

# **EC-Council**

## **Exam Questions 312-50v13**

Certified Ethical Hacker v13



**NEW QUESTION 1**

- (Topic 1)

Let's imagine three companies (A, B and C), all competing in a challenging global environment. Company A and B are working together in developing a product that will generate a major competitive advantage for them. Company A has a secure DNS server while company B has a DNS server vulnerable to spoofing. With a spoofing attack on the DNS server of company B, company C gains access to outgoing e-mails from company B. How do you prevent DNS spoofing?

- A. Install DNS logger and track vulnerable packets
- B. Disable DNS timeouts
- C. Install DNS Anti-spoofing
- D. Disable DNS Zone Transfer

**Answer: C**

**NEW QUESTION 2**

- (Topic 1)

Study the snort rule given below:

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 135
(msg: "NETBIOS DCERPC ISystemActivator bind attempt";
flow:to_server, established; content: "|05|"; distance: 0; within: 1;
content: "|0b|"; distance: 1; within: 1; byte_test: 1, &, 1, 0, relative;
content: "|A0 01 00 00 00 00 00 00 C0 00 00 00 00 00 00 46|";
distance: 29; within: 16; reference: cve, CAN-2003-0352;
classtype: attempted-admin; sid: 2192; rev: 1;)
```

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 445 (msg: "NETBIOS SMB
DCERPC ISystemActivator bind attempt"; flow: to_server, established;
content: "|FF|SMB|25|"; nocase; offset:4, depth:5; content: "|26 00|";
nocase; distance:5; within: 12; content: "|05|"; distance:0; within:1;
content: "|0b|"; distance: 1; within: 1; byte_test: 1, &, 1, 0, relative;
content: "|A0 01 00 00 00 00 00 00 C0 00 00 00 00 00 00 46|";
distance: 29; within: 16; reference: cve, CAN-2003-0352;
classtype: attempted-admin; sid: 2193; rev: 1;)
```

From the options below, choose the exploit against which this rule applies.

- A. WebDav
- B. SQL Slammer
- C. MS Blaster
- D. MyDoom

**Answer: C**

**NEW QUESTION 3**

- (Topic 1)

Which of the following tools can be used to perform a zone transfer?

- A. NSLookup
- B. Finger
- C. Dig
- D. Sam Spade
- E. Host
- F. Netcat
- G. Neotrace

**Answer: ACDE**

**NEW QUESTION 4**

- (Topic 1)

Which mode of IPSec should you use to assure security and confidentiality of data within the same LAN?

- A. ESP transport mode
- B. ESP confidential
- C. AH permiscuous
- D. AH Tunnel mode

**Answer: A**

**NEW QUESTION 5**

- (Topic 1)

Which of the following is not a Bluetooth attack?

- A. Bluedriving
- B. Bluesmacking
- C. Bluejacking
- D. Bluesnarfing

**Answer:** A

**Explanation:**

<https://github.com/verovaleros/bluedriving>

Bluedriving is a bluetooth wardriving utility. It can capture bluetooth devices, lookup their services, get GPS information and present everything in a nice web page. It can search for and show a lot of information about the device, the GPS address and the historic location of devices on a map. The main motivation of this tool is to research about the targeted surveillance of people by means of its cellular phone or car. With this tool you can capture information about bluetooth devices and show, on a map, the points where you have seen the same device in the past.

**NEW QUESTION 6**

- (Topic 1)

Bob is doing a password assessment for one of his clients. Bob suspects that security policies are not in place. He also suspects that weak passwords are probably the norm throughout the company he is evaluating. Bob is familiar with password weaknesses and key loggers.

Which of the following options best represents the means that Bob can adopt to retrieve passwords from his clients hosts and servers?

- A. Hardware, Software, and Sniffing.
- B. Hardware and Software Keyloggers.
- C. Passwords are always best obtained using Hardware key loggers.
- D. Software only, they are the most effective.

**Answer:** A

**NEW QUESTION 7**

- (Topic 1)

To determine if a software program properly handles a wide range of invalid input, a form of automated testing can be used to randomly generate invalid input in an attempt to crash the program.

What term is commonly used when referring to this type of testing?

- A. Randomizing
- B. Bounding
- C. Mutating
- D. Fuzzing

**Answer:** D

**NEW QUESTION 8**

- (Topic 1)

You are the Network Admin, and you get a complaint that some of the websites are no longer accessible. You try to ping the servers and find them to be reachable. Then you type the IP address and then you try on the browser, and find it to be accessible. But they are not accessible when you try using the URL. What may be the problem?

- A. Traffic is Blocked on UDP Port 53
- B. Traffic is Blocked on TCP Port 80
- C. Traffic is Blocked on TCP Port 54
- D. Traffic is Blocked on UDP Port 80

**Answer:** A

**Explanation:**

Most likely have an issue with DNS.

DNS stands for ??Domain Name System.?? It??s a system that lets you connect to websites by matching human-readable domain names (like example.com) with the server's unique ID where a website is stored.

Think of the DNS system as the internet??s phonebook. It lists domain names with their corresponding identifiers called IP addresses, instead of listing people??s names with their phone numbers. When a user enters a domain name like wpbeginner.com on their device, it looks up the IP address and connects them to the physical location where that website is stored.

NOTE: Often DNS lookup information will be cached locally inside the querying computer or remotely in the DNS infrastructure. There are typically 8 steps in a DNS lookup. When DNS information is cached, steps are skipped from the DNS lookup process, making it quicker. The example below outlines all 8 steps when nothing is cached.

The 8 steps in a DNS lookup:

- \* 1. A user types ??example.com?? into a web browser, and the query travels into the Internet and is received by a DNS recursive resolver;
- \* 2. The resolver then queries a DNS root nameserver;
- \* 3. The root server then responds to the resolver with the address of a Top-Level Domain (TLD) DNS server (such as .com or .net), which stores the information for its domains. When searching for example.com, our request is pointed toward the .com TLD;
- \* 4. The resolver then requests the .com TLD;
- \* 5. The TLD server then responds with the IP address of the domain??s nameserver, example.com;
- \* 6. Lastly, the recursive resolver sends a query to the domain??s nameserver;
- \* 7. The IP address for example.com is then returned to the resolver from the nameserver;
- \* 8. The DNS resolver then responds to the web browser with the IP address of the domain requested initially;

Once the 8 steps of the DNS lookup have returned the IP address for example.com, the browser can request the web page:

- \* 9. The browser makes an HTTP request to the IP address;
- \* 10. The server at that IP returns the webpage to be rendered in the browser.

NOTE 2: DNS primarily uses the User Datagram Protocol (UDP) on port number 53 to serve requests. And if this port is blocked, then a problem arises already in the first step. But the ninth step is performed without problems.

#### NEW QUESTION 9

- (Topic 1)

If a token and 4-digit personal identification number (PIN) are used to access a computer system and the token performs off-line checking for the correct PIN, what type of attack is possible?

- A. Birthday
- B. Brute force
- C. Man-in-the-middle
- D. Smurf

**Answer: B**

#### NEW QUESTION 10

- (Topic 1)

Identify the UDP port that Network Time Protocol (NTP) uses as its primary means of communication?

- A. 113
- B. 69
- C. 123
- D. 161

**Answer: C**

#### Explanation:

[https://en.wikipedia.org/wiki/Network\\_Time\\_Protocol](https://en.wikipedia.org/wiki/Network_Time_Protocol)

The Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks. NTP is intended to synchronize all participating computers within a few milliseconds of Coordinated Universal Time (UTC). It uses the intersection algorithm, a modified version of Marzullo's algorithm, to select accurate time servers and is designed to mitigate variable network latency effects. NTP can usually maintain time to within tens of milliseconds over the public Internet and achieve better than one millisecond accuracy in local area networks. Asymmetric routes and network congestion can cause errors of 100 ms or more. The protocol is usually described in terms of a client-server model but can easily be used in peer-to-peer relationships where both peers consider the other to be a potential time source. Implementations send and receive timestamps using the User Datagram Protocol (UDP) on port number 123.

#### NEW QUESTION 10

- (Topic 1)

What is a ??Collision attack?? in cryptography?

- A. Collision attacks try to get the public key
- B. Collision attacks try to break the hash into three parts to get the plaintext value
- C. Collision attacks try to break the hash into two parts, with the same bytes in each part to get the private key
- D. Collision attacks try to find two inputs producing the same hash

**Answer: D**

#### NEW QUESTION 13

- (Topic 1)

PGP, SSL, and IKE are all examples of which type of cryptography?

- A. Digest
- B. Secret Key
- C. Public Key
- D. Hash Algorithm

**Answer: C**

#### NEW QUESTION 14

- (Topic 1)

What is the known plaintext attack used against DES which gives the result that encrypting plaintext with one DES key followed by encrypting it with a second DES key is no more secure than using a single key?

- A. Man-in-the-middle attack
- B. Meet-in-the-middle attack
- C. Replay attack
- D. Traffic analysis attack

**Answer: B**

#### Explanation:

[https://en.wikipedia.org/wiki/Meet-in-the-middle\\_attack](https://en.wikipedia.org/wiki/Meet-in-the-middle_attack)

The meet-in-the-middle attack (MITM), a known plaintext attack, is a generic space–time tradeoff cryptographic attack against encryption schemes that rely on performing multiple encryption operations in sequence. The MITM attack is the primary reason why Double DES is not used and why a Triple DES key (168-bit) can be bruteforced by an attacker with 256 space and 2112 operations.

The intruder has to know some parts of plaintext and their ciphertexts. Using meet-in-the-middle attacks it is possible to break ciphers, which have two or more secret keys for multiple encryption using the same algorithm. For example, the 3DES cipher works in this way. Meet-in-the-middle attack was first presented by Diffie and Hellman for cryptanalysis of DES algorithm.

#### NEW QUESTION 16

- (Topic 1)

Why would you consider sending an email to an address that you know does not exist within the company you are performing a Penetration Test for?

- A. To determine who is the holder of the root account
- B. To perform a DoS
- C. To create needless SPAM
- D. To illicit a response back that will reveal information about email servers and how they treat undeliverable mail
- E. To test for virus protection

**Answer:** D

#### NEW QUESTION 19

- (Topic 1)

You just set up a security system in your network. In what kind of system would you find the following string of characters used as a rule within its configuration?  
alert tcp any any -> 192.168.100.0/24 21 (msg: ???FTP on the network!???)

- A. A firewall IPTable
- B. FTP Server rule
- C. A Router IPTable
- D. An Intrusion Detection System

**Answer:** D

#### NEW QUESTION 24

- (Topic 1)

Eve is spending her day scanning the library computers. She notices that Alice is using a computer whose port 445 is active and listening. Eve uses the ENUM tool to enumerate Alice machine. From the command prompt, she types the following command.

```
For /f "tokens=1 %%a in (hackfile.txt) do net use *  
\\10.1.2.3\c$ /user:"Administrator" %%a
```

What is Eve trying to do?

- A. Eve is trying to connect as a user with Administrator privileges
- B. Eve is trying to enumerate all users with Administrative privileges
- C. Eve is trying to carry out a password crack for user Administrator
- D. Eve is trying to escalate privilege of the null user to that of Administrator

**Answer:** C

#### NEW QUESTION 27

- (Topic 1)

Email is transmitted across the Internet using the Simple Mail Transport Protocol. SMTP does not encrypt email, leaving the information in the message vulnerable to being read by an unauthorized person. SMTP can upgrade a connection between two mail servers to use TLS. Email transmitted by SMTP over TLS is encrypted. What is the name of the command used by SMTP to transmit email over TLS?

- A. OPPORTUNISTIC TLS
- B. UPGRADE TLS
- C. FORCE TLS
- D. START TLS

**Answer:** D

#### NEW QUESTION 32

- (Topic 1)

A hacker is an intelligent individual with excellent computer skills and the ability to explore a computer's software and hardware without the owner's permission. Their intention can either be to simply gain knowledge or to illegally make changes.

Which of the following class of hacker refers to an individual who works both offensively and defensively at various times?

- A. White Hat
- B. Suicide Hacker
- C. Gray Hat
- D. Black Hat

**Answer:** C

#### NEW QUESTION 35

- (Topic 1)

Which of the following incident handling process phases is responsible for defining rules, collaborating human workforce, creating a back-up plan, and testing the plans for an organization?

- A. Preparation phase
- B. Containment phase
- C. Identification phase
- D. Recovery phase



**Answer:** A

#### NEW QUESTION 37

- (Topic 1)

Tess King is using the nslookup command to craft queries to list all DNS information (such as Name Servers, host names, MX records, CNAME records, glue records (delegation for child Domains), zone serial number, TimeToLive (TTL) records, etc) for a Domain.

What do you think Tess King is trying to accomplish? Select the best answer.

- A. A zone harvesting
- B. A zone transfer
- C. A zone update
- D. A zone estimate

**Answer:** B

#### NEW QUESTION 42

- (Topic 1)

What tool can crack Windows SMB passwords simply by listening to network traffic?

- A. This is not possible
- B. Netbus
- C. NTFSDOS
- D. L0phtcrack

**Answer:** D

#### NEW QUESTION 46

- (Topic 1)

A technician is resolving an issue where a computer is unable to connect to the Internet using a wireless access point. The computer is able to transfer files locally to other machines, but cannot successfully reach the Internet. When the technician examines the IP address and default gateway they are both on the 192.168.1.0/24. Which of the following has occurred?

- A. The computer is not using a private IP address.
- B. The gateway is not routing to a public IP address.
- C. The gateway and the computer are not on the same network.
- D. The computer is using an invalid IP address.

**Answer:** B

#### Explanation:

[https://en.wikipedia.org/wiki/Private\\_network](https://en.wikipedia.org/wiki/Private_network)

In IP networking, a private network is a computer network that uses private IP address space. Both the IPv4 and the IPv6 specifications define private IP address ranges. These addresses are commonly used for local area networks (LANs) in residential, office, and enterprise environments.

Private network addresses are not allocated to any specific organization. Anyone may use these addresses without approval from regional or local Internet registries. Private IP address spaces were originally defined to assist in delaying IPv4 address exhaustion. IP packets originating from or addressed to a private IP address cannot be routed through the public Internet.

The Internet Engineering Task Force (IETF) has directed the Internet Assigned Numbers Authority (IANA) to reserve the following IPv4 address ranges for private networks:

- 10.0.0.0 – 10.255.255.255
- 172.16.0.0 – 172.31.255.255
- 192.168.0.0 – 192.168.255.255

Backbone routers do not allow packets from or to internal IP addresses. That is, intranet machines, if no measures are taken, are isolated from the Internet.

However, several technologies allow such machines to connect to the Internet.

- Mediation servers like IRC, Usenet, SMTP and Proxy server
- Network address translation (NAT)
- Tunneling protocol

NOTE: So, the problem is just one of these technologies.

#### NEW QUESTION 51

- (Topic 1)

The configuration allows a wired or wireless network interface controller to pass all traffic it receives to the Central Processing Unit (CPU), rather than passing only the frames that the controller is intended to receive. Which of the following is being described?

- A. Multi-cast mode
- B. Promiscuous mode
- C. WEM
- D. Port forwarding

**Answer:** B

#### NEW QUESTION 56

- (Topic 1)

Which system consists of a publicly available set of databases that contain domain name registration contact information?

- A. WHOIS
- B. CAPTCHA
- C. IANA
- D. IETF

**Answer:** A

#### NEW QUESTION 60

- (Topic 1)

Which of the following tools performs comprehensive tests against web servers, including dangerous files and CGIs?

- A. Nikto
- B. John the Ripper
- C. Dsniff
- D. Snort

**Answer:** A

#### Explanation:

[https://en.wikipedia.org/wiki/Nikto\\_\(vulnerability\\_scanner\)](https://en.wikipedia.org/wiki/Nikto_(vulnerability_scanner))

Nikto is a free software command-line vulnerability scanner that scans web servers for dangerous files/CGIs, outdated server software, and other problems. It performs generic and server types specific checks. It also captures and prints any cookies received. The Nikto code itself is free software, but the data files it uses to drive the program are not.

#### NEW QUESTION 62

- (Topic 1)

What is correct about digital signatures?

- A. A digital signature cannot be moved from one signed document to another because it is the hash of the original document encrypted with the private key of the signing party.
- B. Digital signatures may be used in different documents of the same type.
- C. A digital signature cannot be moved from one signed document to another because it is a plain hash of the document content.
- D. Digital signatures are issued once for each user and can be used everywhere until they expire.

**Answer:** A

#### NEW QUESTION 66

- (Topic 1)

Bob received this text message on his mobile phone: ??Hello, this is Scott Smelby from the Yahoo Bank. Kindly contact me for a vital transaction on: scottsmelby@yahoo.com??. Which statement below is true?

- A. This is a scam as everybody can get a @yahoo address, not the Yahoo customer service employees.
- B. This is a scam because Bob does not know Scott.
- C. Bob should write to scottmelby@yahoo.com to verify the identity of Scott.
- D. This is probably a legitimate message as it comes from a respectable organization.

**Answer:** A

#### NEW QUESTION 70

- (Topic 1)

You have successfully comprised a server having an IP address of 10.10.0.5. You would like to enumerate all machines in the same network quickly. What is the best Nmap command you will use?

- A. nmap -T4 -q 10.10.0.0/24
- B. nmap -T4 -F 10.10.0.0/24
- C. nmap -T4 -r 10.10.1.0/24
- D. nmap -T4 -O 10.10.0.0/24

**Answer:** B

#### Explanation:

<https://nmap.org/book/man-port-specification.html>

NOTE: In my opinion, this is an absolutely wrong statement of the question. But you may come across a question with a similar wording on the exam. What does "fast" mean? If we want to increase the speed and intensity of the scan we can select the mode using the -T flag (0/1/2/3/4/5). At high -T values, we will sacrifice stealth and gain speed, but we will not limit functionality.

«nmap -T4 -F 10.10.0.0/24» This option is "correct" because of the -F flag.

-F (Fast (limited port) scan)

Specifies that you wish to scan fewer ports than the default. Normally Nmap scans the most common 1,000 ports for each scanned protocol. With -F, this is reduced to 100. Technically, scanning will be faster, but just because we have reduced the number of ports by 10 times, we are just doing 10 times less work, not faster.

#### NEW QUESTION 73

- (Topic 1)

Which definition among those given below best describes a covert channel?

- A. A server program using a port that is not well known.
- B. Making use of a protocol in a way it is not intended to be used.
- C. It is the multiplexing taking place on a communication link.
- D. It is one of the weak channels used by WEP which makes it insecure

**Answer:** B

#### NEW QUESTION 77

- (Topic 1)

A large mobile telephony and data network operator has a data center that houses network elements. These are essentially large computers running on Linux. The perimeter of the data center is secured with firewalls and IPS systems.

What is the best security policy concerning this setup?

- A. Network elements must be hardened with user ids and strong password
- B. Regular security tests and audits should be performed.
- C. As long as the physical access to the network elements is restricted, there is no need for additional measures.
- D. There is no need for specific security measures on the network elements as long as firewalls and IPS systems exist.
- E. The operator knows that attacks and down time are inevitable and should have a backup site.

**Answer:** A

#### NEW QUESTION 80

- (Topic 1)

Why should the security analyst disable/remove unnecessary ISAPI filters?

- A. To defend against social engineering attacks
- B. To defend against webserver attacks
- C. To defend against jailbreaking
- D. To defend against wireless attacks

**Answer:** B

#### NEW QUESTION 81

- (Topic 1)

Which type of security feature stops vehicles from crashing through the doors of a building?

- A. Bollards
- B. Receptionist
- C. Mantrap
- D. Turnstile

**Answer:** A

#### NEW QUESTION 85

- (Topic 1)

What is one of the advantages of using both symmetric and asymmetric cryptography in SSL/TLS?

- A. Supporting both types of algorithms allows less-powerful devices such as mobile phones to use symmetric encryption instead.
- B. Symmetric algorithms such as AES provide a failsafe when asymmetric methods fail.
- C. Symmetric encryption allows the server to security transmit the session keys out-of- band.
- D. Asymmetric cryptography is computationally expensive in compariso
- E. However, it is well-suited to securely negotiate keys for use with symmetric cryptography.

**Answer:** A

#### NEW QUESTION 90

- (Topic 1)

Which is the first step followed by Vulnerability Scanners for scanning a network?

- A. OS Detection
- B. Firewall detection
- C. TCP/UDP Port scanning
- D. Checking if the remote host is alive

**Answer:** D

#### Explanation:

Vulnerability scanning solutions perform vulnerability penetration tests on the organizational network in three steps:

- \* 1. Locating nodes: The first step in vulnerability scanning is to locate live hosts in the target network using various scanning techniques.
- \* 2. Performing service and OS discovery on them: After detecting the live hosts in the target network, the next step is to enumerate the open ports and services and the operating system on the target systems.
- \* 3. Testing those services and OS for known vulnerabilities: Finally, after identifying the open services and the operating system running on the target nodes, they are tested for known vulnerabilities.

#### NEW QUESTION 94

- (Topic 1)

If a tester is attempting to ping a target that exists but receives no response or a response that states the destination is unreachable, ICMP may be disabled and the network may be using TCP. Which other option could the tester use to get a response from a host using TCP?

- A. Traceroute
- B. Hping
- C. TCP ping
- D. Broadcast ping

**Answer:** B



**Explanation:**

<https://tools.kali.org/information-gathering/hping3> <http://www.carnal0wnage.com/papers/LSO-Hping2-Basics.pdf>

**NEW QUESTION 97**

- (Topic 1)

What is the purpose of a demilitarized zone on a network?

- A. To scan all traffic coming through the DMZ to the internal network
- B. To only provide direct access to the nodes within the DMZ and protect the network behind it
- C. To provide a place to put the honeypot
- D. To contain the network devices you wish to protect

**Answer: B**

**NEW QUESTION 100**

- (Topic 1)

What ports should be blocked on the firewall to prevent NetBIOS traffic from not coming through the firewall if your network is comprised of Windows NT, 2000, and XP?

- A. 110
- B. 135
- C. 139
- D. 161
- E. 445
- F. 1024

**Answer: BCE**

**NEW QUESTION 105**

- (Topic 1)

A bank stores and processes sensitive privacy information related to home loans. However, auditing has never been enabled on the system. What is the first step that the bank should take before enabling the audit feature?

- A. Perform a vulnerability scan of the system.
- B. Determine the impact of enabling the audit feature.
- C. Perform a cost/benefit analysis of the audit feature.
- D. Allocate funds for staffing of audit log review.

**Answer: B**

**NEW QUESTION 109**

- (Topic 1)

Which of the following is a command line packet analyzer similar to GUI-based Wireshark?

- A. nessus
- B. tcpdump
- C. ethereal
- D. jack the ripper

**Answer: B**

**Explanation:**

Tcpdump is a data-network packet analyzer computer program that runs under a command-line interface. It allows the user to display TCP/IP and other packets being transmitted or received over a network to which the computer is attached. Distributed under the BSD license, tcpdump is free software.

<https://www.wireshark.org/>

Wireshark is a free and open-source packet analyzer. It is used for network troubleshooting, analysis, software and communications protocol development, and education.

NOTE: Wireshark is very similar to tcpdump, but has a graphical front-end, plus some integrated sorting and filtering options.

**NEW QUESTION 114**

- (Topic 1)

By using a smart card and pin, you are using a two-factor authentication that satisfies

- A. Something you are and something you remember
- B. Something you have and something you know
- C. Something you know and something you are
- D. Something you have and something you are

**Answer: B**

**Explanation:**

Two-factor Authentication or 2FA is a user identity verification method, where two of the three possible authentication factors are combined to grant access to a website or application. 1) something the user knows, 2) something the user has, or 3) something the user is.

The possible factors of authentication are:

· Something the User Knows:

This is often a password, passphrase, PIN, or secret question. To satisfy this authentication challenge, the user must provide information that matches the answers previously provided to the organization by that user, such as ??Name the town in which you were born.??

· Something the User Has:

This involves entering a one-time password generated by a hardware authenticator. Users carry around an authentication device that will generate a one-time password on command. Users then authenticate by providing this code to the organization. Today, many organizations offer software authenticators that can be installed on the user's mobile device.

· Something the User Is:

This third authentication factor requires the user to authenticate using biometric data. This can include fingerprint scans, facial scans, behavioral biometrics, and more.

For example: In internet security, the most used factors of authentication are:

something the user has (e.g., a bank card) and something the user knows (e.g., a PIN code). This is two-factor authentication. Two-factor authentication is also sometimes referred to as strong authentication, Two-Step Verification, or 2FA.

The key difference between Multi-Factor Authentication (MFA) and Two-Factor Authentication (2FA) is that, as the term implies, Two-Factor Authentication utilizes a combination of two out of three possible authentication factors. In contrast, Multi-Factor Authentication could utilize two or more of these authentication factors.

#### NEW QUESTION 115

- (Topic 1)

Null sessions are un-authenticated connections (not using a username or password.) to an NT or 2000 system. Which TCP and UDP ports must you filter to check null sessions on your network?

- A. 137 and 139
- B. 137 and 443
- C. 139 and 443
- D. 139 and 445

**Answer:** D

#### NEW QUESTION 119

- (Topic 1)

What does the -oX flag do in an Nmap scan?

- A. Perform an eXpress scan
- B. Output the results in truncated format to the screen
- C. Output the results in XML format to a file
- D. Perform an Xmas scan

**Answer:** C

#### Explanation:

<https://nmap.org/book/man-output.html>

-oX <filespec> - Requests that XML output be directed to the given filename.

#### NEW QUESTION 121

- (Topic 1)

Which address translation scheme would allow a single public IP address to always correspond to a single machine on an internal network, allowing "server publishing"?

- A. Overloading Port Address Translation
- B. Dynamic Port Address Translation
- C. Dynamic Network Address Translation
- D. Static Network Address Translation

**Answer:** D

#### NEW QUESTION 126

- (Topic 1)

```
env x=??(){ :};echo exploit?? bash -c ??cat/etc/passwd??
```

What is the Shellshock bash vulnerability attempting to do on a vulnerable Linux host?

- A. Removes the passwd file
- B. Changes all passwords in passwd
- C. Add new user to the passwd file
- D. Display passwd content to prompt

**Answer:** D

#### NEW QUESTION 129

- (Topic 1)

In the field of cryptanalysis, what is meant by a "rubber-hose" attack?

- A. Forcing the targeted keystream through a hardware-accelerated device such as an ASIC.
- B. A backdoor placed into a cryptographic algorithm by its creator.
- C. Extraction of cryptographic secrets through coercion or torture.
- D. Attempting to decrypt ciphertext by making logical assumptions about the contents of the original plaintext.

**Answer:** C

#### Explanation:

A powerful and often the most effective cryptanalysis method in which the attack is directed at the most vulnerable link in the cryptosystem - the person. In this attack, the cryptanalyst uses blackmail, threats, torture, extortion, bribery, etc. This method's main advantage is the decryption time's fundamental independence from the volume of secret information, the length of the key, and the cipher's mathematical strength.

The method can reduce the time to guess a password, for example, for AES, to an acceptable level; however, it requires special authorization from the relevant regulatory authorities. Therefore, it is outside the scope of this course and is not considered in its practical part.

#### NEW QUESTION 131

- (Topic 1)

What is the proper response for a NULL scan if the port is open?

- A. SYN
- B. ACK
- C. FIN
- D. PSH
- E. RST
- F. No response

**Answer:** F

#### NEW QUESTION 135

- (Topic 1)

Which of the following programs is usually targeted at Microsoft Office products?

- A. Polymorphic virus
- B. Multipart virus
- C. Macro virus
- D. Stealth virus

**Answer:** C

#### Explanation:

A macro virus is a virus that is written in a macro language: a programming language which is embedded inside a software application (e.g., word processors and spreadsheet applications). Some applications, such as Microsoft Office, allow macro programs to be embedded in documents such that the macros are run automatically when the document is opened, and this provides a distinct mechanism by which malicious computer instructions can spread. (Wikipedia)

NB: The virus Melissa is a well-known macro virus we could find attached to word documents.

#### NEW QUESTION 140

- (Topic 1)

A user on your Windows 2000 network has discovered that he can use L0phtcrack to sniff the SMB exchanges which carry user logons. The user is plugged into a hub with 23 other systems.

However, he is unable to capture any logons though he knows that other users are logging in.

What do you think is the most likely reason behind this?

- A. There is a NIDS present on that segment.
- B. Kerberos is preventing it.
- C. Windows logons cannot be sniffed.
- D. L0phtcrack only sniffs logons to web servers.

**Answer:** B

#### NEW QUESTION 145

- (Topic 1)

Based on the following extract from the log of a compromised machine, what is the hacker really trying to steal?

- A. har.txt
- B. SAM file
- C. wwwroot
- D. Repair file

**Answer:** B

#### NEW QUESTION 146

- (Topic 2)

which of the following information security controls creates an appealing isolated environment for hackers to prevent them from compromising critical targets while simultaneously gathering information about the hacker?

- A. intrusion detection system
- B. Honeypot
- C. Botnet D Firewall

**Answer:** B

#### Explanation:

A honeypot may be a trap that an IT pro lays for a malicious hacker, hoping that they will interact with it during a way that gives useful intelligence. It's one among the oldest security measures in IT, but beware: luring hackers onto your network, even on an isolated system, are often a dangerous game. honeypot may be a good starting place: A honeypot may be a computer or computing system intended to mimic likely targets of cyberattacks. Often a honeypot are going to be deliberately configured with known vulnerabilities in situation to form a more tempting or obvious target for attackers. A honeypot won't contain production data or participate in legitimate traffic on your network

— that's how you'll tell anything happening within it's a results of an attack. If someone's stopping by, they're up to no good. That definition covers a various array of systems, from bare-bones virtual machines that only offer a couple of vulnerable systems to ornately constructed fake networks spanning multiple servers. and therefore the goals of these who build honeypots can vary widely also , starting from defense thorough to academic research. additionally , there's

now an entire marketing category of deception technology that, while not meeting the strict definition of a honeypot, is certainly within the same family. But we??ll get thereto during a moment.honeypots aim to permit close analysis of how hackers do their dirty work. The team controlling the honeypot can watch the techniques hackers use to infiltrate systems, escalate privileges, and otherwise run amok through target networks. These sorts of honeypots are found out by security companies, academics, and government agencies looking to look at the threat landscape. Their creators could also be curious about learning what kind of attacks are out there, getting details on how specific sorts of attacks work, or maybe trying to lure a specific hackers within the hopes of tracing the attack back to its source. These systems are often inbuilt fully isolated lab environments, which ensures that any breaches don??t end in non-honeypot machines falling prey to attacks.Production honeypots, on the opposite hand, are usually deployed in proximity to some organization??s production infrastructure, though measures are taken to isolate it the maximum amount as possible. These honeypots often serve both as bait to distract hackers who could also be trying to interrupt into that organization??s network, keeping them faraway from valuable data or services; they will also function a canary within the coalpit , indicating that attacks are underway and are a minimum of partially succeeding.

**NEW QUESTION 151**

- (Topic 2)

You are a penetration tester working to test the user awareness of the employees of the client xyz. You harvested two employees' emails from some public sources and are creating a client-side backdoor to send it to the employees via email. Which stage of the cyber kill chain are you at?

- A. Reconnaissance
- B. Command and control
- C. Weaponization
- D. Exploitation

**Answer:** C

**Explanation:**

Weaponization

The adversary analyzes the data collected in the previous stage to identify the vulnerabilities and techniques that can exploit and gain unauthorized access to the target organization. Based on the vulnerabilities identified during analysis, the adversary selects or creates a tailored deliverable malicious payload (remote-access malware weapon) using an exploit and a backdoor to send it to the victim. An adversary may target specific network devices, operating systems, endpoint devices, or even individuals within the organization to carry out their attack. For example, the adversary may send a phishing email to an employee of the target organization, which may include a malicious attachment such as a virus or worm that, when downloaded, installs a backdoor on the system that allows remote access to the adversary. The following are the activities of the adversary:

- o Identifying appropriate malware payload based on the analysis
- o Creating a new malware payload or selecting, reusing, modifying the available malware payloads based on the identified vulnerability
- o Creating a phishing email campaign
- o Leveraging exploit kits and botnets

[https://en.wikipedia.org/wiki/Kill\\_chain](https://en.wikipedia.org/wiki/Kill_chain)

The Cyber Kill Chain consists of 7 steps: Reconnaissance, weaponization, delivery, exploitation, installation, command and control, and finally, actions on objectives. Below you can find detailed information on each.

- \* 1. Reconnaissance: In this step, the attacker/intruder chooses their target. Then they conduct in-depth research on this target to identify its vulnerabilities that can be exploited.
- \* 2. Weaponization: In this step, the intruder creates a malware weapon like a virus, worm, or such to exploit the target's vulnerabilities. Depending on the target and the purpose of the attacker, this malware can exploit new, undetected vulnerabilities (also known as the zero-day exploits) or focus on a combination of different vulnerabilities.
- \* 3. Delivery: This step involves transmitting the weapon to the target. The intruder/attacker can employ different USB drives, e-mail attachments, and websites for this purpose.
- \* 4. Exploitation: In this step, the malware starts the action. The program code of the malware is triggered to exploit the target??s vulnerability/vulnerabilities.
- \* 5. Installation: In this step, the malware installs an access point for the intruder/attacker. This access point is also known as the backdoor.
- \* 6. Command and Control: The malware gives the intruder/attacker access to the network/system.
- \* 7. Actions on Objective: Once the attacker/intruder gains persistent access, they finally take action to fulfill their purposes, such as encryption for ransom, data exfiltration, or even data destruction.

**NEW QUESTION 156**

- (Topic 2)

Harry. a professional hacker, targets the IT infrastructure of an organization. After preparing for the attack, he attempts to enter the target network using techniques such as sending spear-phishing emails and exploiting vulnerabilities on publicly available servers. Using these techniques, he successfully deployed malware on the target system to establish an outbound connection. What is the APT lifecycle phase that Harry is currently executing?

- A. Preparation
- B. Cleanup
- C. Persistence
- D. initial intrusion

**Answer:** A

**Explanation:**

After the attacker completes preparations, subsequent step is an effort to realize an edge within the target??s environment. a particularly common entry tactic is that the use of spearphishing emails containing an internet link or attachment. Email links usually cause sites where the target??s browser and related software are subjected to varied exploit techniques or where the APT actors plan to social engineer information from the victim which will be used later. If a successful exploit takes place, it installs an initial malware payload on the victim??s computer. Figure 2 illustrates an example of a spearphishing email that contains an attachment. Attachments are usually executable malware, a zipper or other archive containing malware, or a malicious Office or Adobe PDF (Portable Document Format) document that exploits vulnerabilities within the victim??s applications to ultimately execute malware on the victim??s computer. Once the user has opened a malicious file using vulnerable software, malware is executing on the target system. These phishing emails are often very convincing and difficult to differentiate from legitimate email messages. Tactics to extend their believability include modifying legitimate documents from or associated with the organization. Documents are sometimes stolen from the organization or their collaborators during previous exploitation operations. Actors modify the documents by adding exploits and malicious code then send them to the victims. Phishing emails are commonly sent through previously compromised email servers, email accounts at organizations associated with the target or public email services. Emails also can be sent through mail relays with modified email headers to form the messages appear to possess originated from legitimate sources. Exploitation of vulnerabilities on public- facing servers is another favorite technique of some APT groups. Though this will be accomplished using exploits for known vulnerabilities, 0-days are often developed or purchased to be used in intrusions as required . Gaining an edge within the target environment is that the primary goal of the initial intrusion. Once a system is exploited, the attacker usually places malware on



the compromised system and uses it as a jump point or proxy for further actions. Malware placed during the initial intrusion phase is usually an easy downloader, basic Remote Access Trojan or an easy shell. Figure 3 illustrates a newly infected system initiating an outbound connection to notify the APT actor that the initial intrusion attempt was successful which it's able to accept commands.

#### NEW QUESTION 161

- (Topic 2)

Steve, an attacker, created a fake profile on a social media website and sent a request to Stella. Stella was enthralled by Steve's profile picture and the description given for his profile, and she initiated a conversation with him soon after accepting the request. After a few days, Steve started asking about her company details and eventually gathered all the essential information regarding her company. What is the social engineering technique Steve employed in the above scenario?

- A. Diversion theft
- B. Baiting
- C. Honey trap
- D. Piggybacking

**Answer: C**

#### Explanation:

The honey trap is a technique where an attacker targets a person online by pretending to be an attractive person and then begins a fake online relationship to obtain confidential information about the target company. In this technique, the victim is an insider who possesses critical information about the target organization. Baiting is a technique in which attackers offer end users something alluring in exchange for important information such as login details and other sensitive data. This technique relies on the curiosity and greed of the end-users. Attackers perform this technique by leaving a physical device such as a USB flash drive containing malicious files in locations where people can easily find them, such as parking lots, elevators, and bathrooms. This physical device is labeled with a legitimate company's logo, thereby tricking end-users into trusting it and opening it on their systems. Once the victim connects and opens the device, a malicious file downloads. It infects the system and allows the attacker to take control.

For example, an attacker leaves some bait in the form of a USB drive in the elevator with the label "Employee Salary Information 2019" and a legitimate company's logo. Out of curiosity and greed, the victim picks up the device and opens it up on their system, which downloads the bait. Once the bait is downloaded, a piece of malicious software installs on the victim's system, giving the attacker access.

#### NEW QUESTION 162

- (Topic 2)

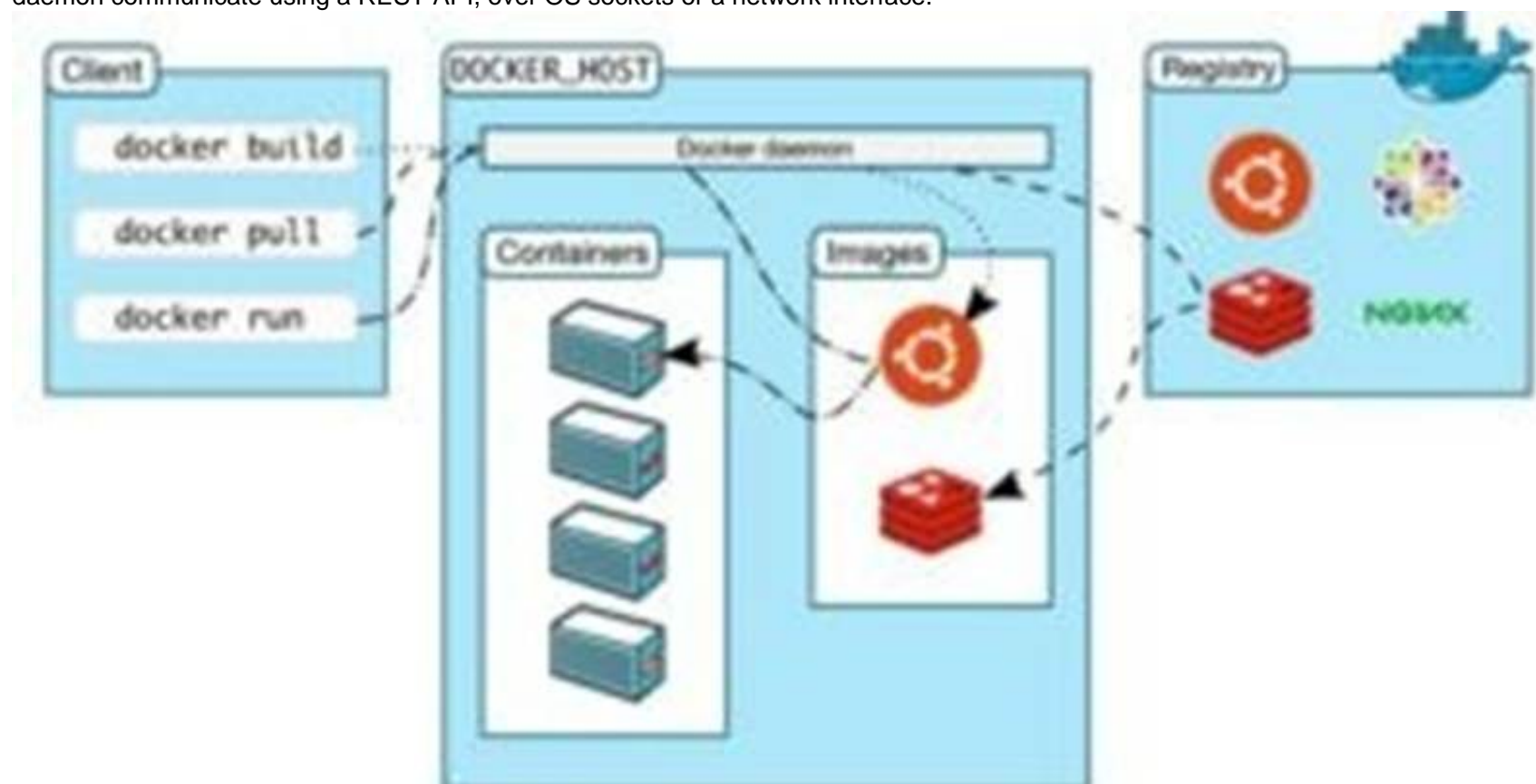
Annie, a cloud security engineer, uses the Docker architecture to employ a client/server model in the application she is working on. She utilizes a component that can process API requests and handle various Docker objects, such as containers, volumes, images, and networks. What is the component of the Docker architecture used by Annie in the above scenario?

- A. Docker client
- B. Docker objects
- C. Docker daemon
- D. Docker registries

**Answer: C**

#### Explanation:

Docker uses a client-server design. The docker client talks to the docker daemon, that will the work of building, running, and distributing your docker containers. The docker client and daemon will run on the same system, otherwise you will connect a docker consumer to a remote docker daemon. The docker consumer and daemon communicate using a REST API, over OS sockets or a network interface.



The docker daemon (dockerd) listens for docker API requests and manages docker objects like pictures, containers, networks, and volumes. A daemon may communicate with other daemons to manage docker services.



**NEW QUESTION 167**

- (Topic 2)

Suppose that you test an application for the SQL injection vulnerability. You know that the backend database is based on Microsoft SQL Server. In the login/password form, you enter the following credentials:

Username: attack' or 1=1 - Password: 123456

Based on the above credentials, which of the following SQL commands are you expecting to be executed by the server, if there is indeed an SQL injection vulnerability?

- A. select \* from Users where UserName = 'attack" or 1=1 -- and UserPassword = '123456'
- B. select \* from Users where UserName = 'attack' or 1=1 -- and UserPassword = '123456'
- C. select \* from Users where UserName = 'attack or 1=1 -- and UserPassword = '123456'
- D. select \* from Users where UserName = 'attack' or 1=1 --' and UserPassword = '123456'

**Answer: D**

**NEW QUESTION 171**

- (Topic 2)

Vlady works in a fishing company where the majority of the employees have very little understanding of IT let alone IT Security. Several information security issues that Vlady often found includes, employees sharing password, writing his/her password on a post it note and stick it to his/her desk, leaving the computer unlocked, didn't log out from emails or other social media accounts, and etc.

After discussing with his boss, Vlady decided to make some changes to improve the security environment in his company. The first thing that Vlady wanted to do is to make the employees understand the importance of keeping confidential information, such as password, a secret and they should not share it with other persons. Which of the following steps should be the first thing that Vlady should do to make the employees in his company understand to importance of keeping confidential information a secret?

- A. Warning to those who write password on a post it note and put it on his/her desk
- B. Developing a strict information security policy
- C. Information security awareness training
- D. Conducting a one to one discussion with the other employees about the importance of information security

**Answer: A**

**NEW QUESTION 173**

- (Topic 2)

During an Xmas scan what indicates a port is closed?

- A. No return response
- B. RST
- C. ACK
- D. SYN

**Answer: B**

**NEW QUESTION 174**

- (Topic 2)

Ethical hacker jane Smith is attempting to perform an SQL injection attach. She wants to test the response time of a true or false response and wants to use a second command to determine whether the database will return true or false results for user IDs. which two SQL Injection types would give her the results she is looking for?

- A. Out of band and boolean-based
- B. Time-based and union-based
- C. union-based and error-based
- D. Time-based and boolean-based

**Answer: D**

**Explanation:**

??Boolean based?? we mean that it is based on Boolean values, that is, true or false / true and false. AND Time-based SQL Injection is an inferential SQL Injection technique that relies on sending an SQL query to the database which forces the database to wait for a specified amount of time (in seconds) before responding. The response time will indicate to the attacker whether the result of the query is TRUE or FALSE.

Boolean-based (content-based) Blind SQLi

Boolean-based SQL Injection is an inferential SQL Injection technique that relies on sending an SQL query to the database which forces the application to return a different result depending on whether the query returns a TRUE or FALSE result.

Depending on the result, the content within the HTTP response will change, or remain the same. This allows an attacker to infer if the payload used returned true or false, even though no data from the database is returned. This attack is typically slow (especially on large databases) since an attacker would need to enumerate a database, character by character.

Time-based Blind SQLi

Time-based SQL Injection is an inferential SQL Injection technique that relies on sending an SQL query to the database which forces the database to wait for a specified amount of time (in seconds) before responding. The response time will indicate to the attacker whether the result of the query is TRUE or FALSE.

Depending on the result, an HTTP response will be returned with a delay, or returned immediately. This allows an attacker to infer if the payload used returned true or false, even though no data from the database is returned. This attack is typically slow (especially on large databases) since an attacker would need to enumerate a database character by character.

<https://www.acunetix.com/websitesecurity/sql-injection2/>

**NEW QUESTION 176**

- (Topic 2)

George is a security professional working for iTech Solutions. He was tasked with securely transferring sensitive data of the organization between industrial

systems. In this process, he used a short-range communication protocol based on the IEEE 203.15.4 standard. This protocol is used in devices that transfer data infrequently at a low rate in a restricted area, within a range of 10-100 m. What is the short-range wireless communication technology George employed in the above scenario?

- A. MQTT
- B. LPWAN
- C. Zigbee
- D. NB-IoT

**Answer: C**

**Explanation:**

Zigbee could be a wireless technology developed as associate open international normal to deal with the unique desires of affordable, low-power wireless IoT networks. The Zigbee normal operates on the IEEE 802.15.4 physical radio specification and operates in unauthorised bands as well as a pair of 4 GHz, 900 MHz and 868 MHz.

The 802.15.4 specification upon that the Zigbee stack operates gained confirmation by the Institute of Electrical and physical science Engineers (IEEE) in 2003.

The specification could be a packet-based radio protocol supposed for affordable, battery-operated devices. The protocol permits devices to speak in an exceedingly kind of network topologies and may have battery life lasting many years.

The Zigbee three.0 Protocol

The Zigbee protocol has been created and ratified by member corporations of the Zigbee Alliance. Over three hundred leading semiconductor makers, technology corporations, OEMs and repair corporations comprise the Zigbee Alliance membership. The Zigbee protocol was designed to supply associate easy-to-use wireless information answer characterised by secure, reliable wireless network architectures.

**THE ZIGBEE ADVANTAGE**

The Zigbee 3.0 protocol is intended to speak information through rip-roaring RF environments that area unit common in business and industrial applications.

Version 3.0 builds on the prevailing Zigbee normal however unifies the market-specific application profiles to permit all devices to be wirelessly connected within the same network, no matter their market designation and performance. what is more, a Zigbee 3.0 certification theme ensures the ability of product from completely different makers. Connecting Zigbee three.0 networks to the information science domain unveil observance and management from devices like smartphones and tablets on a local area network or WAN, as well as the web, and brings verity net of Things to fruition.

Zigbee protocol options include:

? Support for multiple network topologies like point-to-point, point-to-multipoint and mesh networks

? Low duty cycle – provides long battery life

? Low latency

? Direct Sequence unfold Spectrum (DSSS)

? Up to 65,000 nodes per network

? 128-bit AES encryption for secure information connections

? Collision avoidance, retries and acknowledgements

This is another short-range communication protocol based on the IEEE 203.15.4 standard. Zig-Bee is used in devices that transfer data infrequently at a low rate in a restricted area and within a range of 10–100 m.

**NEW QUESTION 177**

- (Topic 2)

Within the context of Computer Security, which of the following statements describes Social Engineering best?

- A. Social Engineering is the act of publicly disclosing information
- B. Social Engineering is the means put in place by human resource to perform time accounting
- C. Social Engineering is the act of getting needed information from a person rather than breaking into a system
- D. Social Engineering is a training program within sociology studies

**Answer: C**

**NEW QUESTION 180**

- (Topic 2)

Samuel a security administrator, is assessing the configuration of a web server. He noticed that the server permits SSLv2 connections, and the same private key certificate is used on a different server that allows SSLv2 connections. This vulnerability makes the web server vulnerable to attacks as the SSLv2 server can leak key information.

Which of the following attacks can be performed by exploiting the above vulnerability?

- A. DROWN attack
- B. Padding oracle attack
- C. Side-channel attack
- D. DUHK attack

**Answer: A**

**Explanation:**

DROWN is a serious vulnerability that affects HTTPS and other services that deem SSL and TLS, some of the essential cryptographic protocols for net security. These protocols allow everyone on the net to browse the net, use email, look on-line, and send instant messages while not third-parties being able to browse the communication.

DROWN allows attackers to break the encryption and read or steal sensitive communications, as well as passwords, credit card numbers, trade secrets, or financial data. At the time of public disclosure on March 2016, our measurements indicated thirty third of all HTTPS servers were vulnerable to the attack.

fortuitously, the vulnerability is much less prevalent currently. As of 2019, SSL Labs estimates that one.2% of HTTPS servers are vulnerable.

What will the attackers gain? Any communication between users and the server. This typically includes, however isn't limited to, usernames and passwords, credit card numbers, emails, instant messages, and sensitive documents. under some common scenarios, an attacker can also impersonate a secure web site and intercept or change the content the user sees.

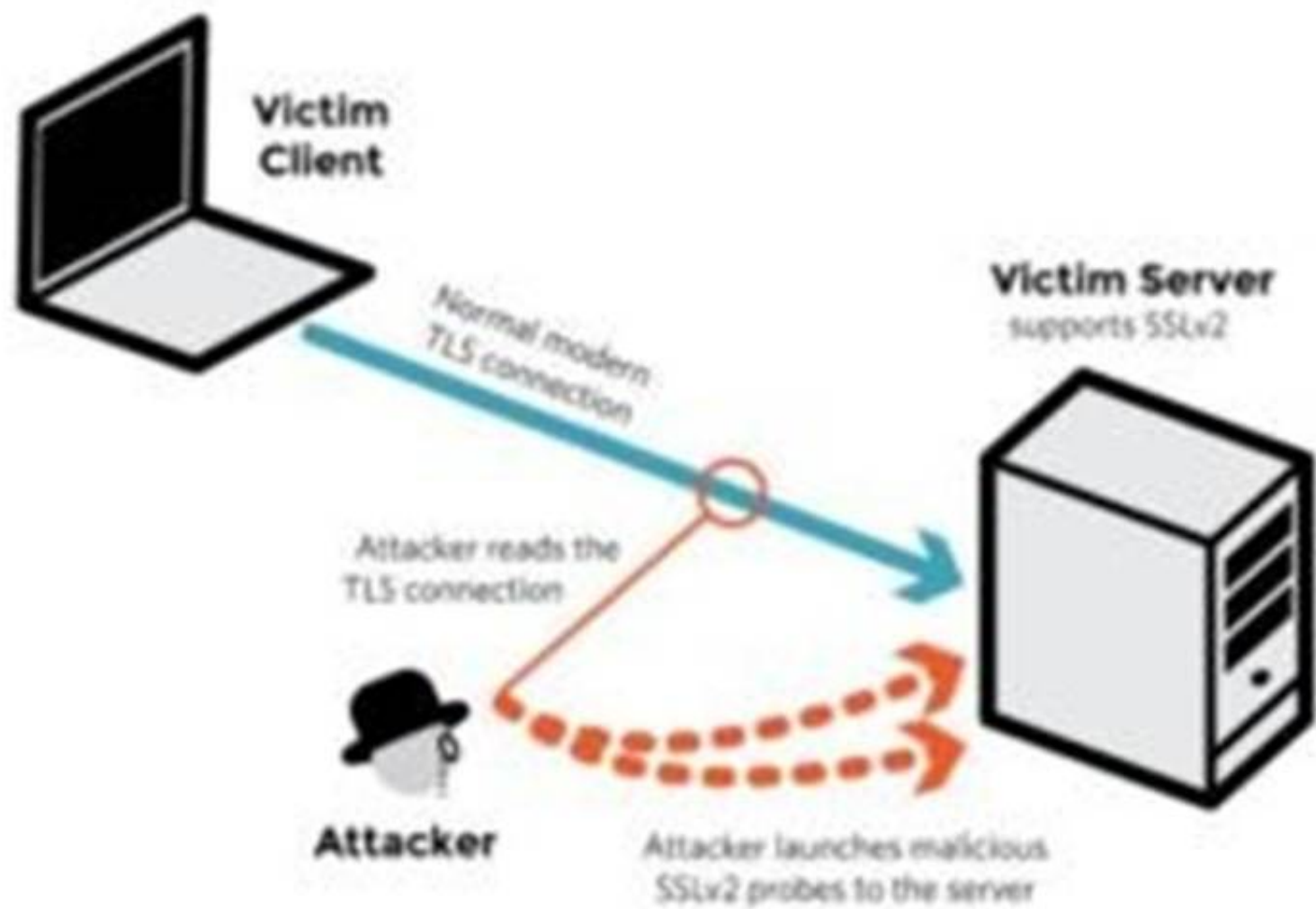
Who is vulnerable? Websites, mail servers, and other TLS-dependent services are in danger for the DROWN attack. At the time of public disclosure, many popular sites were affected. we used Internet-wide scanning to live how many sites are vulnerable:

SSLv2

Vulnerable  
at Disclosure  
(March 2016)

HTTPS — Top one million domains	25%
HTTPS — All browser-trusted sites	22%
HTTPS — All sites	33%

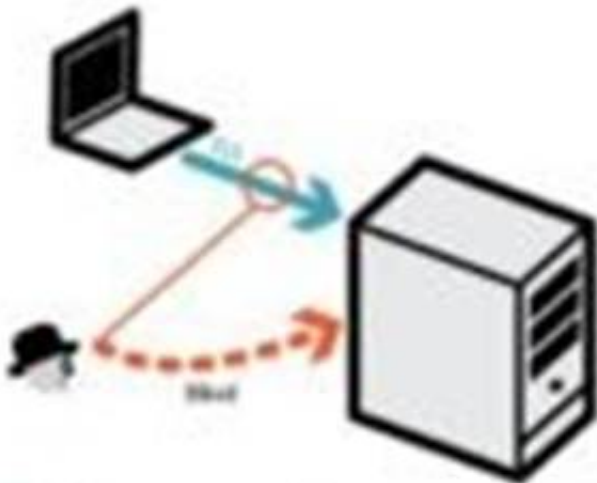
Operators of vulnerable servers got to take action. there??s nothing practical that browsers or end-users will do on their own to protect against this attack. Is my site vulnerable?Modern servers and shoppers use the TLS encryption protocol. However, because of misconfigurations, several servers also still support SSLv2, a 1990s- era precursor to TLS. This support did not matter in practice, since no up-to-date clients really use SSLv2. Therefore, despite the fact that SSLv2 is thought to be badly insecure, until now, simply supporting SSLv2 wasn??t thought of a security problem, is a clients never used it. DROWN shows that merely supporting SSLv2 may be a threat to fashionable servers and clients. It modern associate degree attacker to modern fashionable TLS connections between up-to-date clients and servers by sending probes to a server that supports SSLv2 and uses the same private key.



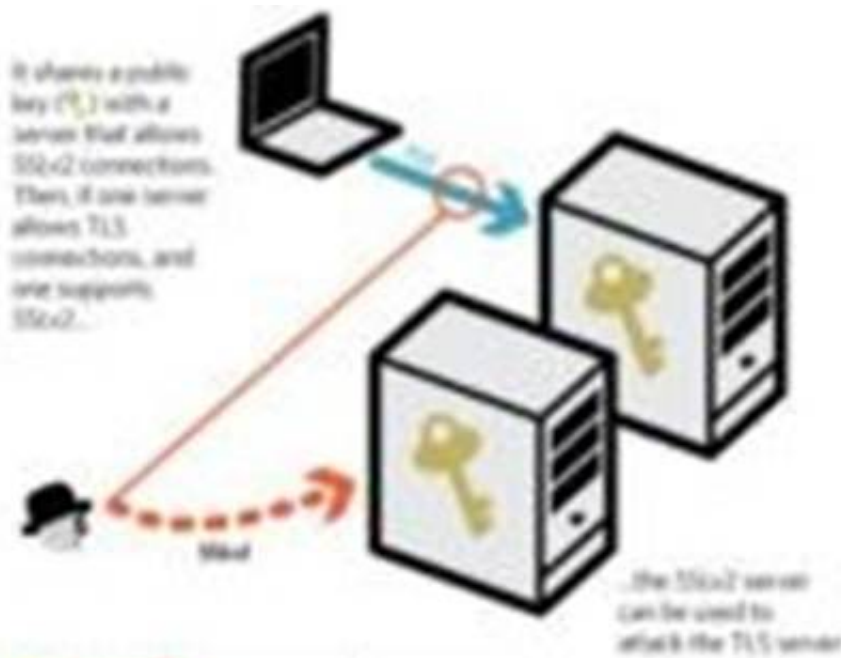
SSLv2  
 ? It allows SSLv2 connections. This is surprisingly common, due to misconfiguration and inappropriate default settings.  
 ? Its private key is used on any other serverthat allows SSLv2 connections, even for another protocol. Many companies reuse the same certificate and key on their web and email servers, for instance. In this case, if the email server supports SSLv2 and the web server does not, an attacker can take advantage of the email server to break TLS connections to the web server.  
 A server is vulnerable to DROWN if:

**A server is vulnerable to DROWN if:**

It allows both TLS and SSLv2 connections



17% of HTTPS servers still allow SSLv2 connections



When taking key reuse into account, an additional 16% of HTTPS servers are vulnerable, putting 33% of HTTPS servers at risk

SSLv2  
 How do I protect my server?To protect against DROWN, server operators need to ensure that their private keys software used anyplace with server computer code



that enables SSLv2 connections. This includes net servers, SMTP servers, IMAP and POP servers, and the other software that supports SSL/TLS.

Disabling SSLv2 is difficult and depends on the particular server software. we offer instructions here for many common products:

OpenSSL: OpenSSL may be a science library employed in several server merchandise. For users of OpenSSL, the simplest and recommended solution is to upgrade to a recent OpenSSL version. OpenSSL 1.0.2 users ought to upgrade to 1.0.2g. OpenSSL 1.0.1 users ought to upgrade to one.0.1s. Users of older OpenSSL versions ought to upgrade to either one in every of these versions. (Updated March thirteenth, 16:00 UTC) Microsoft IIS (Windows Server): Support for SSLv2 on the server aspect is enabled by default only on the OS versions that correspond to IIS 7.0 and IIS seven.5, particularly Windows scene, Windows Server 2008, Windows seven and Windows Server 2008R2. This support is disabled within the appropriate SSLv2 subkey for ??Server??, as outlined in KB245030. albeit users haven??t taken the steps to disable SSLv2, the export-grade and 56-bit ciphers that build DROWN possible don??t seem to be supported by default.

Network Security Services (NSS): NSS may be a common science library designed into several server merchandise. NSS versions three.13 (released back in 2012) and higher than ought to have SSLv2 disabled by default. (A little variety of users might have enabled SSLv2 manually and can got to take steps to disable it.) Users of older versions ought to upgrade to a more moderen version. we tend to still advocate checking whether or not your non-public secret is exposed elsewhere

Other affected software and in operation systems:

Instructions and data for: Apache, Postfix, Nginx, Debian, Red Hat

Browsers and other consumers: practical nothing practical that net browsers or different client computer code will do to stop DROWN. only server operators ar ready to take action to guard against the attack.

#### NEW QUESTION 181

- (Topic 2)

is a tool that can hide processes from the process list, can hide files, registry entries, and intercept keystrokes.

- A. Trojan
- B. RootKit
- C. DoS tool
- D. Scanner
- E. Backdoor

**Answer: B**

#### NEW QUESTION 186

- (Topic 2)

Wilson, a professional hacker, targets an organization for financial benefit and plans to compromise its systems by sending malicious emails. For this purpose, he uses a tool to track the emails of the target and extracts information such as sender identities, mail servers, sender IP addresses, and sender locations from different public sources. He also checks if an email address was leaked using the haveibeenpwned.com API. Which of the following tools is used by Wilson in the above scenario?

- A. Factiva
- B. Netcraft
- C. infoga
- D. Zoominfo

**Answer: C**

#### Explanation:

Infoga may be a tool gathering email accounts informations (ip,hostname,country,??) from completely different public supply (search engines, pgp key servers and shodan) and check if email was leaked using haveibeenpwned.com API. is a really simple tool, however very effective for the first stages of a penetration test or just to know the visibility of your company within the net.

#### NEW QUESTION 191

- (Topic 2)

These hackers have limited or no training and know how to use only basic techniques or tools.

What kind of hackers are we talking about?

- A. Black-Hat Hackers A
- B. Script Kiddies
- C. White-Hat Hackers
- D. Gray-Hat Hacker

**Answer: B**

#### Explanation:

Script Kiddies: These hackers have limited or no training and know how to use only basic techniques or tools. Even then they may not understand any or all of what they are doing.

#### NEW QUESTION 193

- (Topic 2)

Sam is working as a system administrator In an organization. He captured the principal characteristics of a vulnerability and produced a numerical score to reflect Its severity using CVSS v3.0 to property assess and prioritize the organization's vulnerability management processes. The base score that Sam obtained after performing cvss rating was 4.0. What is the CVSS severity level of the vulnerability discovered by Sam in the above scenario?

- A. Medium
- B. Low
- C. Critical
- D. High

**Answer: A**

#### Explanation:

Rating CVSS Score None 0.0

Low 0.1 - 3.9  
 Medium 4.0 - 6.9  
 High 7.0 - 8.9  
 Critical 9.0 - 10.0

<https://www.first.org/cvss/v3.0/specification-document>

The Common Vulnerability Scoring System (CVSS) is an open framework for communicating the characteristics and severity of software vulnerabilities. CVSS consists of three metric groups: Base, Temporal, and Environmental. The Base metrics produce a score ranging from 0 to 10, which can then be modified by scoring the Temporal and Environmental metrics. A CVSS score is also represented as a vector string, a compressed textual representation of the values used to derive the score. Thus, CVSS is well suited as a standard measurement system for industries, organizations, and governments that need accurate and consistent vulnerability severity scores. Two common uses of CVSS are calculating the severity of vulnerabilities discovered on one's systems and as a factor in prioritization of vulnerability remediation activities. The National Vulnerability Database (NVD) provides CVSS scores for almost all known vulnerabilities.

Qualitative Severity Rating Scale

For some purposes, it is useful to have a textual representation of the numeric Base, Temporal and Environmental scores.

Rating	CVSS Score
None	0.0
Low	0.1 - 3.9
Medium	4.0 - 6.9
High	7.0 - 8.9
Critical	9.0 - 10.0

**NEW QUESTION 198**

- (Topic 2)

In the field of cryptanalysis, what is meant by a "rubber-hose" attack?

- A. Attempting to decrypt cipher text by making logical assumptions about the contents of the original plain text.
- B. Extraction of cryptographic secrets through coercion or torture.
- C. Forcing the targeted key stream through a hardware-accelerated device such as an ASIC.
- D. A backdoor placed into a cryptographic algorithm by its creator.

**Answer: B**

**NEW QUESTION 203**

- (Topic 2)

What do Trinoo, TFN2k, WinTrinoo, T-Sight, and Stracheldraht have in common?

- A. All are hacking tools developed by the legion of doom
- B. All are tools that can be used not only by hackers, but also security personnel
- C. All are DDOS tools
- D. All are tools that are only effective against Windows
- E. All are tools that are only effective against Linux

**Answer: C**

**NEW QUESTION 205**

- (Topic 2)

Bob is going to perform an active session hijack against Brownies Inc. He has found a target that allows session oriented connections (Telnet) and performs the sequence prediction on the target operating system. He manages to find an active session due to the high level of traffic on the network. What is Bob supposed to do next?

- A. Take over the session
- B. Reverse sequence prediction
- C. Guess the sequence numbers
- D. Take one of the parties offline

**Answer: C**

**NEW QUESTION 207**

- (Topic 2)

What type of analysis is performed when an attacker has partial knowledge of inner- workings of the application?

- A. Black-box
- B. Announced



- C. White-box
- D. Grey-box

**Answer:** D

#### NEW QUESTION 210

- (Topic 2)

What would be the fastest way to perform content enumeration on a given web server by using the Gobuster tool?

- A. Performing content enumeration using the bruteforce mode and 10 threads
- B. Shipping SSL certificate verification
- C. Performing content enumeration using a wordlist
- D. Performing content enumeration using the bruteforce mode and random file extensions

**Answer:** C

#### Explanation:

Analyze Web Applications: Identify Files and Directories - enumerate applications, as well as hidden directories and files of the web application hosted on the web server. Tools such as Gobuster is directory scanner that allows attackers to perform fast-paced enumeration of hidden files and directories of a target web application. # gobuster -u <target URL> -w common.txt (wordlist) (P.1849/1833)

#### NEW QUESTION 215

- (Topic 2)

Johnson, an attacker, performed online research for the contact details of reputed cybersecurity firms. He found the contact number of sibertech.org and dialed the number, claiming himself to represent a technical support team from a vendor. He warned that a specific server is about to be compromised and requested sibertech.org to follow the provided instructions. Consequently, he prompted the victim to execute unusual commands and install malicious files, which were then used to collect and pass critical Information to Johnson's machine. What is the social engineering technique Steve employed in the above scenario?

- A. Quid pro quo
- B. Diversion theft
- C. Elicitation
- D. Phishing

**Answer:** A

#### Explanation:

<https://www.eccouncil.org/what-is-social-engineering/>

This Social Engineering scam involves an exchange of information that can benefit both the victim and the trickster. Scammers would make the prey believe that a fair exchange will be present between both sides, but in reality, only the fraudster stands to benefit, leaving the victim hanging on to nothing. An example of a Quid Pro Quo is a scammer pretending to be an IT support technician. The con artist asks for the login credentials of the company's computer saying that the company is going to receive technical support in return. Once the victim has provided the credentials, the scammer now has control over the company's computer and may possibly load malware or steal personal information that can be a motive to commit identity theft.

"A quid pro quo attack (aka something for something attack) is a variant of baiting. Instead of baiting a target with the promise of a good, a quid pro quo attack promises a service or a benefit based on the execution of a specific action." <https://resources.infosecinstitute.com/topic/common-social-engineering-attacks/#:~:text=A%20quid%20pro%20quo%20attack,execution%20of%20a%20specific%20action.>

#### NEW QUESTION 219

- (Topic 2)

Matthew, a black hat, has managed to open a meterpreter session to one of the kiosk machines in Evil Corp's lobby. He checks his current SID, which is S-1-5-21-1223352397- 1872883824-861252104-501. What needs to happen before Matthew has full administrator access?

- A. He must perform privilege escalation.
- B. He needs to disable antivirus protection.
- C. He needs to gain physical access.
- D. He already has admin privileges, as shown by the 501 at the end of the SID.

**Answer:** A

#### NEW QUESTION 221

- (Topic 2)

During the process of encryption and decryption, what keys are shared?

- A. Private keys
- B. User passwords
- C. Public keys
- D. Public and private keys

**Answer:** C

#### Explanation:

[https://en.wikipedia.org/wiki/Public-key\\_cryptography](https://en.wikipedia.org/wiki/Public-key_cryptography)

Public-key cryptography, or asymmetric cryptography, is a cryptographic system that uses pairs of keys: public keys (which may be known to others), and private keys (which may never be known by any except the owner). The generation of such key pairs depends on cryptographic algorithms which are based on mathematical problems termed one-way functions. Effective security requires keeping the private key private; the public key can be openly distributed without compromising security.

In such a system, any person can encrypt a message using the intended receiver's public key, but that encrypted message can only be decrypted with the receiver's private key. This allows, for instance, a server program to generate a cryptographic key intended for a suitable symmetric-key cryptography, then to use

a client's openly-shared public key to encrypt that newly generated symmetric key. The server can then send this encrypted symmetric key over an insecure channel to the client; only the client can decrypt it using the client's private key (which pairs with the public key used by the server to encrypt the message). With the client and server both having the same symmetric key, they can safely use symmetric key encryption (likely much faster) to communicate over otherwise-insecure channels. This scheme has the advantage of not having to manually pre-share symmetric keys (a fundamentally difficult problem) while gaining the higher data throughput advantage of symmetric-key cryptography.

With public-key cryptography, robust authentication is also possible. A sender can combine a message with a private key to create a short digital signature on the message. Anyone with the sender's corresponding public key can combine that message with a claimed digital signature; if the signature matches the message, the origin of the message is verified (i.e., it must have been made by the owner of the corresponding private key). Public key algorithms are fundamental security primitives in modern cryptosystems, including applications and protocols which offer assurance of the confidentiality, authenticity and non-repudiability of electronic communications and data storage. They underpin numerous Internet standards, such as Transport Layer Security (TLS), S/MIME, PGP, and GPG. Some public key algorithms provide key distribution and secrecy (e.g., Diffie–Hellman key exchange), some provide digital signatures (e.g., Digital Signature Algorithm), and some provide both (e.g., RSA). Compared to symmetric encryption, asymmetric encryption is rather slower than good symmetric encryption, too slow for many purposes. Today's cryptosystems (such as TLS, Secure Shell) use both symmetric encryption and asymmetric encryption.

#### NEW QUESTION 222

- (Topic 2)

Study the snort rule given below and interpret the rule. alert tcp any any --> 192.168.1.0/24 111 (content:"|00 01 86 a5|"; msG. "mountd access");

- A. An alert is generated when a TCP packet is generated from any IP on the 192.168.1.0 subnet and destined to any IP on port 111
- B. An alert is generated when any packet other than a TCP packet is seen on the network and destined for the 192.168.1.0 subnet
- C. An alert is generated when a TCP packet is originated from port 111 of any IP address to the 192.168.1.0 subnet
- D. An alert is generated when a TCP packet originating from any IP address is seen on the network and destined for any IP address on the 192.168.1.0 subnet on port 111

**Answer:** D

#### NEW QUESTION 226

- (Topic 2)

Steven connected his iPhone to a public computer that had been infected by Clark, an attacker. After establishing the connection with the public computer, Steven enabled iTunes Wi-Fi sync on the computer so that the device could continue communication with that computer even after being physically disconnected. Now, Clark gains access to Steven's iPhone through the infected computer and is able to monitor and read all of Steven's activity on the iPhone, even after the device is out of the communication zone.

Which of the following attacks is performed by Clark in above scenario?

- A. IOS trustjacking
- B. IOS Jailbreaking
- C. Exploiting SS7 vulnerability
- D. Man-in-the-disk attack

**Answer:** A

#### Explanation:

An iPhone client's most noticeably terrible bad dream is to have somebody oversee his/her gadget, including the capacity to record and control all action without waiting to be in a similar room. In this blog entry, we present another weakness called Trustjacking, which permits an aggressor to do precisely that.

This weakness misuses an iOS highlight called iTunes Wi-Fi sync, which permits a client to deal with their iOS gadget without genuinely interfacing it to their PC. A solitary tap by the iOS gadget proprietor when the two are associated with a similar organization permits an assailant to oversee the gadget. Furthermore, we will stroll through past related weaknesses and show the progressions that iPhone has made to alleviate them, and why these are adequately not to forestall comparative assaults.

After interfacing an iOS gadget to another PC, the clients are being found out if they trust the associated PC or not. Deciding to believe the PC permits it to speak with the iOS gadget by means of the standard iTunes APIs.

This permits the PC to get to the photographs on the gadget, perform reinforcement, introduce applications and considerably more, without requiring another affirmation from the client and with no recognizable sign. Besides, this permits enacting the iTunes Wi-Fi sync highlight, which makes it conceivable to proceed with this sort of correspondence

with the gadget even after it has been detached from the PC, as long as the PC and the iOS gadget are associated with a similar organization. It is intriguing to take note of that empowering iTunes Wi-Fi sync doesn't need the casualty's endorsement and can be directed simply from the PC side.

Getting a live stream of the gadget's screen should be possible effectively by consistently requesting screen captures and showing or recording them distantly.

It is imperative to take note of that other than the underlying single purpose of disappointment, approving the vindictive PC, there is no other component that forestalls this proceeded with access. Likewise, there isn't anything that informs the clients that by approving the PC they permit admittance to their gadget even in the wake of detaching the USB link.

#### NEW QUESTION 227

- (Topic 2)

Ricardo has discovered the username for an application in his targets environment. As he has a limited amount of time, he decides to attempt to use a list of common passwords he found on the Internet. He compiles them into a list and then feeds that list as an argument into his password-cracking application, what type of attack is Ricardo performing?

- A. Known plaintext
- B. Password spraying
- C. Brute force
- D. Dictionary

**Answer:** D

#### Explanation:

A dictionary Attack as an attack vector utilized by the attacker to break in a very system, that is password protected, by going through technically each word in a very dictionary as a variety of password for that system. This attack vector could be a variety of Brute Force Attack.

The lexicon will contain words from an English dictionary and conjointly some leaked list of commonly used passwords and once combined with common character substitution with numbers, will generally be terribly effective and quick.

How is it done?

Basically, it??s attempting each single word that??s already ready. it??s done victimization machine-controlled tools that strive all the possible words within the dictionary.

Some password Cracking Software:

- John the ripper
- L0phtCrack
- Aircrack-ng

#### NEW QUESTION 232

- (Topic 2)

Abel, a cloud architect, uses container technology to deploy applications/software including all its dependencies, such as libraries and configuration files, binaries, and other resources that run independently from other processes in the cloud environment. For the containerization of applications, he follows the five-tier container technology architecture. Currently, Abel is verifying and validating image contents, signing images, and sending them to the registries. Which of the following tiers of the container technology architecture Is Abel currently working in?

- A. Tier-1: Developer machines
- B. Tier-4: Orchestrators
- C. Tier-3: Registries
- D. Tier-2: Testing and accreditation systems

**Answer:** D

#### Explanation:

The official management decision given by a senior agency official to authorize operation of an information system and to explicitly accept the risk to agency operations (including mission, functions, image, or reputation), agency assets, or individuals, based on the implementation of an agreed-upon set of security controls. formal declaration by a designated accrediting authority (DAA) or principal accrediting authority (PAA) that an information system is approved to operate at an acceptable level of risk, based on the implementation of an approved set of technical, managerial, and procedural safeguards. See authorization to operate (ATO). Rationale: The Risk Management Framework uses a new term to refer to this concept, and it is called authorization.

Identifies the information resources covered by an accreditation decision, as distinguished from separately accredited information resources that are interconnected or with which information is exchanged via messaging. Synonymous with Security Perimeter.

For the purposes of identifying the Protection Level for confidentiality of a system to be accredited, the system has a conceptual boundary that extends to all intended users of the system, both directly and indirectly connected, who receive output from the system. See authorization boundary. Rationale: The Risk Management Framework uses a new term to refer to the concept of accreditation, and it is called authorization. Extrapolating, the accreditation boundary would then be referred to as the authorization boundary.

#### NEW QUESTION 236

- (Topic 2)

You are analysing traffic on the network with Wireshark. You want to routinely run a cron job which will run the capture against a specific set of IPs - 192.168.8.0/24. What command you would use?

- A. wireshark --fetch "192.168.8\*"
- B. wireshark --capture --local masked 192.168.8.0 ---range 24
- C. tshark -net 192.255.255.255 mask 192.168.8.0
- D. sudo tshark -f"net 192 .68.8.0/24"

**Answer:** D

#### NEW QUESTION 240

- (Topic 2)

What is the file that determines the basic configuration (specifically activities, services, broadcast receivers, etc.) in an Android application?

- A. AndroidManifest.xml
- B. APK.info
- C. resources.asrc
- D. classes.dex

**Answer:** A

#### Explanation:

The AndroidManifest.xml file contains information of your package, including components of the appliance like activities, services, broadcast receivers, content providers etc.It performs another tasks also:• it??s responsible to guard the appliance to access any protected parts by providing the permissions.• It also declares the android api that the appliance goes to use.• It lists the instrumentation classes. The instrumentation classes provides profiling and other informations. These informations are removed just before the appliance is published etc.This is the specified xml file for all the android application and located inside the basis directory.

#### NEW QUESTION 244

- (Topic 2)

A newly joined employee. Janet, has been allocated an existing system used by a previous employee. Before issuing the system to Janet, it was assessed by Martin, the administrator. Martin found that there were possibilities of compromise through user directories, registries, and other system parameters. He also Identified vulnerabilities such as native configuration tables, incorrect registry or file permissions, and software configuration errors. What is the type of vulnerability assessment performed by Martin?

- A. Credentialed assessment
- B. Database assessment
- C. Host-based assessment
- D. Distributed assessment

**Answer:** C



**Explanation:**

The host-based vulnerability assessment (VA) resolution arose from the auditors?? got to periodically review systems. Arising before the net becoming common, these tools typically take an ??administrator??s eye?? read of the setting by evaluating all of the knowledge that an administrator has at his or her disposal. UsesHost VA tools verify system configuration, user directories, file systems, registry settings, and all forms of other info on a number to gain information about it. Then, it evaluates the chance of compromise. it should also live compliance to a predefined company policy so as to satisfy an annual audit. With administrator access, the scans area unit less possible to disrupt traditional operations since the computer code has the access it has to see into the complete configuration of the system.

What it Measures Host

VA tools will examine the native configuration tables and registries to spot not solely apparent vulnerabilities, however additionally ??dormant?? vulnerabilities – those weak or misconfigured systems and settings which will be exploited when an initial entry into the setting. Host VA solutions will assess the safety settings of a user account table; the access management lists related to sensitive files or data; and specific levels of trust applied to other systems. The host VA resolution will a lot of accurately verify the extent of the danger by determinant however way any specific exploit could also be ready to get.

Types of Vulnerability Assessment Host-based assessments are a type of security check that involve conducting a configuration-level check to identify system configurations, user directories, file systems, registry settings, and other parameters to evaluate the possibility of compromise. Host-based scanners assess systems to identify vulnerabilities such as native configuration tables, incorrect registry or file permissions, and software configuration errors. (P.528/512)

**NEW QUESTION 248**

- (Topic 2)

Widespread fraud ac Enron. WorldCom, and Tyco led to the creation of a law that was designed to improve the accuracy and accountability of corporate disclosures. It covers accounting firms and third parties that provide financial services to some organizations and came into effect in 2002. This law is known by what acronym?

- A. Fed RAMP
- B. PCIDSS
- C. SOX
- D. HIPAA

**Answer: C**

**Explanation:**

The Sarbanes-Oxley Act of 2002 could be a law the U.S. Congress passed on July thirty of that year to assist defend investors from fallacious money coverage by companies.Also called the SOX Act of 2002 and also the company Responsibility Act of 2002, it mandated strict reforms to existing securities rules and obligatory powerful new penalties on law breakers.

The Sarbanes-Oxley law Act of 2002 came in response to money scandals within the early 2000s involving in public listed corporations like Enron Corporation, Tyco International plc, and WorldCom. The high-profile frauds cask capitalist confidence within the trustiness of company money statements Associate in Nursing light-emitting diode several to demand an overhaul of decades-old restrictive standards.

**NEW QUESTION 253**

- (Topic 2)

What is the common name for a vulnerability disclosure program opened by companies In platforms such as HackerOne?

- A. Vulnerability hunting program
- B. Bug bounty program
- C. White-hat hacking program
- D. Ethical hacking program

**Answer: B**

**Explanation:**

Bug bounty programs allow independent security researchers to report bugs to an companies and receive rewards or compensation. These bugs area unit sometimes security exploits and vulnerabilities, although they will additionally embody method problems, hardware flaws, and so on.

The reports area unit usually created through a program travel by associate degree freelance third party (like Bugcrowd or HackerOne). The companies can got wind of (and

run) a program curated to the organization??s wants.

Programs is also non-public (invite-only) wherever reports area unit unbroken confidential to the organization or public (where anyone will sign in and join). they will happen over a collection timeframe or with without stopping date (though the second possibility is a lot of common).

Who uses bug bounty programs?Many major organizations use bug bounties as an area of their security program, together with AOL, Android, Apple, Digital Ocean, and goldman Sachs. you??ll read an inventory of all the programs offered by major bug bounty suppliers, Bugcrowd and HackerOne, at these links.

Why do corporations use bug bounty programs?Bug bounty programs provide corporations the flexibility to harness an outsized cluster of hackers so as to seek out bugs in their code. This gives them access to a bigger variety of hackers or testers than they??d be able to access on a one-on-one basis. It {can also|also will|can even|may also|may} increase the probabilities that bugs area unit found and reported to them before malicious hackers can exploit them.

It may also be an honest publicity alternative for a firm. As bug bounties became a lot of common, having a bug bounty program will signal to the general public and even regulators that a corporation incorporates a mature security program.

This trend is likely to continue, as some have began to see bug bounty programs as an business normal that all companies ought to invest in.

Why do researchers and hackers participate in bug bounty programs?Finding and news bugs via a bug bounty program may end up in each money bonuses and recognition. In some cases, it will be a good thanks to show real-world expertise once you are looking for employment, or will even facilitate introduce you to parents on the protection team within an companies.

This can be full time income for a few of us, income to supplement employment, or the way to point out off your skills and find a full time job.

It may also be fun! it is a nice (legal) probability to check out your skills against huge companies and government agencies.

What area unit the disadvantages of a bug bounty program for independent researchers and hackers?A lot of hackers participate in these varieties of programs, and it will be tough to form a major quantity of cash on the platform.

In order to say the reward, the hacker has to be the primary person to submit the bug to the program. meaning that in apply, you may pay weeks searching for a bug to use, solely to be the person to report it and build no cash.

Roughly ninety seven of participants on major bug bounty platforms haven??t sold-out a bug. In fact, a 2019 report from HackerOne confirmed that out of quite three hundred,000 registered users, solely around two.5% received a bounty in their time on the platform. Essentially, most hackers are not creating a lot of cash on these platforms, and really few square measure creating enough to switch a full time wage (plus they do not have advantages like vacation days, insurance, and retirement planning).

What square measure the disadvantages of bug bounty programs for organizations?These programs square measure solely helpful if the program ends up in the companies realizeing issues that they weren??t able to find themselves (and if they??ll fix those problems)! If the companies is not mature enough to be able to quickly rectify known problems, a bug bounty program is not the right alternative for his or her companies.

Also, any bug bounty program is probably going to draw in an outsized range of submissions, several of which can not be high-quality submissions. a corporation must be ready to cope with the exaggerated volume of alerts, and also the risk of a coffee signal to noise magnitude relation (essentially that it??s probably that they??re going to receive quite few unhelpful reports for each useful report).

Additionally, if the program does not attract enough participants (or participants with the incorrect talent set, and so participants are not able to establish any bugs), the program is not useful for the companies.

The overwhelming majority of bug bounty participants consider web site vulnerabilities (72%, per HackerOn), whereas solely a number of (3.5%) value more highly to seek for package vulnerabilities.

This is probably because of the actual fact that hacking in operation systems (like network hardware and memory) needs a big quantity of extremely specialised experience. this implies that firms may even see vital come on investment for bug bounties on websites, and not for alternative applications, notably those that need specialised experience.

This conjointly implies that organizations which require to look at AN application or web site among a selected time-frame may not need to rely on a bug bounty as there is no guarantee of once or if they receive reports.

Finally, it are often probably risky to permit freelance researchers to try to penetrate your network. this could end in public speech act of bugs, inflicting name harm within the limelight (which could end in individuals not eager to purchase the organizations?? product or service), or speech act of bugs to additional malicious third parties, United Nations agency may use this data to focus on the organization.

#### NEW QUESTION 258

- (Topic 2)

Which of the following statements is FALSE with respect to Intrusion Detection Systems?

- A. Intrusion Detection Systems can be configured to distinguish specific content in network packets
- B. Intrusion Detection Systems can easily distinguish a malicious payload in an encrypted traffic
- C. Intrusion Detection Systems require constant update of the signature library
- D. Intrusion Detection Systems can examine the contents of the data n context of the network protocol

**Answer: B**

#### NEW QUESTION 262

- (Topic 2)

Susan, a software developer, wants her web API to update other applications with the latest information. For this purpose, she uses a user-defined HTTP tailback or push APIs that are raised based on trigger events: when invoked, this feature supplies data to other applications so that users can instantly receive real-time Information.

Which of the following techniques is employed by Susan?

- A. web shells
- B. Webhooks
- C. REST API
- D. SOAP API

**Answer: B**

#### Explanation:

Webhooks are one of a few ways internet applications will communicate with one another.

It allows you to send real-time data from one application to another whenever a given event happens.

For example, let??s say you??ve created an application using the Foursquare API that tracks when people check into your restaurant. You ideally wish to be able to greet customers by name and provide a complimentary drink when they check in.

What a webhook will is notify you any time someone checks in, therefore you??d be able to run any processes that you simply had in your application once this event is triggered. The data is then sent over the web from the application wherever the event originally occurred, to the receiving application that handles the data. Here??s a visual representation of what that looks like:

#### Stripped down view of webhooks in action



A webhook url is provided by the receiving application, and acts as a phone number that the other application will call once an event happens.

Only it??s more complicated than a phone number, because data about the event is shipped to the webhook url in either JSON or XML format. this is known as the ??payload.??

Here??s an example of what a webhook url looks like with the payload it??s carrying:



```
https://yourapp.com/data/12345?customer=Bob?value=10.00?item=paper

To: yourapp.com/data/12345
Customer: Bob
Value: 10.00
Item: Paper
```

What are Webhooks? Webhooks are user-defined HTTP callback or push APIs that are raised based on events triggered, such as comment received on a post and pushing code to the registry. A webhook allows an application to update other applications with the latest information. Once invoked, it supplies data to the other applications, which means that users instantly receive real-time information. Webhooks are sometimes called ??Reverse APIs?? as they provide what is required for API specification, and the developer should create an API to use a webhook. A webhook is an API concept that is also used to send text messages and notifications to mobile numbers or email addresses from an application when a specific event is triggered. For instance, if you search for something in the online store and the required item is out of stock, you click on the ??Notify me?? bar to get an alert from the application when that item is available for purchase. These notifications from the applications are usually sent through webhooks.

**NEW QUESTION 267**

- (Topic 2)

Which of the following DoS tools is used to attack target web applications by starvation of available sessions on the web server?

The tool keeps sessions at halt using never-ending POST transmissions and sending an arbitrarily large content-length header value.

- A. My Doom
- B. Astacheldraht
- C. R-U-Dead-Yet?(RUDY)
- D. LOIC

**Answer:** C

**NEW QUESTION 268**

- (Topic 2)

There have been concerns in your network that the wireless network component is not sufficiently secure. You perform a vulnerability scan of the wireless network and find that it is using an old encryption protocol that was designed to mimic wired encryption, what encryption protocol is being used?

- A. WEP
- B. RADIUS
- C. WPA
- D. WPA3

**Answer:** A

**Explanation:**

Wired Equivalent Privacy (WEP) may be a security protocol, laid out in the IEEE wireless local area network (Wi-Fi) standard, 802.11b, that??s designed to supply a wireless local area network (WLAN) with A level of security and privacy like what??s usually expected of a wired LAN. A wired local area network (LAN) is usually protected by physical security mechanisms (controlled access to a building, for example) that are effective for a controlled physical environment, but could also be ineffective for WLANs because radio waves aren??t necessarily bound by the walls containing the network. WEP seeks to determine similar protection thereto offered by the wired network??s physical security measures by encrypting data transmitted over the WLAN. encoding protects the vulnerable wireless link between clients and access points; once this measure has been taken, other typical LAN security mechanisms like password protection, end-to-end encryption, virtual private networks (VPNs), and authentication are often put in situ to make sure privacy. A research group from the University of California at Berkeley recently published a report citing ??major security flaws?? in WEP that left WLANs using the protocol susceptible to attacks (called wireless equivalent privacy attacks). within the course of the group??s examination of the technology, they were ready to intercept and modify transmissions and gain access to restricted networks. The Wireless Ethernet Compatibility Alliance (WECA) claims that WEP– which is included in many networking products – was never intended to be the only security mechanism for a WLAN, and that, in conjunction with traditional security practices, it??s very effective.

**NEW QUESTION 269**

- (Topic 2)

While scanning with Nmap, Patin found several hosts which have the IP ID of incremental sequences. He then decided to conduct: nmap -Pn -p- -si kiosk.adobe.com www.riaa.com. kiosk.adobe.com is the host with incremental IP ID sequence. What is the purpose of using "-si" with Nmap?

- A. Conduct stealth scan
- B. Conduct ICMP scan
- C. Conduct IDLE scan
- D. Conduct silent scan

**Answer:** C

**Explanation:**

Once a suitable zombie has been found, performing a scan is easy. Simply specify the zombie hostname to the -sl option and Nmap does the rest. Example 5.19 shows an example of Ereet scanning the Recording Industry Association of America by bouncing an idle scan off an Adobe machine named Kiosk.

Example 5.19. An idle scan against the RIAA

```
# nmap -Pn -p- -sl kiosk.adobe.com www.riaa.com Starting Nmap ( http://nmap.org )
```

Idlescan using zombie kiosk.adobe.com (192.150.13.111:80); Class: Incremental Nmap scan report for 208.225.90.120

(The 65522 ports scanned but not shown below are in state: closed)

Port State Service

21/tcp open ftp  
25/tcp open smtp  
80/tcp open http  
111/tcp open sunrpc  
135/tcp open loc-srv  
443/tcp open https  
1027/tcp open IIS  
1030/tcp open iad1  
2306/tcp open unknown  
5631/tcp open pcanywheredata  
7937/tcp open unknown  
7938/tcp open unknown  
36890/tcp open unknown  
Nmap done: 1 IP address (1 host up) scanned in 2594.47 seconds  
<https://nmap.org/book/idlescan.html>

**NEW QUESTION 274**

- (Topic 2)

Nicolas just found a vulnerability on a public-facing system that is considered a zero-day vulnerability. He sent an email to the owner of the public system describing the problem and how the owner can protect themselves from that vulnerability. He also sent an email to Microsoft informing them of the problem that their systems are exposed to. What type of hacker is Nicolas?

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

**Answer: B**

**Explanation:**

A white hat (or a white hat hacker) is an ethical computer hacker, or a computer security expert, who focuses on penetration testing and in other testing methodologies that ensures the safety of an organization's information systems. Ethical hacking may be a term meant to imply a broader category than simply penetration testing. Contrasted with black hat, a malicious hacker, the name comes from Western films, where heroic and antagonistic cowboys might traditionally wear a white and a black hat respectively. While a white hat hacker hacks under good intentions with permission, and a black hat hacker, most frequently unauthorized, has malicious intent, there's a 3rd kind referred to as a gray hat hacker who hacks with good intentions but sometimes without permission. White hat hackers can also add teams called "sneakers and/or hacker clubs", red teams, or tiger teams. While penetration testing concentrates on attacking software and computer systems from the beginning – scanning ports, examining known defects in protocols and applications running on the system and patch installations, as an example – ethical hacking may include other things. A full-blown ethical hack might include emailing staff to invite password details, searching through executive's dustbins and typically breaking and entering, without the knowledge and consent of the targets. Only the owners, CEOs and Board Members (stake holders) who asked for such a censoring of this magnitude are aware. to undertake to duplicate a number of the destructive techniques a true attack might employ, ethical hackers may arrange for cloned test systems, or organize a hack late in the dark while systems are less critical. In most up-to-date cases these hacks perpetuate for the long-term con (days, if not weeks, of long-term human infiltration into an organization). Some examples include leaving USB/flash key drives with hidden auto-start software during a public area as if someone lost the tiny drive and an unsuspecting employee found it and took it. Some other methods of completing these include: • DoS attacks • Social engineering tactics • Reverse engineering • Network security • Disk and memory forensics • Vulnerability research • Security scanners such as: – W3af – Nessus – Burp suite • Frameworks such as: – Metasploit • Training Platforms These methods identify and exploit known security vulnerabilities and plan to evade security to realize entry into secured areas. they're ready to do that by hiding software and system "back-doors" which will be used as a link to information or access that a non-ethical hacker, also referred to as "black-hat" or "grey-hat", might want to succeed in .

**NEW QUESTION 275**

- (Topic 2)

Which of the following are well known password-cracking programs?

- A. L0phtcrack
- B. NetCat
- C. Jack the Ripper
- D. Netbus
- E. John the Ripper

**Answer: AE**

**NEW QUESTION 277**

- (Topic 2)

Yancey is a network security administrator for a large electric company. This company provides power for over 100, 000 people in Las Vegas. Yancey has worked for his company for over 15 years and has become very successful. One day, Yancey comes in to work and finds out that the company will be downsizing and he will be out of a job in two weeks. Yancey is very angry and decides to place logic bombs, viruses, Trojans, and backdoors all over the network to take down the company once he has left. Yancey does not care if his actions land him in jail for 30 or more years, he just wants the company to pay for what they are doing to him.

What would Yancey be considered?

- A. Yancey would be considered a Suicide Hacker
- B. Since he does not care about going to jail, he would be considered a Black Hat
- C. Because Yancey works for the company currently; he would be a White Hat
- D. Yancey is a Hacktivist Hacker since he is standing up to a company that is downsizing

**Answer: A**

**NEW QUESTION 280**

- (Topic 2)

Scenario: Joe turns on his home computer to access personal online banking. When he enters the URL [www.bank.com](http://www.bank.com). the website is displayed, but it prompts

him to re-enter his credentials as if he has never visited the site before. When he examines the website URL closer, he finds that the site is not secure and the web address appears different. What type of attack he is experiencing?.

- A. Dos attack
- B. DHCP spoofing
- C. ARP cache poisoning
- D. DNS hijacking

**Answer:** D

**Explanation:**

Web Server Attacks - DNS Server Hijacking Attacker compromises the DNS server and changes the DNS settings so that all the requests coming towards the target web server are redirected to his/her own malicious server. (P.1623/1607)

**NEW QUESTION 283**

- (Topic 2)

What piece of hardware on a computer's motherboard generates encryption keys and only releases a part of the key so that decrypting a disk on a new piece of hardware is not possible?

- A. CPU
- B. GPU
- C. UEFI
- D. TPM

**Answer:** D

**Explanation:**

The TPM is a chip that's part of your computer's motherboard — if you bought an off-the-shelf PC, it's soldered onto the motherboard. If you built your own computer, you can buy one as an add-on module if your motherboard supports it. The TPM generates encryption keys, keeping part of the key to itself

**NEW QUESTION 286**

- (Topic 2)

Abel, a security professional, conducts penetration testing in his client organization to check for any security loopholes. He launched an attack on the DHCP servers by broadcasting forged DHCP requests and leased all the DHCP addresses available in the DHCP scope until the server could not issue any more IP addresses. This led to a Dos attack, and as a result, legitimate employees were unable to access the clients network. Which of the following attacks did Abel perform in the above scenario?

- A. VLAN hopping
- B. DHCP starvation
- C. Rogue DHCP server attack
- D. STP attack

**Answer:** B

**Explanation:**

A DHCP starvation assault is a pernicious computerized assault that objectives DHCP workers. During a DHCP assault, an unfriendly entertainer floods a DHCP worker with false DISCOVER bundles until the DHCP worker debilitates its stock of IP addresses. When that occurs, the aggressor can deny genuine organization clients administration, or even stock an other DHCP association that prompts a Man-in-the-Middle (MITM) assault.

In a DHCP Starvation assault, a threatening entertainer sends a huge load of false DISCOVER parcels until the DHCP worker thinks they've used their accessible pool. Customers searching for IP tends to find that there are no IP addresses for them, and they're refused assistance. Furthermore, they may search for an alternate DHCP worker, one which the unfriendly entertainer may give. What's more, utilizing a threatening or sham IP address, that unfriendly entertainer would now be able to peruse all the traffic that customer sends and gets.

In an unfriendly climate, where we have a malevolent machine running some sort of an instrument like Yersinia, there could be a machine that sends DHCP DISCOVER bundles. This malevolent customer doesn't send a modest bunch – it sends a great many vindictive DISCOVER bundles utilizing sham, made-up MAC addresses as the source MAC address for each solicitation.

In the event that the DHCP worker reacts to every one of these false DHCP DISCOVER parcels, the whole IP address pool could be exhausted, and that DHCP worker could trust it has no more IP delivers to bring to the table to legitimate DHCP demands.

When a DHCP worker has no more IP delivers to bring to the table, ordinarily the following thing to happen would be for the aggressor to get their own DHCP worker. This maverick DHCP worker at that point starts giving out IP addresses.

The advantage of that to the assailant is that if a false DHCP worker is distributing IP addresses, including default DNS and door data, customers who utilize those IP delivers and begin to utilize that default passage would now be able to be directed through the aggressor's machine. That is all that an unfriendly entertainer requires to play out a man-in-the-center (MITM) assault.

**NEW QUESTION 288**

- (Topic 2)

Windows LAN Manager (LM) hashes are known to be weak.

Which of the following are known weaknesses of LM? (Choose three.)

- A. Converts passwords to uppercase.
- B. Hashes are sent in clear text over the network.
- C. Makes use of only 32-bit encryption.
- D. Effective length is 7 characters.

**Answer:** ABD

**NEW QUESTION 291**

- (Topic 2)

You are performing a penetration test for a client and have gained shell access to a Windows machine on the internal network. You intend to retrieve all DNS records for the internal domain, if the DNS server is at 192.168.10.2 and the domain name is abccorp.local, what command would you type at the nslookup prompt



to attempt a zone transfer?

- A. list server=192.168.10.2 type=all
- B. is-d abccorp.local
- C. lserver 192.168.10.2-t all
- D. List domain=Abccorp.local type=zone

**Answer: B**

#### NEW QUESTION 295

- (Topic 2)

You receive an e-mail like the one shown below. When you click on the link contained in the mail, you are redirected to a website seeking you to download free Anti-Virus software.

Dear valued customers,

We are pleased to announce the newest version of Antivirus 2010 for Windows which will probe you with total security against the latest spyware, malware, viruses, Trojans and other online threats. Simply visit the link below and enter your antivirus code:

```
Antivirus code: 5014
http://www.juggyboy/virus/virus.html
Thank you for choosing us, the worldwide leader Antivirus solutions.
Mike Robertson
PDF Reader Support
Copyright Antivirus 2010 ?All rights reserved
If you want to stop receiving mail, please go to:
http://www.juggyboy.com
```

or you may contact us at the following address: Media Internet Consultants, Edif. Neptuno, Planta

Baja, Ave. Ricardo J. Alfaro, Tumba Muerto, n/a Panama

How will you determine if this is Real Anti-Virus or Fake Anti-Virus website?

- A. Look at the website design, if it looks professional then it is a Real Anti-Virus website
- B. Connect to the site using SSL, if you are successful then the website is genuine
- C. Search using the URL and Anti-Virus product name into Google and lookout for suspicious warnings against this site
- D. Download and install Anti-Virus software from this suspicious looking site, your Windows 7 will prompt you and stop the installation if the downloaded file is a malware
- E. Download and install Anti-Virus software from this suspicious looking site, your Windows 7 will prompt you and stop the installation if the downloaded file is a malware

**Answer: C**

#### NEW QUESTION 297

- (Topic 2)

in an attempt to increase the security of your network, you Implement a solution that will help keep your wireless network undiscoverable and accessible only to those that know it. How do you accomplish this?

- A. Delete the wireless network
- B. Remove all passwords
- C. Lock all users
- D. Disable SSID broadcasting

**Answer: D**

#### Explanation:

The SSID (service set identifier) is the name of your wireless network.

SSID broadcast is how your router transmits this name to surrounding devices. Its primary function is to make your network visible and easily accessible. Most routers broadcast their SSIDs automatically. To disable or enable SSID broadcast, you need to change your router's settings.

Disabling SSID broadcast will make your Wi-Fi network name invisible to other users. However, this only hides the name, not the network itself. You cannot disguise the router's activity, so hackers can still attack it.

With your network invisible to wireless devices, connecting becomes a bit more complicated. Just giving a Wi-Fi password to your guests is no longer enough.

They have to configure their settings manually by including the network name, security mode, and other relevant info.

Disabling SSID might be a small step towards online security, but by no means should it be your final one. Before considering it as a security measure, consider the following aspects:

- Disabling SSID broadcast will not hide your network completely

Disabling SSID broadcast only hides the network name, not the fact that it exists. Your router constantly transmits so-called beacon frames to announce the presence of a wireless network. They contain essential information about the network and help the device connect.

- Third-party software can easily trace a hidden network

Programs such as NetStumbler or Kismet can easily locate hidden networks. You can try using them yourself to see how easy it is to find available networks – hidden or not.

- You might attract unwanted attention.

Disabling your SSID broadcast could also raise suspicion. Most of us assume that when somebody hides something, they have a reason to do so. Thus, some hackers might be attracted to your network.

#### NEW QUESTION 299

- (Topic 2)

Ethical hacker Jane Doe is attempting to crack the password of the head of the IT department of ABC company. She is utilizing a rainbow table and notices upon entering a password that extra characters are added to the password after submitting. What countermeasure is the company using to protect against rainbow

tables?

- A. Password key hashing
- B. Password salting
- C. Password hashing
- D. Account lockout

**Answer: B**

**Explanation:**

Passwords are usually delineated as ??hashed and salted??. salting is simply the addition of a unique, random string of characters renowned solely to the site to every parole before it??s hashed, typically this ??salt?? is placed in front of each password. The salt value needs to be hold on by the site, which means typically sites use the same salt for each parole. This makes it less effective than if individual salts are used. The use of unique salts means that common passwords shared by multiple users – like ??123456?? or ??password?? – aren??t revealed revealed when one such hashed password is known – because despite the passwords being the same the immediately and hashed values are not. Large salts also protect against certain methods of attack on hashes, including rainbow tables or logs of hashed passwords previously broken. Both hashing and salting may be repeated more than once to increase the issue in breaking the security.

**NEW QUESTION 300**

- (Topic 2)

what is the correct way of using MSFvenom to generate a reverse TCP shellcode for windows?

- A. msfvenom -p windows/meterpreter/reverse\_tcp LHOST=10.10.10.30 LPORT=4444 -f c
- B. msfvenom -p windows/meterpreter/reverse\_tcp RHOST=10.10.10.30 LPORT=4444 -f c
- C. msfvenom -p windows/meterpreter/reverse\_tcp LHOST=10.10.10.30 LPORT=4444 -f exe > shell.exe
- D. msfvenom -p windows/meterpreter/reverse\_tcp RHOST=10.10.10.30 LPORT=4444 -f exe > shell.exe

**Answer: C**

**Explanation:**

<https://github.com/rapid7/metasploit-framework/wiki/How-to-use-msfvenom> Often one of the most useful (and to the beginner underrated) abilities of Metasploit is the msfpayload module. Multiple payloads can be created with this module and it helps something that can give you a shell in almost any situation. For each of these payloads you can go into msfconsole and select exploit/multi/handler. Run ??set payload?? for the relevant payload used and configure all necessary options (LHOST, LPORT, etc). Execute and wait for the payload to be run. For the examples below it??s pretty self explanatory but LHOST should be filled in with your IP address (LAN IP if attacking within the network, WAN IP if attacking across the internet), and LPORT should be the port you wish to be connected back on. Example for Windows:

- msfvenom -p windows/meterpreter/reverse\_tcp LHOST=Y<our IP Address> LPORT=<Your Port to Connect On> -f exe > shell.exe

**NEW QUESTION 303**

- (Topic 2)

Clark, a professional hacker, was hired by an organization lo gather sensitive Information about its competitors surreptitiously. Clark gathers the server IP address of the target organization using Whole footprinting. Further, he entered the server IP address as an input to an online tool to retrieve information such as the network range of the target organization and to identify the network topology and operating system used in the network. What is the online tool employed by Clark in the above scenario?

- A. AOL
- B. ARIN
- C. DuckDuckGo
- D. Baidu

**Answer: B**

**Explanation:**

<https://search.arin.net/rdap/?query=199.43.0.43>

**NEW QUESTION 305**

- (Topic 2)

"Testing the network using the same methodologies and tools employed by attackers"

Identify the correct terminology that defines the above statement.

- A. Vulnerability Scanning
- B. Penetration Testing
- C. Security Policy Implementation
- D. Designing Network Security

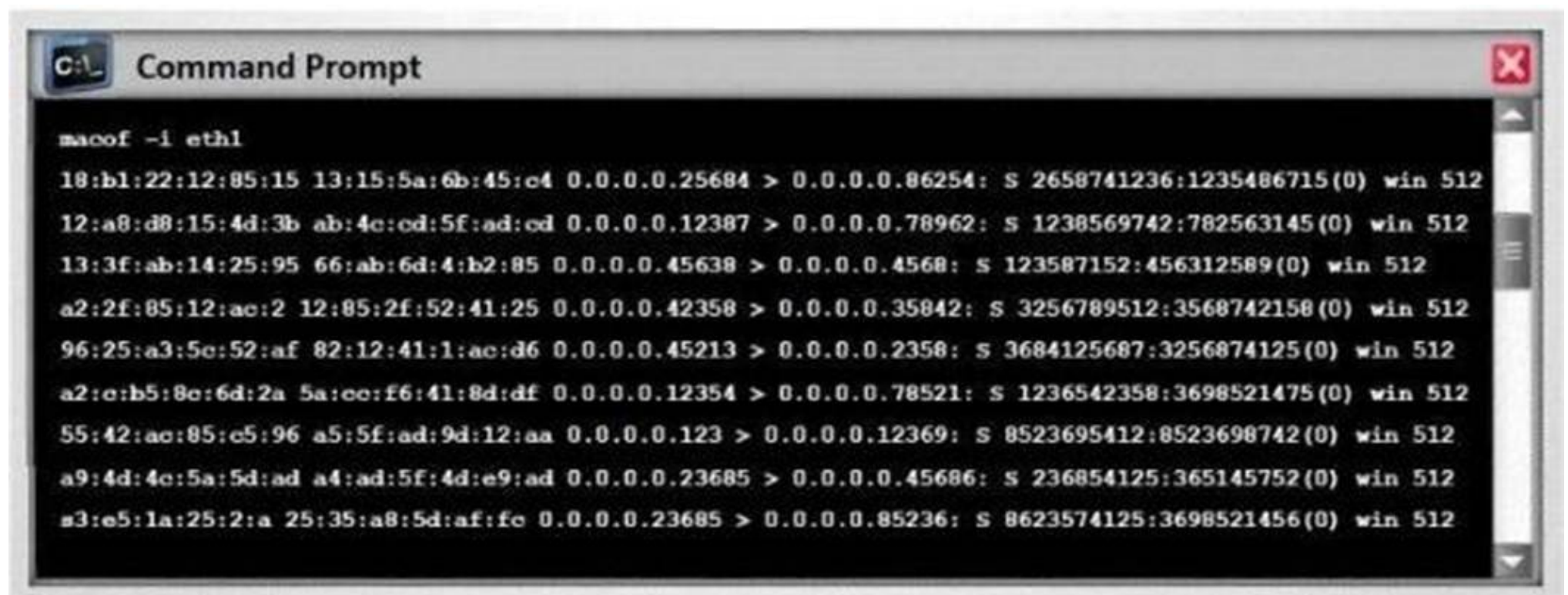
**Answer: B**

**NEW QUESTION 310**

- (Topic 2)

Switches maintain a CAM Table that maps individual MAC addresses on the network to physical ports on the switch.





In MAC flooding attack, a switch is fed with many Ethernet frames, each containing different source MAC addresses, by the attacker. Switches have a limited memory for mapping various MAC addresses to physical ports. What happens when the CAM table becomes full?

- A. Switch then acts as hub by broadcasting packets to all machines on the network
- B. The CAM overflow table will cause the switch to crash causing Denial of Service
- C. The switch replaces outgoing frame switch factory default MAC address of FF:FF:FF:FF:FF:FF
- D. Every packet is dropped and the switch sends out SNMP alerts to the IDS port

**Answer:** A

#### NEW QUESTION 315

- (Topic 2)

Garry is a network administrator in an organization. He uses SNMP to manage networked devices from a remote location. To manage nodes in the network, he uses MIB, which contains formal descriptions of all network objects managed by SNMP. He accesses the contents of MIB by using a web browser either by entering the IP address and Lseries.mlb or by entering the DNS library name and Lseries.mlb. He is currently retrieving information from an MIB that contains object types for workstations and server services. Which of the following types of MIB is accessed by Garry in the above scenario?

- A. LNMIB2.MIB
- B. WINS.MIB
- C. DHCP.MIS
- D. MIB\_II.MIB

**Answer:** A

#### Explanation:

DHCP.MIB: Monitors network traffic between DHCP servers and remote hosts HOSTMIB.MIB: Monitors and manages host resources

LNMB2.MIB: Contains object types for workstation and server services

MIBI.MIB: Manages TCP/IP-based Internet using a simple architecture and system WINS.MIB: For the Windows Internet Name Service (WINS)

#### NEW QUESTION 320

- (Topic 2)

Bobby, an attacker, targeted a user and decided to hijack and intercept all their wireless communications. He installed a fake communication tower between two authentic endpoints to mislead the victim. Bobby used this virtual tower to interrupt the data transmission between the user and real tower, attempting to hijack an active session, upon receiving the users request. Bobby manipulated the traffic with the virtual tower and redirected the victim to a malicious website. What is the attack performed by Bobby in the above scenario?

- A. Wardriving
- B. KRACK attack
- C. jamming signal attack
- D. aLTER attack

**Answer:** D

#### Explanation:

aLTER attacks are usually performed on LTE devices Attacker installs a virtual (fake) communication tower between two authentic endpoints intending to mislead the victim This virtual tower is used to interrupt the data transmission between the user and real tower attempting to hijack the active session.

[https://alter-attack.net/media/breaking\\_lte\\_on\\_layer\\_two.pdf](https://alter-attack.net/media/breaking_lte_on_layer_two.pdf)

The new aLTER attack can be used against nearly all LTE connected endpoints by intercepting traffic and redirecting it to malicious websites together with a particular approach for Apple iOS devices.

This attack works by taking advantage of a style flaw among the LTE network — the information link layer (aka: layer-2) of the LTE network is encrypted with AES-CTR however it??s not integrity-protected, that is why an offender will modify the payload.

As a result, the offender is acting a classic man-in-the-middle wherever they??re movement as a cell tower to the victim.

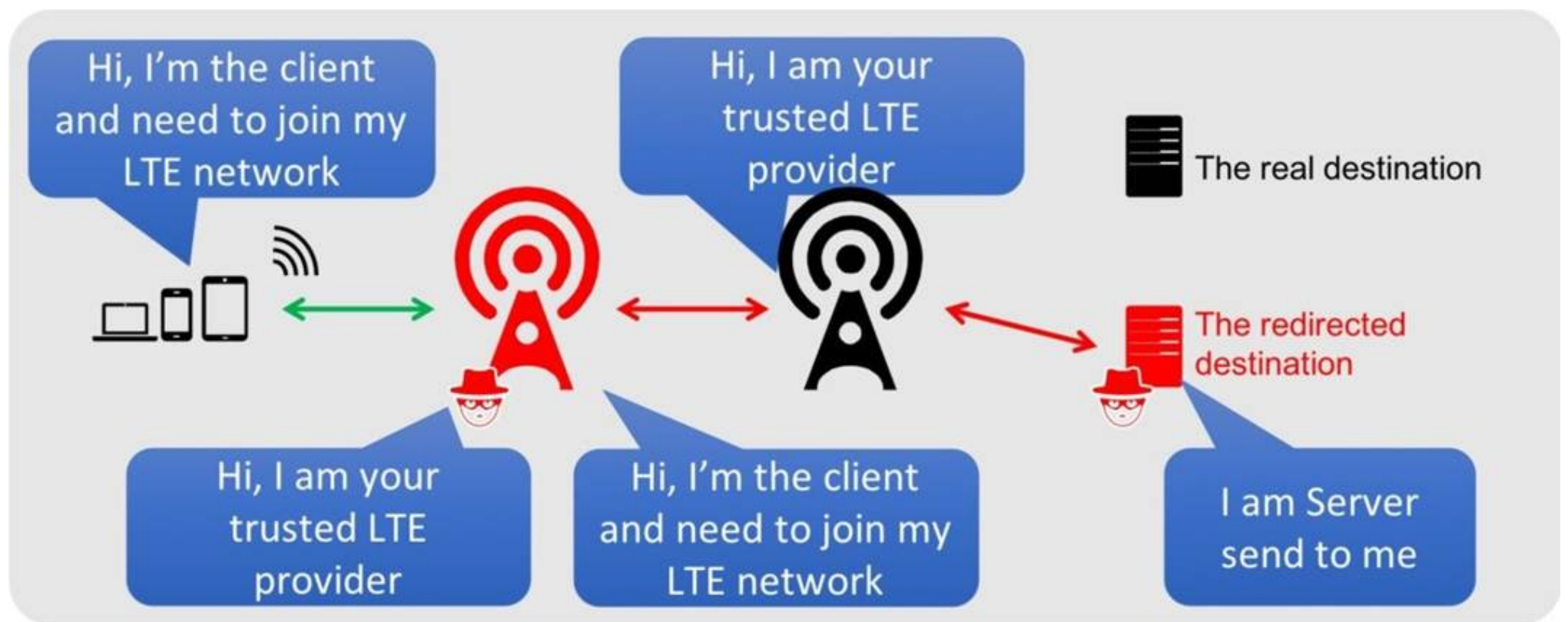


Diagram  
 Description automatically generated

### NEW QUESTION 323

- (Topic 2)

Nathan is testing some of his network devices. Nathan is using Macof to try and flood the ARP cache of these switches. If these switches' ARP cache is successfully flooded, what will be the result?

- A. The switches will drop into hub mode if the ARP cache is successfully flooded.
- B. If the ARP cache is flooded, the switches will drop into pix mode making it less susceptible to attacks.
- C. Depending on the switch manufacturer, the device will either delete every entry in its ARP cache or reroute packets to the nearest switch.
- D. The switches will route all traffic to the broadcast address created collisions.

**Answer: A**

### NEW QUESTION 326

- (Topic 3)

You are the lead cybersecurity analyst at a multinational corporation that uses a hybrid encryption system to secure inter-departmental communications. The system uses RSA encryption for key exchange and AES for data encryption, taking advantage of the strengths of both asymmetric and symmetric encryption. Each RSA key pair has a size of 'n' bits, with larger keys providing more security at the cost of slower performance. The time complexity of generating an RSA key pair is  $O(n^2)$ , and AES encryption has a time complexity of  $O(n)$ . An attacker has developed a quantum algorithm with time complexity  $O((\log n)^2)$  to crack RSA encryption. Given  $n=4000$  and variable ??AES key size??, which scenario is likely to provide the best balance of security and performance?

- A. AES key size=128 bits: This configuration provides less security than option A, but RSA key generation and AES encryption will be faster.
- B. AES key size=256 bits: This configuration provides a high level of security, but RSA key generation may be slow.
- C. AES key size=192 bits: This configuration is a balance between options A and B, providing moderate security and performance.
- D. AES key size=512 bits: This configuration provides the highest level of security but at a significant performance cost due to the large AES key size.

**Answer: A**

### Explanation:

A hybrid encryption system is a system that combines the advantages of both asymmetric and symmetric encryption algorithms. Asymmetric encryption, such as RSA, uses a pair of keys: a public key and a private key, which are mathematically related but not identical. Asymmetric encryption can provide key exchange, authentication, and non-repudiation, but it is slower and less efficient than symmetric encryption. Symmetric encryption, such as AES, uses a single key to encrypt and decrypt data. Symmetric encryption is faster and more efficient than asymmetric encryption, but it requires a secure way to share the key.

In a hybrid encryption system, RSA encryption is used for key exchange, and AES encryption is used for data encryption. This way, the system can benefit from the security of RSA and the speed of AES. However, the system also depends on the key sizes of both algorithms, which affect the security and performance of the system.

The key size of RSA encryption determines the number of bits in the public and private keys. The larger the key size, the more secure the encryption, but also the slower the key generation and encryption/decryption processes. The time complexity of generating an RSA key pair is  $O(n^2)$ , where n is the key size in bits. This means that the time required to generate an RSA key pair increases quadratically with the key size. For example, if it takes 1 second to generate a 1024-bit RSA key pair, it will take 4 seconds to generate a 2048-bit RSA key pair, and 16 seconds to generate a 4096-bit RSA key pair.

The key size of AES encryption determines the number of bits in the symmetric key. The larger the key size, the more secure the encryption, but also the more rounds of encryption/decryption are needed. The time complexity of AES encryption is  $O(n)$ , where n is the key size in bits. This means that the time required to encrypt/decrypt data increases linearly with the key size. For example, if it takes 1 second to encrypt/decrypt data with a 128-bit AES key, it will take 2 seconds to encrypt/decrypt data with a 256-bit AES key, and 4 seconds to encrypt/decrypt data with a 512-bit AES key.

An attacker has developed a quantum algorithm with time complexity  $O((\log n)^2)$  to crack RSA encryption. This means that the time required to break RSA encryption decreases exponentially with the key size. For example, if it takes 1 second to break a 1024-bit RSA encryption, it will take 0.25 seconds to break a 2048-bit RSA encryption, and 0.0625 seconds to break a 4096-bit RSA encryption. This makes RSA encryption vulnerable to quantum attacks, unless the key size is very large.

Given  $n=4000$  and variable AES key size, the scenario that is likely to provide the best balance of security and performance is C. AES key size=192 bits. This configuration is a compromise between options A and B, providing moderate security and performance. Option A, AES key size=128 bits, provides less security than option C, but RSA key generation and AES encryption will be faster. Option B, AES key size=256 bits, provides more security than option C, but RSA key generation may be slow. Option D, AES key size=512 bits, provides the highest level of security, but at a significant performance cost due to the large AES key size. References:

? Hybrid cryptosystem - Wikipedia

? RSA (cryptosystem) - Wikipedia



? Advanced Encryption Standard - Wikipedia  
? Quantum computing and cryptography - Wikipedia

#### NEW QUESTION 327

- (Topic 3)

You're the security manager for a tech company that uses a database to store sensitive customer data. You have implemented countermeasures against SQL injection attacks.

Recently, you noticed some suspicious

activities and suspect an attacker is using SQL injection techniques. The attacker is believed to use different forms of payloads in his SQL queries. In the case of a successful SQL injection attack, which of the following payloads would have the most significant impact?

- A. ??OR 'T='1: This payload manipulates the WHERE clause of an SQL statement, allowing the attacker to view unauthorized data
- B. ??OR username LIKE '%: This payload uses the LIKE operator to search for a specific pattern in a column
- C. OR ??a??='a; DROP TABLE members; --: This payload combines the manipulation of the WHERE clause with a destructive action, causing data loss
- D. UNION SELECT NULL, NULL, NULL -- : This payload manipulates the UNION SQL operator, enabling the attacker to retrieve data from different database tables

**Answer: C**

#### Explanation:

The payload that would have the most significant impact in the case of a successful SQL injection attack is OR ??a??='a; DROP TABLE members; --. This payload combines the manipulation of the WHERE clause with a destructive action, causing data loss. This payload works as follows:

? The OR ??a??='a part of the payload is a logical expression that is always true,

regardless of the input or the condition of the SQL statement. This part of the payload allows the attacker to bypass any authentication or authorization checks that may be implemented in the SQL statement, such as a login form or a search query.

? The ; part of the payload is a statement terminator that marks the end of the

current SQL statement and allows the attacker to inject another SQL statement after it. This part of the payload enables the attacker to execute multiple SQL statements in a single query, which is also known as stacked queries or batched queries.

? The DROP TABLE members part of the payload is a destructive SQL statement

that deletes the entire table named members from the database. This part of the payload causes data loss and may compromise the functionality and integrity of the application that relies on the table. The table name may vary depending on the target database, but the attacker can use other techniques, such as error-based or union-based SQL injection, to discover the table names before executing the drop statement.

? The -- part of the payload is a comment symbol that tells the SQL engine to ignore

the rest of the query. This part of the payload helps the attacker to avoid any syntax errors or unwanted results that may arise from the original query.

The other options are not as impactful as option C for the following reasons:

? A. ??OR 'T='1: This payload manipulates the WHERE clause of an SQL statement, allowing the attacker to view unauthorized data. This payload is a common and basic SQL injection technique that injects a logical expression that is always true, such as 'OR 'T='1 or 'OR 1=1, to bypass the authentication or authorization checks of the SQL statement. This payload can allow the attacker to view data that they are not supposed to, such as user credentials, personal information, or financial records. However, this payload does not cause any data loss or modification, and it does not affect the functionality or integrity of the application.

? B. ??OR username LIKE '%: This payload uses the LIKE operator to search for a specific pattern in a column. This payload is a variation of the previous payload that injects a logical expression that is always true, such as 'OR username LIKE '%' or 'OR 1 LIKE '%, to bypass the authentication or authorization checks of the SQL statement. The LIKE operator is used to compare a value with a pattern that may contain wildcard characters, such as % or \_, which match any string or character. This payload can allow the attacker to view data that matches the pattern, such as usernames that start with a certain letter or contain a certain substring. However, this payload does not cause any data loss or modification, and it does not affect the functionality or integrity of the application.

? D. UNION SELECT NULL, NULL, NULL -- : This payload manipulates the UNION SQL operator, enabling the attacker to retrieve data from different database tables. This payload is an advanced SQL injection technique that injects the UNION SQL operator to combine the results of two or more SELECT statements into a single result set, which is then returned as part of the HTTP response. The UNION operator can be used to join the results from different tables that have the same number and type of columns. The NULL values are used to match the column types and avoid any errors. This payload can allow the attacker to retrieve data from tables that are not intended to be accessed by the application, such as system tables, configuration tables, or backup tables. However, this payload does not cause any data loss or modification, and it does not affect the functionality or integrity of the application.

References:

? 1: SQL Injection - OWASP Foundation

? 2: SQL Injection Payloads: How SQLi exploits work - Bright Security

? 3: SQL Injection - HackTricks

#### NEW QUESTION 329

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