Lab #6.1 - Introduction to Password Cracking using Hashcat

0. Lab Objectives

At the end of this lab exercise, you should be able to:

- Be familiar with the concept of password cracking
- Apply Hashcat for password cracking purposes
- Understand the importance of having strong passwords

1 Run the hashcat benchmark (eg hashcat – b -m 0), and complete the following:
The purpose is to find out the speed of hashcat for each of the specified hash functions. That is, we want to see how many hashes it can run per second.

Your Device:
thread-Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz, 1928/3921 MB (512 MB allocatable), 4MCU

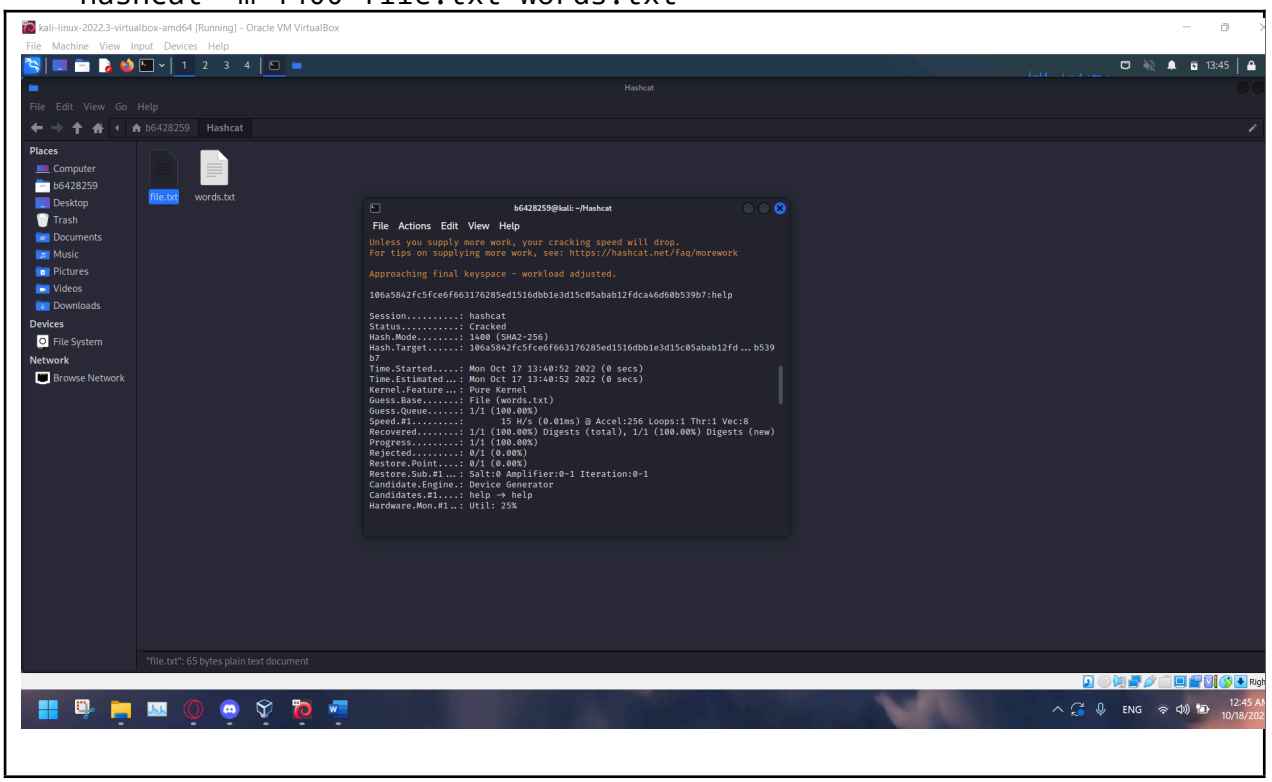
Hash rate for MD5:
123.0 MH/s
(7.00 ms)
Hash rate for SHA-1:
2460.1 kH/s (11.73ms)
Hash rate for SHA-256:
37150.2 kH/s
(28.10ms)

2 We have hashed a SHA-256 value of the following and put it into a file named file.txt:

```
106a5842fc5fce6f663176285ed1516dbb1e3d15c05abab12fdca46d60b539b7
```

By adding a word of “help” in a word file of words.txt, prove that the following cracks the hash (where file.txt contains the hashed value):

```
hashcat -m 1400 file.txt words.txt
```

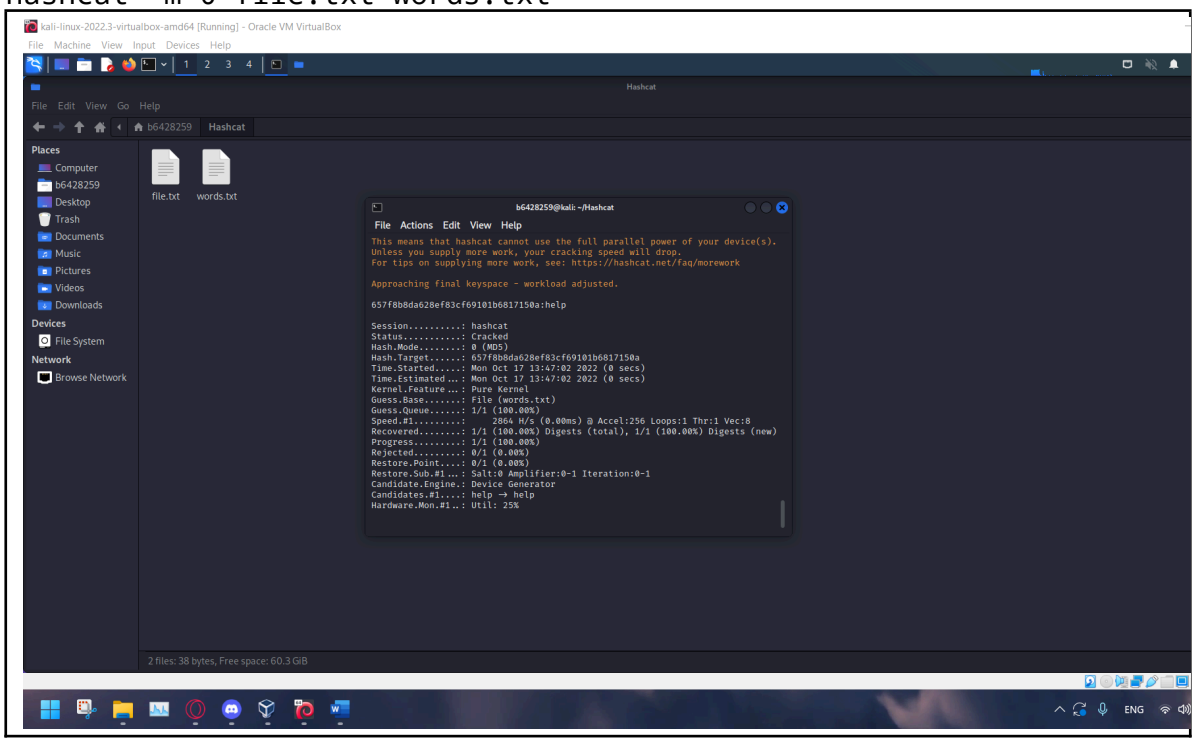


3 The following is an MD5 hash, for “help”:

```
657f8b8da628ef83cf69101b6817150a
```

Prove that the following can crack the hash (where file.txt contains the hashed value):

```
hashcat -m 0 file.txt words.txt
```



4 Suppose the following cities have been hashed by MD5. Crack them and write down what the cities are.

```
d177b4d1d9e6b6fa86521e4b3d00b029
dea56e47f1c62c30b83b70eb281a6c39
b90bbd2b879d5c0167b28d02c017771a
22638a3131d0f0a7346b178fd29f939c
```

The command(s) I used was/were:

hashcat -a 0 -m 0 hashes /usr/share/wordlists/rockyou.txt.gz

Cities:
1) liverpool
2) barcelona
3) bangkok
4) shanghai

5 Rather than use a dictionary, we can use a brute force a hashed password using a lowercase character set:

```
hashcat -a 3 -m 0 file.txt ?l?l?l?l?l?l?l?l
```

The above command is known as *filter* style.

Using this style of command, crack the following 4-lower-case-letter word followed by 4 digits that have been hashed by SHA-1 algorithm:

```
7c51f769ec697c288f97e1fcc1a691becf28b51a
```

The command I used was:
hashcat -a 3 -m 100 file.txt ?l?l?l?l?d?d?d?d

The word is: year2022

Using this style of command, crack the following 8-lower-case-letter word that have been hashed by SHA-256 algorithm:

```
5489eb1d2a0285016de38986b21749ed5beee9ac3f5097b9a95854dd146b1b07
```

The command I used was:
hashcat -a 3 -m 100 file.txt ?l?l?l?l?l?l?l?l
ขออณุญาติใช้
hashcat -a 0 -m 1400 file.txt /usr/share/wordlists/rockyou.txt.gz
นะครับ Crack นานเกิน 2 ชั่วโมง

The word is: accident