

# Hacking Articles

Raj Chandel's Blog



## Hack the Defense Space VM (CTF Challenge)

posted in **CTF CHALLENGES** , **KALI LINUX** ,  
**PENETRATION TESTING** on **MAY 3, 2017** by **RAJ CHANDEL**



SHARE

Defence VM is made by Silex Secure team. This VM is designed to honor and pay respects to the military of Nigeria and the soldiers who stood up against the terrorist attack. It is of intermediate level and is very handy in order to brush up your skills as a penetration tester. You can download it from

<https://www.vulnhub.com/entry/defence-space-ctf-2017,179/>

Are you ready for the challenge soldier? First step to attack is to identify the target. So, identify your target. To identify the target we will use the following command:

**netdiscover**

```
root@kali:~# netdiscover

Currently scanning: 192.168.2.0/16 | Screen View: Unique Hosts
18 Captured ARP Req/Rep packets, from 15 hosts. Total size: 1080

-----
IP            At MAC Address  Count  Len  MAC Vendor / Hostname
-----
192.168.1.104  fc:aa:24:6a:a4:e8  4      240  Unknown vendor
192.168.1.1    6c:00:27:cb:b6:2a  1       60  Unknown vendor
192.168.1.9    fc:aa:24:6a:a4:e9  1       60  Unknown vendor
192.168.1.14   e0:2a:00:fc:cb:27  1       60  Universal Global Scientific
192.168.1.3    e4:f8:00:06:46:61  1       60  Intel Corporate
192.168.1.2    c0:ee:00:03:80:34  1       60  Unknown vendor
192.168.1.4    84:e1:00:00:02:f4  1       60  Intel Corporate
192.168.1.5    cc:00:00:00:ed:03  1       60  Unknown vendor
192.168.1.17   08:00:20:00:28:d0  1       60  PCS Systemtechnik GmbH
192.168.1.20   00:0c:00:00:ba:ad  1       60  Unknown vendor
192.168.1.13   c4:8c:00:a8:91:1b  1       60  Hon Hai Precision Ind. Co.,L
192.168.1.10   70:10:00:00:4d:27  1       60  Intel Corporate
192.168.1.12   80:7a:00:00:0d:76  1       60  HTC Corporation
192.168.1.11   00:0c:00:00:03:40:27  1       60  Intel Corporate
192.168.1.80   74:d4:00:00:00:0e  1       60  Unknown vendor
```

Now that you have identify your target (mine is **192.168.1.17**) you will need to acquire it and declare you victory. In order to acquire it we will need a plan to enter our enemy. To let us search for all the doors, closed or not. And for that let's fire up the nmap.□

nmap -p- -A 192.168.1.17

```
root@kali:~# nmap -p- -A 192.168.1.17
Starting Nmap 7.40 ( https://nmap.org ) at 2017-05-03 02:38 EDT
Nmap scan report for 192.168.1.17
Host is up (0.0070s latency).
Not shown: 65531 closed ports
PORT      STATE SERVICE      VERSION
21/tcp    open  ftp          ProFTPD 1.3.5a
80/tcp    open  http         Apache httpd 2.4.18 ((Ubuntu))
| http-server-header: Apache/2.4.18 (Ubuntu)
| http-title: Operation LAFIYA DOLE CTF 2017 - INFLITRATE THE OPERATION COMM...
443/tcp    open  ssl/http     Apache httpd 2.4.18 ((Ubuntu))
| http-server-header: Apache/2.4.18 (Ubuntu)
| http-title: Operation LAFIYA DOLE CTF 2017 - INFLITRATE THE OPERATION COMM...
| ssl-cert: Subject: commonName=Flag3[19c562a36aeb455d093b4f5236f]+[39 39 30]/organizationName=Silx
ame=NG
| Not valid before: 2017-01-24T12:54:41
| Not valid after: 2018-01-24T12:54:41
| ssl-date: TLS randomness does not represent time
2225/tcp   open  ssh          OpenSSH 7.3p1 Ubuntu 1 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   2048 f6:f0:08:c9:4d:16:3d:fd:e7:b8:51:d7:b6:57:48:5d (RSA)
|   256 c2:2b:6e:83:8a:00:67:c2:39:62:16:5e:f9:01:ee:fe (ECDSA)
MAC Address: 08:00:27:79:28:D0 (Oracle VirtualBox virtual NIC)
Device type: general purpose
Running: Linux 3.X|4.X
OS CPE: cpe:/o:linux:linux_kernel:3 cpe:/o:linux:linux_kernel:4
OS details: Linux 3.2 - 4.6
Network Distance: 1 hop
Service Info: OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

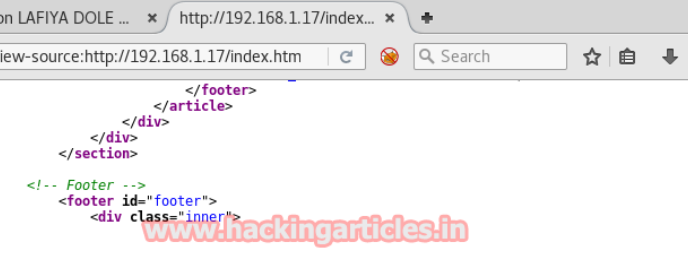
TRACEROUTE
HOP RTT      ADDRESS
1   7.04 ms  192.168.1.17

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/
Nmap done: 1 IP address (1 host up) scanned in 37.43 seconds
```

Our search has led us to the result that Port nos. 21, 80,443, 2225 is open with the services of FTP, HTTP, HTTPS, SSH respectively. As the port 80 is open we can open our target IP in the browser.



But there is no hint or what-so-ever in there. But as this based on military aspects the hint could be camouflaged.□

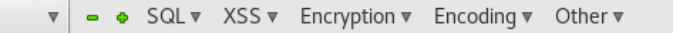


The screenshot shows a Mozilla Firefox browser window with the address bar displaying 'http://192.168.1.17/index.html'. The browser's menu bar includes 'File', 'Edit', 'View', 'History', 'Bookmarks', 'Tools', and 'Help'. The address bar shows the current page is 'view-source:http://192.168.1.17/index.htm'. The source code is displayed in a monospaced font with syntax highlighting. A large, semi-transparent watermark 'www.hackingarticles.in' is overlaid on the code. The code includes HTML tags for footer, article, div, section, and script, along with comments and a copyright notice.

```

84                                     </footer>
85                                     </article>
86                                 </div>
87                            </div>
88                        </section>
89
90        <!-- Footer -->
91        <footer id="footer">
92            <div class="inner">
93                www.hackingarticles.in
94
95
96
97                <div class="copyright">
98                    &copy; Design: <a href="http://silexsecure.com">Silex Secure</a>. Images: <a h
99                </div>
100            </div>
101        </footer>
102
103
104    <!-- Scripts -->
105    <script src="assets/js/jquery.min.js"></script>
106    <script src="assets/js/skel.min.js"></script>
107    <script src="assets/js/util.js"></script>
108    <script src="assets/js/main.js"></script>
109    <script src="assets/js/main.js"></script><![Make sure you stick to intel gathering agent]</script>
110
111    </body>
112 </html>
113

```

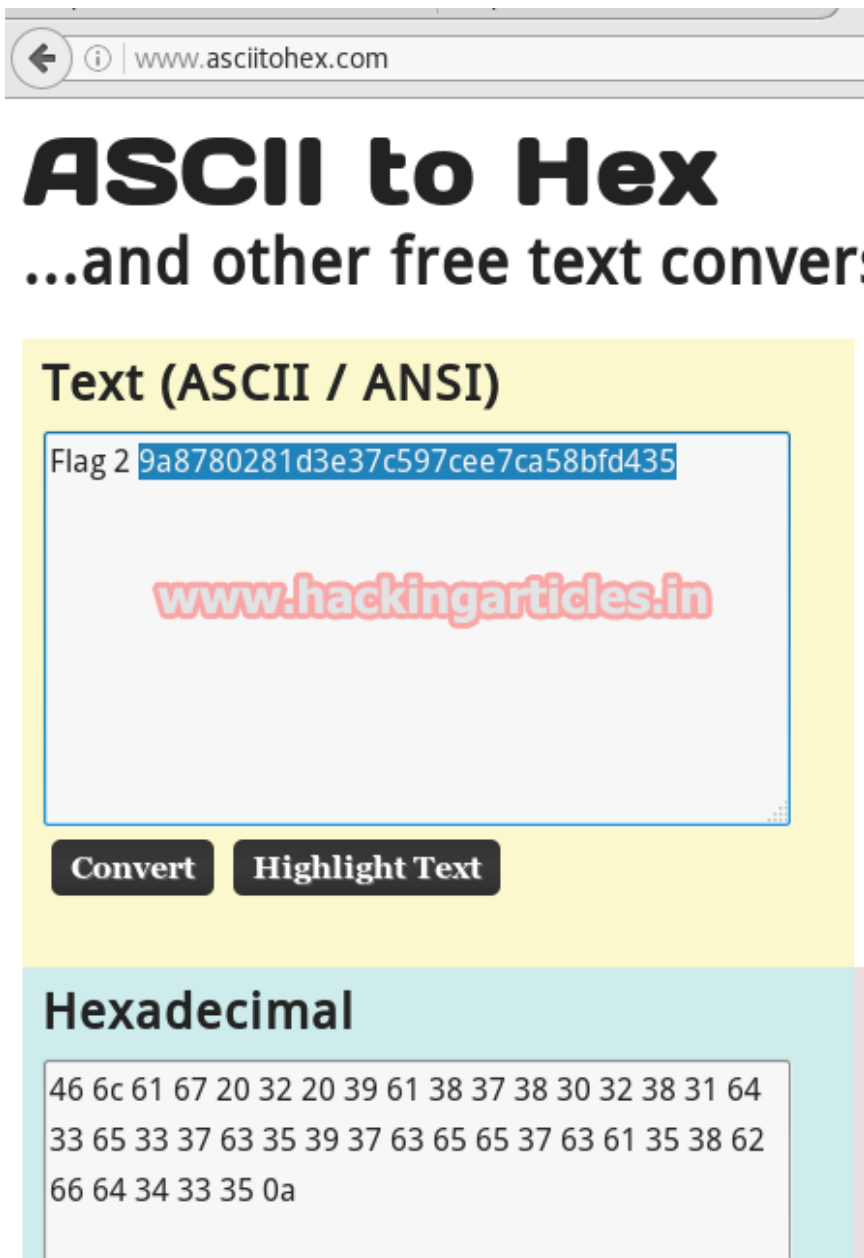


```
<!-- Scripts -->
<script src="assets/js/jquery.min.js"></script>
<script src="assets/js/skel.min.js"></script>
<script src="assets/js/util.js"></script>
<script src="RmxhZyAwIChuZXRkaXNjb3Zlcik">
<script src="assets/lafiya.js"></script><![Make sure you stick to intel gathering agent]<!-->
```

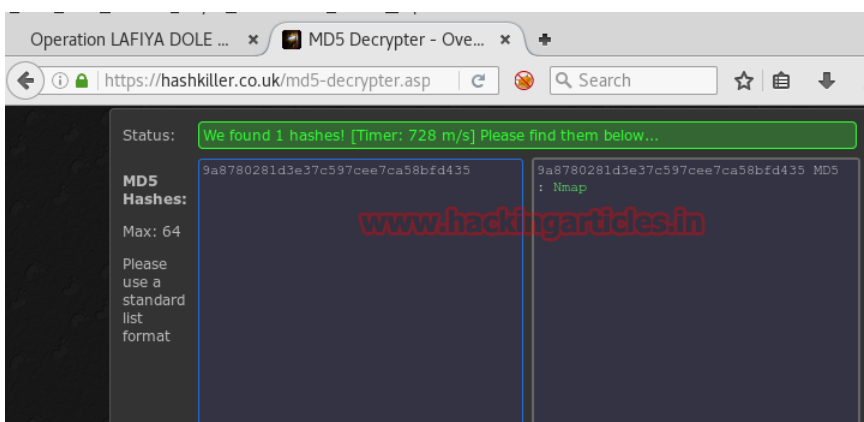
view-source:http://192.168.1.17/assets/lafiy

HTML5 Nsikak v2.6 Twitter: @Silxsecure Facebook: facebook.com/silxsecure \*/

```
46 6c 61 67 20 32 20 31 38 37 32 38 31 64 63 65 33 67 33 65 39 37 63 65 67 31 67 31 35 38 62 66 64 34 33 35 65 /
function(){"use strict";var t=breakpoints:null,events:{};isInit:!1,obj:{attachments:{},breakpoints:{},head:null,s
Beaded Air Force 1",
There is a big shoe to fill. Lord I need your feet 11/08/2014 c3.hedimaa@airforce.mil.ng maps/kanuri/Borno/@11.8664431,
trigger('ready'))},window.onload&end(on('load'),window.onload),window.onload=airforce()({t.trigger('ready'),window.on
```



When you convert MD5 value to its original, it will be nmap as shown in the image below.

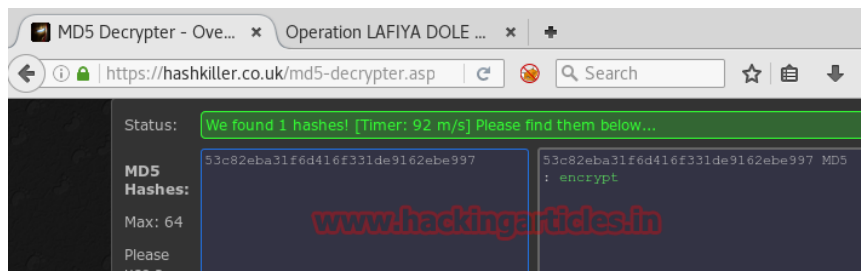


The second flag was nmap that means there is something in the nmap that we missed. And upon reviewing it I remembered that SSH service was open on the port 2225. And so I accessed it with the following command.

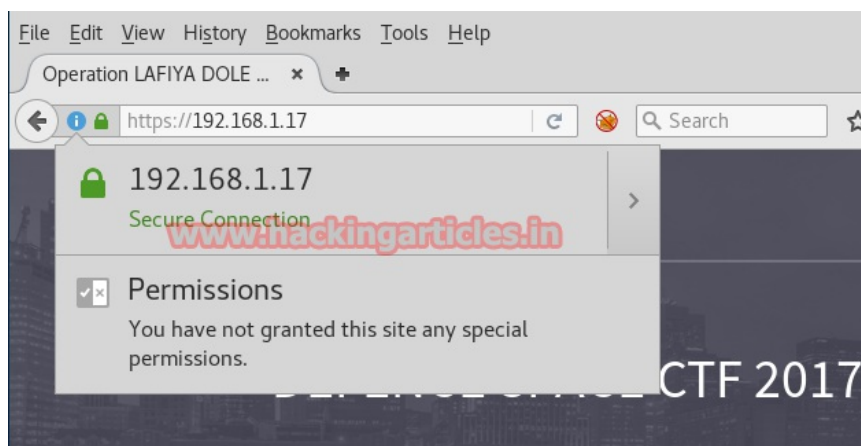
ssh 192.168.1.17 -p 2225

```
root@kali:~# ssh 192.168.1.17 -p 2225
The authenticity of host '[192.168.1.17]:2225 ([192.168.1.17]:2225)' can't be established.
ECDSA key fingerprint is SHA256:8sIalXp1GsXRzq1v9LpWHz84w229mDLUIjrc9Ahm3lU.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '[192.168.1.17]:2225' (ECDSA) to the list of known hosts.
#####
WARNING
DHQ:NIG DSS:NIG DIA:NIG - Authorized Access Only!
Disconnect IMMEDIATELY if you are not an authorized User in Operation Lafia Dole
All actions Will be Closely Monitored and Recorded by Cam7
Flag2B[53c82eba31f6d416f331de9162ebe997]
#####
```

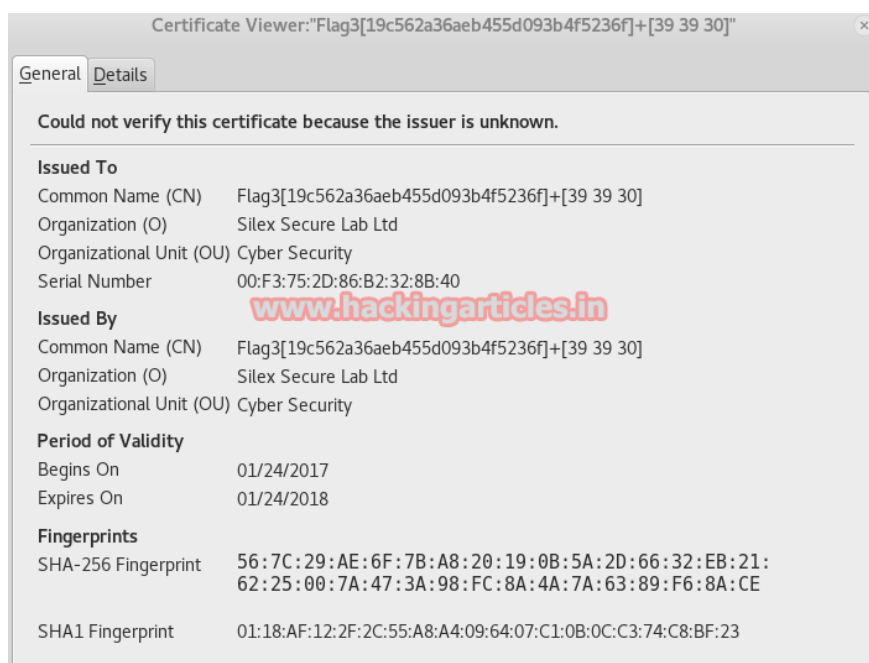
And there we have it our flag 2B in an MD5 value. Let's convert it.



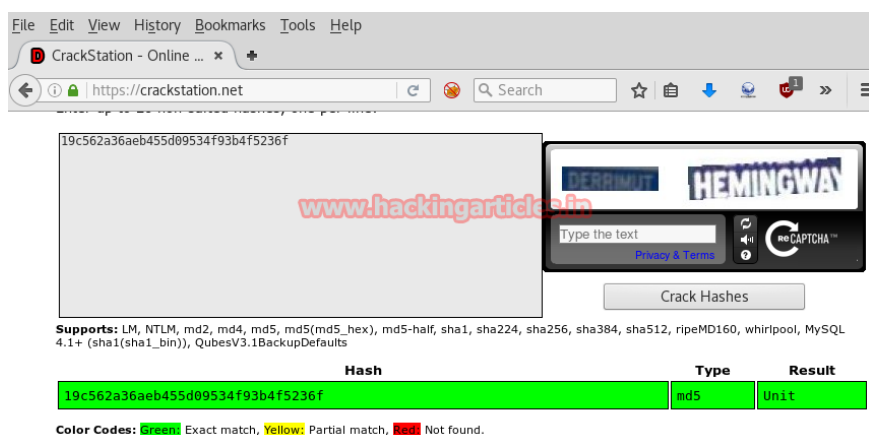
Our flag 2B is **encrypt**. That means there is something related to encryption and security. Now the best way to provide security to a website is through its security certificate. Let's check it out.



Now, upon examining the certificate, you will find your third flag and a hint i.e [39 39 30].



Firstly, decode the flag which will be **Unit**. Now if you decode it anywhere you will not get a result. And I did searched and re-searched but couldn't get it to decode. So I visited the author's walkthrough and there it says that it is translated to unit. And therefore I use unit in my walkthrough.



[Download CrackStation's Wordlist](#)

The combination of 3, 9, 0 will be the suffix of the word **Unit**. But there are a lot of combination for it so let's create those combinations with the help of crunch with command:

**crunch 3 3 390**

```

root@kali:~# crunch 3 3 390
Crunch will now generate the following amount of data: 108 bytes
0 MB
0 GB
0 TB
0 PB
Crunch will now generate the following number of lines: 27
333
339
330
393
399
390
303
309
300
933
939
930
993
999
990
903
909
900
033
039
030
093
099
090
003
009
000

```

We will get 27 possible combinations and so make a text file for dictionary attack and add the word 'unit' as a prefix to every combination. Now let's use dirb to find anything related to unit and these combinations.

**dirb http://192.168.1.17 /root/Desktop/dict.txt**

```

root@kali:~# dirb http://192.168.1.17 /root/Desktop/dict.txt
-----
DIRB v2.22
By The Dark Raver
-----
START TIME: Wed May 3 06:41:47 2017
URL_BASE: http://192.168.1.17/
WORDLIST_FILES: /root/Desktop/dict.txt
-----
GENERATED WORDS: 27

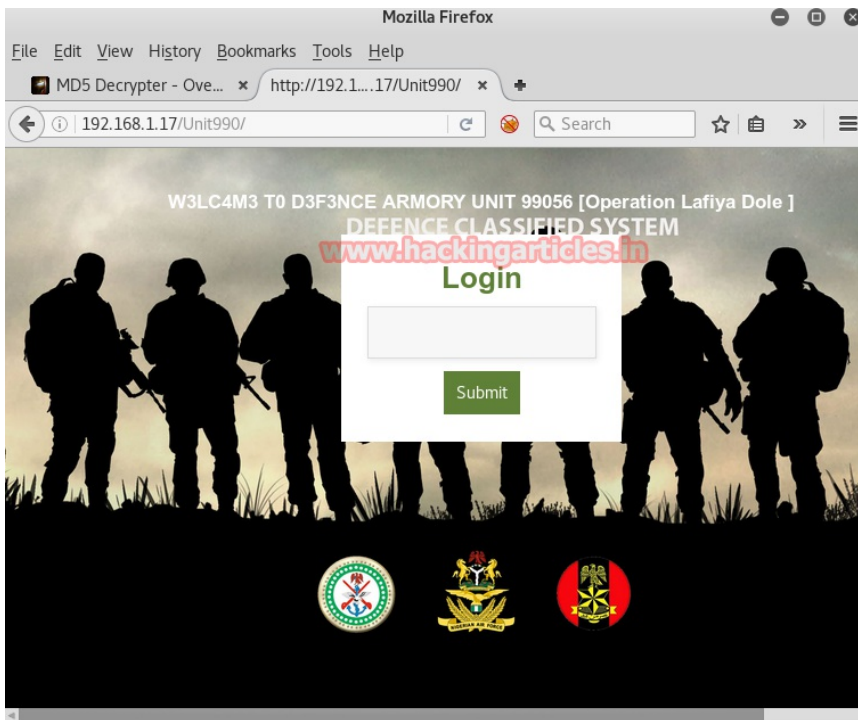
---- Scanning URL: http://192.168.1.17/
==> DIRECTORY: http://192.168.1.17/Unit990/

---- Entering directory: http://192.168.1.17/Unit990/ ----
-----
END TIME: Wed May 3 06:41:48 2017
DOWNLOADED: 54 - FOUND: 0

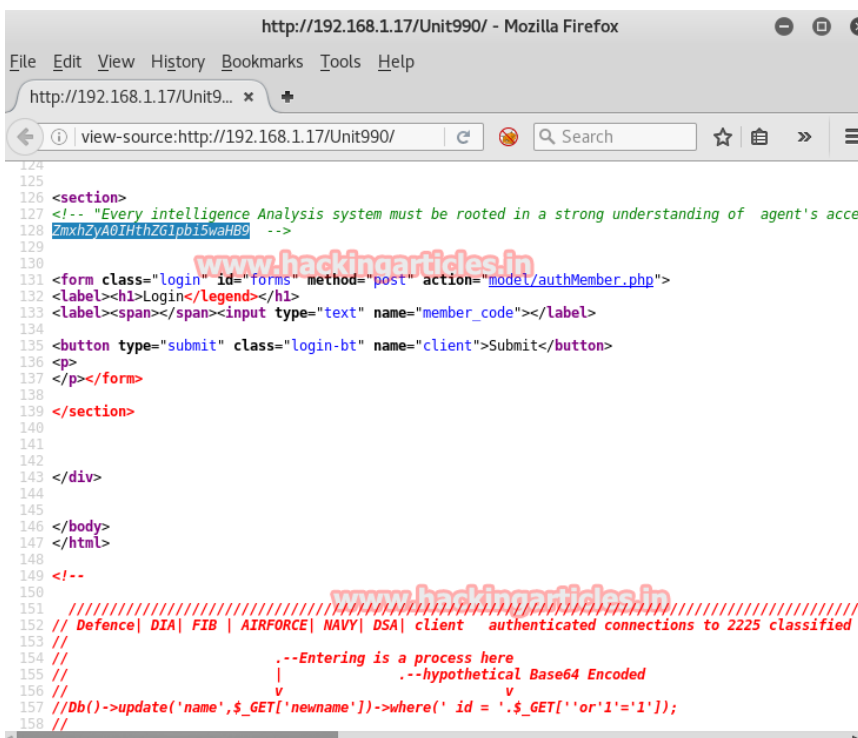
```

To our joy there is a directory that goes by **unit990**. Let's open it in our browser without further delay.

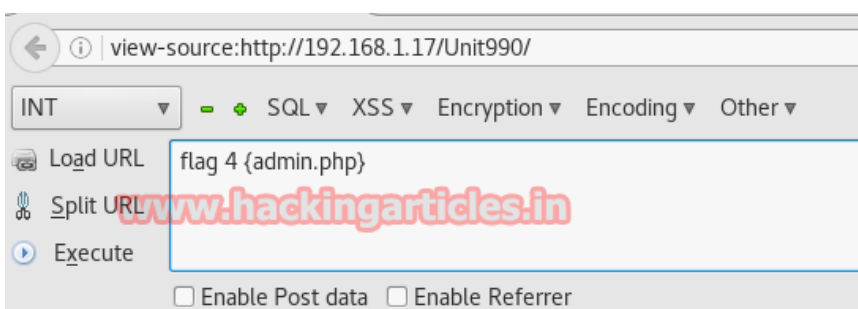




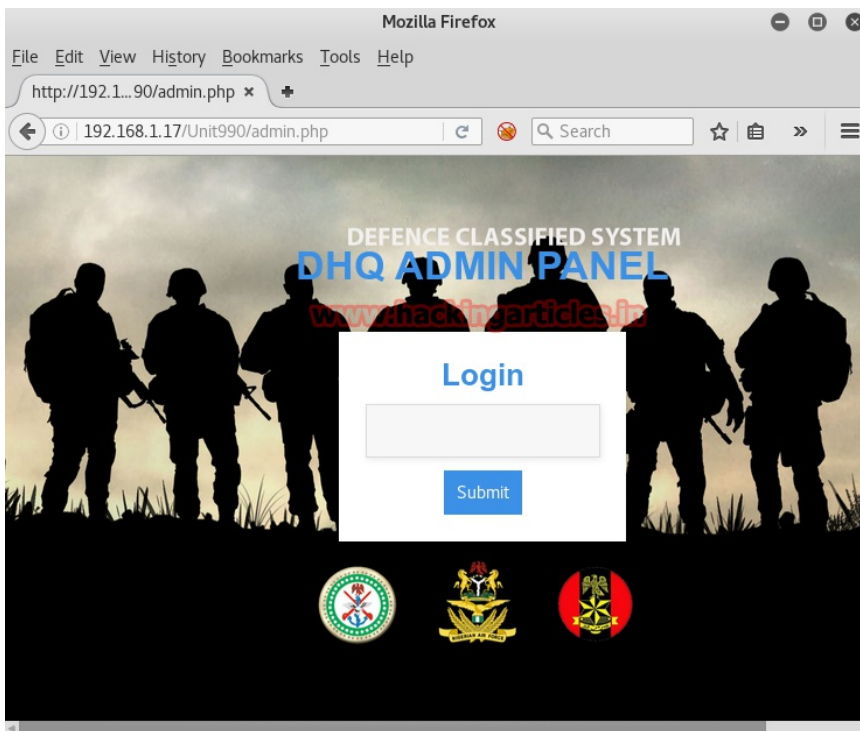
We do not have credentials for logging in. So, I checked its source code instead. In the source code you will find flag 4 in a base64 code.



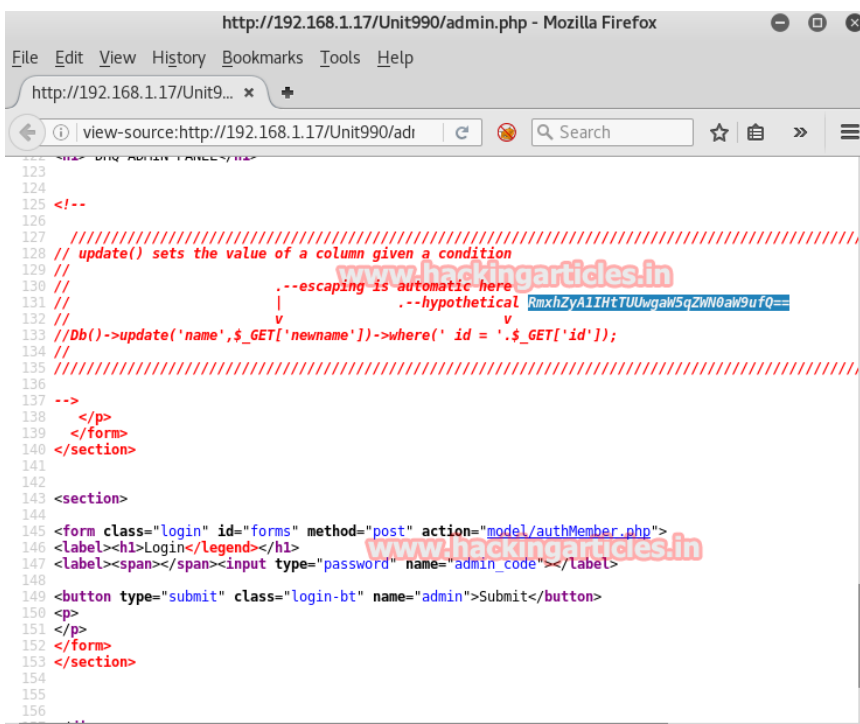
Decode the flag and you will get **Admin.php**



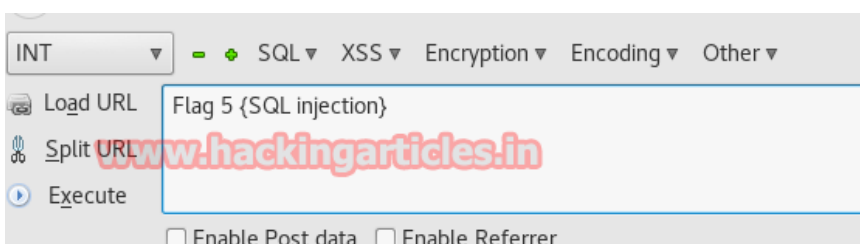




Opening the previously found directory in the browser will show the same page but its source code is edited. As you will check it, you will find that flag 5 again in base64 code.□



By decoding flag 5 you will get SQL injection. That means□ next step should be SQL injection.



Now this hint is just to throw us off our track. I used every SQL injection technique I could find but it didn't help. So I used dirb on the target.

dirb http://192.168.1.17

```
root@kali:~# dirb http://192.168.1.17

-----
DIRB v2.22
By The Dark Raver
-----

START_TIME: Wed May 3 05:54:24 2017
URL_BASE: http://192.168.1.17/
WORDLIST_FILES: /usr/share/dirb/wordlists/common.txt

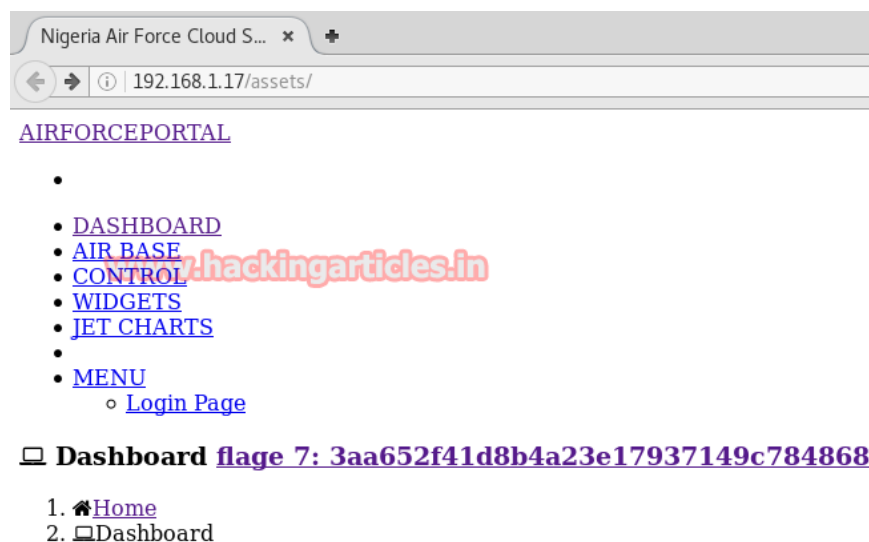
-----

GENERATED WORDS: 4612

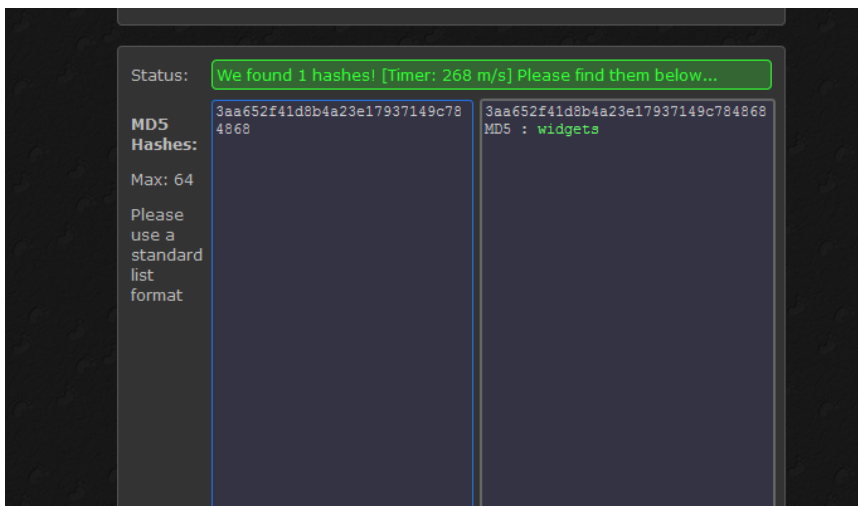
---- Scanning URL: http://192.168.1.17/ ----
==> DIRECTORY: http://192.168.1.17/assets/
==> DIRECTORY: http://192.168.1.17/images/
+ http://192.168.1.17/index.html (CODE:200|SIZE:3965)
+ http://192.168.1.17/info.php (CODE:200|SIZE:90879)
==> DIRECTORY: http://192.168.1.17/javascript/
==> DIRECTORY: http://192.168.1.17/phpmyadmin/
+ http://192.168.1.17/server-status (CODE:403|SIZE:300)

---- Entering directory: http://192.168.1.17/assets/ ----
==> DIRECTORY: http://192.168.1.17/assets/css/
==> DIRECTORY: http://192.168.1.17/assets/fonts/
+ http://192.168.1.17/assets/index.html (CODE:200|SIZE:38251)
==> DIRECTORY: http://192.168.1.17/assets/js/
^C> Testing: http://192.168.1.17/assets/sport
```

I found a directory called assets. And opened it in the browser and found the 7<sup>th</sup> flag. □



Now try and decode it widgets.



Now you can try and decode it but it's hopeless to decode it anywhere online. So examined the dirb result more and found another directory called **phpmyadmin**

```
root@kali:~# dirb http://192.168.1.17

-----
DIRB v2.22
By The Dark Raver
-----
www.hackingarticles.in
START TIME: Wed May 3 05:54:24 2017
URL BASE: http://192.168.1.17/
WORDLIST_FILES: /usr/share/dirb/wordlists/common.txt

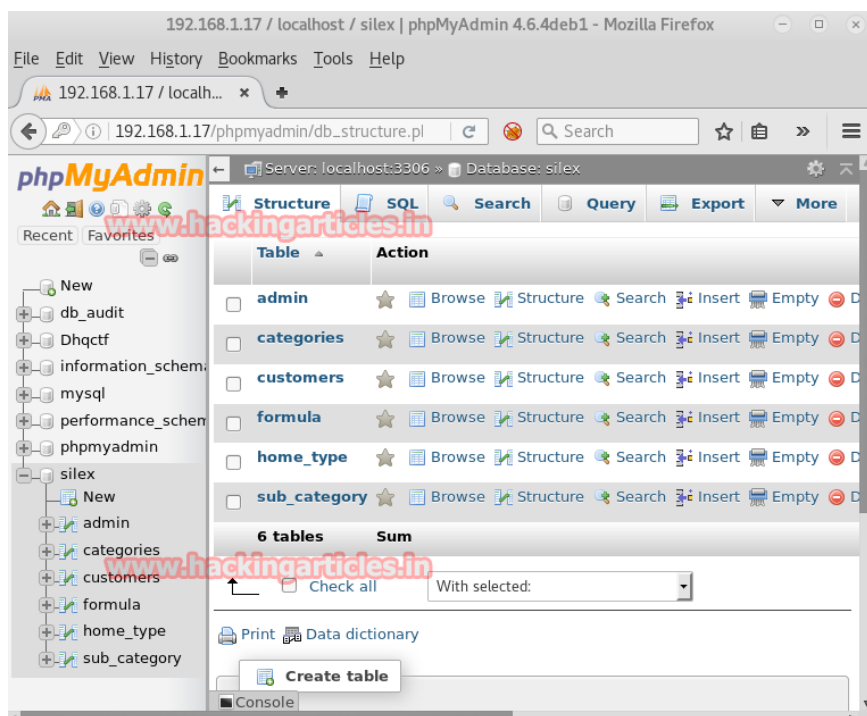
-----

GENERATED WORDS: 4612

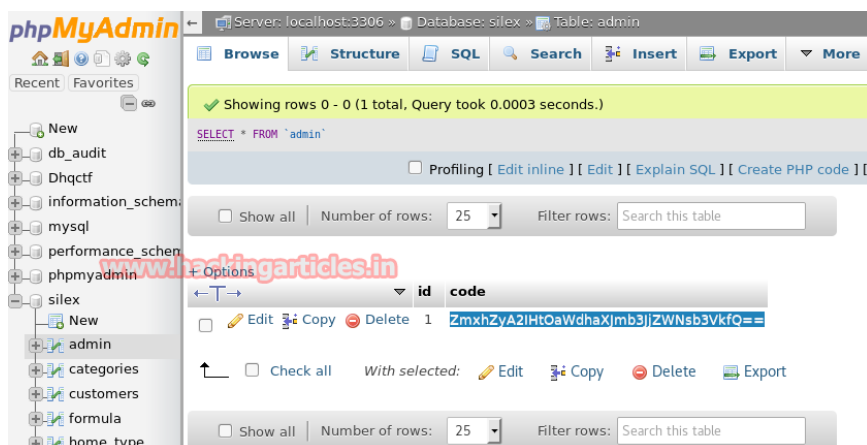
---- Scanning URL: http://192.168.1.17/ ----
==> DIRECTORY: http://192.168.1.17/assets/
==> DIRECTORY: http://192.168.1.17/images/
+ http://192.168.1.17/index.html (CODE:200|SIZE:3965)
+ http://192.168.1.17/info.php (CODE:200|SIZE:90879)
==> DIRECTORY: http://192.168.1.17/javascript/
==> DIRECTORY: http://192.168.1.17/phpmyadmin/
+ http://192.168.1.17/server-status (CODE:403|SIZE:300)

---- Entering directory: http://192.168.1.17/assets/ ----
==> DIRECTORY: http://192.168.1.17/assets/css/
==> DIRECTORY: http://192.168.1.17/assets/fonts/
+ http://192.168.1.17/assets/index.html (CODE:200|SIZE:38251)
==> DIRECTORY: http://192.168.1.17/assets/js/
```

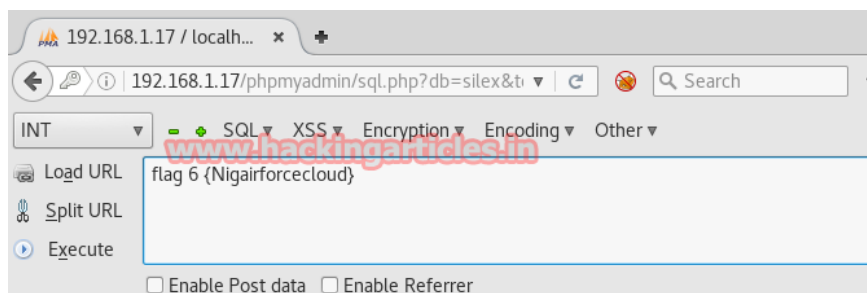
If you open this directory in browser you will find a log in page. I used the top 10 most commonly used password and username i.e root and root and got in. In the database I found a **silex** table. Now silex is the team's name so I guess this is most important table.



Upon checking it, I found admin and in admin there was our 6<sup>th</sup> flag coded in base64



Upon decoding, it says **Nigiarforcecloud**.



And voila!! All our flags are uncovered. Good work soldiers. Solving this VM was good exercise and I salute the fallen Nigerian soldiers and wish them peace and praise the whole army.

**Author: Yashika Dhir** is a passionate Researcher and Technical Writer at Hacking Articles. She is a hacking

enthusiast. contact [here](#)

## Related

```
root@kali:~# netdiscover
Currently scanning: 192.168.9.0/16 | Screen View: Unique Hosts
3 Captured ARP Req/Rep packets, from 3 hosts. Total size: 180
-----
IP            At MAC Address    Count  Len  MAC Vendor / Hostname
-----
192.168.0.1    14:82:6b:e6        1      60   Hefei Radio Communication Te
192.168.0.101  fc:aa:2d:12:a      1      60   GIGA-BYTE TECHNOLOGY CO.,LTD
192.168.0.104  00:0c:29:89        1      60   VMware, Inc.
```

### [Hack the Simple VM \(CTF Challenge\)](#)

September 7, 2016

In "CTF Challenges"

```
root@kali:~# netdiscover
Currently scanning: 192.168.9.0/16 | Screen View: Unique Hosts
3 Captured ARP Req/Rep packets, from 3 hosts. Total size: 180
-----
IP            At MAC Address    Count  Len  MAC Vendor / Hostname
-----
192.168.0.1    14:82:6b:e6        1      60   Hefei Radio Communication Te
192.168.0.101  fc:aa:2d:12:a      1      60   GIGA-BYTE TECHNOLOGY CO.,LTD
192.168.0.105  00:0c:29:89        1      60   VMware, Inc.
```

### [Hack the Milnet VM \(CTF Challenge\)](#)

September 8, 2016

In "CTF Challenges"

```
root@kali:~# netdiscover
Currently scanning: 192.168.19.0/16 | Screen View: Unique Hosts
7 Captured ARP Req/Rep packets, from 7 hosts. Total size: 420
-----
IP            At MAC Address    Count  Len  MAC Vendor / Hostname
-----
192.168.1.1    60:e2:6b:2a        1      60   TP-LINK TECHNOLOGIES CO.,LTD.
192.168.1.7    fc:aa:2d:12:a      1      60   GIGA-BYTE TECHNOLOGY CO.,LTD.
192.168.1.8    08:00:0d:2f        1      60   Cadmus Computer Systems
192.168.1.23   08:ed:08:12        1      60   Hon Hai Precision Ind. Co.,Ltd.
192.168.1.10   80:6c:00:34        1      60   Motorola Mobility LLC, a Lenovo Company
192.168.1.102  fc:aa:2d:12:a      1      60   GIGA-BYTE TECHNOLOGY CO.,LTD.
192.168.1.104  fc:aa:2d:12:a      1      60   GIGA-BYTE TECHNOLOGY CO.,LTD.
```

### [Hack the Zorz VM \(CTF Challenge\)](#)

December 16, 2016

In "CTF Challenges"

## ABOUT THE AUTHOR



## RAJ CHANDEL

Raj Chandel is a Skilled and Passionate IT Professional especially in IT-Hacking Industry. At present other than his name he can also be called as An Ethical Hacker, A Cyber Security Expert, A Penetration Tester. With years of quality Experience in IT and software industry

---

### PREVIOUS POST

← [HOW TO USE PUBLIC IP ON KALI LINUX](#)

## Leave a Reply

Enter your comment here...

## Search

## Subscribe to Blog via Email





## Categories

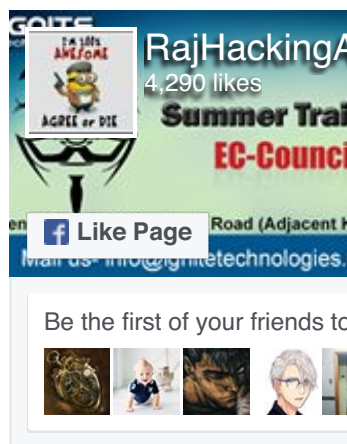
- 🔖 BackTrack 5 Tutorials
- 🔖 Batch File Tricks
- 🔖 Best of Hacking
- 🔖 Browser Hacking
- 🔖 Cryptography & Steganography
- 🔖 CTF Challenges
- 🔖 Cyber Forensics
- 🔖 Database Hacking
- 🔖 DLL File Hacking
- 🔖 Domain Hacking
- 🔖 Email Hacking
- 🔖 Face Book Hacking
- 🔖 Footprinting
- 🔖 Google Hacking
- 🔖 Hacking Tools
- 🔖 Internet
- 🔖 Kali Linux
- 🔖 Others
- 🔖 Penetration Testing



- Registry Tricks
- Social Engineering Toolkit
- Software
- Trojans & Backdoors
- Uncategorized
- Website Hacking
- Window Password Hacking
- Windows Hacking Tricks
- Wireless Hacking
- Youtube Hacking



## Facebook Page



 Share

