Old Dominion University

CYSE 301: Cybersecurity Technique and Operations

Assignment 4: Password Cracking (Part A)

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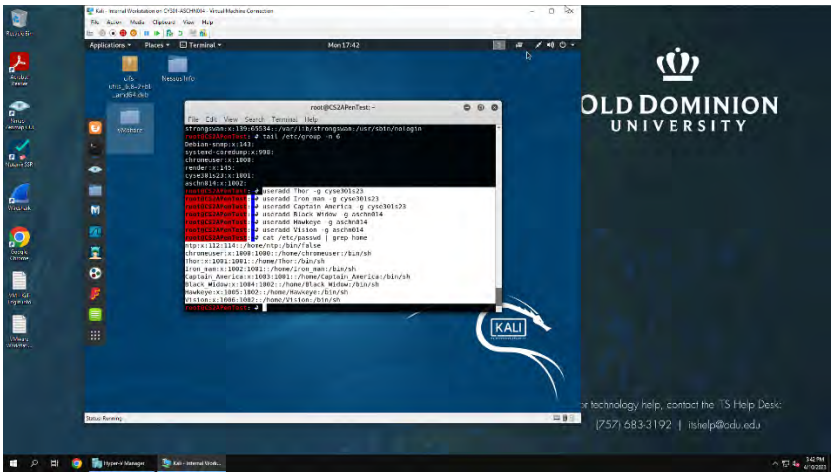
At the end of this module, each student needs to submit a report that includes the solutions to the following tasks. Make sure you take a screenshot for every single step as proof.
You need to use

Task A: Linux Password Cracking (25 points)



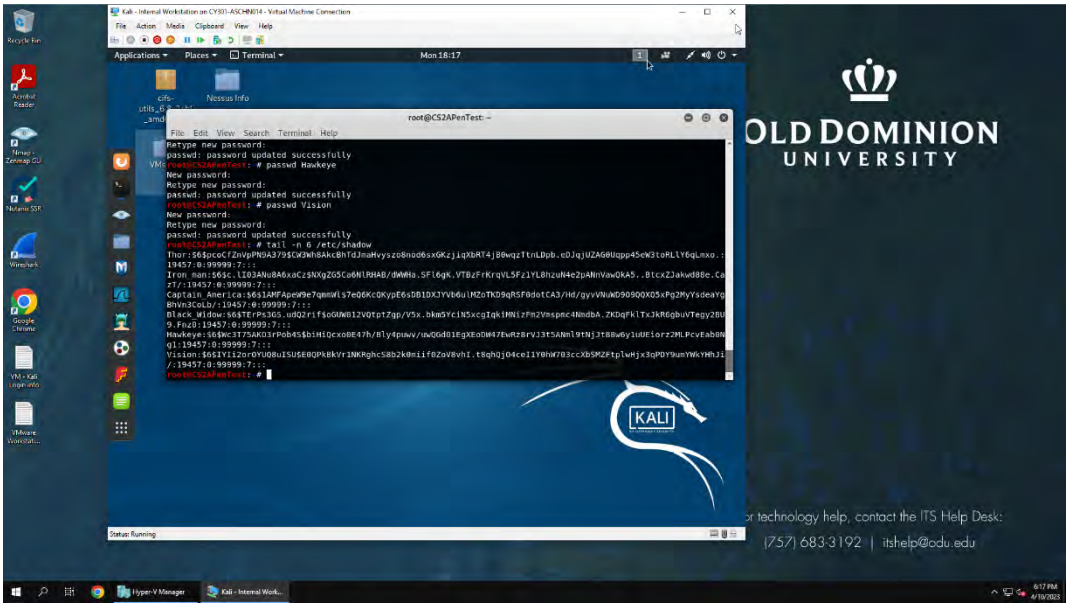
Task 1 and 2

1. **5 points.** Create two groups, one is **cyse301s23**, and the other is your ODU Midas ID (for example, pjiang). Then display the corresponding group IDs.

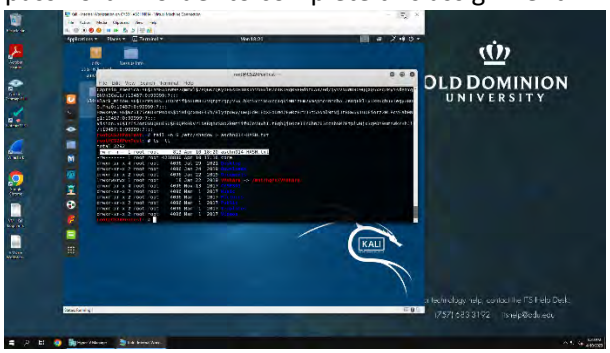
I used command groupadd to create cyse301s23 and aschn014

2. **5 points.** Create and assign three users to each group. Display related UID and GID information of each user. Then I used command useradd "name" -g "groupname" to add each user to their group. Then "cat etc/passwd | grep home" to get corresponding UID and GID information.
3. **5 points.** Choose six new passwords, **from easy to hard**, and assign them to the users you created. You need to show me the password you selected in your report, and **DO NOT** use your real-world

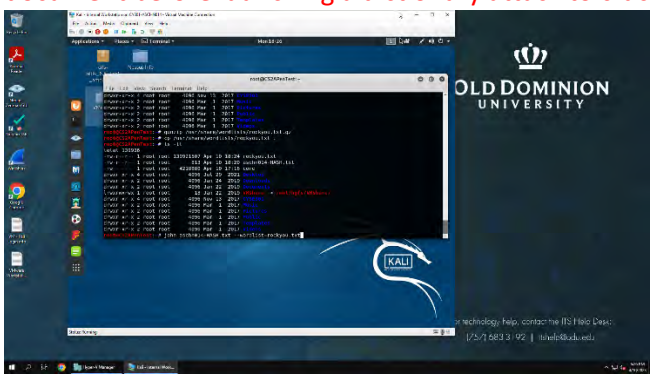
Cyse301s23	aschn014
Thor/321321	Black_Widow/3welcome
Iron_man/123456789	Hawkeye/academic
Captain_America/2Sarjose	Vision/acapulco



4. **5 points.** Export all six users' password hashes into a file named "**YourMIDAS-HASH**" (for example, pjiang-HASH). Then launch a dictionary attack to crack the passwords. You MUST crack at least one password in order to complete this assignment.

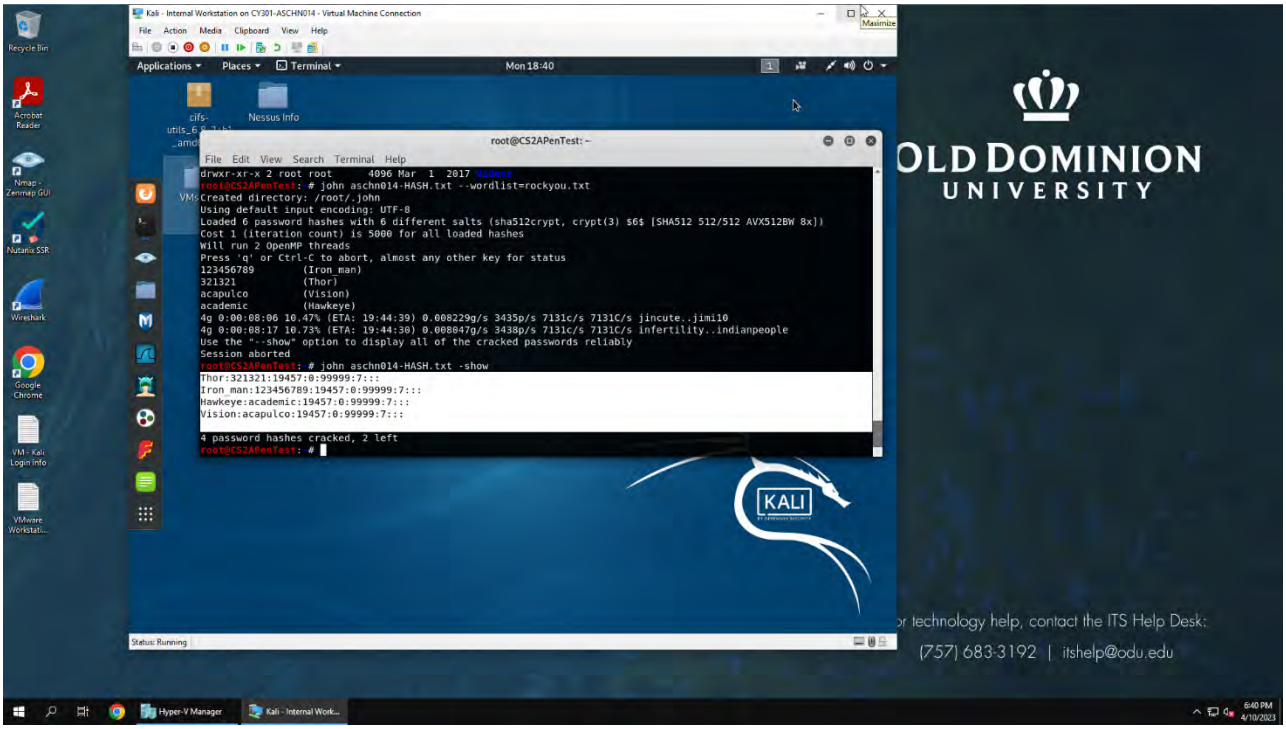


I used tail -n 6 /etc/shadow > aschn014-HASH.txt command to save the password hashes to a text document before launching a dictionary attack to crack the passwords.



I used gunzip /usr/share/wordlists/rockyo.txt.gz to unzip the worldlist for the dictionary attack. I then copied the wordlist into the current directory using cp /usr/share/wordlists/rockyou.txt

I used john aschn014-HASH.txt –wordlist-rockyou.txt command to run john the ripper against the saved hashes. Cracked passwords show below

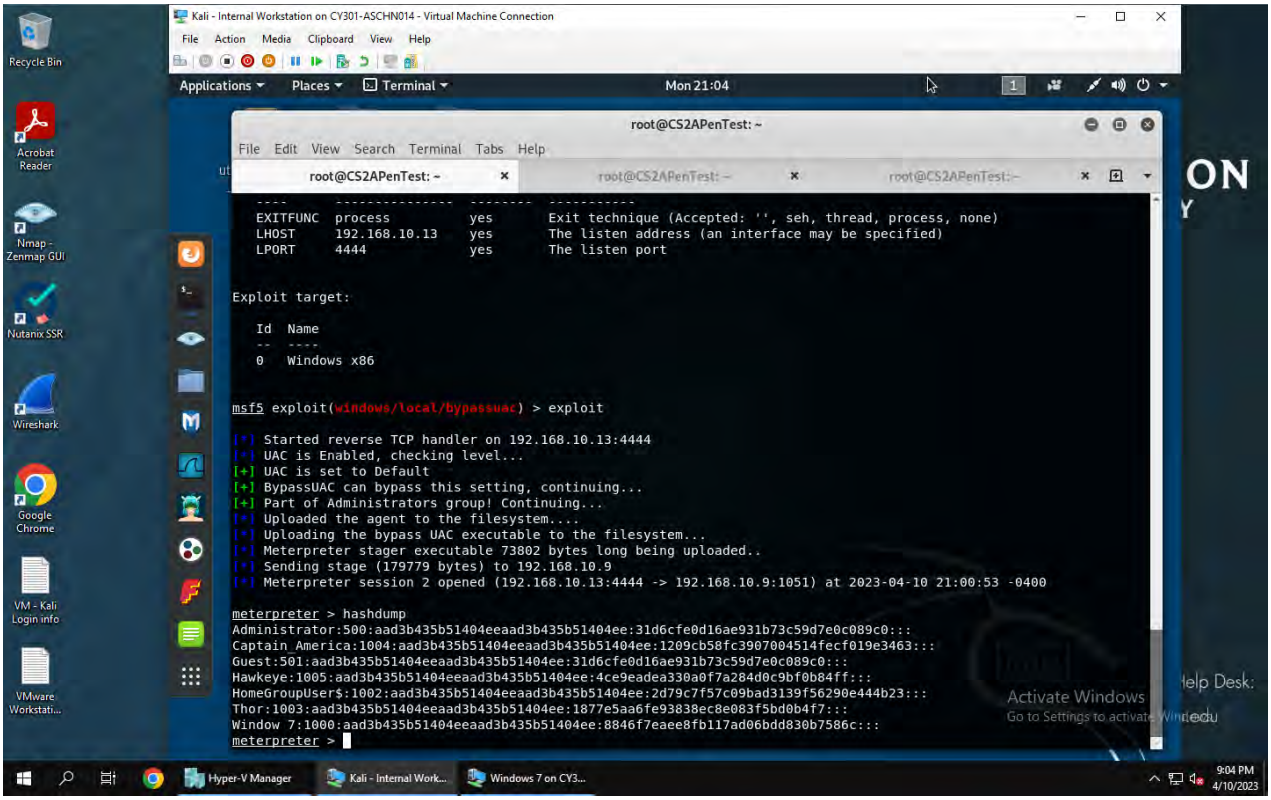


Task B: Windows Password Cracking (25 points)

Log on to Windows 7 VM and create a list of 3 users with different passwords. Then you need to establish a reverse shell connection with the admin privilege to the target Windows 7 VM.

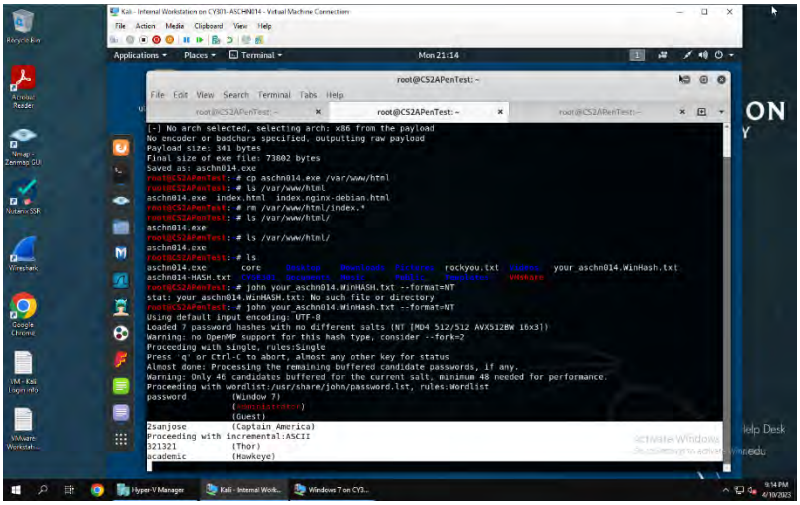
Now, complete the following tasks:

1. **5 points.** Display the password hashes by using the "hashdump" command in the meterpreter shell. Then



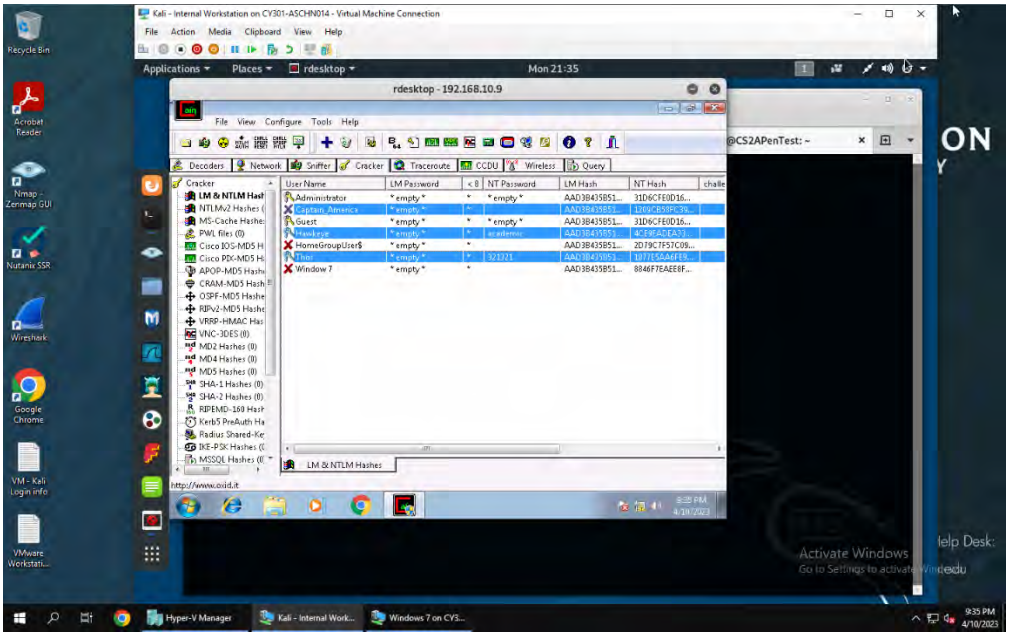
Password hashes retrieved using hashdump command after setup of reverse shell and injection of bypassUAC exploit to elevate permissions.

2. **10 points.** Save the password hashes into a file named "**your_midas.WinHASH**" in Kali Linux (you need to replace the "your_midas" with your university MIDAS ID). Then run John the ripper for **10 minutes** to crack the passwords (You MUST crack at least one password in order to complete this assignment.).

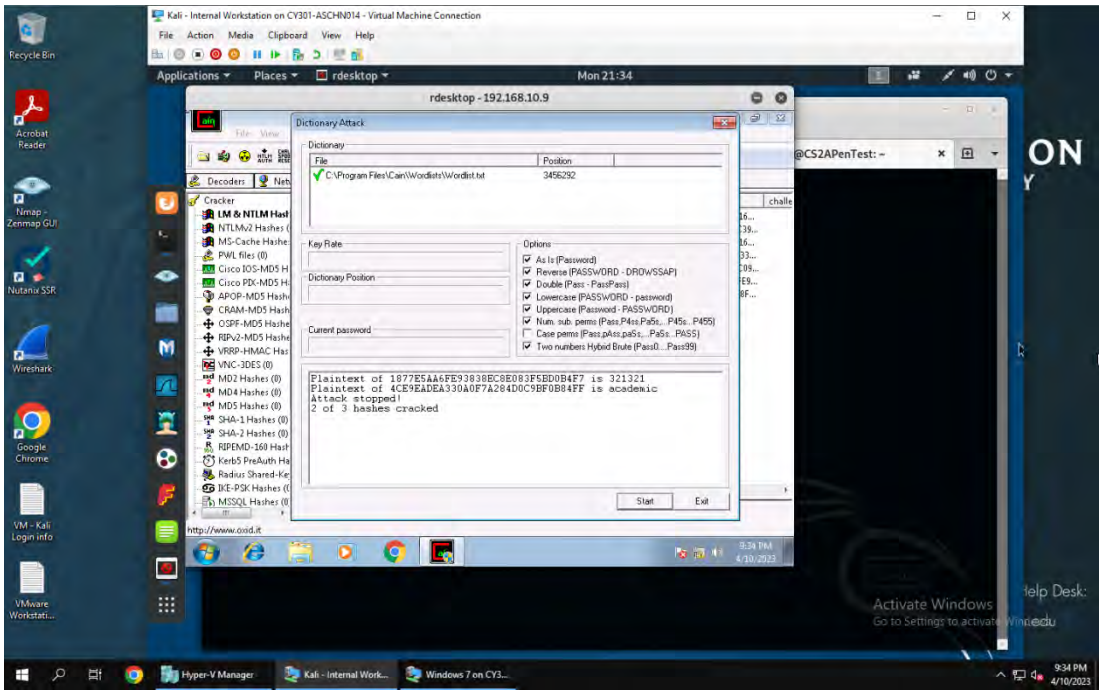


Saved hashes as your_aschn014.WinHash.txt. Then ran john your_aschn014.WinHash.txt –format=NT to crack the passwords shown below.

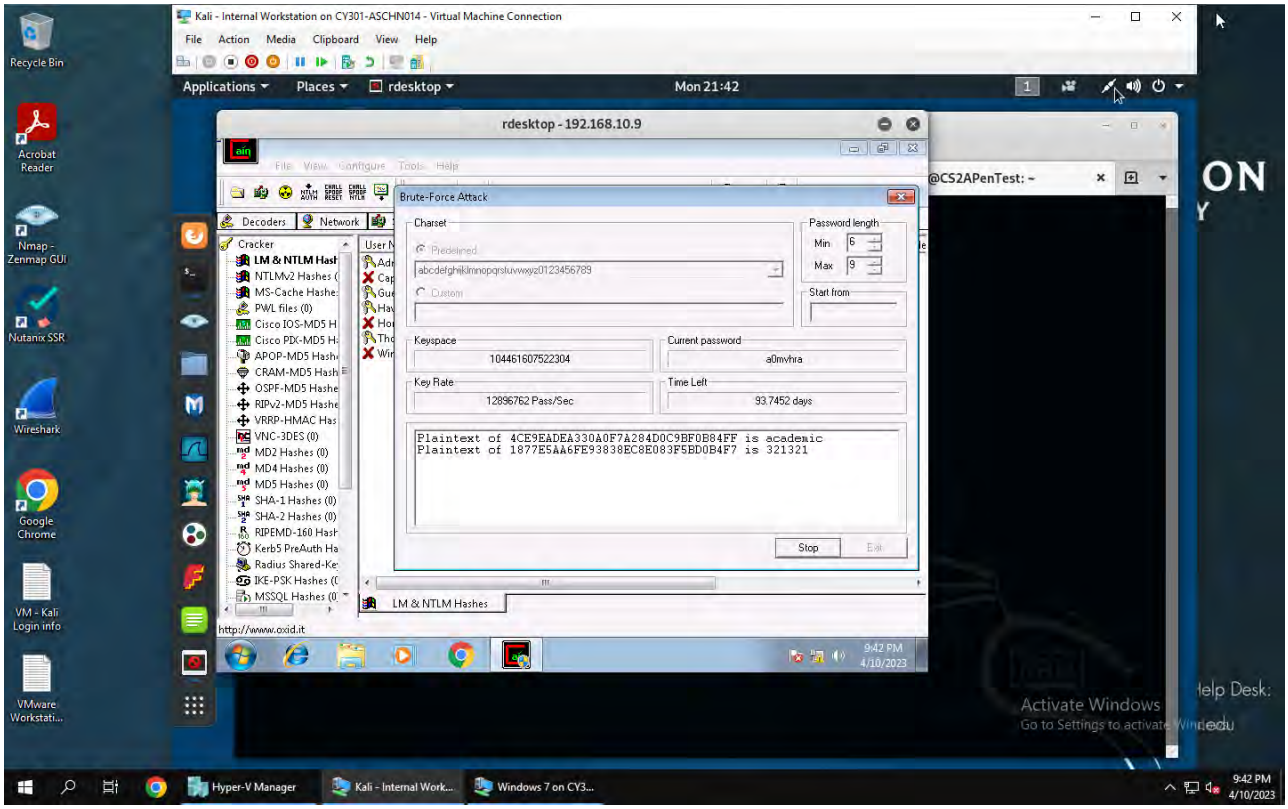
3. **10 points.** Upload the password cracking tool, **Cain and Abel,** to the remote Windows 7 VM, and install it via a remote desktop window. Then, implement **BOTH** brute force and dictionary attacks to crack the passwords. (You MUST crack at least one password in order to complete this assignment.).



Can and Abel uploaded via rdesktop command. Dictionary and brute force attack in following pictures.



Dictionary attack successful passwords listed above



Brute force attack successful passwords listed above.

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CYSE 301: Cybersecurity Technique and Operations

Assignment: Password Cracking (Part B - Wi-Fi Password Cracking)

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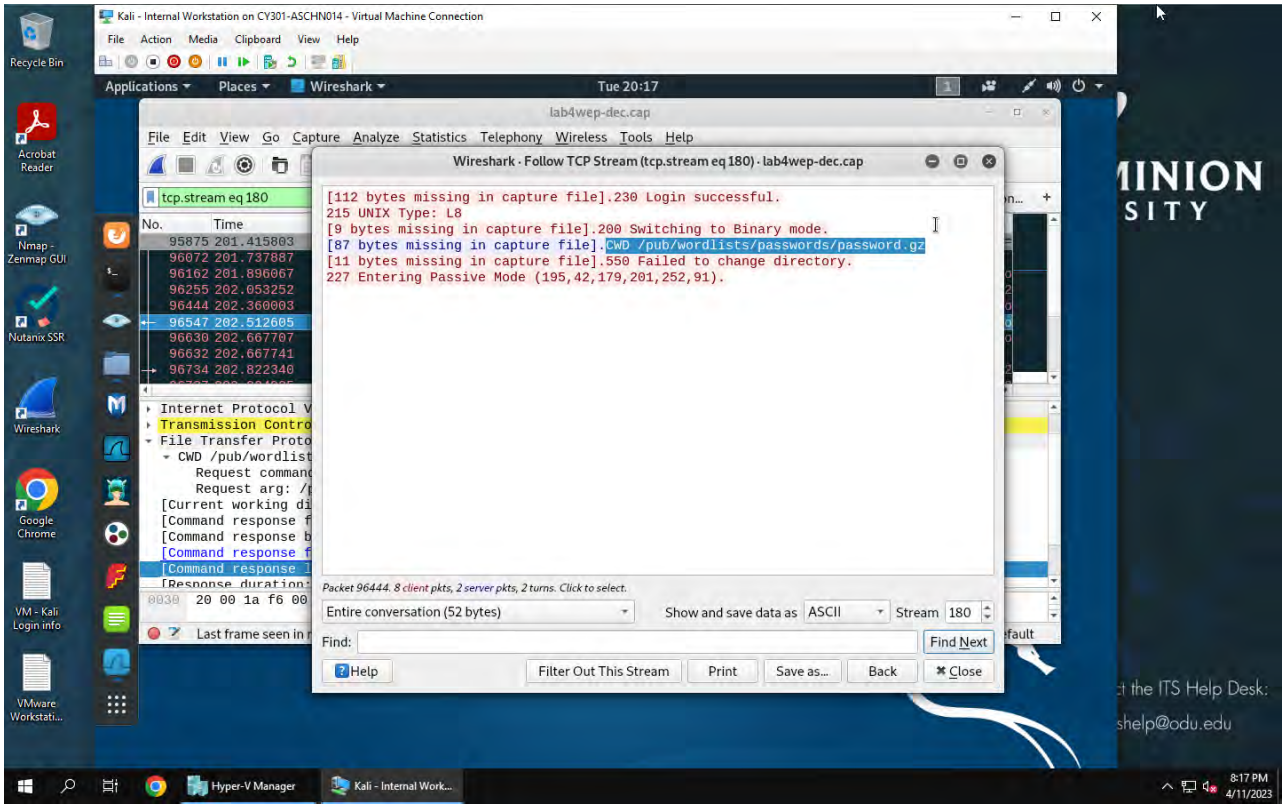
Task C: 20 points

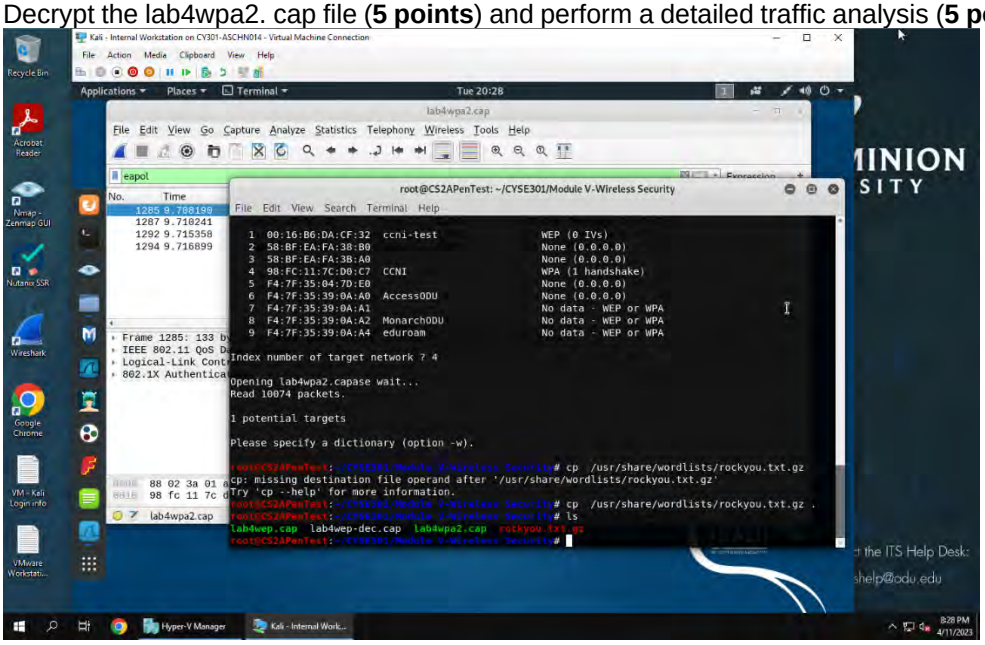
Follow the steps in the lab manual, and practice cracking practice for WEP and WPA/WPA2 protected traffic.

1. Decrypt the lab4wep. cap file (**5 points**) and perform a detailed traffic analysis (**5 points**)

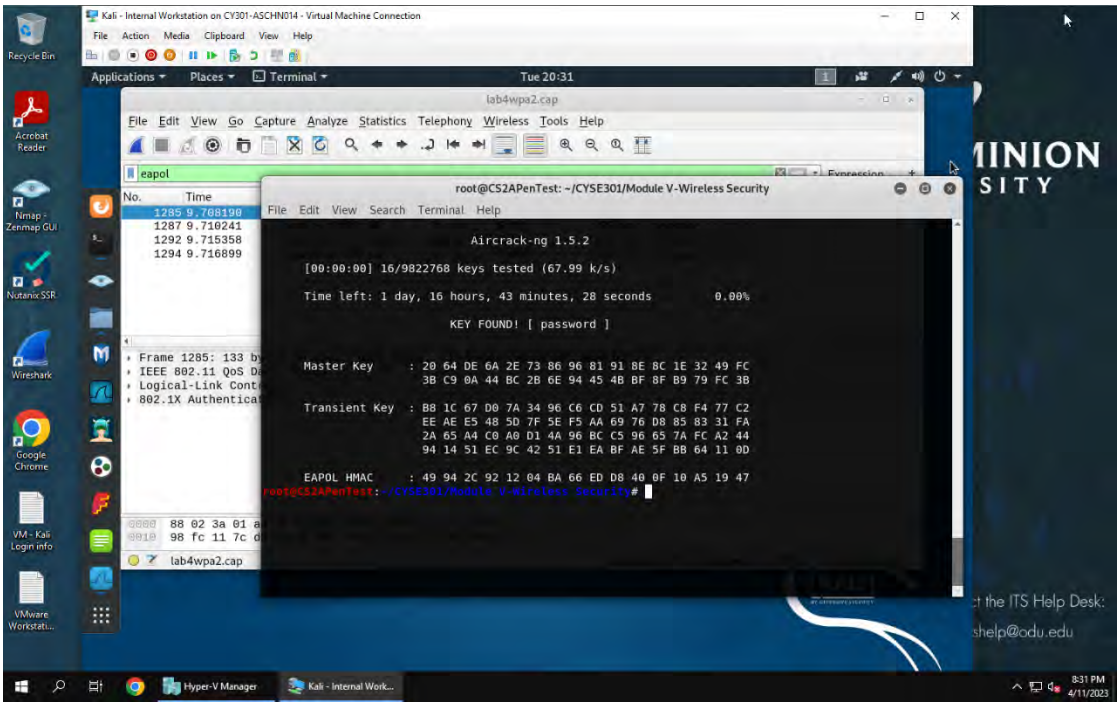


Used airdecap to decrypt the .cap file. Using ftp.request.arg found an FTP data transfer of a wordlist to use in a dictionary attack against the target.

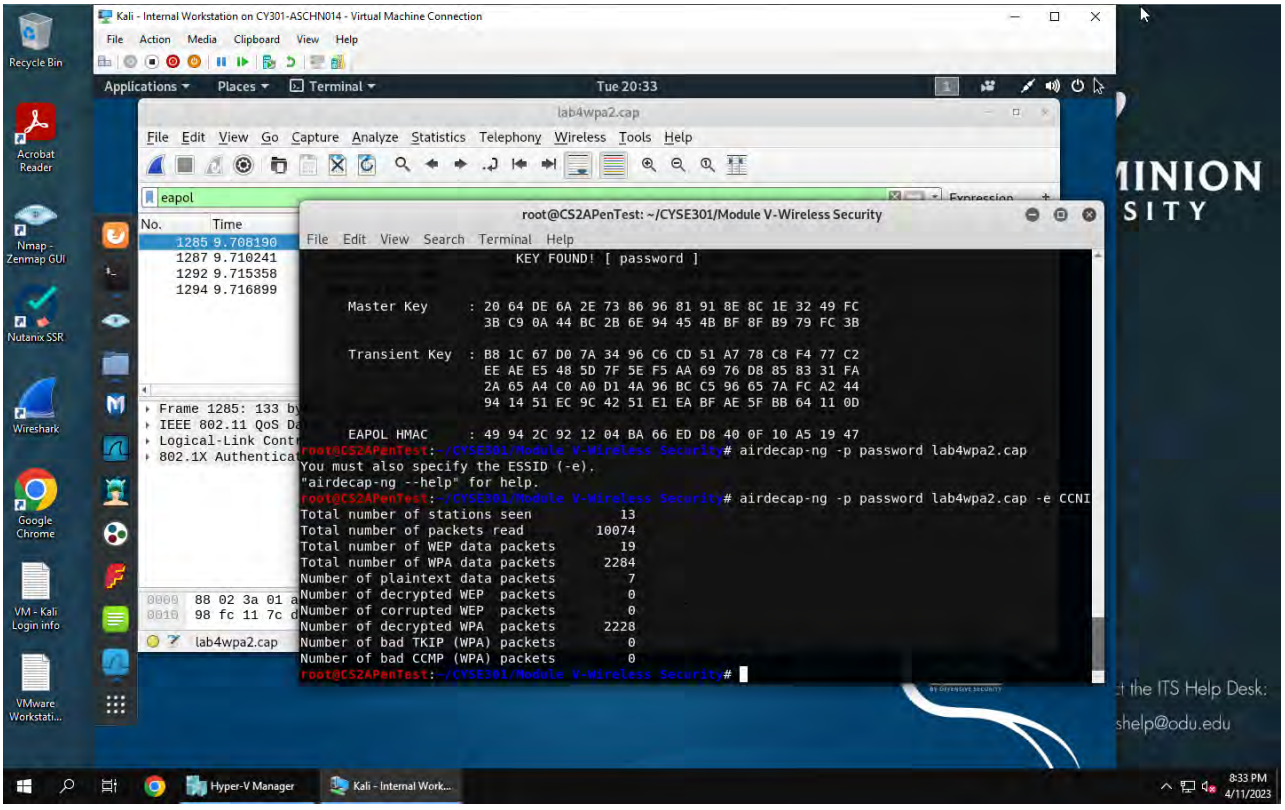
2. Decrypt the lab4wpa2. cap file (**5 points**) and perform a detailed traffic analysis (**5 points**)



Ran dictionary attack against lab4wpa2.cap using wordlist rockyou.txt



Password Cracked



Used airdecap-ng -p password labwpa2.cap -e CCNI to unencrypt .cap file.

Task D: 30 points

Each student will be assigned a new WPA2 traffic file for analysis. You need to refer to the table below and find the file assigned to you based on the LAST digit of the MD5 of your MIDAS ID. For example, the last digit of the hash for pjiang is **e**. Thus, I should pick up the file "WPA2-P5-01.cap."

*MD5 of pjiang is 5a618cdc3edffd8b4c661e7e9b70ce1**e***

You can find an online MD5 hash generator or the following command to get the hash of a text string,

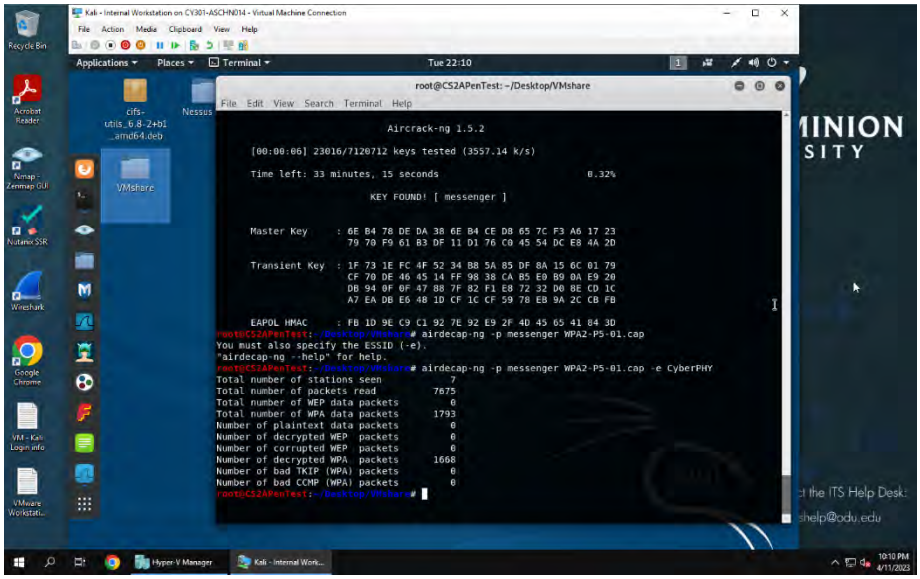
```
root@CS2APenTest:~# echo -n pjiang | md5sum
5a618cdc3edffd8b4c661e7e9b70ce1e  -
root@CS2APenTest:~#
```

Figure 1 Command to get the MD5 hash.

Last digit of your MD5	Filename
0~3	WPA2-P1-01.cap
4~5	WPA2-P2-01.cap
6~8	WPA2-P3-01.cap
9~B	WPA2-P4-01.cap
C~F	WPA2-P5-01.cap

Then complete the following steps:

1. Implement a dictionary attack and decrypt the traffic. - 20 points



Used aircrack-ng to decrypt password as “messenger” Then used command airdecap-ng -p messenger WPA2-P5-01.cap -e CyberPHY to decrypt .cap file.

2. Decrypt the encrypted traffic and write a detailed summary to describe what you have explored from this encrypted traffic file.