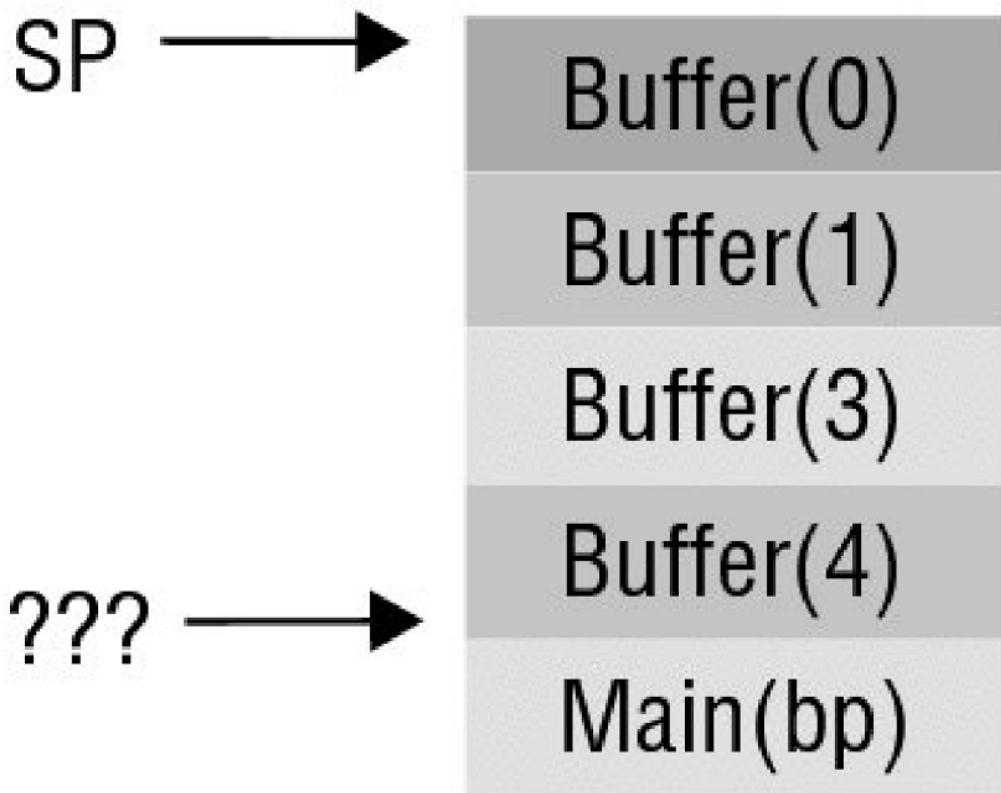
- A. 01011000
- B. 10100101
- C. 10100111
- D. 10010100

120. What type of cipher is being depicted in the following image?

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
P	O	U	L	K	J	H	M	I	N	B	V	Y	T	R	E	W	Q	G	F	D	S	A	C	X	Z

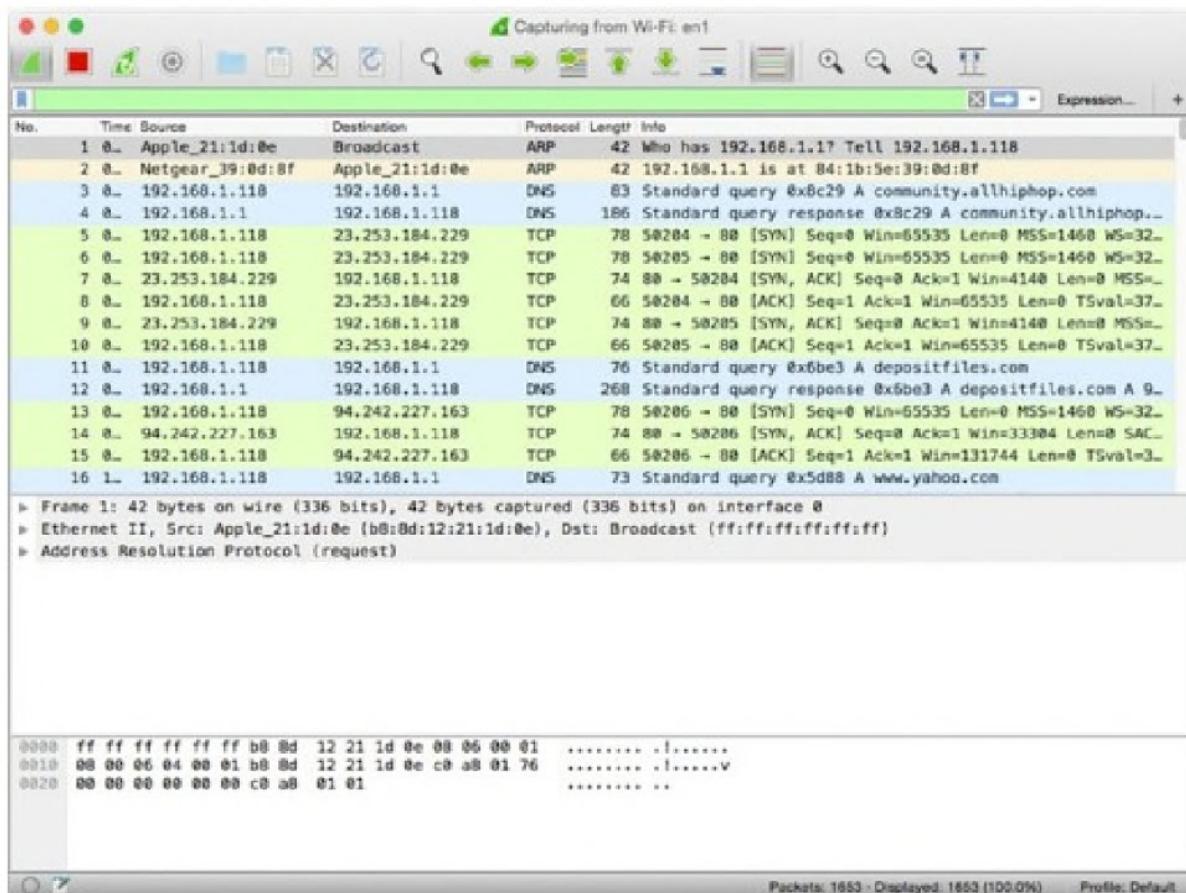
- A. Caesar cipher
- B. Polyalphabetic cipher
- C. Monalphabetic cipher
- D. One-time key pad

121. What is the name of the pointer that is missing in the following diagram?



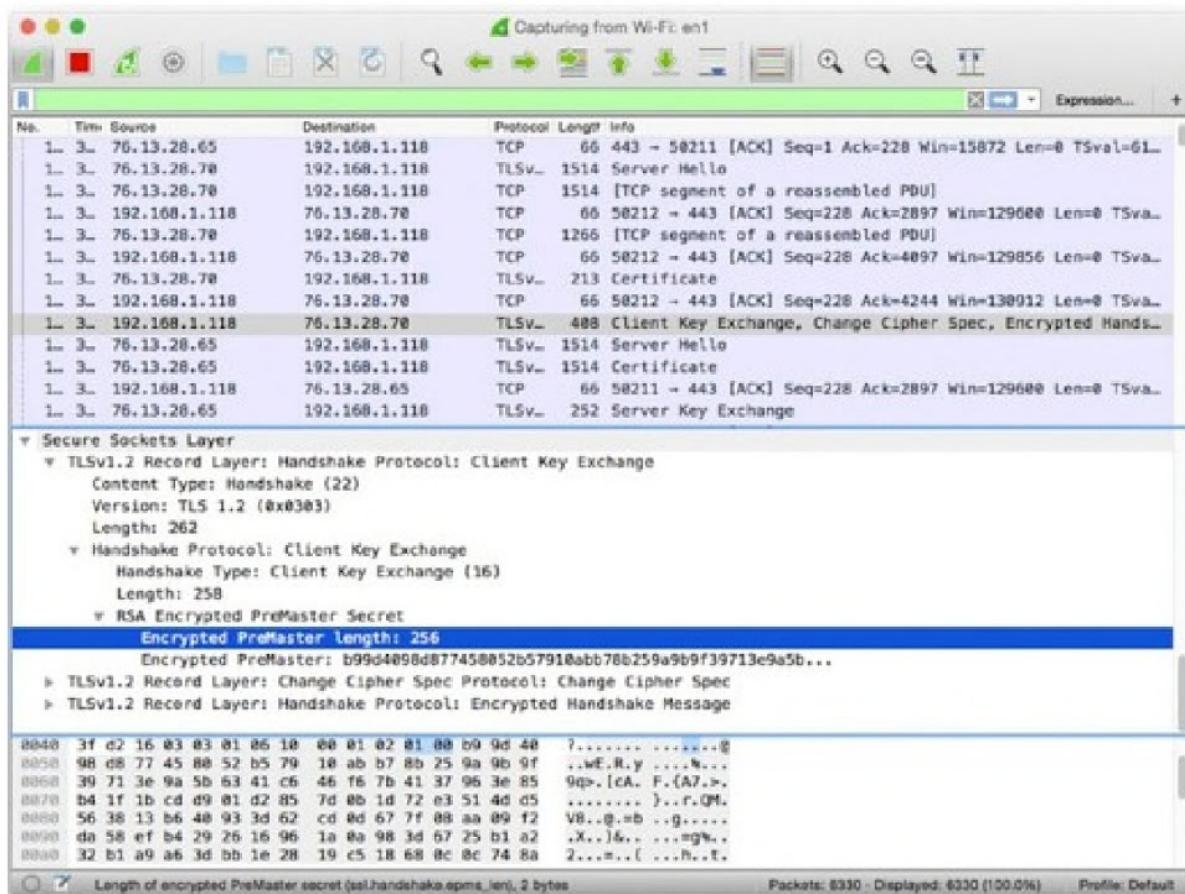
- A. SP
- B. HP
- C. MP
- D. BP

122. In the following screen shot, what sequence completes the three-way handshake with 23.253.184.229?



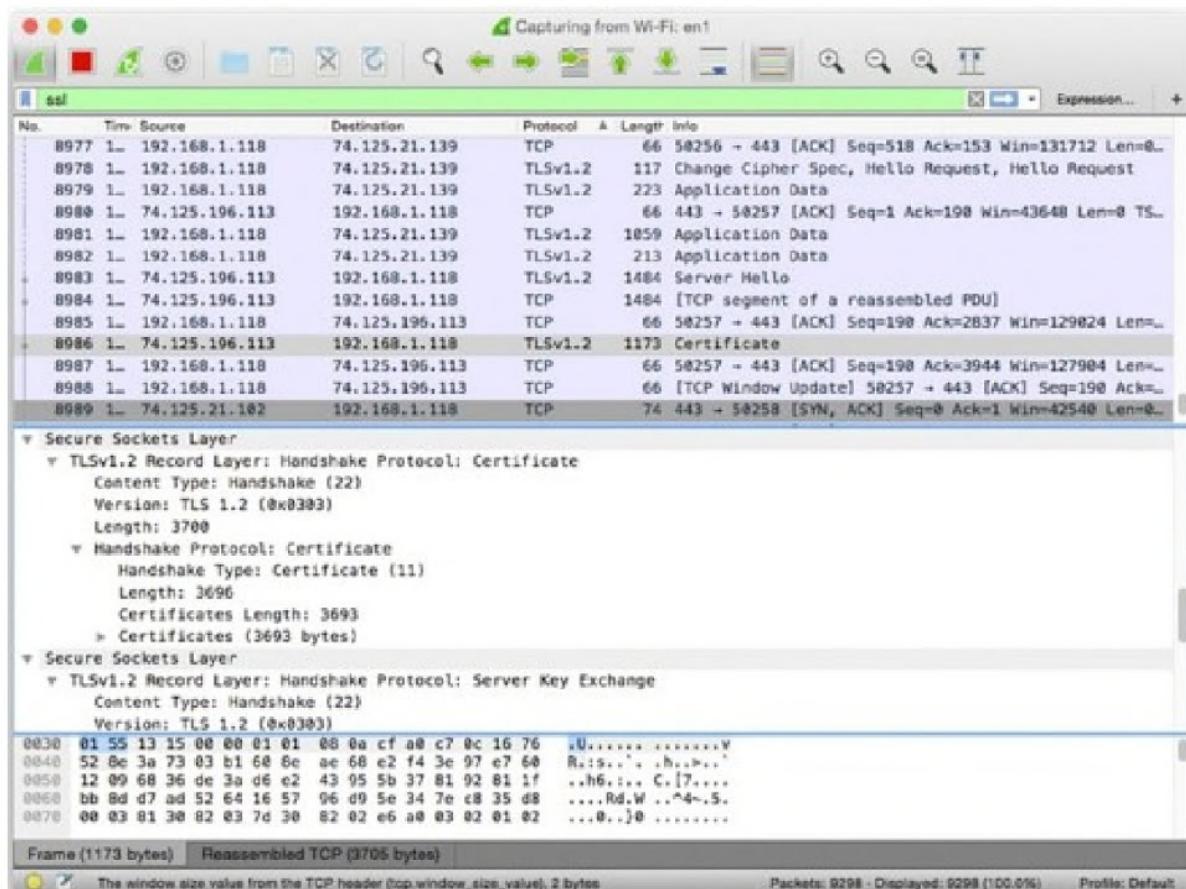
- A. 5025
- B. 1
- C. 74
- D. 64

123. In the following screen shot, what flag is set on frame 57523?



- A. @wERy%9q>[cAF{A7>}rQMV8@=b
- B. The key cannot be derived.
- C. ox0303
- D. b99d4098d877458052b57910abb78b259a9b

125. As seen in the following screen shot, is the current connection vulnerable to Heartbleed?



- A. No. Heart bleed affects TLS 1.0.1 to 1.0.1f.
- B. No. Heart bleed affects only SSL 3.0.
- C. There is not enough information to tell.
- D. Heart bleed is not the vulnerability; it is a heartbeat.

# CHAPTER 5

## Practice Test 5

1. When a black hat is querying for a number of services or login information on a target system, what are they trying to accomplish?

- A. Enumeration
- B. Scanning
- C. Footprinting
- D. Fingerprinting

2. Which of the following allows the adversary to obtain passwords online in a passive manner?

- A. Sniffing
- B. Man in the middle
- C. Password cracking
- D. Account creation

3. Which of the following passwords will take the most effort to crack?

- A. P@\$\$word
- B. Pass123
- C. \$@(\$)!\_
- D. Thisismy password and no one canstealit

4. Where is the event log located in Linux OS?

- A. /home/log
- B. /var/log
- C. /log/
- D. /home/system32/log

5. In Linux, which of the following accounts denotes the administrator?

- A. Admin
- B. Administrator
- C. root
- D. su

6. Which of the following is another name for NAT overload?

- A. PAT
- B. NAT+
- C. NAT port
- D. PAT overload

7. Which of the following is part of the overall portion of the SID?

- A. UID
- B. RID
- C. USD
- D. L5R

8. What is accomplished by a combination of ping sweeping and enumerating a target?

- A. Fingerprinting
- B. Footprinting
- C. Reconnaissance
- D. Identification

9. What response time measurement is used by default within the tracert program?

- A. Seconds
- B. Milliseconds
- C. Minutes
- D. None

10. What is the encryption key length in DES?

- A. 64
- B. 128
- C. 56
- D. 128

11. Which of the following encryption ciphers replaced DES and was renamed AES?

- A. RSA
- B. AES
- C. Rijndael
- D. RC5

12. What completes the three-way handshake in the TCP connection?

- A. 16 bits
- B. 32 bits
- C. 8 bytes
- D. 16 bytes

17. The second administrator that is under a Windows system has the RID of what?

- A. Not a RID, but a SID of 502
- B. RID 501
- C. RID 1001
- D. RID 1000

18. When trying to identify all the workstations on a subnet, what method might you choose?

- A. Port scan
- B. Anonymizer
- C. Ping sweep
- D. Web crawler

19. What is the default port used for DNS?

- A. 80
- B. 22
- C. 8080
- D. 53

20. Which of the following tools can be used to crack passwords ?

- A. Cain & Abel
- B. ToneLoc
- C. Wireshark
- D. WarVOX

21. Which connection type is considered a half-open connection?

- A. FIN
- B. SYN
- C. SYN/ACK
- D. URG

22. Which tool can be used to query DNS?

- A. Twofish
- B. Cain & Abel
- C. WarVOX
- D. Dig

23. Using Snort, which rule type allows for notification only if there is a match?

- A. Drop
- B. Alert
- C. Pass
- D. Bing

24. Which switch in Nmap allows for a full TCP connect scan?

A. -ss

B. -su

C. -fc

D. -st

25. What type of control is a firewall?

A. Barrier

B. Administrator

C. Logical

D. Physical

26. Which of the following denotes the root directory in Linux OS?

A. \

B. /

C. C:\

D. root/

27. As a black hat, you call into the city manager's office claiming to be a part of the help desk team. You ask the clerk for her username and password to install the latest Microsoft Office suite. What type of attack are you conducting?

A. Impersonation

B. Piggybacking

C. Masquerading

D. Tailgating

28. As a black hat, you are driving in your vehicle looking for wireless access points to connect to. What type of attack are you conducting?

- A. War dialing
- B. Drive-by scanning
- C. War chalking
- D. Wardriving

29. What is the process called when you're trying to inject bogus entries into the ARP table?

- A. Enumeration
- B. RARP
- C. ARP poisoning
- D. L2 dumping

30. What is the maximum input for a Windows login field?

- A. 16
- B. 127
- C. 256
- D. 32

31. A black hat was able to install a device at an unattended workstation and was able to recover passwords, account information, and other information the next day. What did the black hat install?

- A. Keylogger
- B. Key scanner
- C. Rootkit
- D. Trojan

32. What command displays the network configuration in Linux OS?

- A. ipconfig
- B. netstat
- C. ls
- D. ifconfig

33. What directory holds the basic commands in the Linux OS?

- A. /etc
- B. /bin
- C. /
- D. /config

34. A black hat is dressed as a postal worker. Holding some large boxes, he follows a group of workers to make his drop-off in the back of the facility. What is the black hat trying to conduct?

- A. Tailgating
- B. Sliding
- C. Piggybacking
- D. Shimming

**35.** What system element is used to store information and is installed by the web server?

- A. A text file
- B. Cookies
- C. HTML file
- D. XML file

**36.** You are walking around downtown picking up on open wireless access points. As you identify these access points, you place a symbol on a nearby building. What activity are you conducting?

- A. War walking
- B. Wardriving
- C. Footprinting
- D. War chalking

**37.** What type of virus can change or rewrite itself every time it infects a new file?

- A. Polymorphic virus
- B. Metamorphic virus
- C. Trojan virus
- D. Shell virus

**38.** Which hashing algorithm was developed by the NSA and has a 160-bit output?

- A. MD5
- B. HAVAL
- C. DSA
- D. SHA-1

39. Aside from port 80, what is another common port used to connect to a web server?

- A. 8080
- B. 21
- C. 54
- D. 110

40. Which Nmap switch utilizes the slowest scan?

- A. -T
- B. -sT
- C. -s0
- D. -sX

41. Which of the following applications is used to inspect packets?

- A. Wireshark
- B. Cain & Abel
- C. Aircrack
- D. Nmap

42. Which process defines the act of an adversary copying an entire website to be used for subsequent attacks?

- A. Web copy
- B. Web crawling
- C. Web caching
- D. Web dump

**43.** How would an administrator set a password for a user in Linux?

- A. password user pass123
- B. chmod pass user pass123
- C. pass user pass123
- D. passwd user pass123

**44.** In Windows, what is the command to display the ARP cache?

- A. ifconfig /-a
- B. arp -a
- C. -a arp
- D. ipconfig /arp -a

**45.** Which application can provide DNS zone transfer information?

- A. Cain & Abel
- B. ICMP
- C. Nslookup
- D. Domain Name Service

**46.** Which of the following signifies the parent domain of a DNS Server?

- A. myserver.com
- B. .com
- C. <http://myserver.com>
- D. <http://www.myserver.com>

**47.** Which is the second phase in the ethical hacking methodology?

- A. Reconnaissance
- B. Maintaining access
- C. Covering your tracks
- D. Scanning and enumeration

**48.** What system uses a certificate authority?

- A. Realm
- B. SESAME
- C. PKI
- D. ICY Manipulator

**49.** Which site can you use to view a collection of vulnerabilities?

- A. nvd.nist.gov
- B. google.com
- C. hackmybox.net
- D. breachthedoor.org

**50.** As a business analyst, you study and collect information about your competitor using Google and the competitor's website and products. Which of the

following best defines the actions you are performing?

- A. Google hacking
- B. Espionage
- C. Competitive intelligence
- D. Tradecraft

**51.** Which of the following relies on plaintext transmission when sending community strings as a means of authentication?

- A. SFTP
- B. SNMPv3
- C. SNMPv1
- D. Telnet

**52.** Which of the following is a capability that can be used with WPA2?

- A. RADIUS
- B. SESAME
- C. PKI
- D. Kerberos

**53.** A bank teller must have authorization with the bank manager to withdraw a large sum of money for the bank customer. Without the manager, she cannot accomplish the task. What access control is being performed in this scenario?

- A. Key
- B. Username and password
- C. X.509 certificate
- D. SSID

**57.** What must a user have in order to sniff wireless traffic?

- A. Wireless device set to promiscuous mode
- B. Wireless device that has 2.4 GHz and 5 GHz set to read only
- C. Wireshark
- D. Ettercap set to clone

**58.** What command within the Linux OS can be used to delete files from a directory?

- A. del
- B. er
- C. -rm
- D. rm

**59.** Your company has been targeted by a series of phishing emails. In order to deter the attack, you quickly tell your users to verify senders. How do you go about implementing this?

- A. AirCheck
- B. Netcheck
- C. Ncat
- D. AirWare

67. Which switch in Nmap allows the user to perform a fast scan?

- A. -oX
- B. -PT
- C. -T4
- D. -SS

68. A flag that is set to allow a packet to be sent out of band is considered what?

- A. URG
- B. FIN
- C. SYN
- D. PSH

69. A user who is scanning for a network size of 128 nodes would use what CIDR?

- A. /24
- B. /25
- C. /28
- D. /30

70. A black hat uses a search engine to locate websites that are possibly vulnerable to SQL injections. What

search engine would they most likely be using?

- A. Bing
- B. Yahoo
- C. Google
- D. Whoami

71. A supervisor suspects that there are fraudulent activities being conducted in the workplace. What option can the supervisor employ to confirm their suspicion?

- A. Duty rotation
- B. Forced vacation
- C. Installation of spy cameras
- D. Installation of spy equipment

72. If a user wants to send information securely to another user in an open environment, what method would they use?

- A. The receiver's shared key
- B. The receiver's pre-shared key
- C. The receiver's public key
- D. The receiver's private key

73. Which record indicates the mapping of an IP address to a hostname?

- A. Fixed lens
- B. Zoom lens
- C. Autofocus lens
- D. Auto iris lens

77. Which of the following is considered open-source information?

- A. Newspaper
- B. Trade secrets
- C. Information obtained from dumpster diving
- D. Information obtained from a man-in-the-middle attack

78. A manager routinely shifts personnel around in order to deter fraudulent activities at the job site. What protective measure is the supervisor using?

- A. Spear phishing
- B. Force vacation
- C. Duty rotation
- D. Cross training

79. Which method would allow the administrator to reduce the threat of DNS poisoning?

- A. Increase refresh time rate.
- B. Statically assign DNS entries.
- C. Remove DNS entries.
- D. Remove refresh time rate.

80. Which Google hack allows the user to search for file types that are located within a website?

- A. filetype:
- B. inurl:
- C. typefile:
- D. file:

81. Which hash algorithm produces a 160-bit value?

- A. MD5
- B. SHA-1
- C. MD6
- D. Diffie-Hellman

82. What standard format is used with certificate authorities?

- A. X.509
- B. X.500
- C. 802.1x
- D. PKI

83. In which method are two keys that are mathematically related used?

- A. Symmetric encryption
- B. Pre-shared keys
- C. Asymmetric encryption
- D. Shared keys

84. What key is included on a digital certificate?

- A. The public key is stored on the certificate.
- B. The private key is stored on the certificate.
- C. The key is not stored on the certificate.
- D. Both the public and private keys are stored on the certificate.

85. A black hat retrieved all the personal identification numbers that were used on an ATM machine. What did the black hat install?

- A. Malware
- B. Virus
- C. Keylogger
- D. Key retriever

86. Which flag will receive an RST response only if the port is closed?

- A. ACK
- B. XMAS
- C. NULL
- D. SYN

87. What is the default port used in POP3?

- A. 110
- B. 53
- C. 443
- D. 125

88. What protocol uses a back-off timer when listening on the network?

- A. CSMA/CA
- B. 802.11
- C. 802.1x
- D. CSMA/CD

89. Which of the following has the best chance of illuminating the latest attacks on a network?

- A. Signature-based IDS
- B. Packet-based IDS
- C. Behavior-based IDS
- D. Rule-based IDS

90. If you were to ARP poison the default gateway, what would be the expected results?

- A. You will receive traffic on that specific virtual local area network.
- B. You will receive all the traffic on the current network associated with the gateway.
- C. You will not receive any traffic.
- D. You may cause a DoS on the network.

91. Which of the following prevents a vehicle from ramming into a building?

- A. Bollards
- B. A fence with triple-strand razor wire
- C. Armed guards
- D. Gates

**92.** Which of the following AAA servers provides asymmetric encryption?

- A. Kerberos
- B. RADIUS
- C. SESAME
- D. FTP

**93.** Which of the following tools allows a user to monitor network activity?

- A. Cain & Abel
- B. Metasploit
- C. Wireshark
- D. Netcraft

**94.** What is the default command port for FTP?

- A. 22
- B. 21
- C. 20
- D. 23

**95.** Which of the following are not objects in Active Directory?

- A. Users
- B. Computers
- C. Printers
- D. Files

**96.** Which of the following tools allows the adversary to conduct phishing attacks?

- A. Social Engineering
- B. Ettercap
- C. Mimikatz
- D. Netcat

**97.** What tool would a black hat use to create multiple scripts that can evade detection by an IDS?

- A. ADmutate
- B. Mimikatz
- C. Cain & Abel
- D. Bluecross

**98.** Which of the following will inform the user that the port is closed by the client itself?

- A. ICMP Type 3, Code 3
- B. ICMP Type 3
- C. ICMP Type 1, Code 1
- D. ICMP Type 3, Code 2

**99.** Which of the following layers in the OSI model contains the Transport layer in the TCP/IP model?

- A. Session and Transport
- B. Transport
- C. Network and Transport
- D. Data and Network

100. Which of the following encapsulates the header and the trailer?

- A. Data-Link layer
- B. Transport layer
- C. Application layer
- D. Data-Link layer with the logical link controller set

101. What program can be used to discover firewalls?

- A. Metasploit
- B. Traceroute
- C. Nslookup
- D. Dig

102. Which of the following has no flags set and does not respond if a port is open?

- A. XMAS scan
- B. NULL scan
- C. Half-open connection
- D. ACK scan

103. Which of the following aids in fingerprinting a machine?

- A. El Gammal
- B. Diffie-Hellman
- C. RSA
- D. AES

108. Which is the initial value of the SID that is used to annotate an administrator's account?

- A. 500
- B. 100
- C. 5000
- D. 1

109. Which is the last step of the CEH hacking methodology?

- A. Maintain access.
- B. Cover your tracks.
- C. Scrub the logs.
- D. Corrupt data.

110. What file within the Linux OS contains administrative information about a user?

- A. /etc/shadow
- B. /etc/passwd
- C. /home
- D. /home/profile

111. What port number is used by NetBIOS for name services?

- A. UDP port 137
- B. TCP port 137
- C. UDP port 190
- D. None

112. Which of the following rule type allows for logs and alerts in Snort?

- A. Drop
- B. Pass
- C. Alert
- D. Block

113. Which port or ports is/are affiliated with Back Orifice?

- A. 31337
- B. 2132
- C. 666
- D. 666 and 999

114. Which utility will display active network connections on a host?

- A. Netcat
- B. Netstat
- C. Nmap
- D. Ns

115. What flag(s) is set in the following screen shot?

The screenshot shows a Wireshark interface with a selected TCP packet. The packet details pane displays the following information:

- Time to live: 57
- Protocol: TCP (6)
- > Header checksum: 0x53d2 [validation disabled]
- Source: 75.76.44.78
- Destination: 192.168.1.118
- [Source GeoIP: Unknown]
- [Destination GeoIP: Unknown]

Transmission Control Protocol, Src Port: 80 (80), Dst Port: 51741 (51741), Seq: 1, Ack: 1, Len: 8

Source Port: 80  
Destination Port: 51741  
[Stream index: 1]  
[TCP Segment Len: 8]  
Sequence number: 1 (relative sequence number)  
Acknowledgment number: 1 (relative ack number)  
Header Length: 32 bytes

Flags: 0x011 (FIN, ACK)  
000. .... .... = Reserved: Not set  
...0 .... .... = Nonce: Not set  
.... 0.... .... = Congestion Window Reduced (CWR): Not set  
.... .0.... .... = ECN-Echo: Not set  
.... ..0.... .... = Urgent: Not set  
.... ...1 .... = Acknowledgment: Set  
.... .... 0... = Push: Not set  
.... .... .0... = Reset: Not set  
.... .... ..0... = Syn: Not set  
.... .... ...1 = Fin: Set  
(TCP Flags: \*~~A~~~~R~~~~S~~~~F~~\*)

Window size value: 244

Hex dump:  
0000 b8 8d 12 21 1d 8e 04 1b 5e 39 0d 8f 00 00 45 00 ...!.... ^9...,E,  
0010 00 34 f4 41 00 00 39 06 53 d2 4b 4c 2c 46 c0 a8 .4,A..9. 5,KL,F..  
0020 01 76 00 50 c0 1d fd b0 98 41 62 49 de 6c 00 11 .v,P.... .AbI.l..  
0030 00 f4 17 4e 00 00 01 01 00 0a 0c 60 cf b1 17 b5 ...N.... ...'....  
0040 b7 eb ..

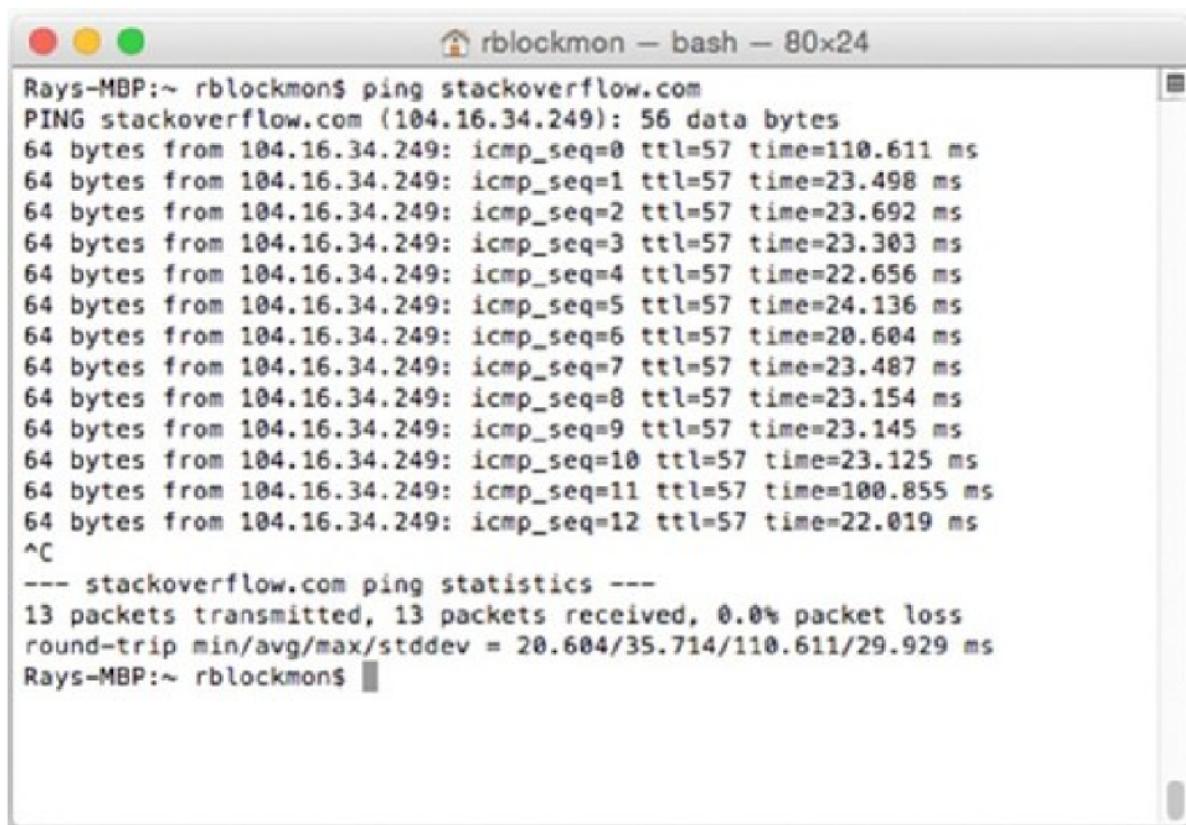
Bottom status bar: Packets: 5777 - Displayed: 5777 (100.0%) Profile: Default

- A. FIN
- B. ACK, FIN
- C. ACK
- D. None

116. As shown in the following screen shot, what destination port is the current TLS connection being associated with?

- A. 42024
- B. 520303
- C. 52017
- D. 52020

118. As shown in the following screen shot, what is the TTL value?

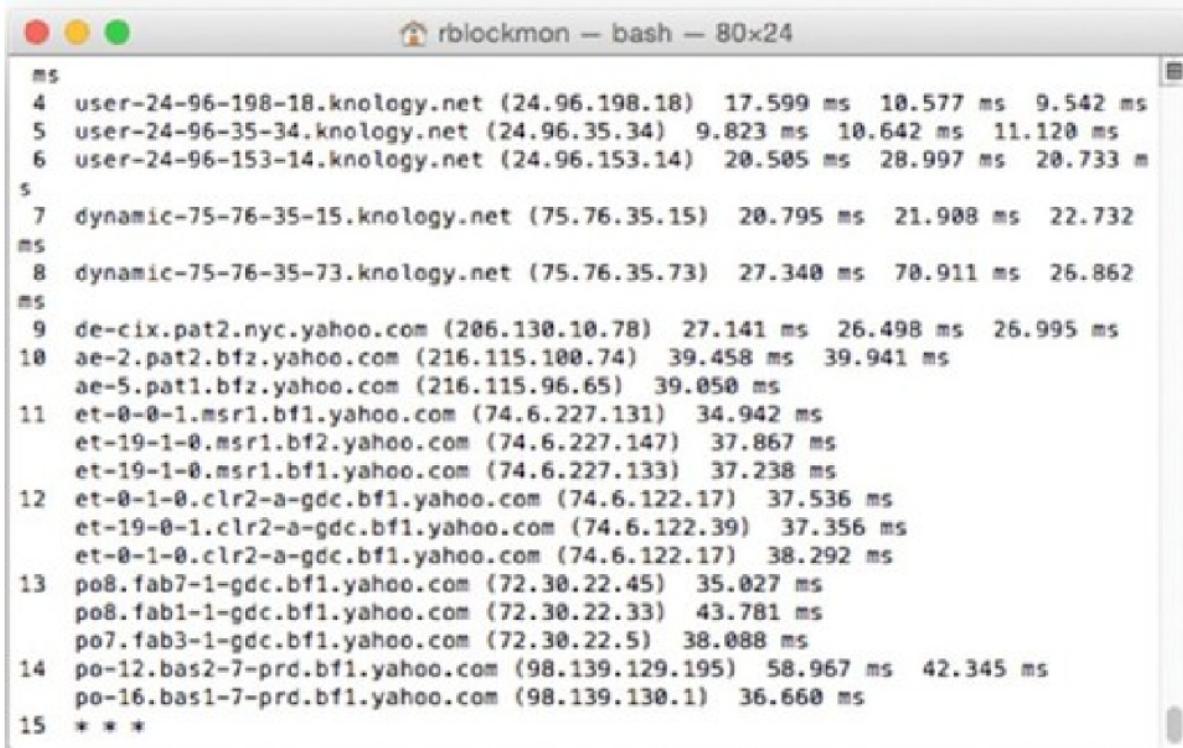


The terminal window shows the output of a ping command to stackoverflow.com. The output includes 13 successful packets sent and received, with a round-trip time ranging from 20.604 ms to 110.611 ms. The TTL value for all packets is consistently shown as 57.

```
Rays-MBP:~ rblockmon$ ping stackoverflow.com
PING stackoverflow.com (104.16.34.249): 56 data bytes
64 bytes from 104.16.34.249: icmp_seq=0 ttl=57 time=110.611 ms
64 bytes from 104.16.34.249: icmp_seq=1 ttl=57 time=23.498 ms
64 bytes from 104.16.34.249: icmp_seq=2 ttl=57 time=23.692 ms
64 bytes from 104.16.34.249: icmp_seq=3 ttl=57 time=23.303 ms
64 bytes from 104.16.34.249: icmp_seq=4 ttl=57 time=22.656 ms
64 bytes from 104.16.34.249: icmp_seq=5 ttl=57 time=24.136 ms
64 bytes from 104.16.34.249: icmp_seq=6 ttl=57 time=20.604 ms
64 bytes from 104.16.34.249: icmp_seq=7 ttl=57 time=23.487 ms
64 bytes from 104.16.34.249: icmp_seq=8 ttl=57 time=23.154 ms
64 bytes from 104.16.34.249: icmp_seq=9 ttl=57 time=23.145 ms
64 bytes from 104.16.34.249: icmp_seq=10 ttl=57 time=23.125 ms
64 bytes from 104.16.34.249: icmp_seq=11 ttl=57 time=100.855 ms
64 bytes from 104.16.34.249: icmp_seq=12 ttl=57 time=22.019 ms
^C
--- stackoverflow.com ping statistics ---
13 packets transmitted, 13 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 20.604/35.714/110.611/29.929 ms
Rays-MBP:~ rblockmon$
```

- A. 128
- B. 58
- C. 64
- D. 57

119. As shown in the following screen shot, at what hop did the user potentially encounter a firewall?



```
rblockmon - bash - 80x24
ms
4 user-24-96-198-18.knology.net (24.96.198.18) 17.599 ms 18.577 ms 9.542 ms
5 user-24-96-35-34.knology.net (24.96.35.34) 9.823 ms 10.642 ms 11.120 ms
6 user-24-96-153-14.knology.net (24.96.153.14) 20.505 ms 28.997 ms 28.733 ms
s
7 dynamic-75-76-35-15.knology.net (75.76.35.15) 20.795 ms 21.908 ms 22.732 ms
8 dynamic-75-76-35-73.knology.net (75.76.35.73) 27.348 ms 78.911 ms 26.862 ms
ms
9 de-cix.pat2.nyc.yahoo.com (206.130.10.78) 27.141 ms 26.498 ms 26.995 ms
10 ae-2.pat2.bfz.yahoo.com (216.115.100.74) 39.458 ms 39.941 ms
ae-5.pat1.bfz.yahoo.com (216.115.96.65) 39.050 ms
11 et-0-0-1.msr1.bf1.yahoo.com (74.6.227.131) 34.942 ms
et-19-1-0.msr1.bf1.yahoo.com (74.6.227.147) 37.867 ms
et-19-1-0.msr1.bf1.yahoo.com (74.6.227.133) 37.238 ms
12 et-0-1-0.clr2-a-gdc.bf1.yahoo.com (74.6.122.17) 37.536 ms
et-19-0-1.clr2-a-gdc.bf1.yahoo.com (74.6.122.39) 37.356 ms
et-0-1-0.clr2-a-gdc.bf1.yahoo.com (74.6.122.17) 38.292 ms
13 po8.fab7-1-gdc.bf1.yahoo.com (72.30.22.45) 35.027 ms
po8.fab1-1-gdc.bf1.yahoo.com (72.30.22.33) 43.781 ms
po7.fab3-1-gdc.bf1.yahoo.com (72.30.22.5) 38.088 ms
14 po-12.bas2-7-prd.bf1.yahoo.com (98.139.129.195) 58.967 ms 42.345 ms
po-16.bas1-7-prd.bf1.yahoo.com (98.139.130.1) 36.660 ms
15 * * *
```

- A. 10
- B. 14
- C. 15
- D. 19

120. What is the source address being used in the terminal output shown in the following screen shot?

- A. Rokugan5
- B. Rokugan24
- C. I can see you
- D. Allen202

# **Appendix**

## **Answers to Review Questions**

### **Practice Test 1**

- 1.** A. Searching through the local paper is considered passive because it does not directly impact, alert, or establish any type of connection between the victim and the adversary.
- 2.** D. The Rijndael cipher was selected and then named the Advanced Encryption Standard (AES).
- 3.** B. Cain & Abel provides a suite of tools for password cracking and ARP poisoning, for example.
- 4.** D. An IPS can have rules set that can dissect a packet to, for example, inspect the contents in hex or binary format.
- 5.** A. Scanning the target network slowly prevents an IDS from alerting because the traffic may not be considered an anomaly. If the sensor sees a huge amount of traffic being generated, it may cause the sensor to alert; therefore, it is best practice to scan slowly.
- 6.** D. Implementing an annual awareness training with the focus on social engineering will raise awareness in the organization. The training can be conducted by the information assurance section within the IT department.
- 7.** D. The attacker would edit and/or delete log information during the covering tracks phase, which is

the last phase during the attack.

8. C. The attacker is using the Nmap function to conduct a TCP connection scan on the target, which is part of the scanning and enumeration phase.

9. C. Unlike RC5 and RC6, RC4 is the stream block cipher—it is the only symmetric cipher that uses stream.

10. A. Receiving a formal written agreement is critical because it sets the legal limit of what is allowed and not allowed to be conducted. It protects the pentesters from legal action if they stay within the agreed work performance statement.

11. C. Elliptic Curve Cryptography requires less computational resources because it uses shorter keys compared with other asymmetric methods. It is often used in lower-power devices for this reason.

12. B. The SYN scan is used to detect open ports but does not complete the full three-way handshake. It is considered a “half open” connection.

13. D. The ARP request does not authenticate with the requested host; therefore, it is possible that the attacker can spoof the address of the victim with its own MAC address.

14. D. The most likely course of action is to restrict access to sensitive information. By doing so, you allow business services to continue while protecting user private data until a remediation can be performed.

15. B. If the attacker is successfully conducting a man-in-the-middle attack, he is currently maintaining access to the victim’s network traffic.

16. A. Using SQL queries such ' or 1=1 is a method called fuzzing. This technique is used to test for SQL injection vulnerabilities.

17. B. The default TTL value for most Microsoft operating systems is 128.

18. D. Using the 1=1 value in the URL will test for SQL vulnerability that would allow the attacker to assume that the web application can implement arbitrary commands.

19. B. Using SSH is great for security, but in order to learn from what the adversary is doing is no longer feasible because of the encryption that is taking place.

20. D. The Ping of Death first appeared in 1996 because applications misinterpreted oversized packets.

21. A. The Melisa virus occurred on March 26, 1999, and quickly infected over 100,000 computers in a three-day span. The virus exploited the fact that macros were enabled by default within the Microsoft Office suite. Using the macro feature, the Melissa virus populated with ease when the victims opened their documents. The macro then executed and emailed contacts found within Microsoft Outlook, causing widespread infections.

22. A. If there is question whether a Windows PC has been compromised, a sure way to see what processes are being executed can be found within the Processes tab of Task Manager. Programs such as iexplore.exe are legitimate; however, some programs such as !explore.exe and explore.exe attempt to look legitimate to avoid detection.

23. D. In this scenario, you would choose the directional

antenna because it focuses the radio transmission as a point-to-point link, unlike the omni antenna, which has 360-degree coverage. It also reduces the probability of an adversary conducting a war diving attack.

24. C. A checksum is a small size datum that is computed against the message itself and creates its own fingerprint. It is a means of detecting any changes in the message itself for integrity purposes. If the two checksums do not match, the message has been compromised. A checksum serves as a validation that no errors occurred.

25. A. RSA uses 1,024- and 2,048-bit key strengths as asymmetric encryption algorithms.

26. B. Digital Signature Authority (DSA) provides only nonrepudiation for emails. It does not provide confidentiality, integrity, or even authentication.

27. A. When a race condition occurs, either process may occur. If the timing is right, arbitrary commands may be executed with the current user level privileges until the next process begins.

28. B. If you are able to ping and even visit an external website using its IP address and not its fully qualified domain name (FQDN), it is more probable that the DNS sever is having issues. Check with the DNS server for functionality.

29. D. The administrator plugged in the intrusion prevention system (IPS) and applied too few rules. The administrator did not establish a baseline, which would have tailored the alerts to an appropriate level based on the LAN activity during certain hours of the day.

30. A. In a client-side attack, mobile code or some arbitrary command is sent from a server to a client for execution. Typically, you will see this carried out by the use of cross-site scripting (XSS). In this case, malicious code is transferred to a vulnerable web browser that is running on the client.

31. C. When black box testing is performed, only the penetration testing team and a few selected individuals know about it. The penetration test team does not know anything because this simulates a real-world threat against the company's network and incident response posture.

32. D. Although casing the target sounds right, the correct term for this activity is *reconnaissance*. In this phase, the attacker tries to gather all the facts they can about their target and answer any assumptions they may have through this activity.

33. A. Within the Ncat program, an adversary is able to conduct a sweeping array of scanning functions against a target system or range of hosts. It is more accurate than using Nmap or Netcat because Ncat can fingerprint the operating system and other special and unique features. Ncat is installed with most versions of the Linux distributions.

34. D. Using an open TCP connection scan, the attacker is trying to see what ports are open for connection. Because it is an open connection, the adversary does not attempt to resolve the three-way TCP connection. If the attacker chooses to do a full TCP connect, their address may be logged and can be traced.

35. B. Tapping a fiber line is very complicated. Unlike

tapping into Ethernet, tapping into a fiber line could potentially drop network user traffic or even bring down the entire connection if too much light escapes the glass or plastic core.

**36.** B. Whenever you infiltrate a system, you would always want to cover your tracks by either editing or deleting your logs. This is important so the security administrators and investigators cannot trace your accounts, your location, and the methods you used to exploit the system.

**37.** A. If the adversary can capture the symmetric key used in Kerberos for an account, the adversary will have a wide arrange of access to network resources.

**38.** D. Passwords are located in the Security Account Manager (SAM) file, which is located in C:\Windows\system32\config. You may be able to retrieve the passwords from the C:\Windows\repair folder as well, even though this folder may not be available.

**39.** B. During an XMAS scan, the adversary would receive an RST/ACK response from the port if it is closed because the scan sends the FIN, URG, and the PSH flags.

**40.** D. By encoding the payload, the adversary is trying to avoid IDS/IPS detection because it changes the signature of the original payload to a different format.

**41.** D. The longer the password, the more it uses the advantage of the key space for encryption. Short complex passwords can be cracked within a reasonable amount of time. A password that is simple but longer will be exponentially harder to crack.

42. D. The adversary replaces the legitimate IP address for the domain name with the malicious IP address. The victim will not be aware of the switch because the domain name is being used and not the IP address.

43. C. With Cain & Abel, the adversary can forge certificates; however, the application lacks the ability to make the certificates look authentic. The user will be prompted, indicating that the certificate is not trusted.

44. D. The RC4 algorithm is used in WEP. Although RC4 is for the most part secure, the initialize vector is fairly short and therefore easily predictable. Cracking WEP will take a mere shared key.

45. B. The stranger is wardriving. Wardriving is the act of traveling with a high-powered antenna to pick up and use free or compromising weak Wi-Fi access points.

46. A. In a smurf attack, the adversary spoofs a victim's IP address. The adversary will then ping the broadcast address and all the nodes on the LAN respond back to the spoofed IP address of the victim. The result is a DoS attack on the victim's workstation.

47. D. When all the memory from the target server is drained, the server will not be able to process or store any information. This will eventually cause the server to freeze or crash, or it will possibly corrupt data. The end result is that none of the users will be able to use its resources.

48. A. If you look in the SAM file, after the username, the next value will be numerical. If it is a 500, this indicates that it is an administrator account.

49. D. The American Registry for Internet Numbers

58. A. In a buffer overflow, data is written over its predetermined space in main memory. This could cause several different outcomes, including data corruption, system crashing, freezing, and other untold consequences.

59. A. A proxy server is a middleman between the private internal network and the untrusted network. By initiating the connection, it can provide core protections associated with web exploitations.

60. C. A honeypot is a server that is made to look like a legitimate target; however, it is configured to be vulnerable to an adversary's attack. The purpose is to learn about the adversary's methodologies of attack.

61. C. In Linux, the `lastlog` file is located in the `/var/log/` directory. This file contains the last user that was logged in, with all of their activity recorded.

62. A. The Secure Shell (SSH) application utilizes port 22 to establish a connection by default.

63. C. When you are conducting gray box testing, you have partial knowledge of the systems in play.

64. A. When conducting the firewalking technique, the user will adjust the TTL value passed 1 hop of the firewall. This will determine what ports are open on the firewall but will drop the packet when it hits the router.

65. D. Nmap is a tool that can be used to conduct scanning and other enumeration functions. It is capable of determining what ports and services are functional and, to a certain degree, what operating systems are installed on the host.

66. B. There are no port numbers associated with IP

because it is a connectionless protocol.

67. C. Both IP and UDP are connectionless protocols. They do not form a connection-oriented bond between two ends.

68. A. A white hat is a pentester who works under a formal written agreement or a contract that legally sets the boundaries of what is to be tested and/or audited.

69. B. Patch management is actively testing patches in a testing environment and then deploying them into production. It also includes a fallback or rollback plan that is associated with patch management in case there were side effects that were not identified during the testing phase.

70. B. FTP occurs at the Application level along with Telnet and other application services.

71. A. The heart bleed attack leveraged a buffer overflow exploitation in order to push the service into replying with more payload data than designed. This results in data leakage.

72. A. Using the -sX switch causes Nmap to send packets with the FIN, PSH, and URG flags set.

73. C. Nmap uses a database of known characteristics that best matches the target to determine the operating system.

74. C. Cross-site scripting is an attack in which website visitors are infected through the web applications used on the target server. Most of the vulnerabilities are possible due to web browsers not being updated.

75. C. DNS, or Domain Name System, is an IP-to-name

days to identify stale accounts.

86. D. An individual who is dumpster diving is looking through the trash container hoping to score important information. The adversary is counting on people throwing away vital information such as trade secrets without proper disposal handling. This act can become potentially difficult to manage because it can be completely legal to do so, depending on the circumstances.

87. B. Port 80 and 8080 are ports that are commonly used to connect to a web server. Although you can change this default port value, you face a very high risk of not having anyone connect unless it was designed that way for security purposes.

88. B. Although cloud computing is very versatile, it lacks the encompassing security posture one would think it may have. Because of the fact that you are depending on the commercial provider to enforce strict security practices and policies, you may actually never know what they are. One thing to keep in mind is that by using a free cloud solution, the contract that you agree to may very well provide cover for the provider from being sued by its customers for data loss, theft and damages, and other cyber incidents. Compared to a LAN solution, the administrators have proper oversight and management. Administrators can strictly enforce proper security measures, provide incident response at a moment's notice, and notify the population of events in a timely manner.

89. D. An IP address combined with a port number is called a socket. Both are used to form a connection regardless of whether it's connection oriented or not.

authentication. This means you are using two or more factors, such as “something you have,” “something you know,” and “something you are.”

96. A. MD5 is a hashing algorithm. It has no key associated with it, and therefore, it can be used by anyone. The purpose of hashing data is to provide a way to verify integrity, not origin.

97. D. Security Onion is a Linux distribution based on Ubuntu. It uses an array of sensors and applications that can be customized to monitor and defend the network environment.

98. A. Kali Linux (formerly known as BackTrack) is an operating system that is widely used by hackers and pentesters alike. It hosts a suite of tools aimed at scanning, target enumeration, and exploiting vulnerabilities.

99. B. Antivirus software must be loaded with the latest virus definitions. Virus definitions are considered the DNA, or “signature,” of known viruses. Without an updated virus signature in its database, the antivirus software does not know what new viruses are out in the wild.

100. D. Suricata is an IPS/IDS solution that you can use to defend your network. It comes preloaded with Security Onion and gives you the ability to operate an IPS/IDS appliance.

101. B. The total UDP packet size is 65,535. You must subtract 8 bytes from the UDP header and 8 bytes from the 28 byte IP header. The total UDP packet size is 65,535 bytes, so you subtract 28 bytes from the total size. This should give you a value of 65,507 for the total UDP

108. A. A botnet is a collection of zombie computers that are used in concert to conduct a distributed denial of service (DDoS) on a target system.

109. A. Physical controls are measures put in place to physically prevent someone from gaining access and entrance to a resource or a location.

110. D. The X.509 standard describes what and how certificates are created. It includes the version of the certificate, serial number, who issued it, and the type of signature algorithm used.

111. C. Steganography does not use encryption; however, it conceals or hides information within a picture or in an audio file.

112. A. In most cases, a honeypot will be classified as enticement because of the nature by which it is being employed. For this reason, administrators usually employ honeypots to lure in attackers and learn their hacking methodologies. The administrator will then create defensive measures in response to their newfound knowledge.

113. A. A wireless access point using an 802.11a standard will have an operating speed of 54 megabits per second (Mbps).

114. B. The body that issues the Certified Ethical Hacker certification is the EC-Council.

115. D. DHCP uses the UDP protocol because it is a connectionless service.

116. A. The Internet Assigned Numbers Authority (IANA) is the authority from which domains receive their identification. In this case, it is noted as the IANA

Resgistrar ID 292.

117. D. The process identification (PID) number is located on the far left-hand column. In this case, Terminal has a PID of 1186.

118. B. In a distributed denial of service (DDoS) attack, the victim is bombarded with attacks from multiple bots.

119. D. The missing label in the middle arrow is the SYN/ACK, which is part of the three-way handshake. Without the SYN/ACK, a TCP connection cannot be established.

120. B. Under PID 0, the kernel\_task is taking up 386 megabytes of memory from the system. This information is found under the MEM column.

121. A. The adversary who can successfully intercept and read traffic is conducting a man-in-the-middle attack. The purpose is to gain intelligence as long as possible without alerting the victim or IDS/IPS appliances.

122. B. The SYN stealth scanned 100 common ports, which is the most out of this particular Nmap scan.

123. A. The user's password file was hashed with SHA-512 and was salted. Using the salt function adds a pseudorandom value to the hashing algorithm that further secures and provides randomization to the output. This method adds another layer of security to prevent the hash from being brute-forced.

124. D. The owner has read and write privileges; group has read privileges; "others" have read privileges as well.

125. A. The TTL value is set at 64, which is normal for a Linux/Unix operating system. In the Ethernet frame, it

shows the source as Apple\_21:1d:oe, which now narrows our fingerprint to an OS X operating system.

## Practice Test 2

1. C. An administrative control usually consists of policies or directives that give the organization a general format to comply with. For example, a security policy may state that the only means to log in to a workstation is through a common access card. An administrative control is also known as a soft control.
2. A. Using a /27, network administrators can successfully plan for 8 different networks. The octet value of a /27 is 32. If you count the bits in the Class C range (/25 is 128, /26 is 64, and /27 is 32), the total will be 224. Subtract 224 from 256 (the entire Class C octet value), which results in a value of 32. If you divide 256 by 32, you will receive 8, which is the number of subnets you can use, and 32 is the number of available addresses you can use per network.
3. B. Telnet uses a default port number of 23 for connection and communication.
4. A. When converting to binary, remember that we use only 0 to 9 and A to E in terms of hexadecimal value. Anything outside of that range is invalid.
5. A. Digital Signature Authority, or DSA, is an algorithm that is used to provide digital signatures on files and email to provide nonrepudiation and authenticity. It does not provide confidentiality or integrity.
6. C. The American Registry for Internet Numbers

(ARIN) is the organization that tracks and records all matters that deal with Internet matters for North America and surrounding territories. It tracks IPv4, IPv6, and autonomous system numbers as well.

7. D. Address Resolution Protocol, or ARP, is utilized at the Network layer because querying computers for their IP address is directly related to the Network layer in the OSI model.

8. B. A fence standing 8 feet tall with razor wire is considered a preventative measure because the goal is to prevent the adversary from entering the premises. It is not considered a deterrent because deterrents do not keep a persistent adversary out.

9. D. The IEEE 802.11i standard does not define a Wi-Fi spectrum; it amends to the 802.11 standard to include and implement Wi-Fi Protected Access II (also known as WPA2).

10. A. In Linux, the read and execute permission value is 6 because of the number of bits set on the file record. If we wanted to give permission only to read, the value would be set to 1; for only write, the value would be 4; if we wanted to give read, write, and execute permissions, the value would be 7 because it's the sum of 4, 2, and 1.

11. A. DHCP follows this simple process: the client *discovers* a DHCP server, the DHCP server *offers* an IP address to the client, the client *requests* that IP address for usage, and the server *acknowledges* the leasing of the offered IP address to the client. The IP address is then removed from the DHCP leasing pool and is no longer reserved.

12. B. The AES algorithm uses 128-, 192-, and 256-bit

key space for encryption.

13. C. A logic bomb is malware that lies dormant until a certain event is cued, such as date, time, keystrokes, or even opening applications in a sequential order.

14. A. The majority of botnets are managed by the Internet Relay Chat (IRC) application, which functions as a chat room. Using this capability, the bot or zombie master is able to send commands and control functions to their bots.

15. B. This policy is called the clean desk policy. It is widely used in industries where it's important to keep confidential and sensitive information secured by cleaning up before the work day ends. It prevents coworkers, cleaning crews, and other bystanders from pilfering and mishandling critical information.

16. D. An intranet provides access to the organization's internal network and network applications.

17. A. A circuit-level gateway operates at the Session layer because that is the OSI layer that sets up, establishes, and terminates sessions.

18. C. With an incremental backup, only files with the archived bit set are backed up. Only the files that have been changed since the last backup are chosen to be archived.

19. C. *Impersonation* is term that is associated with masquerading. It is not considered identity theft because it doesn't involve personally identifiable information (PII) such as Social Security numbers and birthdates. The attacker merely uses a means of communication such as a phone call to fool the victim into believing that

they are who they say they are.

20. B. A rootkit is malware that embeds itself at the kernel level. It is extremely difficult to discover and remediate because of the inherent security measures that are present at the beginning in the kernel.

21. D. The Trusted Platform Module (TPM) is a chip that is soldered onto the motherboard with preprogrammed cryptographic keys. It allows the hard drive that is bonded to the motherboard to be accessible. If the hard drive is removed, it will not be accessible by any other means.

22. A. A dictionary attack is the fastest method because the adversary has a file loaded with the most commonly used passwords. Because this file is finite in nature, this type of attack does not always work. For a guaranteed way of cracking an account, the adversary may resort to the brute force method, but this can take much longer than other methods, and in most cases, it's not even feasible.

23. C. The user identifier, or UID, is the designator that uniquely identifies each user on the workstation.

24. D. Using Nmap, the –sU switch command allows for the administrator to scan for UDP connections on a target workstation. If you receive an ICMP message of “port unreachable,” it means that the port is closed.

25. B. A top-level parent is usually represented as .org, .com, .net, .gov, and .edu. Countries also have their own parent domains, such as .ru for Russia and .kr for South Korea.

26. C. When Telnet is being used, traffic is sent in the

clear, which is not beneficial because information can be compromised. This is, however, beneficial to the security administrator because they can see exactly what methods and activities the adversary is using in Telnet. When SSH came on board, it removed the capability of eavesdropping on the connections the adversary was using, and thus the security administrator lost situational awareness because the traffic was encrypted.

27. D. All though a DoS or DDoS is the actual result of the attack, the reason is that the adversary is conducting a SYN flood attack.

28. A. “Network Unknown” falls under the ICMP Type 3 (Destination Unreachable), Code 6 category.

29. B. Frequency-hopping spread spectrum is a process in which the receiver frequently hops around the frequency spectrum to avoid jamming, creating interference, and eavesdropping. The client needs to be on the same timing source as the broadcaster or the client will not be able to match the intervals in which the frequency changes.

30. C. The chances of the adversary conducting similar probing techniques on your servers from different locations is an indication that the adversary is using a web proxy service. The adversary is trying to mask their actual IP address in order to escape possible prosecution and other legal actions.

31. C. Whois.net is a free service that you can use to capture critical information for part of your footprinting when targeting a victim.

32. A. RFC 18 covers non-routable IP addresses which are the private IP addresses. Private IP addresses are

128-bit key, which is based on the AES algorithm.

40. D. In a fraggle attack, the adversary forges the source address, which is the web server. The adversary will then ping the broadcast address, which causes all of the clients in that subnet to respond back to the web server. This in turn causes a DDoS, but it is not the culprit. The actual attack was caused by the adversary through packet crafting and forging the source IP address of the web server.

41. A. The final event in establishing the TCP three-way handshake is ACK.

42. A. A token is a Type 1 authentication factor, which is “something you have.”

43. B. Pharming is an attack in which you direct users to a website that looks legitimate. The goal is to trick the users into entering their credentials so that you can use them at a later date. One tool that is designed to do this is Metasploit’s Social Engineering framework.

44. A. If you reuse a protocol analyzer and craft a packet for an XMAS scan using URG, PSH, and FIN, you will see in the TCP header the binary format of 00101001 being set.

45. A. Soft controls usually consist of policies, procedures, guidelines, or regulations that put in or recommend control measures for effective governance.

46. D. When a backdoor is installed, it allows the adversary to conduct remote call procedures such as a reverse terminal session or remote desktop procedures. The adversary can then conduct arbitrary operations as if they are logged in locally.

**47.** C. Biometrics is the method of collecting and using human characteristics such as fingerprints, facial recognition, and speech pattern in order to provide authentication for system access.

**48.** C. RC4 is a stream symmetric cryptography stream. It is the only stream cipher in the symmetric category. RC5 and RC6 are block cipher encryption algorithms.

**49.** A. Digital Signature Authority, or DSA, uses symmetric encryption to provide nonrepudiation. The recipient would use their key to decrypt the hash. Then the recipient would hash the value and compare it to the sender's hash. If the hash values match, the recipient knows that the message is authentic and came from the sender.

**50.** B. The inherent flaw in WEP is the IV, because it is only 24 bits long and transmitted in clear text. Using a tool call Aircrack, you can successfully exploit the vulnerability in WEP's poor IV design; you can crack WEP within 2 minutes.

**51.** D. Enumeration is the act of actively engaging the target system and gathering information.

**52.** A. Using nmap, the switch `-sP` is a ping sweep command and `-O` is the command to fingerprint the operating system.

**53.** C. POP3 is reserved for port 110. POP3 is a client/server protocol used to push email to clients.

**54.** D. Dig is the command used to query information about a server using its domain name.

**55.** B. For DNS queries, geektools.com is a sufficient resource to gain intelligence about your intended target.

Whois ([www.whois.net](http://www.whois.net)) is another popular site for DNS queries.

56. A. Telnet is an application you can use to conduct banner grabbing. If Telnet is operational on the target system, even though port 23 may be closed, it is possible to learn what type of server is being used to host by using port 80 if you are probing a web server.
57. C. Giving the owner a list of vulnerabilities is the correct answer because patched systems, disabled accounts, and revoked certificates are objects that are already accounted for.
58. C. IEEE 802.1x is the protocol for port-base network access that requires authentication.
59. B. Bonk uses UDP crafted packets to conduct a DoS on a Windows system. The UDP packets are oversized and when reconstructed can cause a crash on the target server.
60. A. A worm is an application that does not need a host or other resources from the computer to carry out its payload. It is a self-contained application, and it only needs to be introduced to the computer once to exploit the vulnerabilities found.
61. B. Adware is an application that continuously generates advertisement windows as pop-ups on the client. Most anti-spyware and antivirus products provide remedies to these threats.
62. D. Security posture is the level at which an organization can withstand a cyberattack. Some have a very low security posture, meaning that if they were to come under attack, most likely it will be detrimental. If

used to service multiple private IP clients, the clients are given a random port number that is 1024 or greater if they are waiting for a response from the Internet.

70. D. Host IDS and network IDS are the only two types of IDSs. They are used to alert administrators about possible intrusions. They do not, however, prevent them.

71. A. First you must calculate the single loss expectancy (SLE), which is \$10,000,000 (asset value) divided by 50% (exposure factor), which equals \$5,000,000. Then you multiply your SLE (\$5,000,000) by 10% (annual rate of occurrence), which gives you an ALE of \$500,000.

72. B. Health Insurance Portability and Accountability Act (HIPAA) is a federal regulation that mandates that all medical PII must be secured using encryption and other controls during transit and at rest. Failure to comply with the regulation can mean drastic consequences, such as jail time and heavy fines being imposed.

73. A. Time is one advantage the adversary will always have. They are on the offensive, and the more time they take to understand and develop their method of attack against the system, the more they increase their probability of success.

74. B. IEEE 802.1x is most associated with client authentication in wireless networks; however, it can also be used in an 802.3 environment.

75. D. Using `DROP` in the SQL query causes the database to completely erase the corresponding table. In this case, the adversary who uses `DROP TABLE Clients` tells the SQL database to delete the table called `Clients`.

option is to open the file's properties and toggle the Hidden check box as well.

107. A. The MAC address has six allocations for the address and a range from 0 to 9 and A to F.

108. D. A packet layer firewall operates at the Network layer of the OSI model. It determines who is permitted or denied entry or exit based upon the IP address.

109. A. A honeynet is a network that is designed to look like a legitimate network with security misconfigurations made. It is designed to entice and allow the adversary to explore the network and covertly capture their methods and trade-craft used and further enhance their security posture.

110. B. Anti-malware software is a great tool; however, if a system is infected with a zero day exploit or virus, the anti-malware will not be able to defend against it because it does not recognize the malware signature.

111. A. Data encryption algorithm (DEA) is the actual name of the algorithm. The encryption used, though, is the Data encryption standard.

112. A. Heart Bleed is a reverse buffer overflow in which the target server is exploited by having its memory contents delivered to the adversary. This exploit can be used to discover passwords and other critical information that should not be delivered to the adversary.

113. B. Ransomware is a type of malware that encrypts the target system. It then asks the victim to send money to receive the key to unlock their system.

114. D. IEEE 802.11n uses both 2.4 and 5 GHz frequency

and produces a rated speed of 100 Mbps.

115. A. Public key infrastructure (PKI) uses certificate authorities (CAs) and registration authorities (RAs) to validate, sign, and issue certificates to users in their domain.

116. B. Under the Ethernet (layer 2 header), the sender is broadcasting an ARP request.

117. B. Under the EN1, the IP address is given as 192.168.1.118 and it has a broadcast address of 192.168.1.255.

118. D. When you are observing the file source on a web page, the meta charset will show what encoding type is being used. In this case, it is using the UTF-8 encode method.

119. A. In the SSL header, the TLS version is determined to be 1.2 after the security association was reestablished.

120. C. Entering certain characters such as an ' or 1=1 can provide clues about whether a website is vulnerable to SQL injection. In this case, we received an error from the SQL database, which means it is vulnerable to SQL injection.

121. B. The adversary in this case is trying to redirect their position from the web server to the actual file system itself. Using the cmd.exe application, they are trying to gain access to the Windows terminal for arbitrary command execution.

122. A. In the Domain Name System section, you can determine that [www.google.com](http://www.google.com) is being used as a DNS resolution for this scenario.

123. C. The /etc/passwd file does not show the passwords for the accounts on the system. Passwords are stored in the /etc/shadow file in hash format.

124. A. The traffic of the data is annotated by the ->, which is the direction in which the file is being downloaded. The socket address is 172.16.1.100:49190.

125. B. The user ray is a valid user account. You can determine the user in in the /etc/shadow if there is hash value associated with the subject's account. In this case, our hash begins with \$6\$xHEKhMr2.

## Practice Test 3

1. D. The Simple Network Management Protocol is a protocol that is used with network appliances and nodes. You can gather statistical, performance, and status updates from your devices with this protocol.

2. B. An extranet is a subnet that functions like a DMZ, but it allows two businesses that depend on one another to share resources.

3. D. A Class C subnet has 256 bits. Subtracting 192 bits from 256 bits results in 64 hosts per subnet. Dividing 256 by 64 provides 4 usable networks.

4. B. The file location is /etc/shadow, and it contains a list of passwords that are hashed. In most cases, this file is hidden if you are not in the root account.

5. D. When you enter the command su root, you are prompted with the root password. If it's entered correctly, you can switch from your profile to the root account and have administrator-level privileges on the

operating system.

6. B. TLS uses RSA 1024 or the 2048-bit key strength. In most web browsers, you are able to view this information in the Security tab in the preferences panel.

7. A. A baseline must be set in order for an anomaly detection system to run optimally. If not, the IDS will not be able to monitor network traffic accurately and may alert due to false positives.

8. D. The MX, or Mail Exchange, is the record that is used in a DNS server to identify the actual mail server.

9. C. The CPU cache contains the least amount of memory, and it is only used for instructions that are mostly used by the CPU. Most CPU caches hold anywhere from 512 KB of memory to 2 MB or more.

10. A. Not utilizing employee rotation and enforcing mandatory vacations can cause significant threat issues such as fraud, waste, and abuse.

11. A. The zero-day was successful due to the web server being compromised. The first order of action would be to remediate any vulnerabilities and ensure that these systems are no longer infected or compromised.

12. A. HKEY\_LOCAL\_MACHINE\SAM is the Registry entry where the SAM and SAM.log parameters can be found.

13. C. When scanning for SNMP using Metasploit, the command is `use auxiliary/scanner/snmp/<device name>`. Once that is set, you will set your listening and receiving host information and then execute the scan by entering `run` into the command line.

value that is pertinent to its function. If you don't initialize the variable, data residue may still be present and when it comes time to execute a set of instructions, the data output may not be accurate.

21. D. Heaps are used during the execution of a program. Because a program can have dynamic processes, heaps are used to allocate the amount of memory for it.

22. B. Programs that are initially executed have a segment in memory allocated called a stack. A stack has a fixed allocation of memory when it is created.

23. A. In order for the adversary to get passed segment violations, they would have to use NOP sleds to move the pointer past a point where their instructions can be executed.

24. C. Whenever the adversary is trying to knock a system offline by any means, it is generally called a denial of service; however, the method that they use can vary in many different ways.

25. A. Session hijacking is associated with TCP/IP because of the three-way handshake. Because of this, if the adversary is able to correctly guess the session value, it is very possible to interject themselves in between and then take over as one of the users. UDP does not have a three-way handshake, and IP is a connectionless protocol by itself.

26. A. The adversary must first track the session before making a successful attempt at hijacking it.

27. A. ISO 27002 (formerly 17799) is the standard that lays out guidelines for information system security

record in a table. Depending on the situation, the adversary can add, create, or even change an administrator's password in a SQL database.

37. C. The Others group allows a user to assign those who do not fall in the Group category access to an object.

38. B. John the Ripper is a program that allows an individual to crack an account. It is lightweight and can be found on Kali Linux.

39. B. The Internet segment is the third layer in the TCP/IP model which is equivalent to the Network layer in the OSI model.

40. B. The FIN flag set informs the distant end to terminate its connection with the sender. No action will be taken after it is set.

41. A. Angry IP is an application that provides an array of tools for ping sweeping. Depending on the configuration, there is a good chance an IPS/IDS appliance illuminating your presence conducting ping sweeps will be detected.

42. A. Cain & Abel is an application that provides an array of tools to the user, such as tools for password cracking, ARP spoofing, and conducting man-in-the-middle attacks.

43. B. Red teams traditionally provide the penetration testing function for a customer or an organization.

44. B. Identity theft is the process in which the adversary impersonates the victim in order to gain some type of access to the victim's financial resources or other critical resources.

compromising their account or system.

54. D. Vulnerability means that something lacks a defensive mechanism or a countermeasure.

55. C. An ATM card is part of a Type 1 authentication factor because it's something you have, and a Type 2 because it can only be used with your knowledge of the PIN.

56. B. When an account may have been compromised, it is recommended to disable and change the password in order to prevent the reuse of credentials.

57. D. Firewalls are configured out of the box with an implicit deny all policy. The security administrator will configure the rules to have the firewall implement after the fact.

58. B. SID2User is an application that can query the SID that is located in the SAM file if the username is provided. It was developed by Evgenii Rudny.

59. A. Port 53 is used to conduct DNS resolutions and zone transfers.

60. A. An adversary who continuously dials random numbers to connect to a modem is trying to gain unauthorized access. Modems are often forgotten about and therefore are more than likely not secured.

61. C. UDP does not use the RST flag that is reserved for the TCP protocol.

62. D. Traceroute is a useful tool because it will tell the administrator what path the packets are taking and possibly inform the administrator of firewalls within its path.

63. A. TTL is a protocol that prevents packets from flooding the Internet. A value such as 64 is assigned, and every time the packet reaches a router, the value decrements by 1. When it reaches zero, the router will drop the packet.

64. B. NS delegates DNS zones that work with authoritative name servers.

65. B. The -sI switch allows the user to conduct an idle scan. It is used to gather the IP address of the target system by crafting special packets that are bounced off a zombie machine.

66. C. Gap analysis compares the potential performance to an actual performance. This allows management to decide whether or not to allocate more resources, pull back, or look again at the entire planning and implementation process.

67. D. Hot sites provide an organization with all the necessary equipment to be used in the event of a disaster. It is a turnkey solution that requires only the personnel to resume company operations.

68. D. Broadcast domains are separated by using routers, and that most likely entails using its own interfaces and its corresponding network segment as well.

69. C. A private key is known to one person and only one person. It is used in the asymmetric encryption algorithms.

70. A. The Trusted Platform Module (TPM) is specially designed hardware that binds by using encryption. If another hard drive is swapped, the motherboard will not

Downgraded Legacy Encryption, exploits the SSL 3.0 requests. After the last request, the attacker will be able to retrieve 1 byte of data that is between the client and server.

79. B. Tor is a network comprising volunteered private routers that build a network based on confidentiality and is free to use. Tor was developed in the mid-1990s by the United States Naval Research Laboratory.

80. C. A ticket-granting service provides access to a subject for a certain resource or object.

81. A. A signature-base IDS must have an up-to-date signature list to accurately alert and defend against attacks.

82. C. A backoff timer is used to allow other nodes to complete their transmission. The backoff timer is a pseudorandom value that counts down and then tries to transmit again.

83. D. Bodo Moller, Thai Duong, and Krysztof Kotowicz published the vulnerability to the public domain on October 14, 2014.

84. B. Heartbleed was issued as CVE-2014-0160 and was reported on April 1, 2014.

85. C. An executive summary is a high-level view of the overall penetration testing results. It is geared toward senior officials and managers.

86. D. Separation of duties is the principle that requires two or more people to perform a task. These tasks are usually tied to a sensitive action such as making a large deposit in a bank or even launching nuclear weapons from a submarine. It prevents one person or entity from

105. C. Qualitative risk analysis evaluates risks that are tied to your intangible assets. For example, not setting up an encryption program for your organization to use threatens the security of your customers' PII and can tarnish your company's reputation.

106. A. IEEE 802.11b provides a speed of 11 Mbps and operates using the 2.4 GHz frequency.

107. B. The Internet Security Association and Key Management Protocol (ISAKMP) is responsible for negotiating and conducting the key agreement.

108. D. ICMP Type 11 provides the source with a "Time Exceeded" message. Time exceeded is more prevalent if satellite communications are involved and an IP booster is not in use.

109. D. The Lightweight Extensible Authentication Protocol (LEAP) is a Cisco proprietary protocol and can be used in place of TKIP.

110. A. NBT (NetBIOS over TCP/IP) uses UDP 137; NetBIOS session uses TCP 139; NetBIOS datagram uses UDP 138.

111. B. ASLEAP is a vulnerability that takes advantage of the weak password architecture in the LEAP protocol. If there is a requirement to use LEAP, ensure that you implement a very strong and complex password policy.

112. A. The WAP will send out a beacon frame advertising its SSID to wireless devices.

113. C. Implementing user and security awareness training is a cost-effective solution. Not only does it raise awareness in the organization, it is also free to implement.

114. A. Stateful firewall keeps track of all communications and inspects the packets. If a packet is somehow injected into the stream, the firewall will know and will drop it. Although this capability does slow down the network, it provides an extra layer of defense.

115. B. In this scenario, you are conducting gray box testing. Because you are given a network mask to go off on, you now know how big of a network you are testing. Even though this is your only clue, it is still partial knowledge of the environment that you are now operating in.

116. D. The DMZ is a network segment that both private and public network users can access. The DMZ segment gives public Internet users access to resources but doesn't necessarily allow them in the private network. Web and email servers are most commonly used in this type of configuration.

117. B. In a hybrid-mesh topology, a mesh topology is participating in another topology.

118. A. A dual-home firewall is one that has two network interface cards (NICs). The more NICs you have, the more you can segment networks with. In this case, the firewall is managing two different subnets based on the logical diagram.

119. D. The flags portion is missing. The URG, ACK, PSH, RST, SYN, and FIN flags are used in TCP connections.

120. D. Sequence numbers are incremented each time the source sends a packet to the destination. The acknowledgement value is what the receiver can expect next from the sender. To determine the total sequence

amount, if the ACK is set to 200 (or whatever value it is determined to be at the time) and a window size is set to 170, the client can expect sequence numbers from 200 to 370. To complete the TCP connection, the final flag is set to ACK.

121. C. A rootkit is a set of tools or applications that can have direct administrator and kernel access to a computer. This poses a significant problem because it is very hard to detect because the kernel or root level is the most secured part of the operating system.

122. A. Passive reconnaissance is the process of actively gathering information and intelligence without directly touching or impacting the target or victim. Most information can be gained through public means such as the daily newspaper.

123. A. In a smurf attack, the adversary spoofs a victim's IP address and then pings the broadcast address. All nodes on that network segment will send back an ICMP echo reply, causing a DoS on the victim's system.

124. B. Shoulder surfing is a passive attack. Simply peering over the shoulder of an unsuspecting person is one of the easiest ways to capture credentials. If the adversary is able to steal the card somehow, the adversary will now have access to the account.

125. D. Whenever a client is trying to establish a Secure Sockets Layer connection, the first packet is flagged to "Don't Fragment." This prevents an adversary from injecting their own packets into the middle of a secure data stream.

## Practice Test 4

1. A. RSA uses two prime numbers that are factored together and can create a key size up to 4,096 bits. The RSA algorithm can be used for digital signatures and encryption.
2. B. In asymmetric encryption, two keys known as the public and private key are mathematically related.
3. D. Transport mode provides protection to the payload through encryption. Using tunnel mode provides encryption to protect the message header and the payload.
4. B. Request for Comments (RFC) 1918 defines 10.0.0.0–10.255.255.255, 172.16.0.0–172.31.255.255, and 192.168.0.0–192.168.255.255 as private, non-routable IP addresses.
5. B. An A record maps an IP address to a hostname. It is the most commonly used DNS record type. A user can alter the host file by inputting an IP address followed by a domain name or hostname.
6. D. Because an adversary can create a man-in-the-middle attack using a public router, he can force the user to downgrade to using SSL 3.0. This exploit can work only if the server and the client browser support SSL 3.0.
7. B. URL obfuscation is the process of changing a value so it means the same but is in a different format. For example, instead of using <http://22.56.98.4>, you would convert the IP address to binary, which is 000101100011100001100010000000100. Then to ensure that the value will work properly with the browser, you convert the binary value into decimal format, which is <http://372793860>. This may allow you to bypass firewall restrictions since a binary rule may not be configured for

the firewall.

8. A. Social engineering encompasses all the options. It is the process of tricking and manipulating people into, for example, opening spam email, providing account login information over the phone, and tailgating or piggybacking through a mantrap or turnstile. Training employees on social engineering is a cost-effective solution for preventing such incidents.

9. C. The 802.11g band provides speeds up to 54 Mbps; however, the more clients connected to the access point, the slower the wireless speed becomes.

10. D. RC4 in WEP uses anywhere from 40- to 232-bit keys for encryption. The weakness in WEP is not the encryption itself but rather the initialization vector, which is small. If the adversary can gather enough packets, they can derive the key used for encryption.

11. B. MSConfig provides the user with different applications affiliated with Startup, Services, and Boot. Among other things, MSConfig can inform the user what applications currently in startup may have been remotely or covertly installed.

12. A. Initialization vectors using WEP are sent in the clear and are not protected by encryption because they are part of the header.

13. A. The \* symbol is a value that means *everything*. The statement SELECT \* FROM Vegetables queries a SQL database to “select everything from the vegetables table.” The request being sent to the SQL database will then return all the values listed in the Vegetables table.

14. B. Digital signatures enforce nonrepudiation,

certain way. For example, calling in a bomb threat at a bank and then observing how people react is a way of learning their procedures for such an event. The adversary then understands what to look out for with this type of hoax.

22. A. Having a baseline image allows for security administrators to install the minimum security policies and applications for the workstation. Before it goes into production, the workstation will receive the latest security updates and policies.

23. B. Fuzzing is a technique that puts random input values into a system. The purpose of fuzzing is to determine how a program or an application may respond to certain types of input. This can aid in troubleshooting when applications are developed or penetration testing operations are conducted.

24. D. Remote wipe is the technology the owner would use to delete or wipe personal data and information from a mobile device. In this case, using encryption is not an appropriate response because it is designed to protect data. Remote lock does not protect personal data. Remote backup does not prevent personal data from being improperly disclosed.

25. B. The client has been authenticated once it receives its ticket-granting ticket (TGT) and is then considered an authenticated principal in the Kerberos realm. Although the client received the TGT, that does not necessarily mean they have access to all of the resources.

26. C. By targeting the HVAC units, the black hat has the potential to DoS all the systems in the server room. The heat must be raised to a high enough temperature to

maintenance and assessment of the DRP element. This can include testing the DRP and even training individuals according to the DRP.

41. B. Containment is the most important phase of an incident response procedure. Security administrators should focus on containing malicious activity to prevent data from being corrupted or services from being degraded.

42. C. The original sender receives a SYN/ACK from the receiver signifying the acknowledgment of the SYN packet.

43. A. The Python Advanced Wardialer System, or PAWS, is an application that can be used to war dial ISDN telephones.

44. B. When the RST flag is set, it forces the sender to close their connection as well alerting the receiver on the network to close their connection as well.

45. B. In Snort, any value that has ! in front of it is excluded from the rule. For example, alert tcp !home\_net any - > external\_net any alerts any traffic that is not from the home network that is going out the external network.

46. A. NTSF file steaming allows a user to hide a file behind any other file and makes it invisible in terms of file directory searching.

47. D. In C, gcc is the command to compile the source code, and then it creates the executable file that is used to run the program.

48. D. Dumpster diving is the process of collecting information that an organization carelessly throws away.

emanated through electromagnetic signals. Materials such as concrete and lead can block receivers from picking up electromagnetic signals that carry data.

56. C. A Faraday cage blocks electromagnetic signals from emanating. It is most often used to protect highly classified data from eavesdropping.

57. A. Secure Copy Protocol (SCP) uses TCP port 22 in conjunction with SSH RCP.

58. B. An extranet is a business-to-business solution whereby businesses have access to each other's resources but not to their local area networks.

59. D. In order for an anomaly IPS to function properly, a network baseline must be determined. It is recommended to determine the baseline during peak hours and low-usage hours.

60. B. In a fraggle attack, the adversary crafts a packet and pings the broadcast address. The result is that all the nodes within the subnet will respond to the address the adversary forges, causing a DDoS on the victim's computer.

61. B. Slowloris is a tool that was designed to target Solaris web servers. It starved the server by creating multiple TCP sockets, which in turn would cause a DoS on the server or its services.

62. B. A threat agent is a subject that acts upon a vulnerability and causes an exploit. For example, a home that does not have a lock on its front door is vulnerable to a burglary. The threat agent is the person who carries out the burglary.

63. A. A cyber persona is a person who is either a regular

71. B. The best method for making a backup copy of a system is using a bit-level image. Although a full backup is another alternative, it does not fully create a mirror image of a system.

72. A. Although zero day vulnerabilities are difficult to combat, the best alternative is user awareness training. This can include validating the receipt of emails and matching hash values of software being downloaded from a website.

73. C. Botnets are groups of computers that a bot herder or a zombie master controls. The computers do not necessarily have to be physically located near the master; the master can control the bots via IRC or instant messaging services.

74. D. Snipernet uses port 667. It is a backdoor commonly found on Windows 95 and 98.

75. D. Using a Trojan to install a backdoor gives the black hat the ability to covertly access the computer at any time. This allows the black hat to steal information as the victim continues to utilize the system.

76. A. Cain & Abel allows the user to pull passwords from packets from live network captured packets.

77. A. Heartbleed used the protocol extension called Heartbeat. Heartbeat is used to determine the health of a system on the network by providing a status every so often.

78. B. Disabling the CBC mode cipher is another option for preventing the POODLE exploit. The cipher block chaining mode that is used in the Data Encryption Standard is sufficient to defend against POODLE.

79. A. Guards, fences, lighting, bollards, and even environmental design are forms of physical controls that are used to reduce and prevent an adversary from breaching the grounds of a facility.

80. D. Doom, which is a backdoor Trojan, allows a remote connection to the infected host. It was named after the first-person shooter game called Doom, which was developed by id.

81. D. A hub is a layer 1 device that broadcasts all the data on all of its ports. Once the adversary gains access to a port, they do not have to do anything other than collect the data.

82. C. A proxy firewall acts as a middleman between the client and the destination server. It will terminate the connection on behalf of the client and can also facilitate packet filtration and conduct stateful inspection.

83. A. A lightning strike is considered a natural event. Other types of events that can impact assets include human and environmental.

84. C. The DSA is considered a scheme with an appendix, which means that it must have the original message in order to validate and verify the signature.

85. D. In 1978, Ron Rivest, Adi Shamir, and Leonard Adleman proposed using their version of public key cryptography that was far more efficient and more secure than its competitors. Although there were different public key cryptosystems available during that time, they were not as secure as RSA's public key cryptosystem.

86. A. A land attack causes the victim's system to either

crash or freeze because it does not know how to respond to an invalid TCP segment.

87. C. The sequence number is the third field in the TCP header. It consists of 32 bits and is used to aid the recipient on packet consolidation and sequencing.

88. A. TCP is a segment that provides reliable transportation for IP datagrams.

89. B. In this scenario, the adversary would need to have the token and the PIN in order to digitally sign the email. Using a multifactor approach increases the security posture. The victim in this scenario may have somehow lost their card along with the PIN and may face adverse actions as a result of not reporting their card lost or stolen.

90. A. Kerberos is an authentication, accounting, and authorization (AAA) server that uses tickets to grant access to resources. Although it is widely used, it has a few drawbacks, such as using symmetric cryptography and being susceptible to man-in-the-middle attacks.

91. D. A stack pointer is pointed at the top of the memory stack. Memory uses the concept of last in, first out (LIFO), and instructions are either pushed onto the stack or popped off of the stack.

92. C. The macro feature that is found in Apache OpenOffice and in Microsoft Office can be used to execute malicious commands. The macro feature is now disabled by default.

93. B. A signature matches characteristics of a virus. If a polymorphic virus has compromised a system, it would change its signature, making it extremely difficult to

detect and eradicate each time it is called.

94. A. Physical control is used to restrict physical access to sensitive equipment, a facility, or an area.

95. D. The risk mitigation plan is a formal document. It captures all of the vulnerabilities identified during the assessment with recommended courses of action. It provides information on how to mitigate and reduce vulnerabilities.

96. D. War dialing phone numbers to connect to a modem is a method that is used to gain access to a server. Most servers that still have their modems connected are often overlooked because they are forgotten. These active modems pose a significant threat and should be disabled and unplugged if they are not required for business operations.

97. D. The command `useradd` followed by the username is the proper way to add a user.

98. A. The `find` command will locate a specified file based on the name in the current directory tree given by the user. Because of the intense search effort, it can be slow, but nonetheless, it will almost certainly locate the file.

99. B. X.509 certificates can be retrieved by using the Heartbleed bug. In this case, it is recommended to revoke X.509 certificates if there is a chance that they may have been compromised.

100. A. Risks, threats, and vulnerabilities are the three types of assessment that can be used to analyze the current security posture.

101. D. Flood guarding detects flooding and DoS activity

and, if tuned properly, reacts in order to disrupt the attack on the network.

102. B. Implicit deny is the default security posture that is set for firewalls. The network administrator must configure the firewall to allow appropriate traffic to enter or leave the network.

103. C. SNMP uses port 161 as the agent and port 162 is used for management.

104. B. The Internet Security Association and Key Management Protocol (ISAKMP) is often referred to as the security association manager. It is primarily responsible for managing the agreed method for authentication between two parties.

105. A. WPA2 Enterprise allows for AAA servers such as RADIUS and TACACS to be used.

106. C. With spoofing, the adversary intends to falsify information, such as changing the source address of a datagram to the address of the victim; therefore making it difficult to trace the adversary's IP address.

107. B. Boinks posed a significant threat before Microsoft was able to address the issue. Beforehand, when packet crafters sent an invalid UDP packet destined for DNS services, it caused the Windows system to crash or freeze.

108. C. Using LDAP injection, the adversary can craft statements if the front-end web server will accept LDAP query statements. It is best practice to ensure that the server performs sanitization on input values.

109. A. Hopping from one part of the file system to another is called traversing the directory. This tactic is

signature. This diagram depicts an overview of the RSA digital signature generation.

118. A. During the signature verification process, the message is verified by using the results of the signature that is copied. In this case, the user does not need to have the original message in order to determine the integrity of the message.

119. A. When you're XORing, the values that match, such as 0 and 0 or a 1 and a 1, will XOR to a 0. If the values are mismatched, such as 1 and 0 or 0 and 1, then their XOR value will be a 1.

120. C. A monalphabetic cipher, also known as a replacement cipher, exchanges one character for another to complete the encryption and decryption process.

121. D. The BP, or base pointer, is used to reference the local variables in the memory stack.

122. B. On line 8, the ACK is sent back to 23.253.184.229 and is set to 1. This completes the three-way handshake.

123. A. The flag is 0x02, which is “don’t fragment.”

124. B. TLS uses key agreement, which cannot be derived by plain text. The adversary must conduct a man-in-the-middle attack to retrieve the key.

125. A. The current connection is not vulnerable to Heartbleed because it affects only connections using TLS versions 1.0.1 to 1.0.1f.

## Practice Test 5

1. A. Enumeration is the act of identifying specific

9. B. The time that is returned to the user, based on the hops the packets take, is recorded in milliseconds. It is usually displayed as *ms* in the terminal.

10. C. DES has a key space of 64 bits, but 56 bits is the actual key length it uses; the other 8 bits are for parity use.

11. C. The Rijndael algorithm was selected to replace DES. It was renamed by NIST as the Advanced Encryption Standard (AES).

12. C. The ACK flag is sent to the originator of the connection and signifies the establishment of the TCP three-way handshake.

13. D. A pair of values such as 1 and 0 or 0 and 1 will produce an XOR output of 1.

14. B. The Securely Protect Yourself Against Cyber Trespass Act makes it unlawful for individuals to take over a system and collect PII without permission from the owner.

15. A. Google Dorks is a collection of sites that are found by pentesters, hackers, and script kiddies. It provides a list of sites that may be vulnerable to SQL injection attacks.

16. A. The header fields such as source and destination port numbers along with length and checksum have a field length size of 16 bits.

17. B. The value that declares the second administrator within Windows is identified as a Resource Identifier (RID) with a value of 501. Administrators start with a RID of 500, and the RID is incremented by one for each additional administrator that is created.

18. C. Ping sweeping the subnet will identify what nodes currently reside on the network. Nodes that are off or not within that certain subnet will not respond back with an ICMP echo reply.
19. D. The Domain Name System uses UDP port 53 for querying and zone transfers.
20. A. Cain & Abel is a tool that is developed for Windows. Among other things, such as ARP spoofing, Cain & Abel can be used to crack passwords by using the dictionary method or by brute force.
21. B. The SYN flag initiates the half-open connection. By sending more SYN packets and not responding to the SYN/ACK packets, it is possible to starve the target of its resources, which will cause it to freeze or crash.
22. D. Dig is a tool that is found in Linux systems. It can be used to query information about a server that is hosting DNS services.
23. B. When you use the alert rule type, the administrator will be notified only if Snort matches the rule to the network traffic.
24. D. When you use `-sT`, Nmap will conduct a full TCP connect scan on a host or even a subnet, if required.
25. C. A firewall is a logical control and is often known as a technical control.
26. B. The `/` indicates that the current user is located in the root directory when they operating in a Linux environment.
27. A. Impersonation is the act of claiming or pretending to be another valid user. The adversary will most likely

try this as an option to gain access to a system because it requires the least amount of effort.

28. D. Driving around to pick up open wireless access points is called wardriving. Tools like Aircrack and Silica can be used to help identify access points.

29. C. ARP poisoning is when the adversary injects their own MAC address in order to sniff traffic on the LAN.

30. B. Windows can receive an input value of up to 127 characters within the field.

31. A. A keylogger, which can be a hardware or software solution, records the input that is generated from the user. Most often, the input that is received is either recorded locally to the device or transmitted back to the owner of the keylogger.

32. D. Using `ifconfig` in Linux will display wireless adapters and Ethernet devices that are currently installed on the workstation.

33. B. The `/bin` directory contains the basic commands Linux utilizes.

34. C. Piggybacking is the act of trying to blend in with the crowd in order to circumvent security measures. In this case, the black hat is using boxes to play on the kindness of people to gain easy access to a facility.

35. B. Cookies are text files that contain information about your connection to a web server. They can hold authentication and session details.

36. D. An adversary who records open access points by marking their location on buildings nearby is engaging in war chalking. This signifies to others that there is an

top-level domains.

**47.** D. Scanning and enumeration is the second phase of the hacking methodology, followed by maintaining access and ending with covering your tracks.

**48.** C. Public key infrastructure, or PKI, uses certificate authorities to sign certificates and issue them to subjects.

**49.** A. NIST uses <http://nvd.nist.gov> to publish the latest vulnerabilities for public knowledge.

**50.** C. Competitive intelligence is the process of using your competitor's information to your advantage. Products that the competitor has on the market may be used for analysis and even reverse engineering.

**51.** C. SNMPv1 transported community strings as a method of authentication through plain text. Because hackers were able to use SNMPv1 to exploit nodes, it was later upgraded to version 2 and then later version 3 in which the community strings are now encrypted.

**52.** A. RADIUS is an authentication, authorization, and accounting server that is used to facilitate an enterprise solution for access control. In this case, WPA2 Enterprise will use RADIUS as a means to provide a secure service to its users.

**53.** B. When separation of duties is enforced, one subject cannot accomplish a specific task without the other. The intent is to prevent collusion and maintain the integrity of that specific task.

**54.** C. A vulnerability is an absence of countermeasure or defense. If a vulnerability exists, it means that there is a threat that can be exploited.

user accounts. It is primarily found in Kali Linux, but it can also be downloaded as well.

63. C. Using net use followed by ipc\$ "" /u: "" will set up a null session with your target. It can be used in part with password sniffing efforts.

64. C. Base64 encoding is used to change binary code into the ASCII format. It can be used to circumvent firewalls and IDSs.

65. A. Emails that solicit banking information are classified as spear phishing.

66. A. AirCheck is an application that is employed by Fluke. It allows the user to walk around and locate wireless signals.

67. C. The -T4 switch allows the user to scan a node or a network in a fast manner.

68. A. The URG flag allows for a packet to be sent out of sequence and out of band.

69. B. A /25 indicates that the user is scanning a subnet that hosts 128 nodes.

70. C. The user would most likely be using Google. Some sites list other sites that were found to be vulnerable to SQL injection; in this case, these listed sites are known as Google Dorks.

71. B. The supervisor can force an employee to take a mandatory vacation. This allows the supervisor to see if fraudulent activities still occur.

72. C. Using the public key of the receiver guarantees that the information that the sender submits cannot be open by anyone other than the receiver, who can decrypt

160 bits.

82. A. The X.509 is the digital certificate standard that is used with certificate authorities.

83. C. Asymmetric encryption uses a public and private key that are mathematically related. No other keys can be used with the two that are related.

84. A. The public key is available on the certificate so users can communicate with the subject in a secure manner.

85. C. The black hat installed a keylogger, which records every key that was pressed on the ATM. The black hat will return at a later time and retrieve the keylogger and download the contents to either use or sell.

86. D. A SYN flag will receive an RST response if the port is closed.

87. A. POP3 uses port 110 for email services.

88. D. CSMA/CD uses a back-off timer to prevent data collisions on an Ethernet network.

89. C. A behavior-based IDS can alert when there is abnormal activity being conducted on the network. In order for the IDS to be effective, a baseline must be set during peak and off-peak times.

90. B. ARP poisoning the default gateway will cause you to receive all the traffic on the network. Proceed with caution, however, because if your workstation does not have enough processing power and there is high network activity, you can potentially cause a DoS on the network.

91. A. Bollards are used to prevent vehicles from ramming into a building. They are usually made of solid

steel or reinforced concrete.

92. C. SESAME uses asymmetric encryption as a secured method of authentication. Kerberos provides only symmetric encryption.

93. C. Wireshark can be used to monitor and capture network activity.

94. B. Port 21 is the command port for FTP. This port allows for arbitrary commands to be received from the user.

95. D. Files are not objects that Active Directory utilizes.

96. A. Social Engineering is a tool within Metasploit that allows the user to spoof social media websites and even craft spear phishing emails.

97. A. ADmutate is a tool that can craft scripts and encode to hide its signature from anti-malware engines.

98. A. ICMP Type 3, Code 3 is “destination unreachable, port unreachable,” which indicates that the client is down.

99. B. In the OSI model and the TCP/IP model, the Transport layer remains the same.

100. A. The Data-Link layer encapsulates the header and trailer of the packet.

101. B. Traceroute can be used to determine if a firewall appliance is being used.

102. B. A NULL scan will not provide a response if the port is opened on the distant end.

103. A. One method of fingerprinting a machine is to conduct a port sweep on all of the machines ports. This

may not be ideal if the user is trying to be sneaky, as this is a loud traffic generating scan.

104. A. The SRV record is used to advertise services based on the hostname and the ports of the server.

105. D. The SYN packet initiates the TCP connection.

106. B. The serial number is a unique value that identifies the certificate that is provided by the certificate authority.

107. C. RSA uses two large numbers that are factored together as its basis for encryption. It is used to create digital signatures and symmetric key exchange.

108. A. A SID of 500 is the first administrator's account. The SID of the account created will increase by 1.

109. B. Covering your tracks is the process of deleting and altering log files and users' names so that the victim is unable to identify the hacker.

110. B. The /etc/passwd file is used to store administrative information about a user such as their name, phone number, and office number.

111. A. UDP port 137 provides name services with NetBIOS.

112. C. The alert rule type will create a log and alert the administrator if a packet matches the specified rule in Snort.

113. A. Back Orifice is a tool that can be used for remote administration.

114. B. Netstat provides the user with information on what connections are currently active on the client. It

also provides the IP address and what state the connection is in, such as listening or established.

115. B. As shown in the bottom of the packet, it is annotated that the flags set are A and F for ACK and FIN, and their value is set using 1.

116. A. The destination port that is used in the current TLS connection is 51738.

117. C. Using Netstat, the computer has an established connection coming from the stackoverflow web server on TCP Port 52017.

118. D. The TTL value is 57.

119. C. In traceroute, an indication that a user encountered a firewall is annotated by the \*\*\*. In this example, the firewall occurred at hop 15.

120. C. In the first hop, 192.168.1.1 is the source for the traceroute request.

121. A. The client will receive the server's authentication to be granted access to the requested services. This is the third step in the Kerberos process.

122. A. Raeleah has both read and execute permissions for Object 3 in the access control list.

123. C. In the bottom section of the packet, the value that is displayed in plain text shows that the user is using Mozilla Firefox as their browser.

124. A. The alias record is annotated by the CNAME record type. In this case, rayojo .tripod.com is the alias that falls under the members.tripod.com zone.

125. A. The SSID that is using the highest channel is

# **Index**

## **A**

A records

AAA (authentication, accounting, and authorization) servers

Kerberos

SESAME

WPA2

acceptable use policies (AUPs)

account provisioning

ACK flag

screen shot

values

ACK step

closed ports

three-way handshakes

Active Directory, objects in

ad hoc wireless modes

Address Resolution Protocol (ARP)

caches

OSI model

poisoning

requests diagram

spoofing

vulnerability

administrative controls

security policies

shredding

administrative information for Linux

administrator accounts

Linux

RIDs

SAM files

SIDs

ADmutate tool

Advanced Encryption Standard (AES)

CCMP

DES successor

key sizes

Rijndael algorithm

adware

AirCheck application  
ALE (annual loss expectancy)  
alert rules in Snort  
alias records  
American Registry for Internet Numbers (ARIN)  
Angry IP scanners  
annual awareness training  
annual loss expectancy (ALE)  
anomaly-based detection system baselines  
antennas  
    directional  
    Yagi  
anti-malware software drawbacks  
antivirus software drawbacks  
Apache OpenOffice macros  
Application layer, FTP in  
applications, permissions for  
ARIN (American Registry for Internet Numbers)  
armed guards  
ARP. *See* Address Resolution Protocol (ARP)  
ASCII text  
    Base64 encoding  
    converting

ASLEAP vulnerability

assessment types

assigning risk

asterisks (\*) in SQL

asymmetric encryption

keys

SESAME servers

ATM transactions

awareness training

social engineering attacks

user and security awareness

zero day attacks

## B

Back Orifice ports

backdoors

remote access

rootkits

backoff timers

backups

bit-level images

incremental

bandwidth of 802.11a access points

banner grabbing

base pointer (BP)

Base64 encoding

baselines

anomaly-based detection systems

images

IPSs

BCPs (business continuity plans)

beacon frames  
behavior-based IDSs  
benefit analyses for safeguards  
`/bin` directory in Linux  
binary code Base64 encoding  
biometrics  
crossover error rate  
human attributes  
bit-level image backups  
black box testing  
Boink attacks  
bollards  
Bonk attacks  
botnets  
DDoS attacks  
IRC for  
zombie computers  
boundary checking for input  
BP (base pointer)  
broadcast domains, routers on  
broadcasts in IPv6  
browsers, determining  
brute force password attacks

Canonical Name (CNAME) records

Carrier Sense Multiple Access with Collision Detection (CSMA/CD) method

Category I IAVA

CBC mode cipher

CCMP (Cipher Block Chaining Message Authentication Code Protocol)

CEH exam

CEH hacking

certificate authorities

PKI

X.509 standard

certificates

Cain & Abel tool

forging

public keys

registration authorities

serial numbers

X.509 standard

chain of custody

Challenge-Handshake Authentication Protocol (CHAP)

changing

passwords

policies

channels, covert  
checksums  
chmod command  
CIDR (classless inter-domain routing)  
scans  
subnets

Cipher Block Chaining Message Authentication Code Protocol (CCMP)

cipher locks  
circuit-level gateways  
Cisco LEAP protocol  
class C networks, number of  
classification

labels

Top Secret

classified section of newspapers  
classless inter-domain routing (CIDR)  
scans  
subnets  
clean desk policies  
clearance  
client-side attacks  
web applications  
XSS

default ports

DNS

FTP

POP3

SCP

SSH

Telnet

defaults

firewall configuration

TTL values

delegating DNS zones

deleting

Linux files

logs

SQL database clients

denial of service (DoS) attacks

description

flood guarding

fraggle

HVAC unit attacks

DES algorithm

keys

name for

devices, network

DHCP process

description

Transport layer

dictionary attacks

Dig tool

digital certificates. *See* certificates

Digital Signature Authority (DSA)

email nonrepudiation

hash comparisons for nonrepudiation

integrity and confidentiality

digital signatures

diagram

emails

scam and phishing protection

tokens and PINs

direct sequence spread spectrum (DSSS)

directional antennas

usage example

Yagi

directory traversal

description

diagram

- disabling ports
- disaster recovery plans (DRPs)
- purpose
  - updating and evaluating
- distributed denial of service (DDoS) attacks
  - botnets
  - example
    - LOIC for
  - dividing networks
- DMZs
  - extranets
  - Internet association
- DNS
  - A records
  - alias records
  - ports
  - screen shot
  - SRV records
  - zone delegation
  - zone transfers
- DNS poisoning
  - description
  - refresh time rate

DNS queries

- Dig tool
- sites for
- Unix systems

DNS servers

- connection issues
- parent domains

domain names in CNAME records

domain systems, displaying

“Don't Fragment” flag

Doom Trojan

DoS. *See* denial of service (DoS) attacks

DROP TABLE statement

DRPs (disaster recovery plans)

- purpose
- updating and evaluating

DSA (Digital Signature Authority)

- email nonrepudiation
- hash comparisons for nonrepudiation
- integrity and confidentiality

DSSS (direct sequence spread spectrum)

dual-homed firewalls

dumpster diving

Duong, Thai

duty rotation

## E

eavesdropping

EC-Council

ECC (Elliptic Curve Cryptography)

ECHO reply in ICMP

echo requests in ICMP

electromagnetic signals

Elliptic Curve Cryptography (ECC)

email

digital signatures

nonrepudiation

phishing

employees

clean desk policies

duty rotation

forced vacations

risks

separation of duties principle

encoding payloads

encryption

AES

asymmetric

cryptanalysis

DES key length

ECC

IPsec transport mode

prime numbers

RC4

SESAME servers

SNMPv3

TLS

TPM

enticements

enumeration

attack phase

description

ethical hacking

fingerprinting

layer 3

escrows for trusted keys

/etc/passwd file

/etc/shadow file

Ethernet networks, collisions in  
ethical hacking, scanning and enumeration in  
evaluating policies

event logs in Linux

evidence

chain of custody

RFC 3227

evil twins WAPs

execute permissions in Linux

executive summary reports

extranets

**DMZ**

purpose

## F

fail open mode

false acceptance rate (FAR) in biometrics

false reject rate (FRR) in biometrics

Faraday cages

fast scans in Nmap

fault tolerance, clustering for

federal laws for medical records

fences

Ferret tool

fiber-optic lines, tapping into  
files

deleting

hiding

locating

NTFS streaming

permissions

filetype: hack

FIN flag

connection termination

open port responses

packet analyzers

screen shot

finding Linux files

fingerprinting

Nmap

ping sweeps and enumeration

port sweeps

firewalking

description

TTL values

## **F**

- FTP
  - default ports
  - OSI model
  - ports
  - SFTP
- full TCP connect scans
- fuzzing technique

## **G**

- gap analysis
- gcc command
- Google Dorks
- Google search engine
  - file type searches
  - SQL injection vulnerabilities
- government-backed standards
- Grand Unified Bootloader (GRUB)
- gray box testing
- grep command
- guards

## **H**

- half-open connections
- hardening servers by disabling ports

ILOVEYOU virus

impersonation

implicit denies in firewalls

incident response

containment

recovery in

incremental backups

initialization vectors (IVs)

**WAP**

**WEP**

injection exploits. *See* SQL injection

input

boundary checking

fuzzing technique

instant messaging, Spim

integrity, DSA for

interference, frequency-hopping spread spectrum for  
intermediary servers

Internet Assigned Numbers Authority (IANA)

Internet Key Exchange (IKE) protocol

Internet layer in TCP/IP model

Internet registries

Internet Relay Chat (IRC) application

**IP protocol**

- connectionless protocol

- port numbers

**IPsec**

- IPv6 support

- ISAKMP

- transport mode

**IPSs**

- baselines

- vs. firewalls

- Suricata

**IPv6**

- addressing scheme

- broadcasts

- IPsec support

**IRC (Internet Relay Chat) application**

**ISAKMP (Internet Security Association and Key Management Protocol)**

**ISO 27002 standard**

**IVs (initialization vectors)**

**WAP**

**WEP**

**J**

keys

AES

asymmetric encryption

DES

Kerberos

MD5

private

RC4

TPM

Kotowicz, Krysztof

## L

land attacks

layer 2 switches, flooded

layer 3 scanning and enumeration

LDAP (Lightweight Directory Access Protocol)

  LDAP injection

ports

LEAP (Lightweight Extensible Authentication Protocol)

  tunnels

  vulnerabilities

lenses for cameras

lightning strikes

lights

Lightweight Directory Access Protocol (LDAP)

  LDAP injection

  ports

Lightweight Extensible Authentication Protocol (LEAP)

  tunnels

  vulnerabilities

logic bombs

    description

    pop-up windows

logical controls

login fields in Windows

logs

    in covering tracks phase

    deleting and editing

Linux

LOIC (Low Orbit Ion Cannon)

## **M**

MAC addresses

    CAM tables

    example

    spoofing

MAC floods

macros

Mail Exchange (MX) records

maintaining access phase in man-in-the-middle attacks

malware

anti-malware software

backdoors

nuclear reactor facility

rootkits

in wrappers

man-in-the-middle attacks

Cain & Abel tool

example

maintaining access phase

POODLE

manipulation in social engineering

mantraps

masquerading

maximum byte size in UDP packets

maximum tolerable downtime (MTD)

MD5 keys

medical records

Melisa virus

MEM column

**MX** (Mail Exchange) records

## **N**

NAT (Network Address Translation)

IP addresses

PAT

National Institute of Standards and Technology (NIST)

natural events

NBT (NetBIOS over TCP/IP)

Ncat program

description

open TCP connection scans

need to know access

Nessus scans

net use command

net view /domain:<domain\_name> command

NetBIOS protocol

name service ports

services

Netscape, SSL development by

Netstat utility

# Nmap

- fast scans
- fingerprinting
- full TCP connect scans
- idle scans
- layer 3 scanning and enumeration
- scan commands
- slowest scans
- UDP scans
- XMAS scan switch
- nodes, network
- nonrepudiation
- DSA
- email
- nonroutable IP addresses
- NOP instructions
- NOT character in Snort
- Nslookup application
- NTFS file streaming
- nuclear reactor facility malware
- NULL scan flags
- null sessions
- nvd.nist.gov site

payloads, encoding

pcap file

penetration testing

black box

formal written agreements

gray box

Metasploits

pre-attack phase

red teams

vulnerabilities lists from

performance, gap analysis for  
permissions

example

identifying

Linux

RBAC

PGP (Pretty Good Privacy) algorithm

pharming attacks

phishing

digital signatures for  
emails

spear phishing attacks

physical controls

PID (process identification) numbers  
piggybacking  
Ping of Death attacks  
    first appearance  
    ICMP packets  
ping sweeps  
    Angry IP scanners  
    fingerprinting  
    workstation identification  
PINs in digital signatures  
PKI (public key infrastructure)  
    certificate authorities  
    description  
plaintext passwords  
platform as a service  
policies  
    acceptable use  
    administrative controls  
    evaluating and changing  
pop-up windows  
    advertisements  
    logic bombs

**POP3**

default ports

port 110

**Port Address Translation (PAT)**

administrative security controls

NAT overload

sockets

port base authentication

port sweeps in fingerprinting

ports

Back Orifice

Boink attacks

closed

disabling

DNS

DNS zone transfers

FIN flag responses

fraggle attacks

FTP

HTTPS

ICMP

IP protocol

LDAP

qualitative risk analysis

## R

race conditions

RADIUS servers

RAID configuration

ransomware

RBAC (role-based access control)

RC4 encryption

key sizes

symmetric stream ciphers

WEP

read permissions in Linux

reconnaissance

description

passive

penetration testing

recovery in incident response

red teams

redundancy, server clustering for

refresh time rate in DNS poisoning

registration authorities for certificates

Registry locations

remediation

remote access, backdoors for  
remote wipe for mobile devices  
replay attacks

description

Ferret tool

reports, executive summary

Request for Comments (RFC) 18

Request for Comments (RFC) 1918

Request for Comments (RFC) 3227

resource identifiers (RIDs)

second administrators

SIDs

response time measurement

reverse shellcode

revoke operation

RFC 18

RFC 1918

RFC 3227

RIDs (resource identifiers)

second administrators

SIDs

Rijndael algorithm

Ring o

risk

assessments

assigning

qualitative analysis

risk mitigation plans

rm command

role-based access control (RBAC)

root accounts in Linux

root directory in Linux

root system access

rootkits

backdoors

description

Ring o

routers in broadcast domains

RSA encryption

bit size

prime numbers

public key cryptosystems

TLS encryption

RST/ACK response in XMAS scans

RST flag

RST response for closed ports  
rule heads in Snort

## S

safeguards  
considerations  
vulnerabilities  
SAM files  
scam protection  
scans  
attack phase  
CIDR  
ethical hacking  
last step  
layer 3  
Nessus  
Nmap  
slow speed  
SNMP configurations  
TCP connections  
scope creep  
Secure Copy Protocol (SCP)  
secure FTP (SFTP)

secure passwords  
security association managers  
security cameras  
Security Onion operating system  
security posture  
segment messages  
segment structure in TCP  
segment violations, avoiding  
sensitive information, restricting access to  
separation of duties principle  
SEQ NUMBER field  
SEQ values  
serial numbers for X.509 certificates  
server rooms, HVAC targets in  
servers  
authentication diagram  
clustering  
intermediary  
service set identifiers (SSIDs)  
channel usage  
number of characters  
wireless network access

services

NetBIOS

SRV records

SESAME (Secure European System for Applications in a Multi-vendor Environment)

diagram

servers

Session layer, circuit-level gateways in sessions

hijacking

splicing

SFTP (secure FTP)

SHA-1 hashing

SHA-512 hashing

shoulder surfing attacks

shredding

-sI switch in Nmap

SID2User tool

SIDs

administrator accounts

RIDs

Snort

usernames

signature-based IDSs

signature bases in HIDS

signature identification in Snort

signature verification diagram

signatures, virus

Simple Network Management Protocol (SNMP)

authentication

community strings

ports

scans for configurations

statistics and status

single sign-on (SSO) strategy

advantages

description

Kerberos authentication

slashes (/) for Linux root directory

slowest scans in Nmap

Slowloris tool

SMAC tool

smurf attacks

diagrams

IP addresses

“something you are” authentication

spear phishing attacks

Spim (Spam over IM)

spoofing

ARP

description

IP addresses

MAC addresses

SPY Act

spyware

SQL

asterisks

deleting clients

table updates

SQL injection

diagram

exploits

joining databases

testing for

vulnerabilities

SRV records

## SSH

default port

Telnet security issues

SSIDs (service set identifiers)

channel usage

number of characters

wireless network access

## SSL

CBC mode cipher

Netscape development of

POODLE attacks

zero day attacks

SSO (single sign-on) strategy

advantages

description

Kerberos authentication

-sT switch in Nmap

stack pointers

stackoverflow ports

stacks

memory

virtual

stateful inspection

SYN scans

closed ports

half-open connections

System32\config folder

## T

-T switch in Nmap

-T4 switch in Nmap

table updates in SQL

tailgating

tapping into fiber-optic lines

Task Manager, Processes tab

TCP

Doom Trojan

FIN flag

land attacks

password discovery

segment structure

SEQ NUMBER header field

XMAS scans

TCP connections

Ncat scans

Nmap scans

SYN packets

TCP/IP model

OSI model Network layer equivalent

session hijacking

Transport layer

Telnet protocol

banner grabbing

benefits

default port numbers

SSH issues

TEMPEST program

termination of connections

FIN flag

RST flag

UDP flags

TGTs (ticket-granting tickets)

third-party cloud storage vs. local storage

threat agents

threats  
assessments  
vulnerabilities  
three-way handshakes  
ACK step  
screen shot  
SYN/ACK step  
SYN floods  
ticket-granting services  
ticket-granting tickets (TGTs)  
tiger teams  
time advantage, black hats vs. defenders  
“Time Exceeded” response  
time to live (TTL) value  
default  
description  
firewalking  
function  
screen shot

TLS  
connections screen shot  
encryption  
version screen shot

token access cards

tokens

- authentication factors

- digital signatures

ToneLoc application

top-level parent domains

Top Secret classification

Tor networks

TPM (Trusted Platform Module)

traceroute tool

- firewalls

- path information

- response time measurement

tracking in session hijacking

trailers in Data-Link layer

training

- social engineering attacks

- user and security awareness

- zero day attacks

Transport layer

DHCP

OSI and TCP/IP models

transport mode in IPsec

traversing directories

description

diagram

Trojans

description

Doom

SniperNet

trusted keys, escrows for

Trusted Platform Module (TPM)

TTL. *See* time to live (TTL) value

tunnels, LEAP

Type 0 ICMP messages

Type 1 authentication

Type 2 access control

Type 2 authentication

Type 3 authentication

Type 4 authentication

Type 11 ICMP

**U**

- UDP protocol
  - Boink attacks
  - Bonk attacks
  - connection termination flags
  - connectionless protocol
- DHCP
- fraggle attacks
- header field size
- maximum packet size
- NetBIOS name services
- Nmap scans
- SNMP ports
- Type 0 ports
- UIDs (user identifiers) in Linux
- Unix systems, DNS queries in up-to-date signature lists
- UPDATE command
- URG flag
- URL obfuscation
- user accounts
  - screen shot
- SSO
- user agreements

X.509 certificates

    description

    Heartbleed

    serial numbers

XMAS scans

    closed ports

    Nmap switch

    TCP header flags

XOR output

XPtools

XSS (cross-site scripting)

    client-side attacks

    web applications

## Y

Yagi antennas

## Z

zero day attacks

    defensive actions

    user awareness training

Zimmerman, Phil

zombie computers

zone transfers in DNS



# Comprehensive Online Learning Environment

Register on Sybex.com to gain access to the online interactive test bank to help you study for your CEH certification—included with your purchase of this book! All of the practice tests in this book are included in the online test bank so you can practice in a timed and graded setting.

Go to <http://sybextestbanks.wiley.com> to register and gain access to this study tool.

Do you need more? If you have not already read Sybex's *CEHv9: Certified Ethical Hacker Version 9 Study Guide* by Sean-Philip Oriyano (ISBN: 978-1-119-25224-5) and are not seeing passing grades on these practice tests, this book is an excellent resource to master any CEH topics causing problems. This book maps every official exam objective to the corresponding chapter in the book to help track exam prep objective by objective, challenging review questions in each chapter to prepare for exam day, and online test prep materials with flashcards and additional practice tests.



